US Highway 395
Widen Median and Shoulder and Install Rumble Strips Project

Portion of Unincorporated San Bernardino County, California
District 08-SBd-395 (PM 39.0/45.9)
PN 0815000101
EA 08-0N9710

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

Caltrans

April 2015

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 proposed project located on US-395 (Post Mile [PM] 39.0 to PM 45.9) from 2.5 miles North of Kramer Hills to its junction with State Route 58 (SR-58) in a portion of unincorporated San Bernardino County, California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA). Caltrans is also the lead agency under the California Environmental Quality Act (CEQA). This 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.

What you should do:

- Please read this IS/EA Environmental Document.
- Additional copies of this IS/EA, as well as the related Technical Studies, are available for review at:

Boron Branch Library 26967 20 Mule Team Road Boron, CA 93516 (760) 762-5606	Adelanto Branch Library 11497 Bartlett Avenue Adelanto, CA 92301 (760) 246-5661	Caltrans District 8 Office 464 West 4th Street San Bernardino, CA 92401 (909) 383-6291

  Additionally, this IS/EA may be downloaded from the following Caltrans' District 8 website: http://www.dot.ca.gov/dist8/projects/sanbernardino/US395medianshoulders-NORTHproject/index.htm.

- Attend the Open House Public Meeting on Thursday, April 23, 2015
- We'd like to hear what you think. If you have any comments regarding the proposed project, please send your written comments to Caltrans by the deadline.
  - Send comments via postal mail to:

    California Department of Transportation
    James Shankel, Senior Environmental Planner
    464 West 4th Street, 6th Floor, MS-827
    San Bernardino, California 92401-1400

  - Send comments via email to: **US395-NORTHproject@dot.ca.gov**. Please use "395 Widen Median and Shoulder" in the subject line of the email.
- Be sure to send comments by the deadline: May 8, 2015

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the Federal Highway Administration, may: (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct all or part of the project.

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 call or write to James Shankel, Senior Environmental Planner, California Department of Transportation, District 8, 464 W. 4th Street, 6th Floor, MS 827, San Bernardino, California 92401-1400; (909) 383-6379, or use the California Relay Service 1-800-735-2929 (TTY to Voice), 1-800-735-2922 (Voice to TTY), 1-800-854-7784 (From or to Speech to Speech), or dial 711.

This page intentionally left blank.

SCH#_____
08-SBd-395-PM 39.0/45.9
PN 0815000101/ EA 08-0N9710

Widen existing roadbed to provide a 4-foot median buffer and 8-foot shoulders, install rumble strips on the centerline and shoulders, on portion of United States Highway 395 (US-395), from 2.5 miles north of Kramer Hills to just south of the State Route 58 (SR-58) intersection (Post Mile [PM] 39.0 to PM 45.9), in a portion of unincorporated San Bernardino County, California. Additionally, restore the passing lanes on northbound and southbound portions of US-395 between PM 39.0 and 42.7 that were removed in conjunction with completion of an interim project in 2014.

Initial Study with Proposed Mitigated Negative Declaration / Environmental Assessment

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

THE STATE OF CALIFORNIA
Department of Transportation

Cooperating Agencies:

Bureau of Land Management
Edwards Air Force Base

4/3/15
Date of Approval

David Bricker
Deputy District Director
District 8 Division of Environmental Planning
California Department of Transportation
CEQA Lead Agency
NEPA Lead Agency

The following person may be contacted for information concerning this document:

California Department of Transportation
James Shankel, Senior Environmental Planner
464 W. 4th St, 6th Floor, MS-827
San Bernardino, CA 92401-1400
(909) 383-6379

This page intentionally left blank.

SCH #_____

PROPOSED MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to widen the existing roadbed along United States Highway 395 (US-395) to construct a 4-foot median buffer and widen the existing shoulders to 8 feet on both sides, install rumble strips on the centerline and shoulders, and eliminate existing passing zones shorter than current standard, from 2.5 miles north of Kramer Hills to its junction with State Route (SR) 58 (between post mile [PM] 39.0 and PM 45.9) in San Bernardino County California, and to also restore the passing lanes on the northbound and southbound portions of US-395 between PM 39.0 and PM 42.7 that were removed in conjunction with completion of an interim project in 2014.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an MND for this project. This does not mean that Caltrans' decision regarding the project is final. This MND is subject to change based on comments received by interested agencies and the public.

An Initial Study has been prepared for this project, and pending public review, Caltrans expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on:

- Air Quality;
- Cultural Resources;
- Land Use and Planning;
- Population and Housing;
- Recreation;
- Traffic and Transportation.

In addition, the proposed project would have less than significant effects to:

- Emergency Services;
- Geology and Soils;
- Hydrology and Water Quality;
- Paleontological Resources;
- Natural Communities, Animal Species, or Plant Species;
- Utilities;
- Wetlands and Other Waters.

With the following mitigation measures incorporated, the proposed project would have less than significant effects to Threatened and Endangered Species:

- **BIO-46:** Off-site habitat for desert tortoise will be acquired at a 5:1 ratio to compensate for the permanent loss and temporary disturbance to desert tortoise and will be done in conjunction with Mohave ground squirrel.

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

Date

Table of Contents

Page

List of Tables

List of Figures

Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes to widen the existing roadbed along United States Highway 395 (US-395) to construct a 4-foot median buffer and widen the existing shoulders to 8 feet on both sides (northbound and southbound), install rumble strips on the centerline and shoulders, and eliminate existing passing zones that do not meet the current Caltrans design standard, from 2.5 miles north of Kramer Hills to its junction with State Route (SR) 58 (between post mile [PM] 39.0 and PM 45.9) in San Bernardino County California. The proposed project would also restore the passing lanes on the northbound and southbound portions of US-395 between PM 39.0 and PM 42.7 that were removed in conjunction with completion of an interim project in 2014.

The total length of the project on US-395 is approximately 6.9 miles. The total construction and right of way cost of the proposed Build Alternative (Alternative 1) is estimated at approximately $39,463,000. The project is programmed into the 2014 State Highway Operation and Protection Program (SHOPP) as a reservation project, under the Safety Improvement Program, in the 2016/2017 fiscal year. The proposed project is part of Project ID SBDLS01 (program ID SHP04), "GROUPED PROJECTS FOR SAFETY IMPROVMNTS - SHOPP COLLISION REDUCTION PROGRAM-PROJECTS ARE CONSISTENT WITH 40 CFR PART 93.126 EXEMPT TABLES 2 & 3 CATEGORIES -RAILROAD/HIWAY XING, SAFER NON-FED AID SYSTEM ROADS, SHOULDER IMPROVMTS, TRAFFIC CONTRL DEVICES & OPER ASSIST OTHER THAN SIGNALIZATION PROJECTS @ INDIVIDUAL INTERSECTIONS, PAVEMT MARKING DEMOS, TRUCK CLIMBING LNS O/S THE URBANIZED AREA" in the Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan/Sustainable Communities Strategy (SCAG 2012) and 2015 Federal Transportation Improvement Program (FTIP) (SCAG 2015).

Caltrans is the lead agency under the National Environmental Policy Act (NEPA). Caltrans is also the lead agency under the California Environmental Quality Act (CEQA).

BACKGROUND

US-395 is a major north-south highway between Southern California and central Oregon. From the south, US-395 starts at the junction of Interstate 15 (I-15) near the Cajon Pass in San Bernardino County and leaves Mono County in California into Nevada before reentering California in Sierra County and crossing into Oregon. The northern terminus of US-395 occurs in central Oregon, where it meets US-20 at a T-intersection. In the vicinity of the project, US-395 is a two-lane undivided conventional highway with one lane in each direction, with some passing zones. The width of the existing lanes is 12 feet, the outside shoulder widths vary from 2 to 8 feet, and one double-yellow line with recessed pavement markers separates northbound and southbound traffic at non-passing locations.

US-395 provides interstate and interregional travel for residents and commercial uses and links local communities such as Victor Valley, Adelanto, and other High Desert areas. Additionally, US-395 is a key route for accessing recreational destinations located on the east side of the Sierra Nevada mountain range. This roadway is also important to national security as it serves the Naval Air Weapons Stations at China Lake and Edwards Air Force Base. It is also a major corridor for planned logistics efforts at former George Air Force Base north of Victorville and is a major tourist and goods movement transportation corridor between I-15 and the Nevada border.

Within the project area, US-395 primarily traverses unincorporated land and undeveloped land owned by Edwards Air Force Base and the Bureau of Land Management (BLM), which is designated as "Resource Conservation" by the County of San Bernardino. At its northern project limits, where US-395 meets SR-58 at Kramer Junction, land uses are primarily commercial and are designated as "Rural Commercial."

INTERIM PROJECT

In February of 2014 an interim safety improvement project was approved by Caltrans. The interim safety project focused on the portion of US-395 between PM 38.3 and PM 42.7. It involved modifying the lane configuration by eliminating the passing lane and widening the shoulder from 2 feet to 8 feet, removing the existing centerline rumble strip and placing a new centerline and shoulder rumble strips, and repairing damaged asphalt concrete dikes. Surveys of the interim project area prior to the beginning of construction of the interim project indicated the roadway crown needed to be removed. In July of 2014, the additional work of cold-planing and overlay work necessary to place the roadway crown in the proper location was approved. The interim project work was completed in November 2014.

Figures 1-1 and 1-2, which follow, show the regional vicinity and the limits of the project. Figure 1-3 shows the design details of Alternative 1 (Build Alternative).

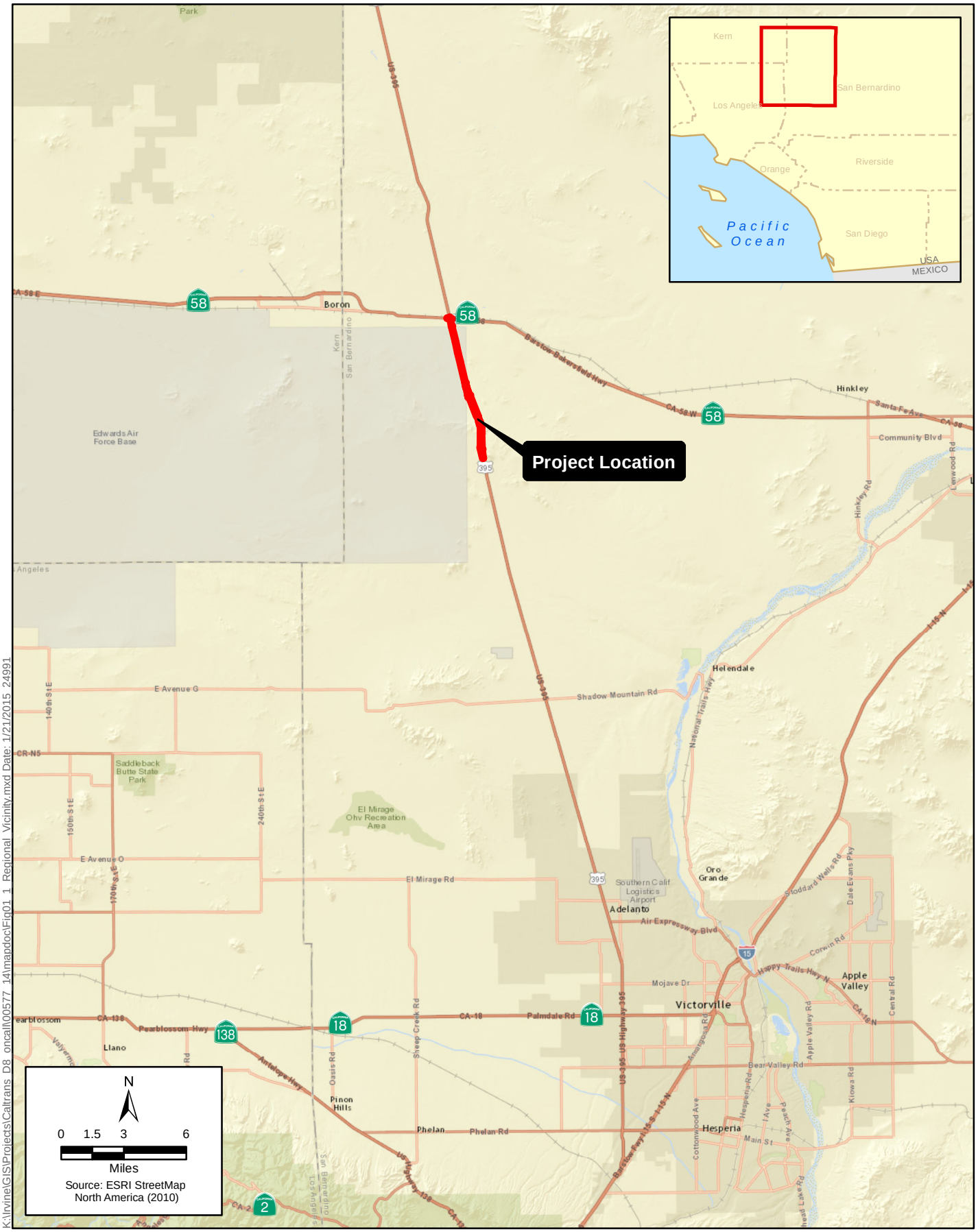


Figure 1-1
Regional Vicinity
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

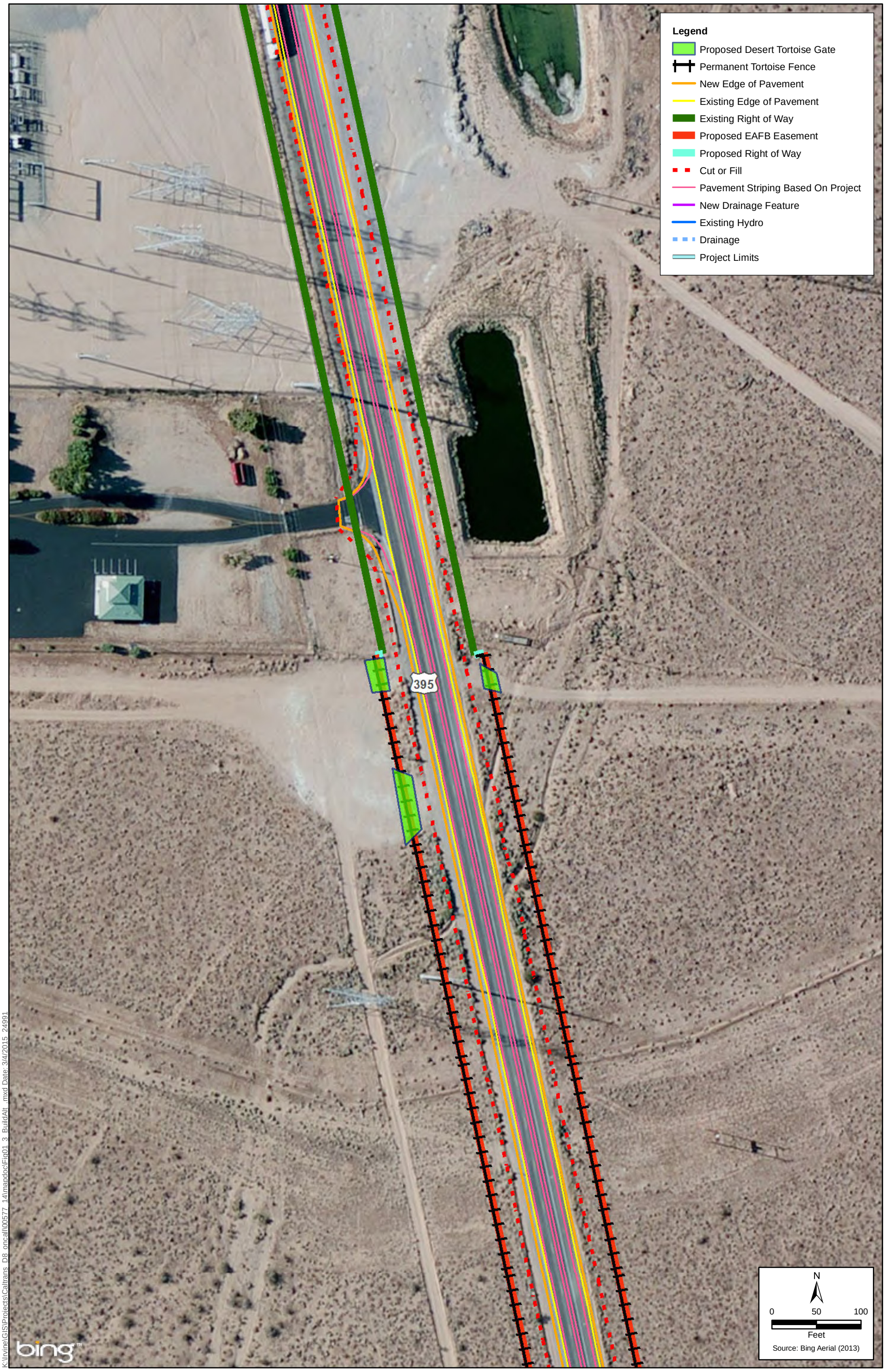
Figure 1-2 Overview
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 1 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

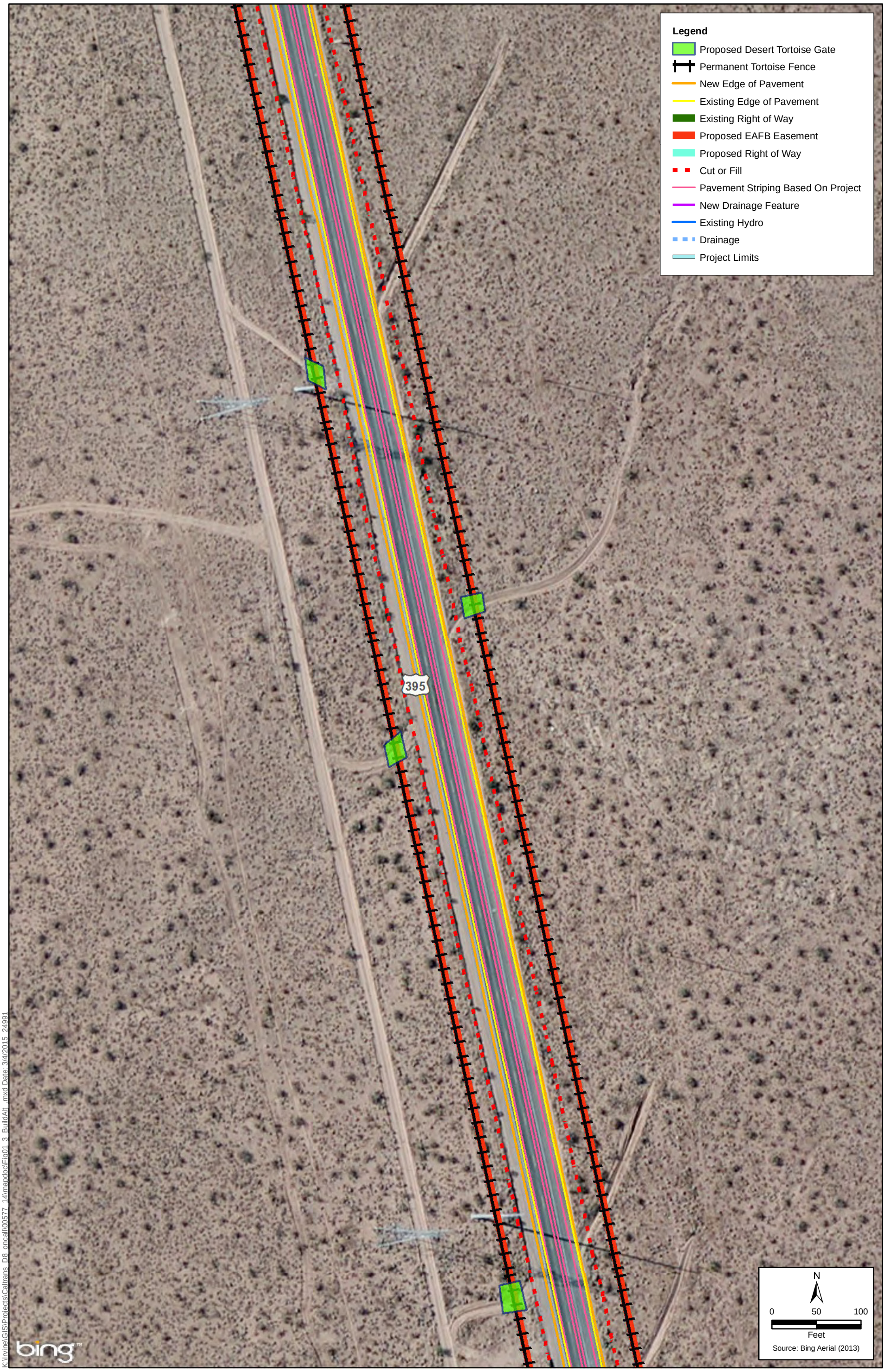
This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 2 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\000577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 3 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

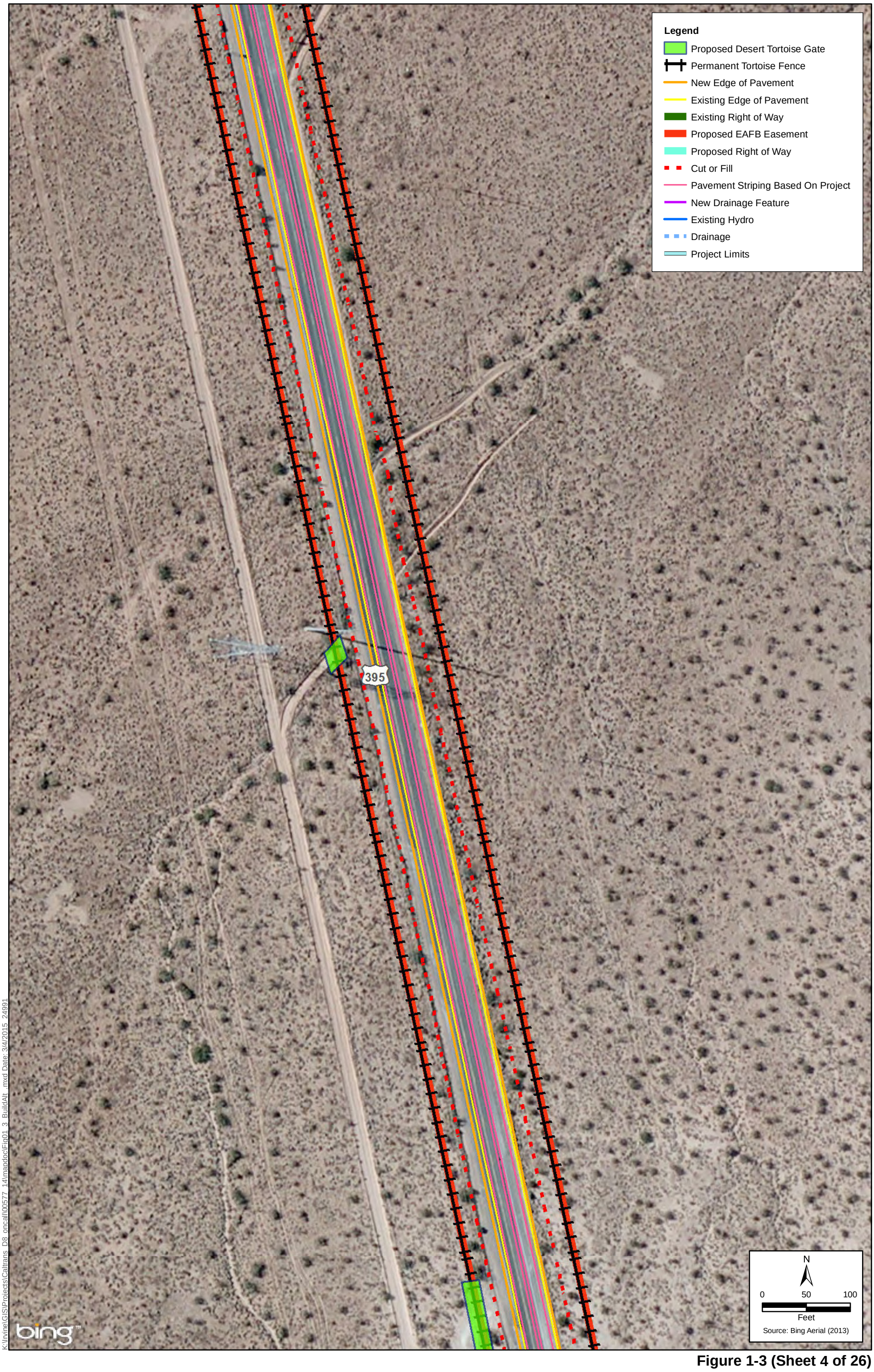


Figure 1-3 (Sheet 4 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

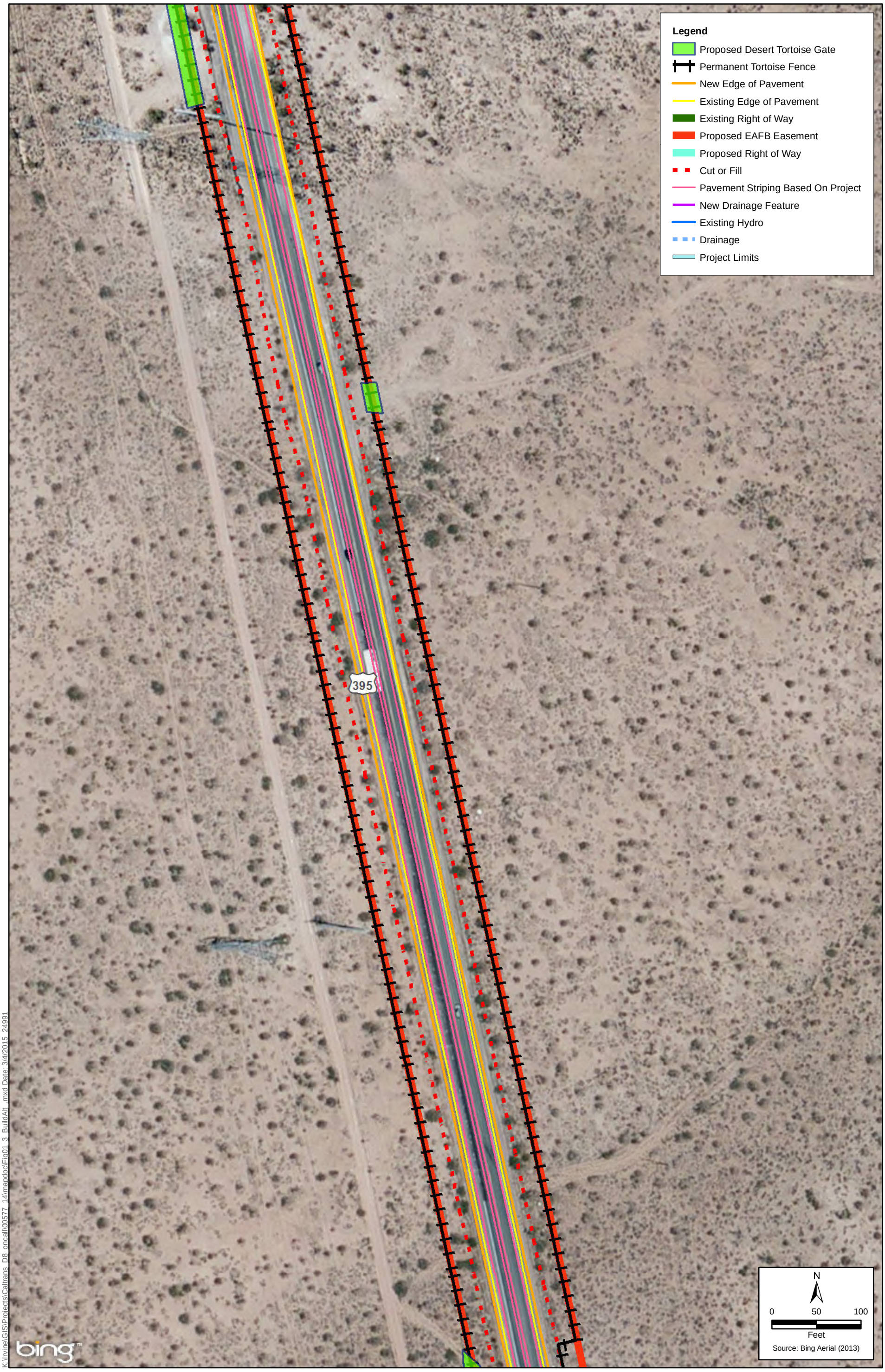


Figure 1-3 (Sheet 5 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

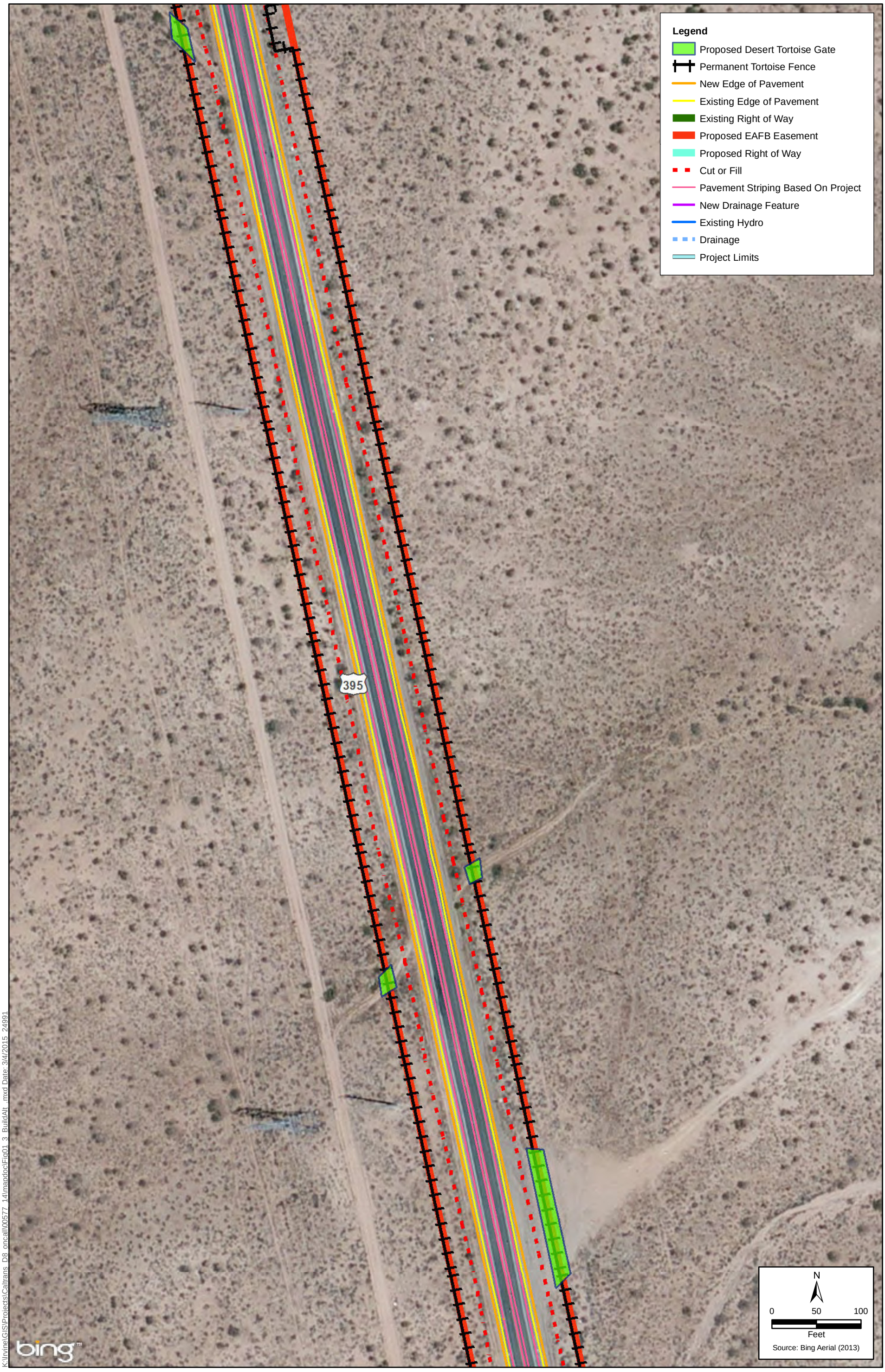


Figure 1-3 (Sheet 6 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

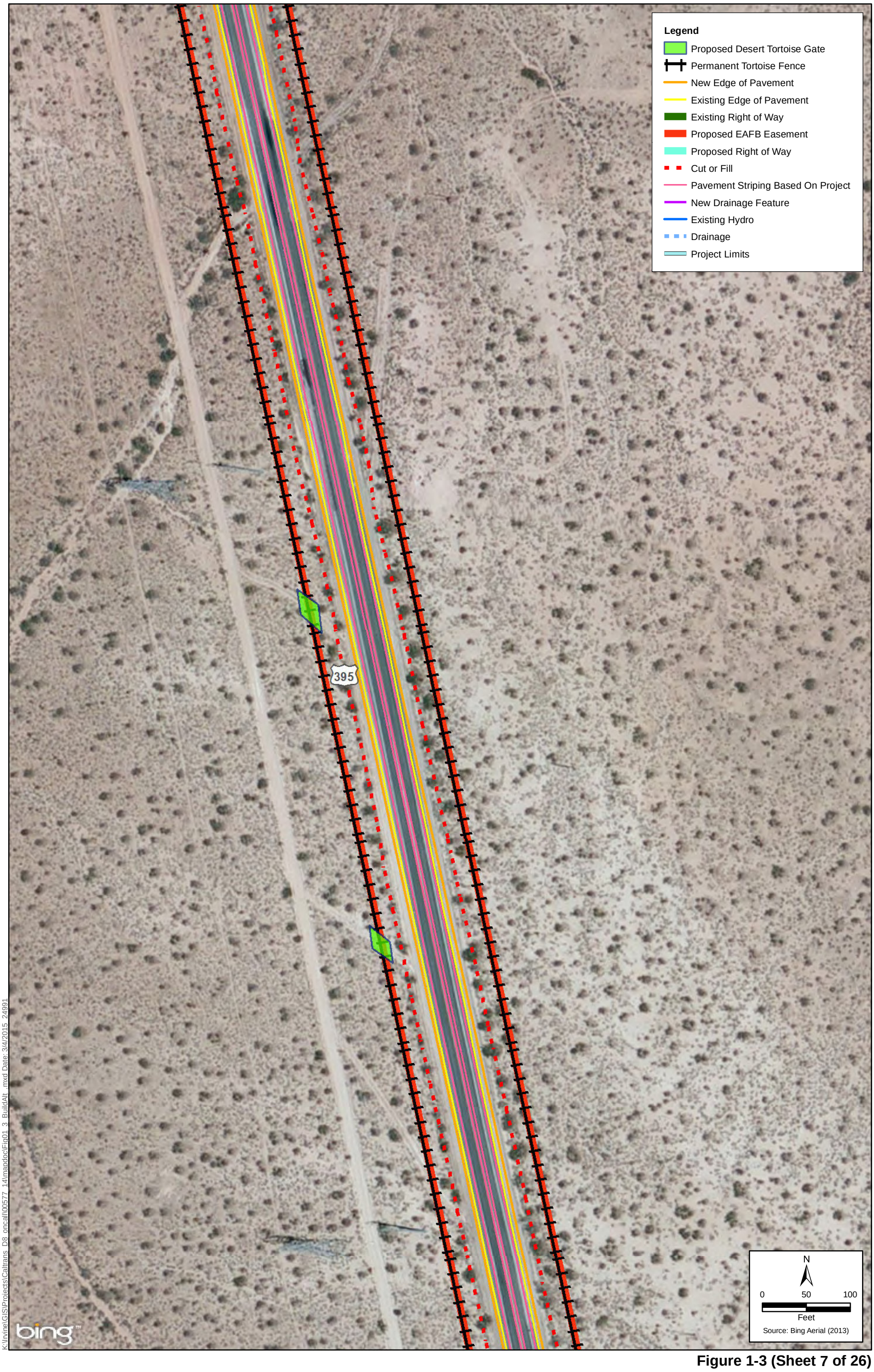


Figure 1-3 (Sheet 7 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

Figure 1-3 (Sheet 8 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

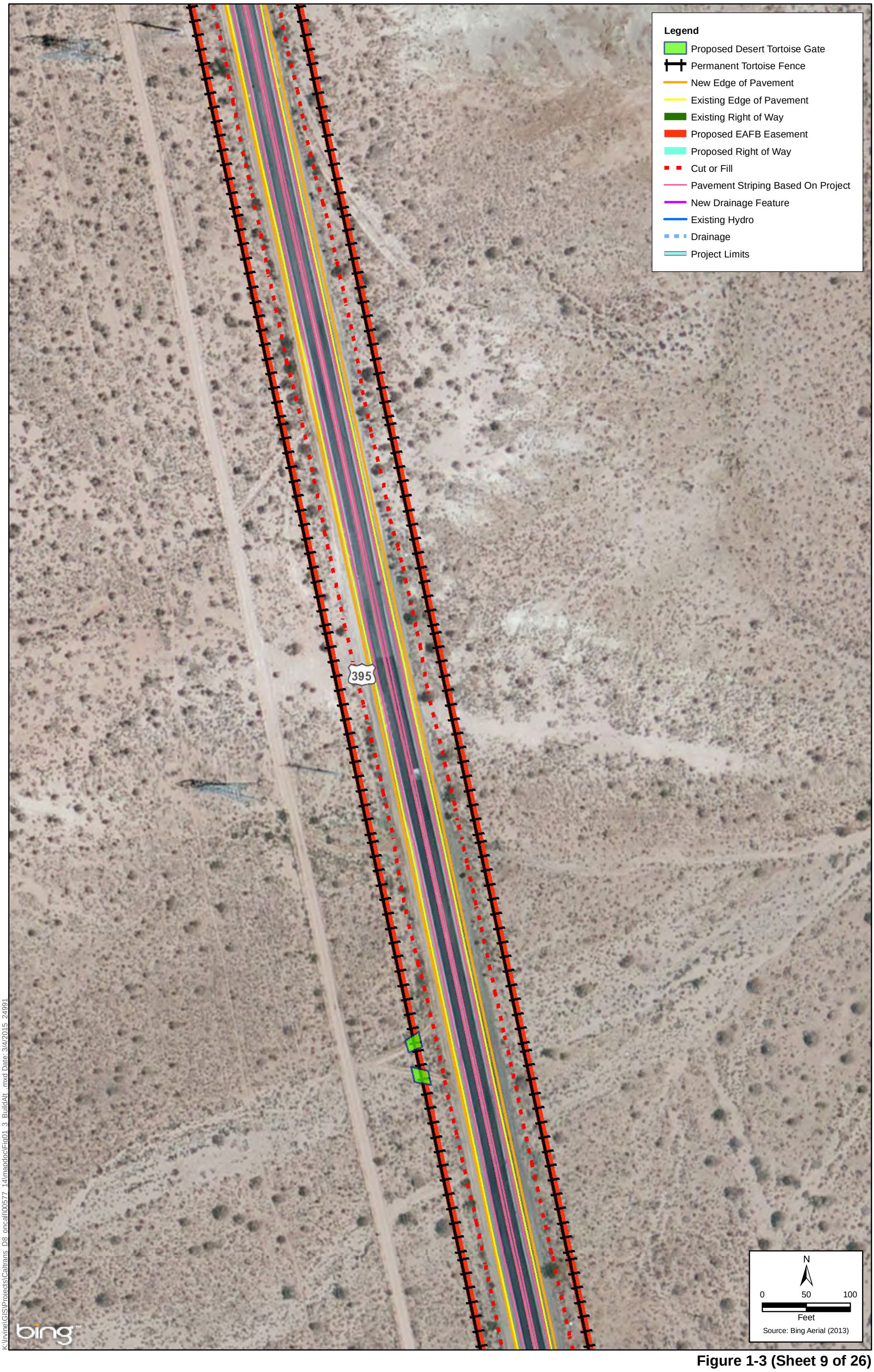


Figure 1-3 (Sheet 9 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

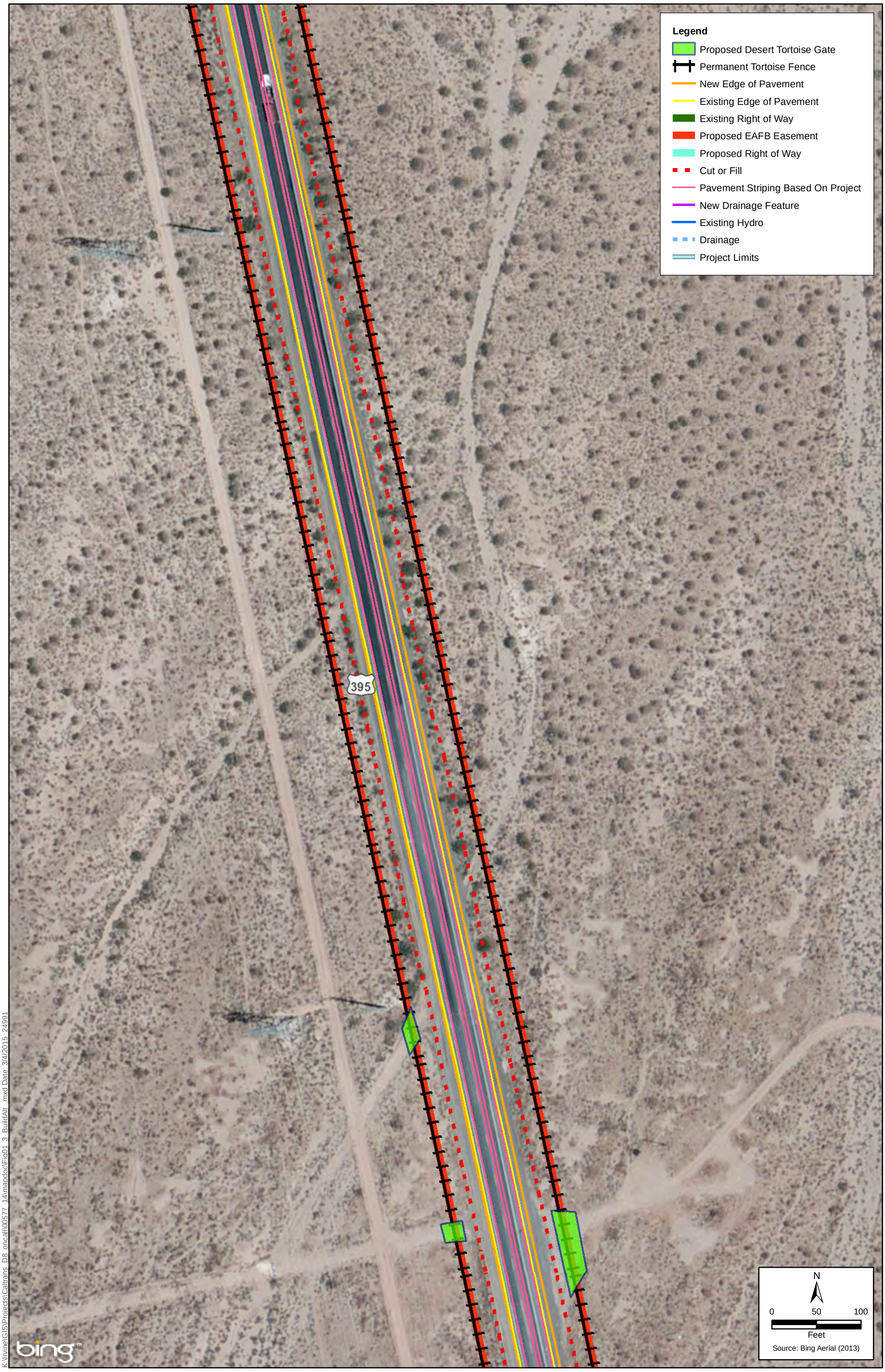
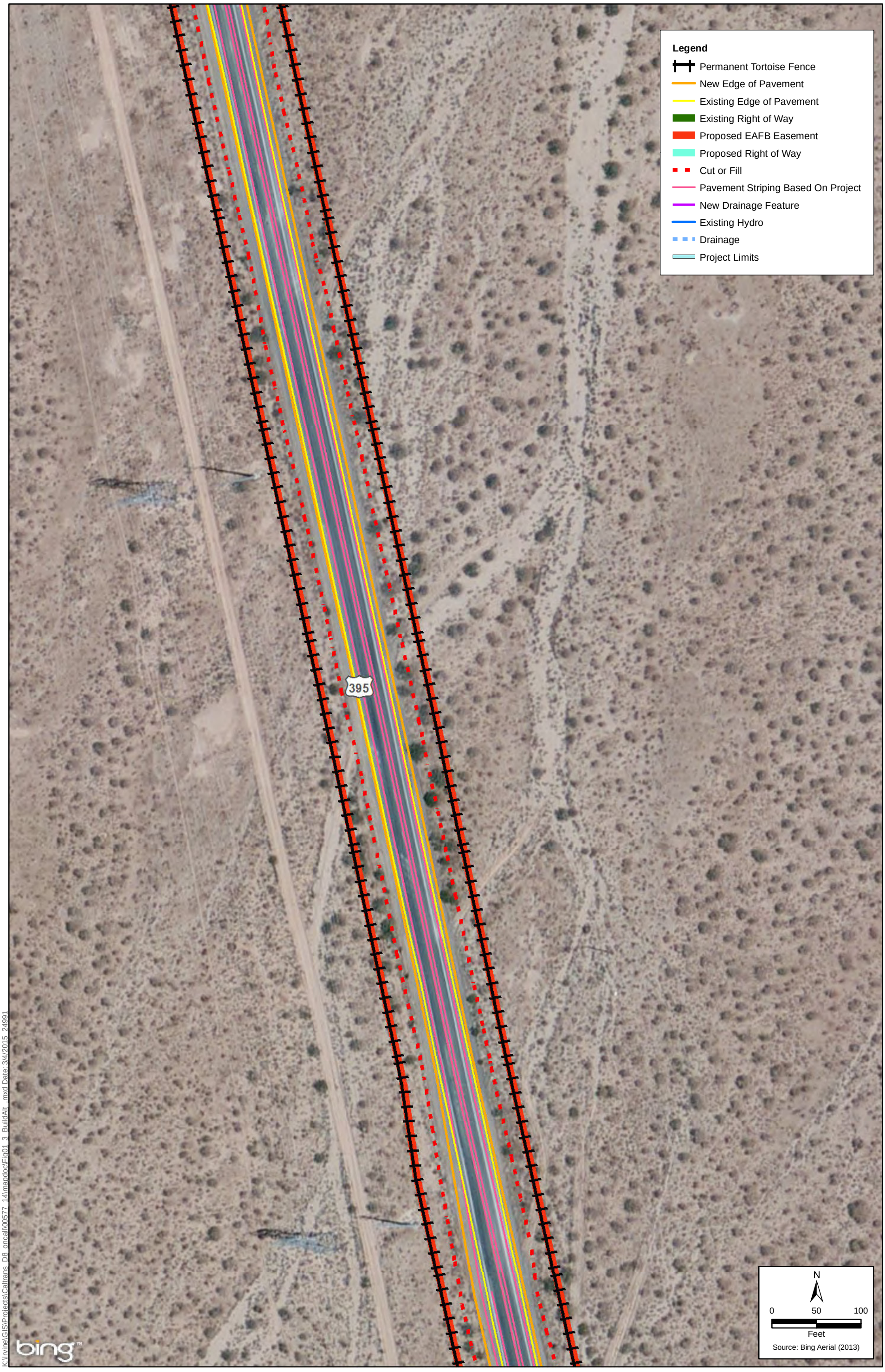


Figure 1-3 (Sheet 10 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

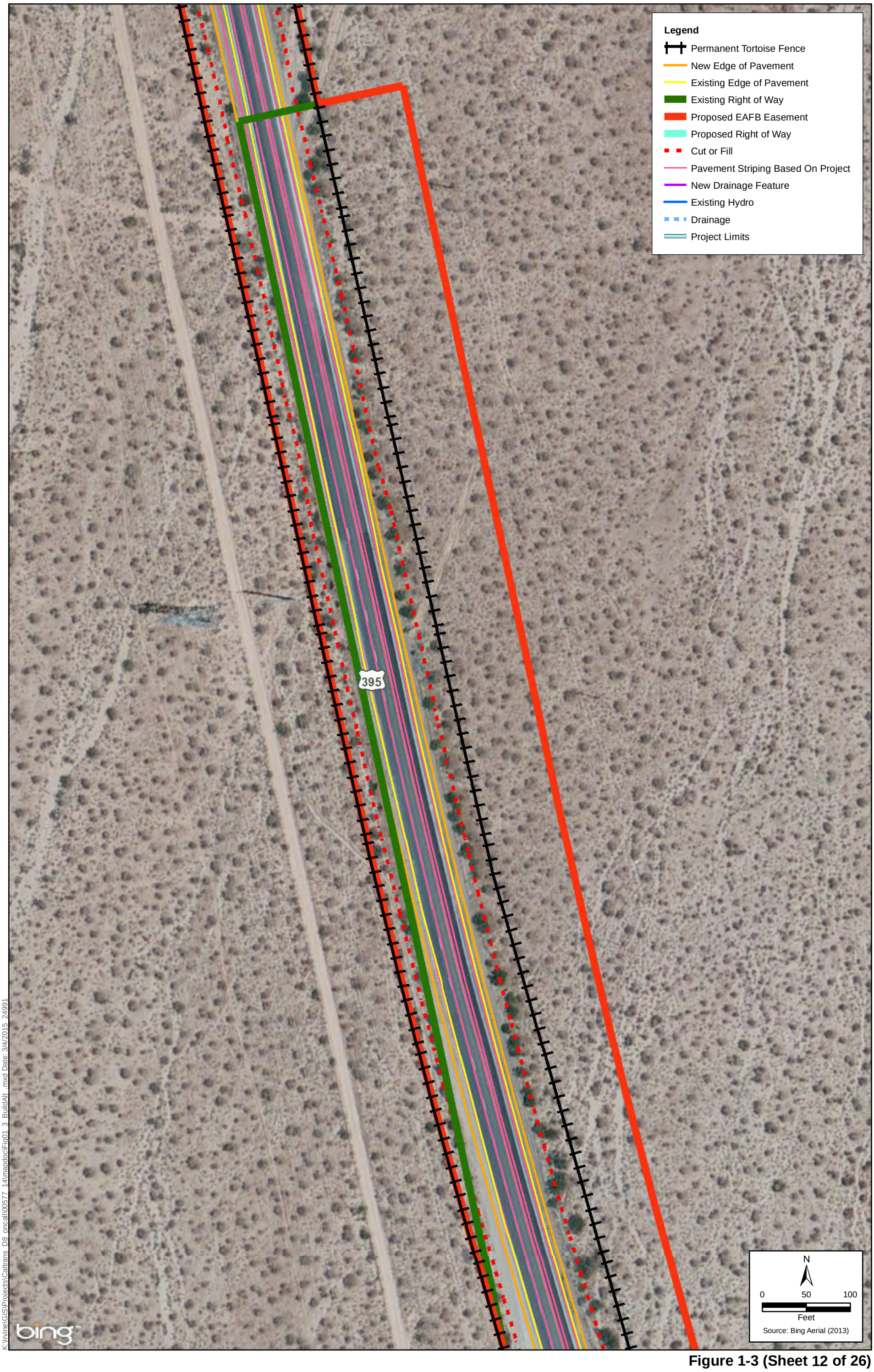
This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 11 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

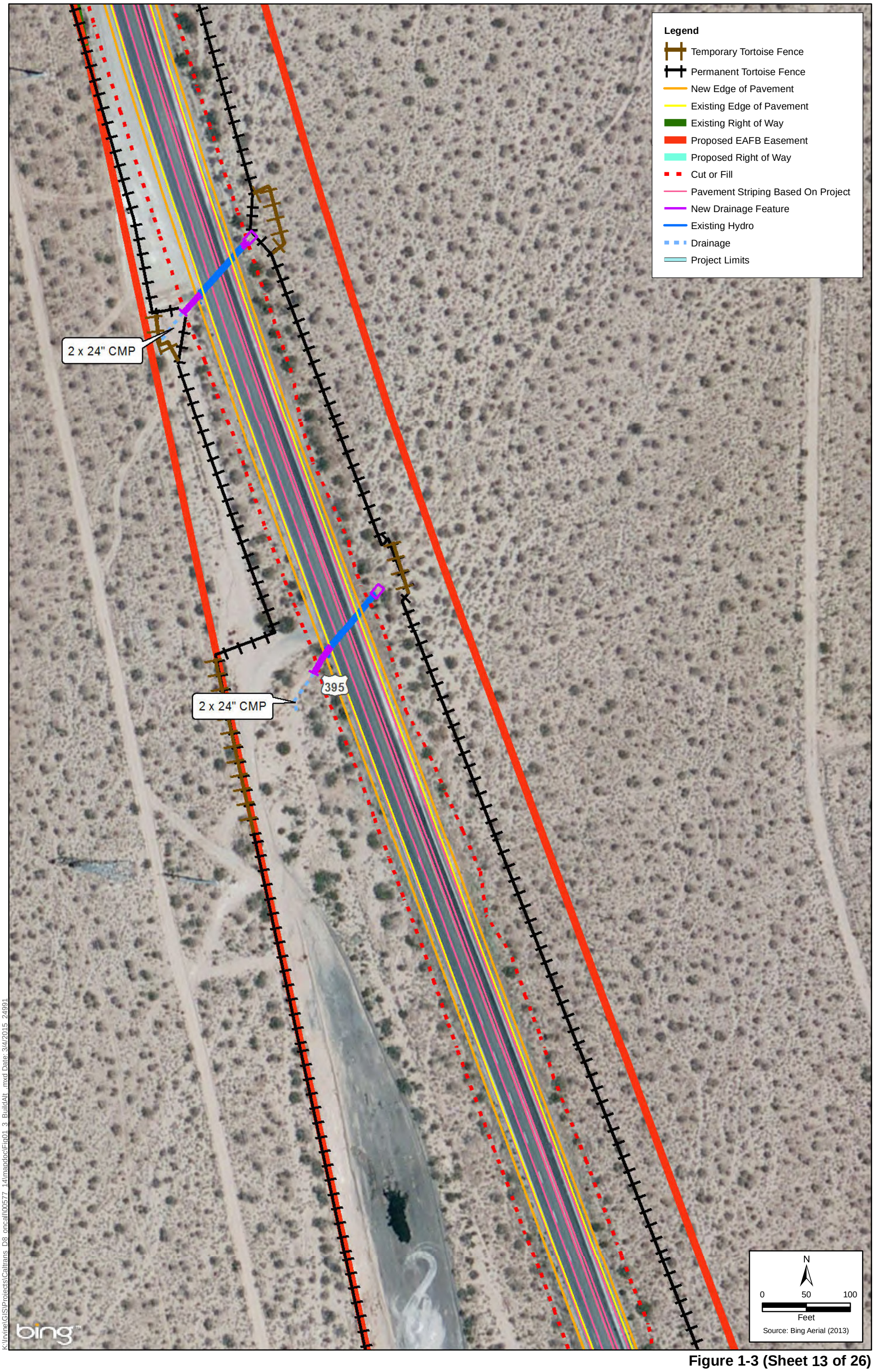
This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans D8 oncall\000577 14\mapdoc\Fig01 3 BuildAlt .mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 12 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 13 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

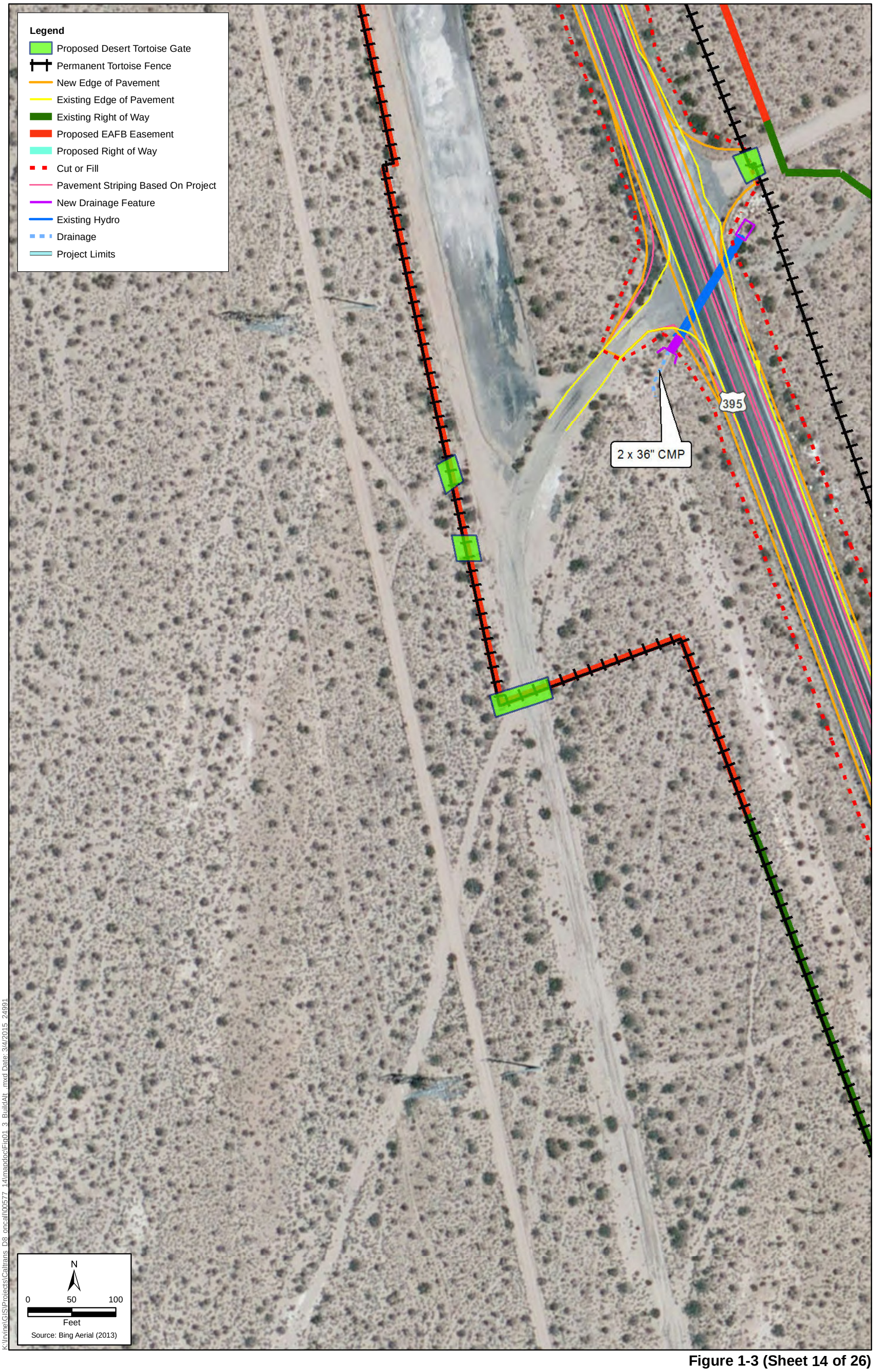


Figure 1-3 (Sheet 14 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

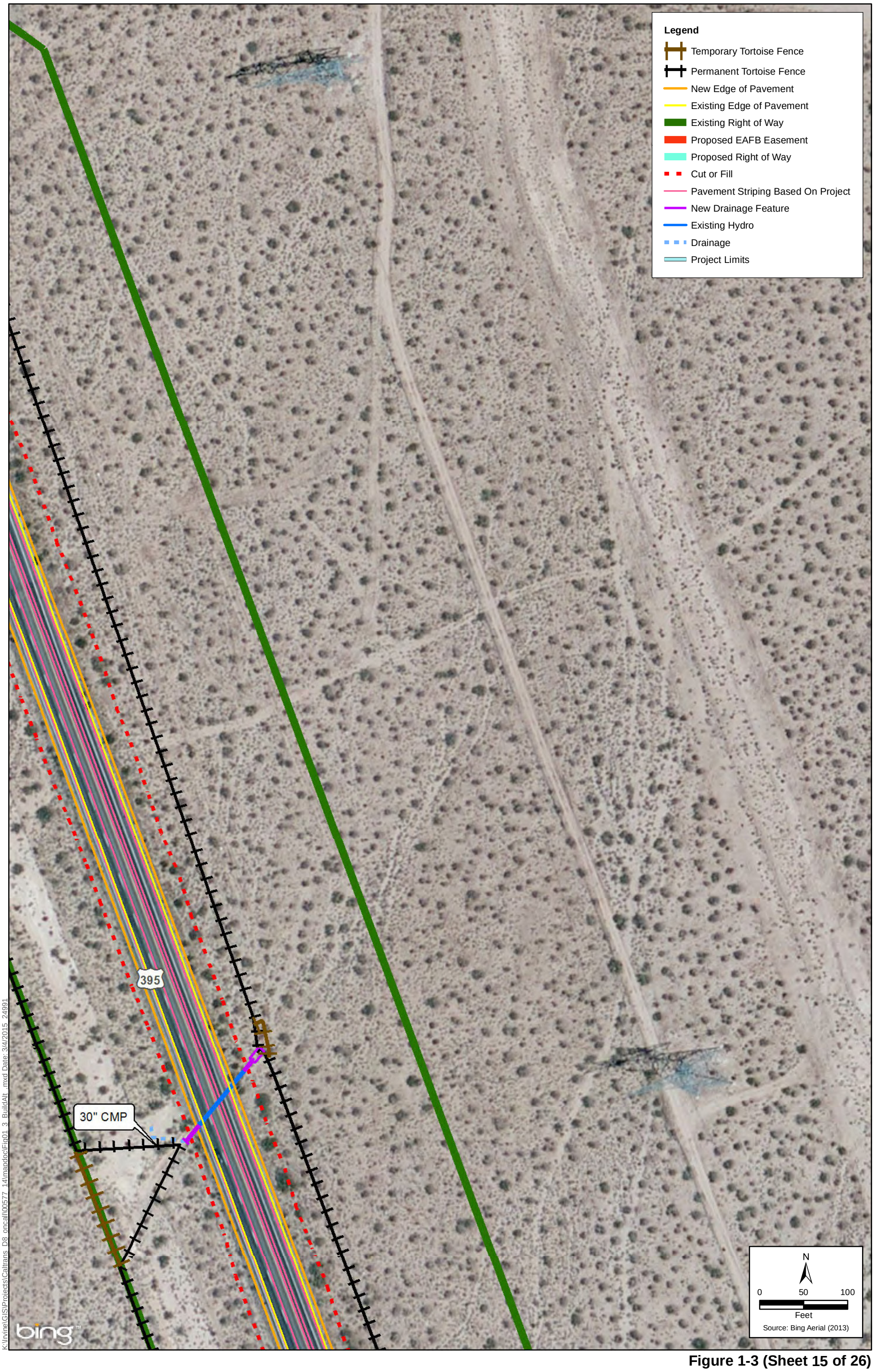


Figure 1-3 (Sheet 15 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

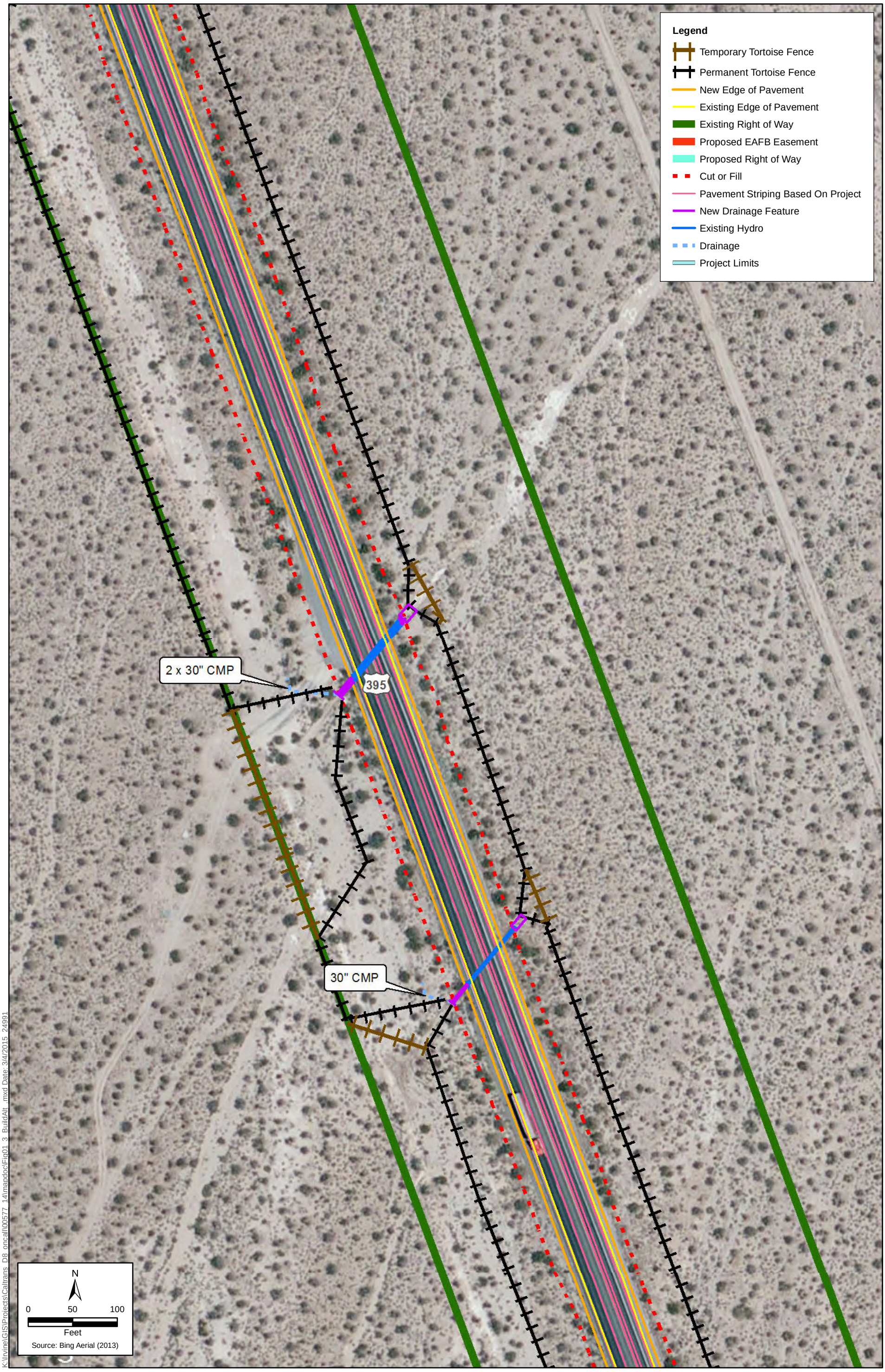
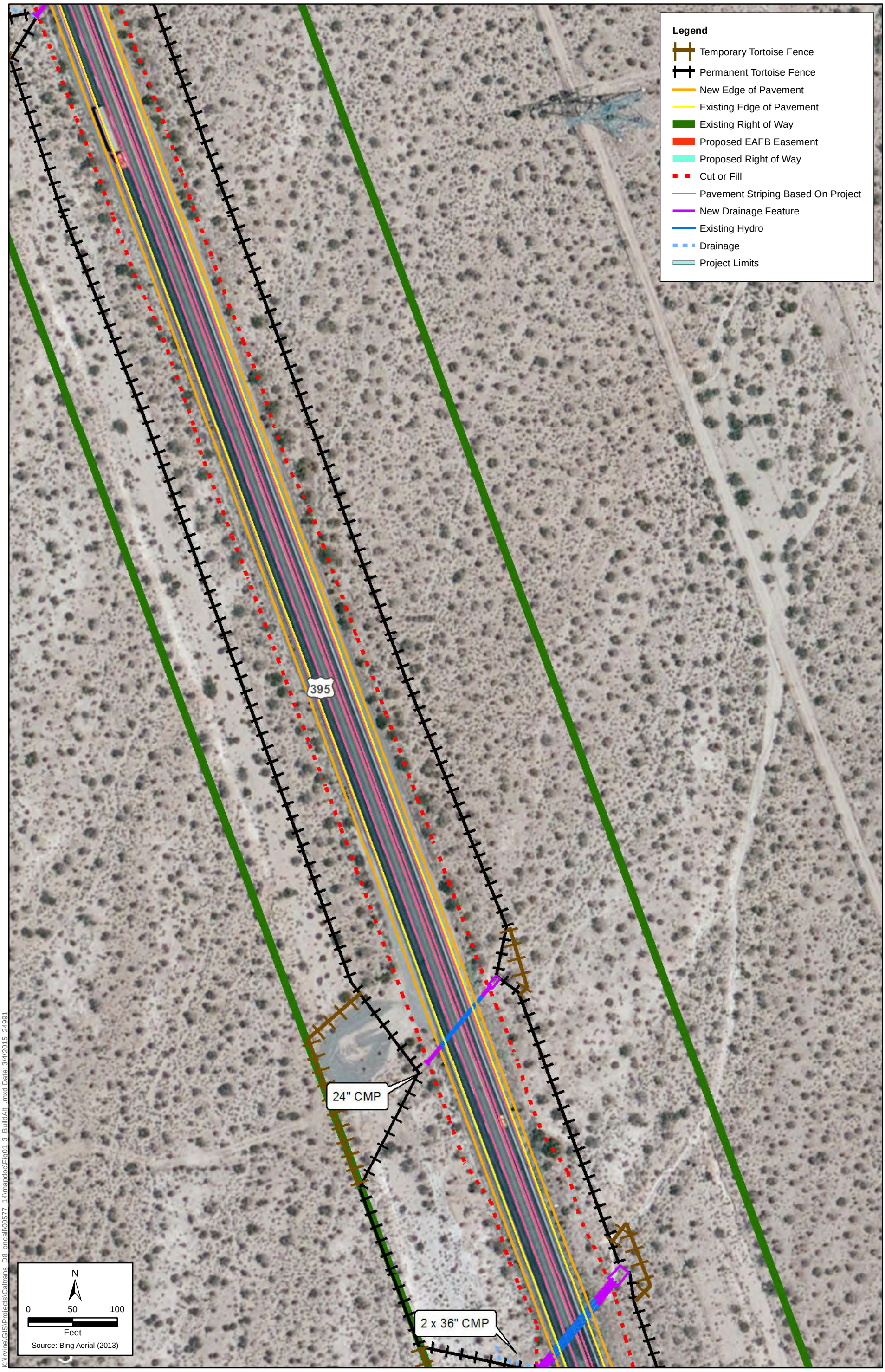


Figure 1-3 (Sheet 16 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

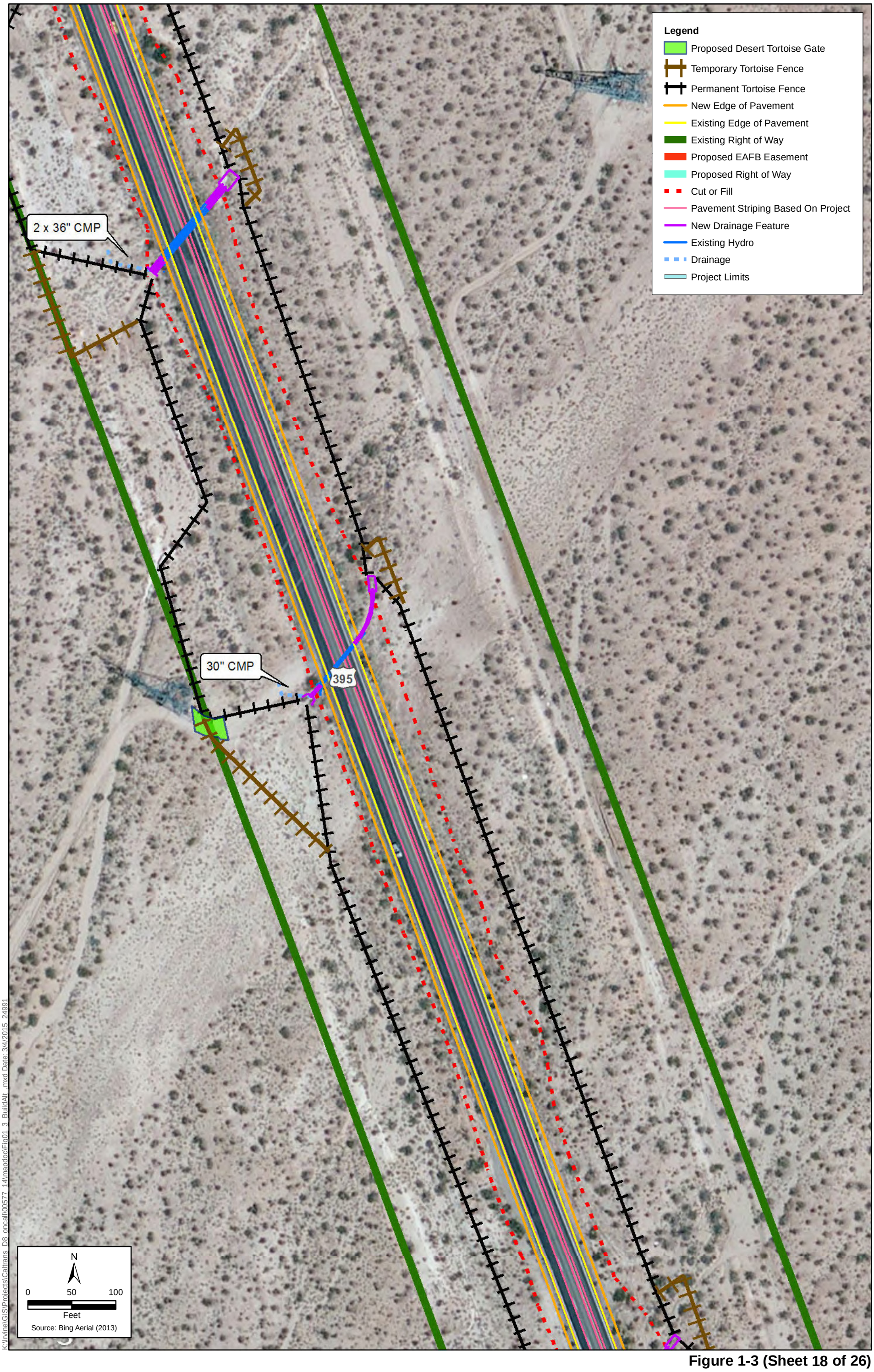
This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 17 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 18 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

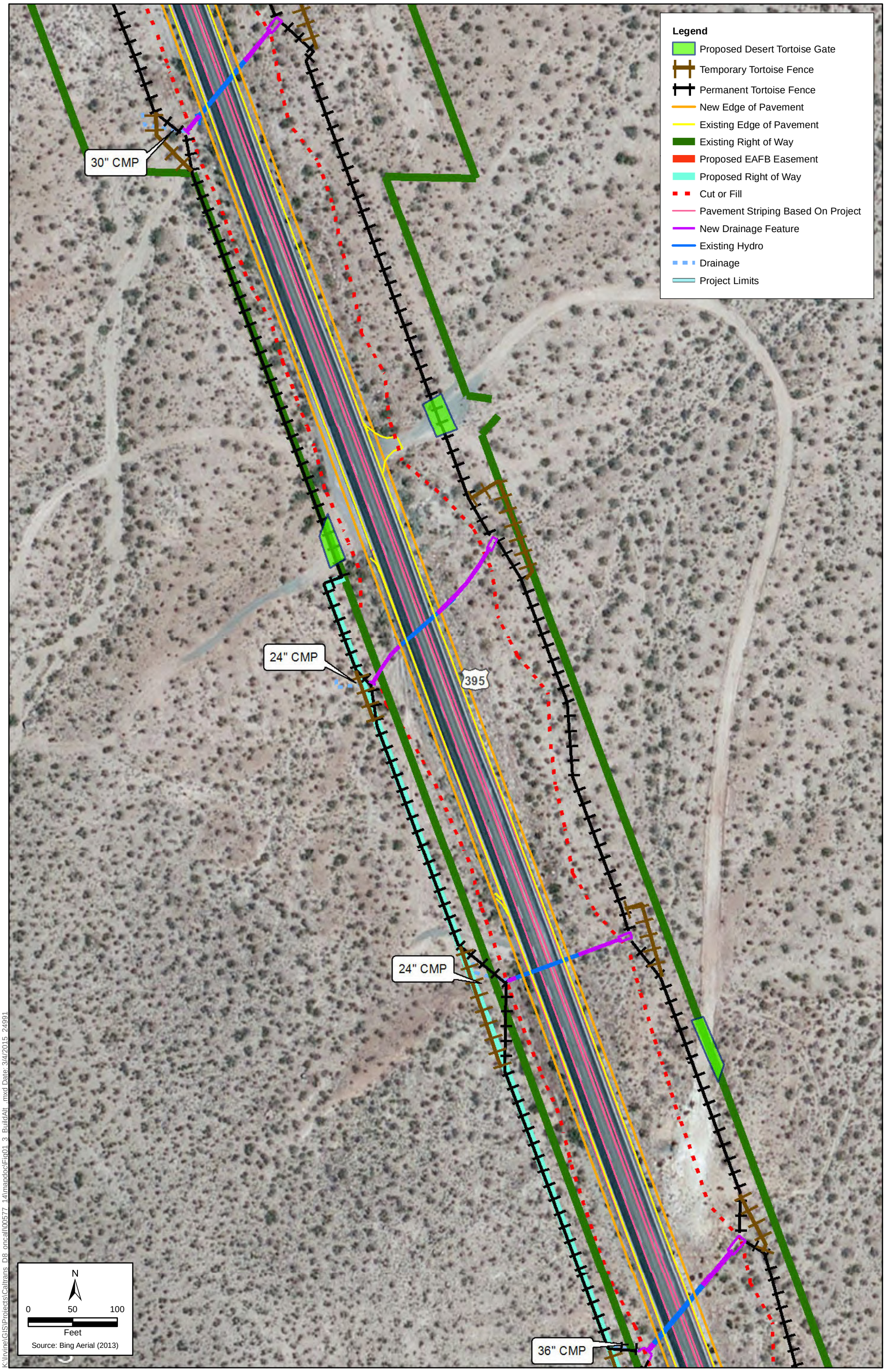


Figure 1-3 (Sheet 19 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

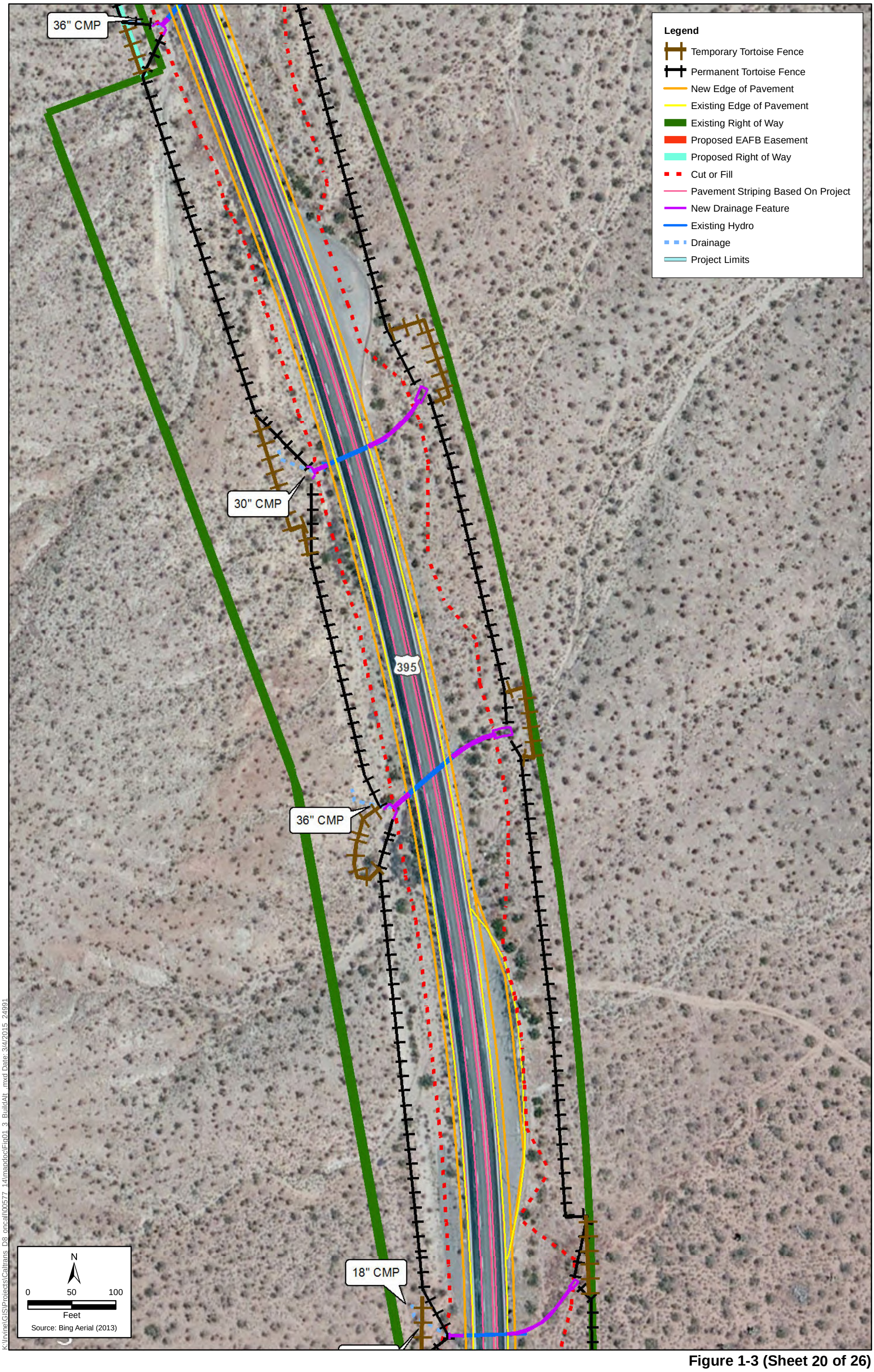


Figure 1-3 (Sheet 20 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

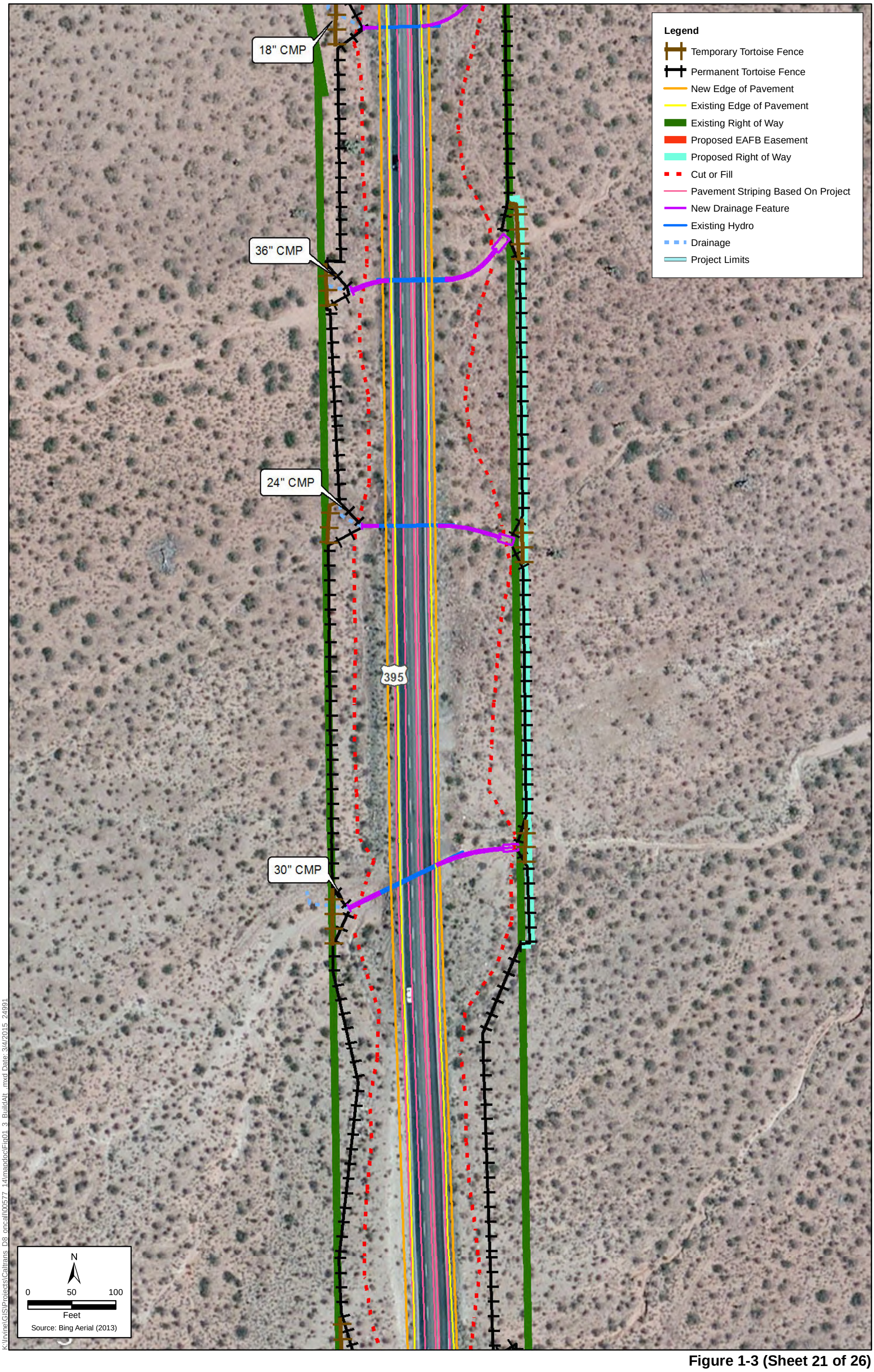


Figure 1-3 (Sheet 21 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

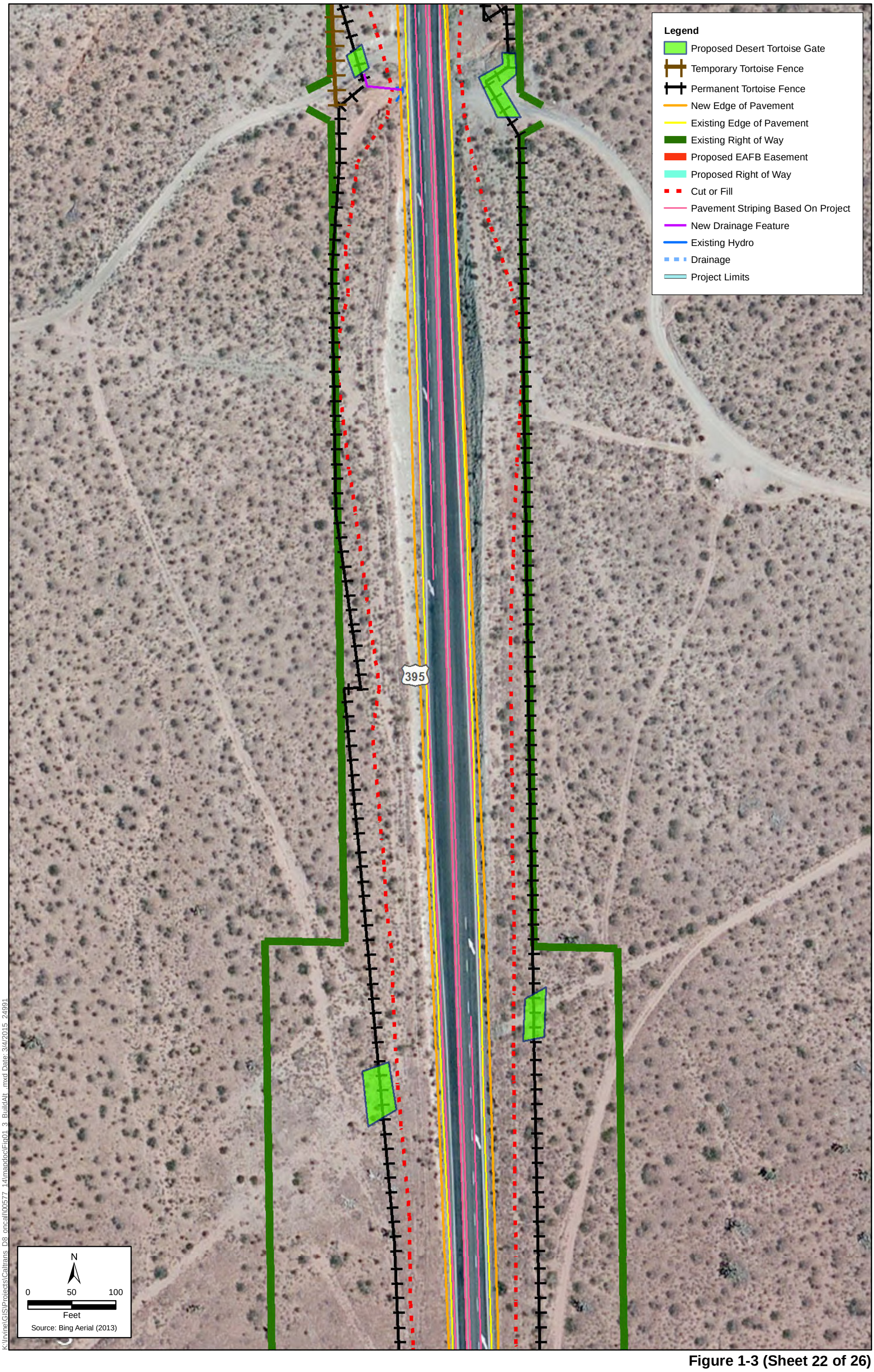
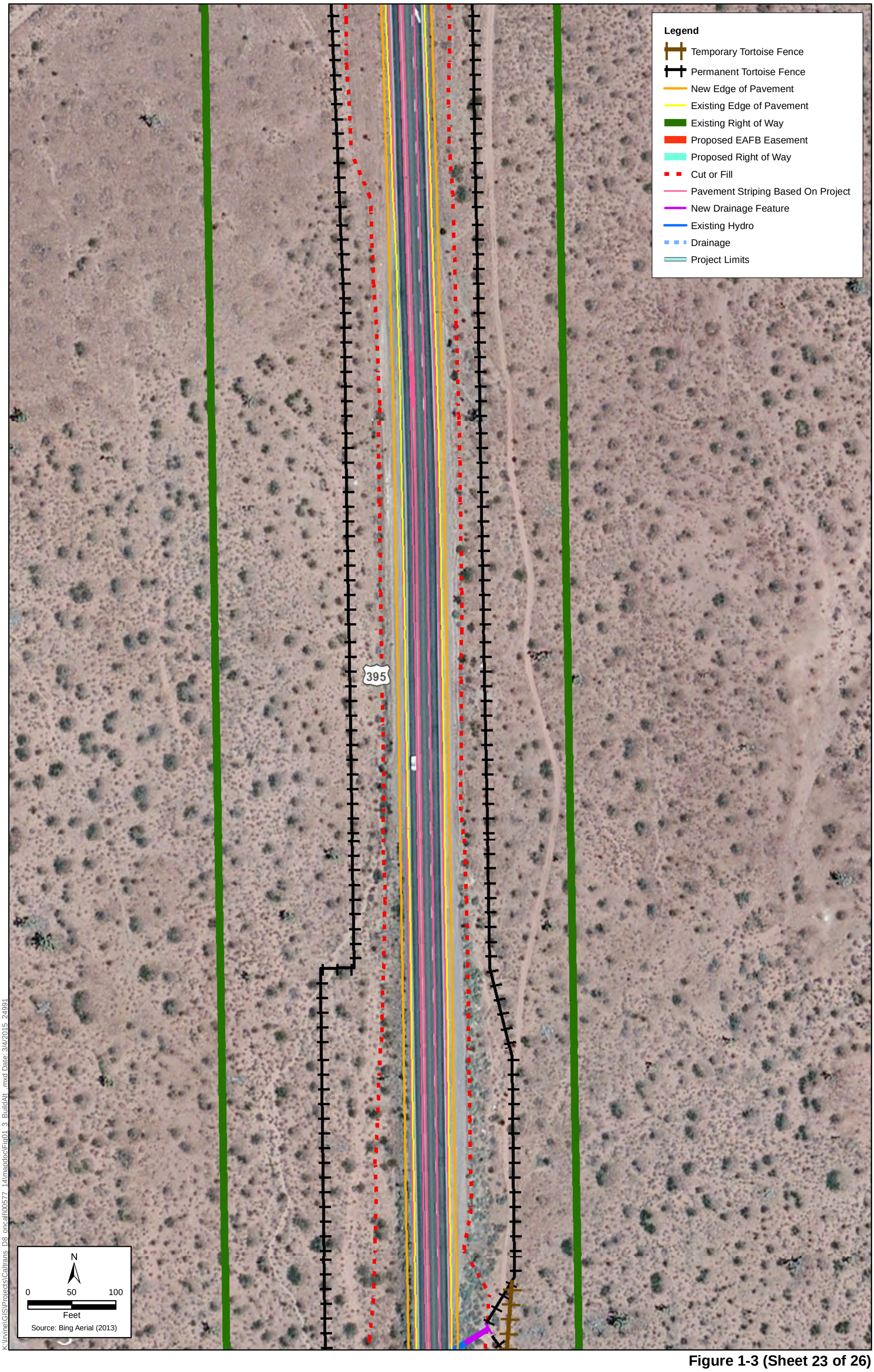


Figure 1-3 (Sheet 22 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 23 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

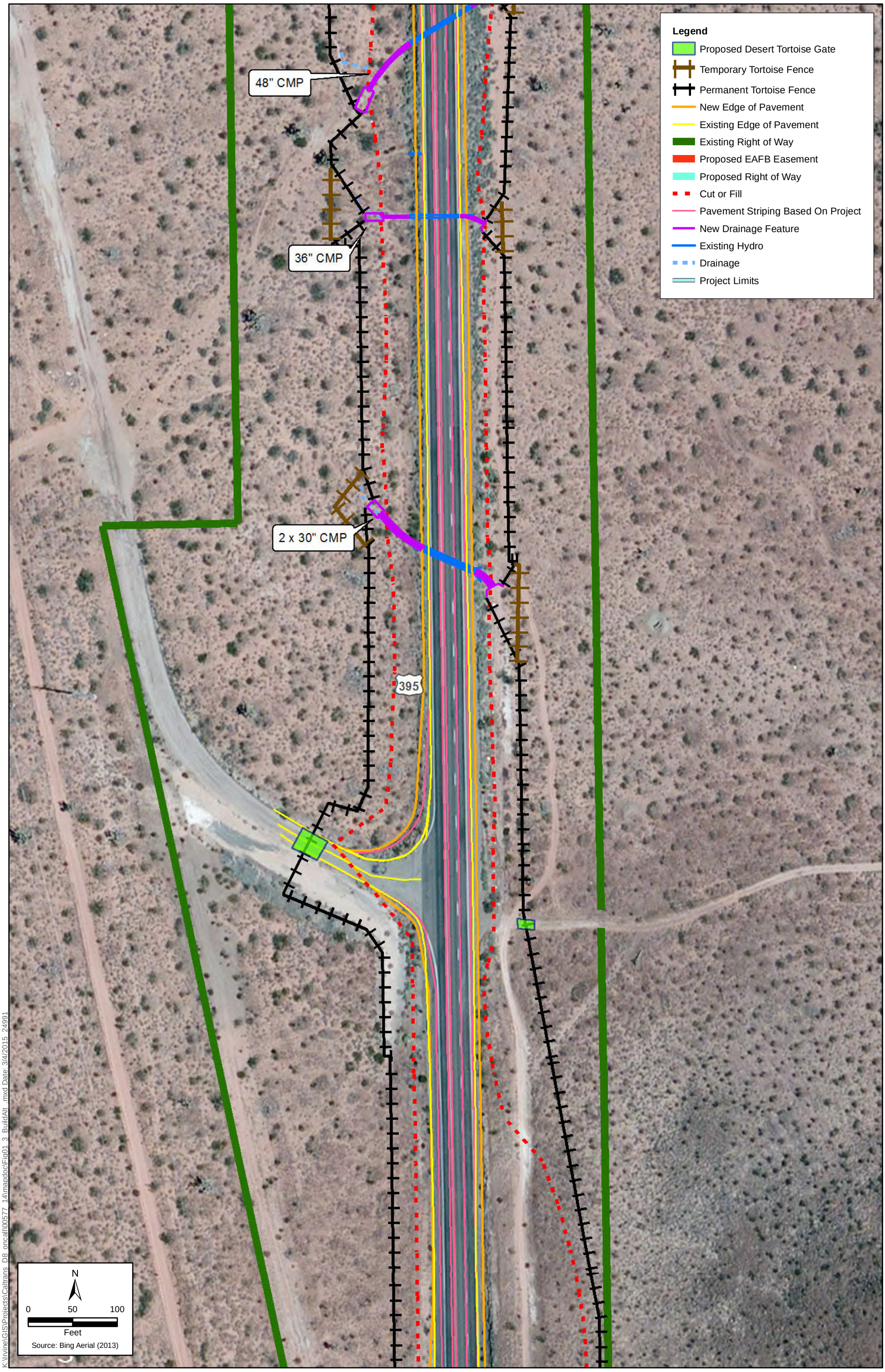
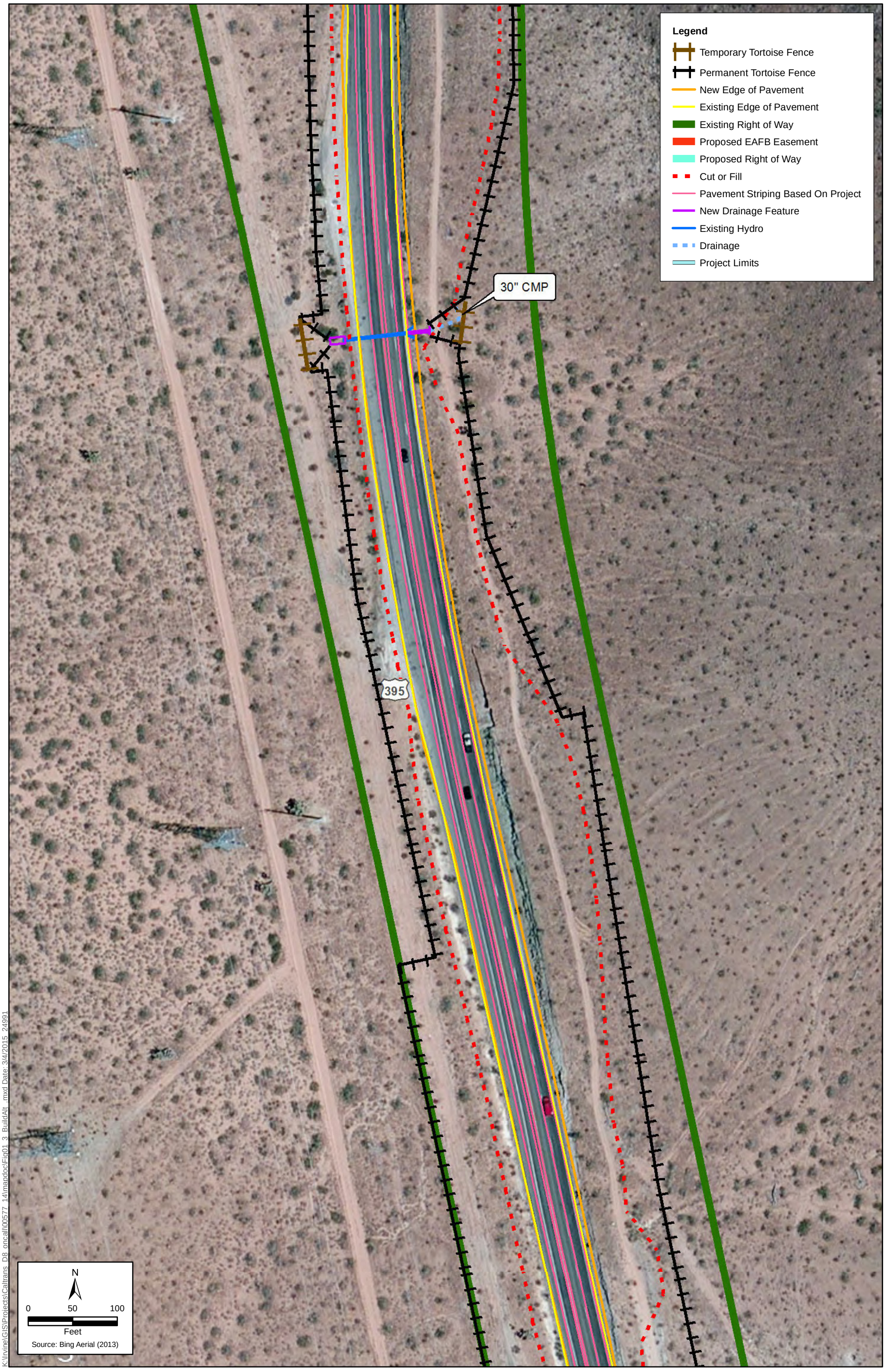


Figure 1-3 (Sheet 24 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

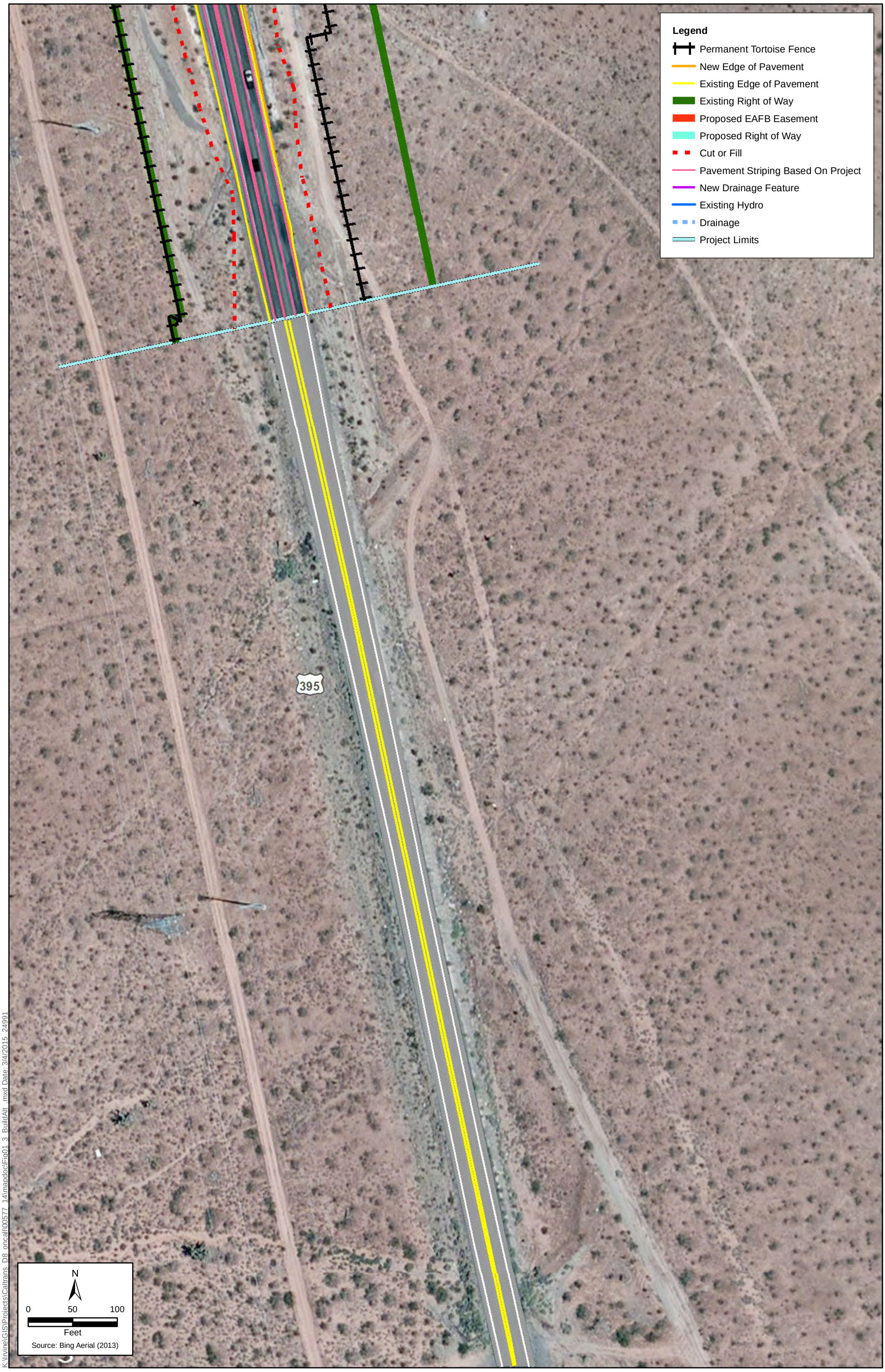
This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 25 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.



K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00577_14\mapdoc\Fig01_3_BuildAlt_.mxd Date: 3/4/2015 24991

Figure 1-3 (Sheet 26 of 26)
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

1.2 Purpose and Need

PROJECT PURPOSE

The purpose of the proposed US-395 Widen Median and Shoulders and Install Rumble Strips Project is to reduce the number and severity of collisions on US-395.

PROJECT NEED

System Safety Needs

Within the project limits, US-395 is a two-lane undivided highway with existing right shoulders varying from 2 feet to 8 feet. This portion of the highway is located in relatively flat terrain with a few horizontal curves**.**

Table 1-1 provides a summary of accidents on US-395 within the limits of the proposed project, according to Caltrans's Traffic Accident Surveillance and Analysis System (TASAS) accident data for the 36-month period from January 1, 2010 through December 31, 2012.

Table 1-1 indicates that the actual fatal and actual total accident rates for this segment of roadway are lower than the statewide average for a similar type of facility. However, the actual fatal plus injury rate is higher than the statewide average.

The types of collisions were 3.7% head on, 3.7% rear end, 3.7% broadside, 51.9% hit object, 33.3% overturn, and 3.7% other violations. The primary collision factors were 3.7% failure to yield, 81.5% improper turn, 3.7% speeding, 7.4% other violation, and 3.7% other than driver. The locations of collisions were 55.6% beyond the driver's shoulder to the right and 29.6% beyond the driver's shoulder to the left.

Table 1-1. US-395 TASAS Data

US-395 Accident Data: 1/1/2010-12/31/2012					
US-395 from PM 39.0 to 45.9					
Actual Rate [a]			**Average Rate [a]**		
Fatal	Fatal +Injury	Total	Fatal	Fatal +Injury	Total
0.000	0.31	0.49	0.0017	0.27	0.62
[a] Per million vehicle miles Source: Draft Project Report (April 2015)					

Public Safety

This project is expected to reduce the number and severity of cross-centerline and run-off-the-road accidents through the installation of a 4-foot median buffer, rumble strips, a clear recovery zone, and full standard shoulder widths on both sides of US-395 within the project limits.

The proposed 4-foot median buffer would increase separation between opposing traffic streams, the wider shoulders would provide increased recovery zone for errant vehicles, and together the

median buffer and wider shoulders would improve sight distance and maneuverability. The proposed rumble strips would act as audible and vibrating warning devices to inattentive or sleepy drivers. In addition, replacing the pavement markers and re-striping will enhance the visibility of pavement delineation.

MODAL INTERRELATIONSHIPS AND SYSTEM LINKAGES

US-395 is classified as a "high emphasis route" under the Inter-Regional Road System (IRRS). The IRRS is a system of roads or projects that provide interregional connections to all economic centers in the state. US-395 is also part of the Strategic Highway Network (STRAHNET) and is listed in the National Network under the Surface Transportation Assistance Act (STAA) for trucks, which allows oversized trucks on designated routes[1]. Currently 18% of vehicles on US-395 are trucks, some of them oversized.

US-395 also provides a connecting link between ground transport and rail transport facilities. Rail cargo yards closest to the project area include the Burlington Northern Santa Fe (BNSF) Barstow Rail Yard (29 miles to the east), the Union Pacific Yermo Rail Yard (40 miles to the east), the BNSF Victorville Rail Yard (34 miles to the south), the Southern Pacific San Bernardino Rail Yard (60 miles to the south), and the BNSF San Bernardino Rail Yard (63 miles to the south). The Barstow and Yermo rail yards are connected by a rail corridor that eventually connects to Port Hueneme to the northwest. The southern rail yards also connect to each other and are linked to the Ports of Los Angeles and Long Beach.

INDEPENDENT UTILITY AND LOGICAL TERMINI

Federal Highway Administration (FHWA) regulations (23 Code of Federal Regulations [CFR] 771.111 [f]) require that a proposed project:

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

Logical termini are expected to encompass an entire project. Cutting a larger project into smaller projects may be considered "improper segmentation" under NEPA. A project must have independent utility; that is, a project must be able to function on its own, without further construction of an adjoining segment.

The proposed project can be constructed independently of other transportation improvements in the area and, conversely, other transportation projects are not dependent on this proposed project for their implementation.

[1] Oversized trucks are those greater than 14'6" in height, 12' in width, and 90' in length (Caltrans 2015).

1.3 Project Description

This section describes the proposed action and the project alternatives that were developed to meet the identified purpose and need of the project, while avoiding or minimizing environmental impacts. For the proposed project, a Build Alternative and a No-Build Alternative have been studied.

The proposed project is located on US-395, from 2.5 miles north of Kramer Hills to its junction with SR-58 in San Bernardino County (Figures 1-1, 1-2, and 1-3). The purpose of the proposed project is to reduce the number and severity of collisions on US-395.

ALTERNATIVES

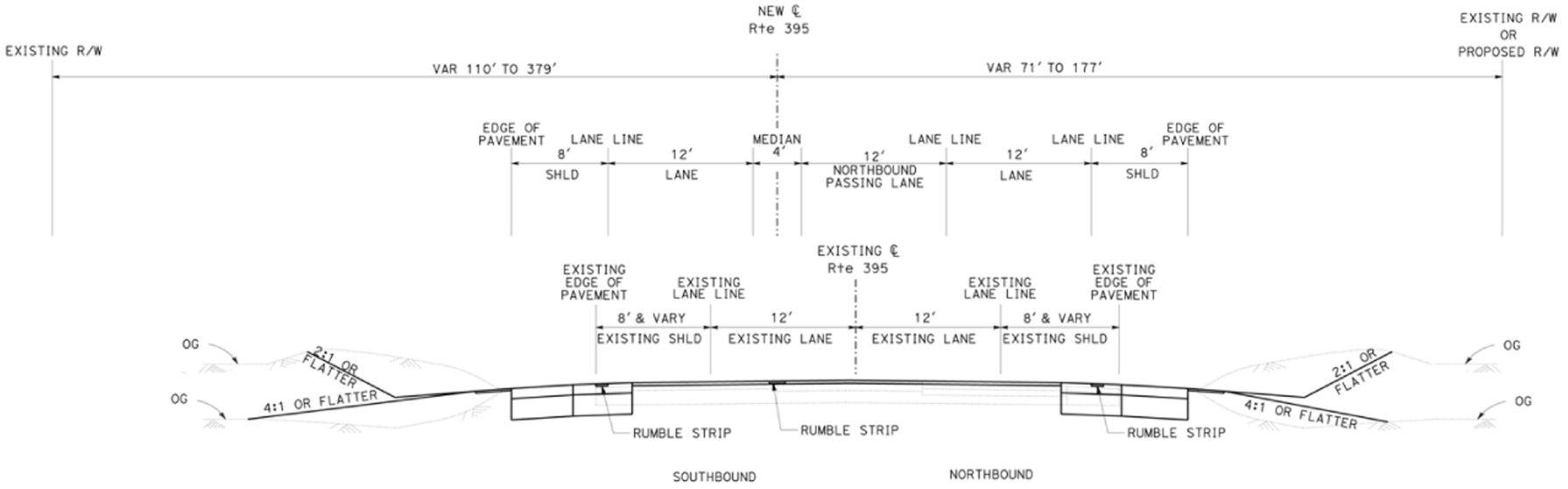
Alternative 1 (Build Alternative)

Alternative 1 would widen the existing roadbed along US-395 to construct a 4-foot median buffer and widen the existing shoulders to 8 feet on both sides (northbound and southbound), install rumble strips on the centerline and shoulders, and eliminate existing passing zones shorter than current standard, from 2.5 miles north of Kramer Hills to its junction with SR-58 (between PM 39.0 and PM 45.9) in San Bernardino County, California (see Figure 1-2), and to also restore the passing lanes on the northbound and southbound portions of US-395 between PM 39.0 and PM 42.7 that were removed in conjunction with completion of an interim project in 2014.

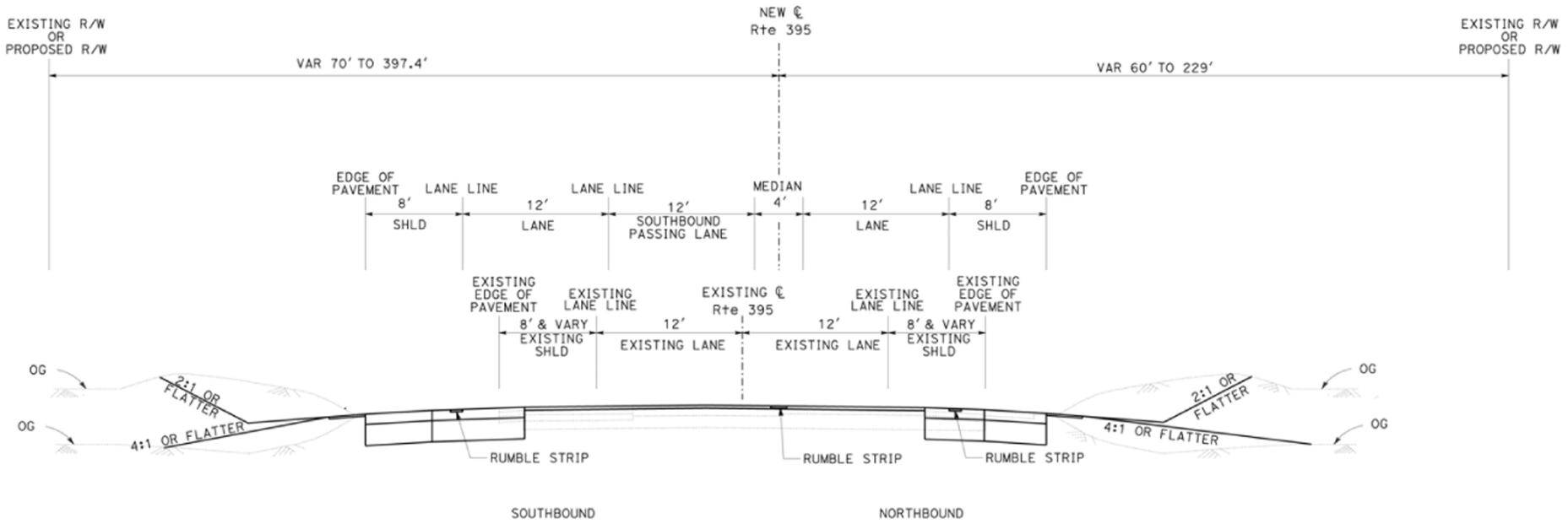
Figures 1-4a through 1-4c show typical cross sections along the proposed alignment. Figure 1-4a shows the cross section of the portion of US-395 that would have a northbound passing lane (between PM 39.0 and PM 40.02), Figure 1-4b shows the cross section of the portion of US-395 that would have a southbound passing lane (between PM 40.09 and PM 42.79), and Figure 1-4c shows the cross section of the portion of US-395 that would have no passing lane (between PM 42.79 and PM 45.9).

The structural section of the proposed roadbed widening would consist of Hot Mix Asphalt (HMA) on top of Aggregate Base (AB) Class 2 (Cl 2). In addition, the existing roadbed would be Cold Planed and paved with HMA Type C for improved delineation and ride quality.

The build alternative would also include elimination of all existing passing zones between PM 42.7 and PM 45.9 that are not consistent with current design standards, based upon Caltrans' current Highway Design Manual. The total cost of this alternative is estimated at approximately $39,463,000.

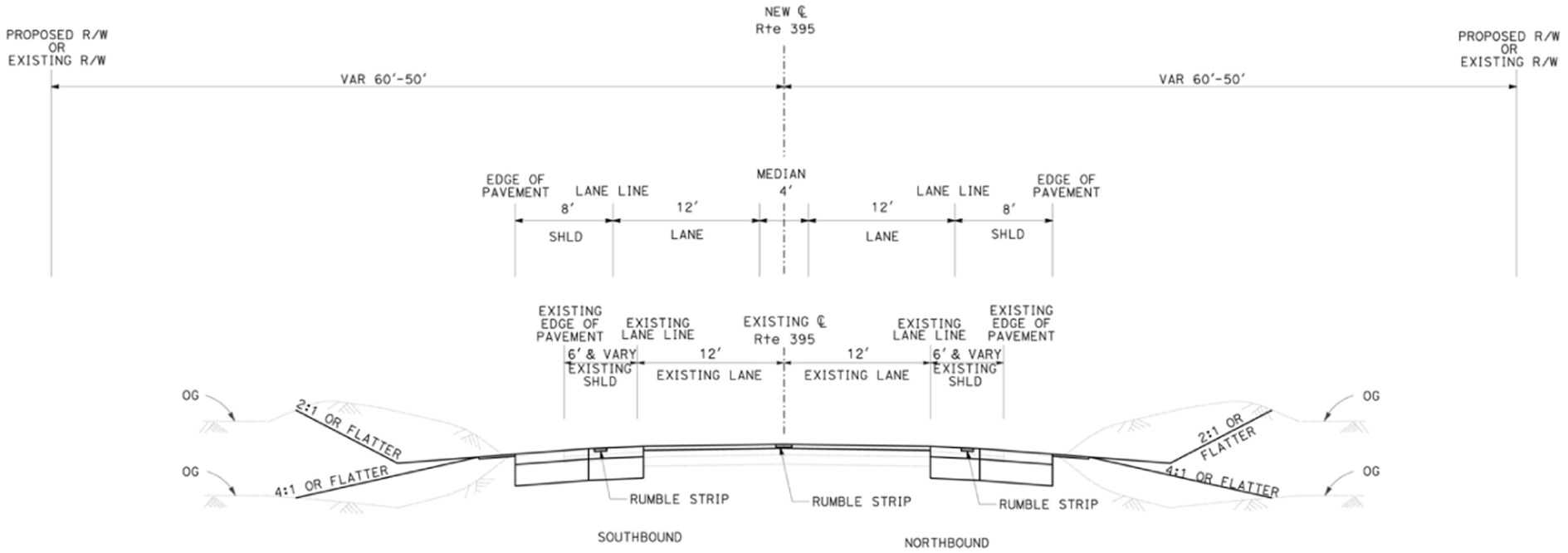


Cross Section of Portion of US-395 with Northbound Passing Lane (PM 39.0 to PM 40.02)	Figure 1-4a



Cross Section of Portion of US-395 with Southbound Passing Lane (PM 40.09 to PM 42.79)

Figure 1-4b



Cross Section of Portion of US-395 with No Passing Lane (PM 42.79 to PM 45.9)

Figure 1-4c

Alternative 2 (No-Build Alternative)

Under Alternative 2 (No-Build Alternative), no changes would be made to US-395 within the project limits. Alternative 2 (No-Build Alternative) provides a baseline for comparing the impacts with the Build Alternative.

IDENTIFICATION OF THE PREFERRED ALTERNATIVE

After comparing and weighing the benefits and impacts of all of the alternatives at a Project Development Team (PDT) meeting on December 17, 2014, the PDT identified Alternative 1 (Build Alternative) as the preferred alternative, subject to public review. This decision was based on the Build Alternative fully addressing the purpose and need identified for the proposed project. Full consideration was given to the technical studies prepared for the proposed project, and data were carefully analyzed for all alternatives on an equal basis.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

No alternatives other than Alternative 1 (Build Alternative) and Alternative 2 (No-Build Alternative) have been considered for the proposed project.

1.4 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction.

Table 1-2. Permits and Approvals Needed

Agency	Permit/Approval	Status
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement	Application to be submitted after approval of the Final Environmental Document for the project.
California Department of Fish and Wildlife	Section 2081 Incidental Take Permit for Desert Tortoise and Mohave Ground Squirrel	Application to be submitted after approval of the Final Environmental Document for the project.
United States Fish and Wildlife Service	Section 7 Consultation for Desert Tortoise and Mohave Ground Squirrel	Caltrans will conduct formal Section 7 consultation with USFWS, utilizing the Programmatic Biological Opinion (PBO) for Routine Highway Improvement, Maintenance Activities, and Safety Projects in Imperial, Inyo, Kern, Los Angeles, Riverside, and San Bernardino Counties issued November 5, 2013. Caltrans will request a May Affect Likely to Adversely Affect determination from USFWS via the PBO. The Section 7 consultation will be completed prior to approval of the Final Environmental Document for the project.
Lahontan Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification	Application to be submitted after approval of the Final Environmental Document for the project.
United States Army Corps of Engineers	Clean Water Act Section 404 Nationwide Permit	Permit application to be submitted after approval of the Final Environmental Document for the project.
State Water Resources Control Board	Clean Water Act Section 402—National Pollutant Discharge Elimination System (NPDES)	A Notice of Intent to comply with Construction General Permit, NPDES No. CAS000002 and California Department of Transportation NPDES CAS000003 will be filed prior to start of construction
Edwards Air Force Base	Real Estate Permit/Lease	To be obtained during Plans, Specifications & Estimates (PS&E, Final Design phase of the project) after identification and resolution of any conflicts
Edwards Air Force Base	Dig Permit	To be obtained 30 days or less prior to any construction activities.

Consultation and coordination occurred with public agencies in conjunction with preparation of this *Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment* for this proposed project as well as in conjunction with the supporting technical studies, and was accomplished through a variety of formal and informal methods, including interagency coordination meetings, direct contact with resource agencies and Native American individuals and organizations, and project development team meetings. A summary of the coordination efforts with agencies related to identifying and addressing project-related issues is included in Chapter 3 of this environmental document.

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

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered, but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document:

- Farmlands/Timberlands: The proposed project is in an undeveloped desert environment and no portion of the project alignment is designated as prime or unique farmland or farmland of statewide importance, as determined by the California Department of Conservation's (CDOC) Farmland Mapping and Monitoring Program. The nearest CDOC-designated area is area for grazing land approximately 9.5 miles to the east of the project alignment, which would be unaffected by construction and operation of the proposed project. In addition, the project vicinity contains no forest or timberland, and would not conflict with zoning of such areas. No documented Williamson Act contracts are active within the vicinity of the project. No impact on farmlands or timberlands would occur as a result of project implementation.
- Coastal Zone: The proposed project is not within the Coastal Zone.
- Wild and Scenic Rivers: The proposed project is approximately 65 miles southeast of the South Fork of the Kern River, which is the nearest river designated in the Wild and Scenic Rivers System (National Wild and Scenic Rivers System n.d.).
- Parks and Recreational Facilities: There are no designated parks or recreational facilities within one-half mile of the alignment of the proposed project. The closest park or recreational facility to the project alignment is Boron Park, which is 6.2 miles to the west in the unincorporated Kern County community of Boron. No project-related impacts on parks or recreational facilities would occur. There are no public parks or recreational areas within one-half mile of the proposed alignment that would be considered Section 4(f) resources per Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code 303.
- Visual/Aesthetics: The land surrounding the majority of the project corridor consists of vacant and unoccupied land. Because the shoulders are already graded and maintained, there would be no impact on any scenic vista or scenic resources, degradation of the existing visual character, or creation of a new source of substantial light or glare. The project does not propose construction of any structures that may disrupt the existing views of the local foothill/mountain ridgelines or surrounding High Desert landscape. While construction vehicles may be present along the project corridor during construction, these would be present temporarily and would not have an adverse effect on the existing visual character of the project corridor.
- Noise: Per the Traffic Noise Analysis Protocol and 23 CFR 772.7, the proposed project is a Type III project and is therefore exempt from noise analysis requirements (Caltrans 2011). Because the proposed project would not add capacity or otherwise change operation of United States Highway (US-395) within the project limits, no operational noise impacts

would occur. During the construction period, the use of machinery would generate noise. Such noise impacts, however, would be short-term in nature and would not result in substantial changes in noise compared with the existing noise from normal operation of US-395. No adverse effects on businesses or residents in the vicinity of Kramer Junction would occur.

HUMAN ENVIRONMENT

2.1 Land Use

EXISTING AND FUTURE LAND USE

The proposed project is located along US-395 south of, and including, Kramer Junction, in an unincorporated area in the western portion of the County of San Bernardino (as shown in Figures 1-1 and 1-2 in Chapter 1). Kramer Junction is a small, developed area at the intersection of US-395 and SR-58. Development within Kramer Junction spans 0.25 mile north of SR-58 and 0.4 mile south of SR-58 along US 395, and approximately 0.1 mile east and west of US-395 along SR-58. The only developed portion of the project area is the southern portion of Kramer Junction, and is composed of primarily commercial uses, as shown in Table 2.1-1. In addition, an electrical substation is located adjacent to the project limits to the south of Kramer Junction. With the exception of Kramer Junction, the project area comprises undeveloped land that is either publicly or privately owned, as well as land owned by the federal government (Bureau of Land Management [BLM] or Edwards Air Force Base [EAFB]). Large swaths of land to the east of the project area are under the jurisdiction of BLM. EAFB has jurisdiction over a large area west and east of the project area, as shown in Figure 2.1-1. Lands owned by BLM and EAFB are not subject to the control of the County of San Bernardino Board of Supervisors or the Development Code (County of San Bernardino 2007a, 2007b).

Table 2.1-1. Existing Land Uses at Kramer Junction

Name	Jurisdiction	Use
Gas station (Chevron)	County of San Bernardino	Commercial
Abandoned motel	County of San Bernardino	Vacant
Airplane hangar, storage facility, and associated runway	County of San Bernardino	Commercial
Pottery store	County of San Bernardino	Commercial
Former gas station (serving as truck service station – Reyes Truck Polishing)	County of San Bernardino	Commercial
Antique store (two buildings) (Kramer Antiques and Pottery)	County of San Bernardino	Commercial
Solar energy generating station (FPL Energy)	County of San Bernardino	Utility
Gas station (Arco and AM/PM)	County of San Bernardino	Commercial
Motel (Relax Inn), tire service (Express Tires)	County of San Bernardino	Commercial
Gas station (76)	County of San Bernardino	Commercial
Restaurant (Roadhouse Restaurant)	County of San Bernardino	Commercial
Mini-Mart	County of San Bernardino	Commercial
Fast-food restaurant (Burger King)	County of San Bernardino	Commercial
Gift store (Cactus Shop)	County of San Bernardino	Commercial
Wastewater impoundment basins	County of San Bernardino	Utility
Gas station/convenience store/fast food (Pilot Travel Center/Subway Sandwich)	County of San Bernardino	Commercial
Southern California Edison utility substation	County of San Bernardino	Utility
Caltrans' Beecher's Corner highway maintenance station	County of San Bernardino	Utility
Source: Community Impact Assessment, February 2013.		

With respect to zoning in the project area, land around Kramer Junction is zoned for Rural Living (RL), Resource Conservation (RC), Special Development (SD), and Rural Commercial (CR) by the County of San Bernardino. All areas along US-395 to the south of Kramer Junction under County of San Bernardino land use jurisdiction are zoned RC. The RC zoning designation allows for open space and recreational activities as well as single-family homes and compatible uses on large parcels.

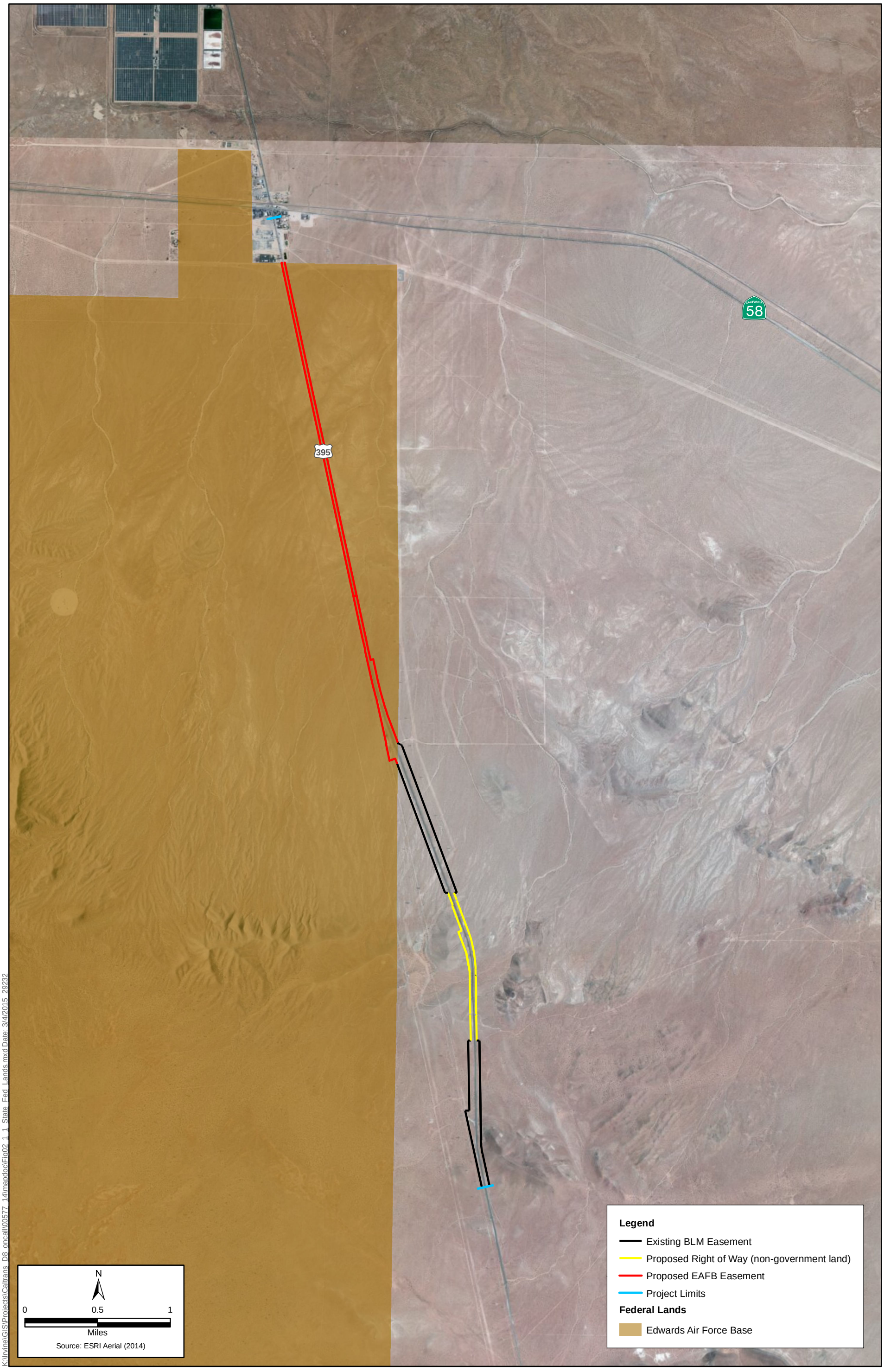
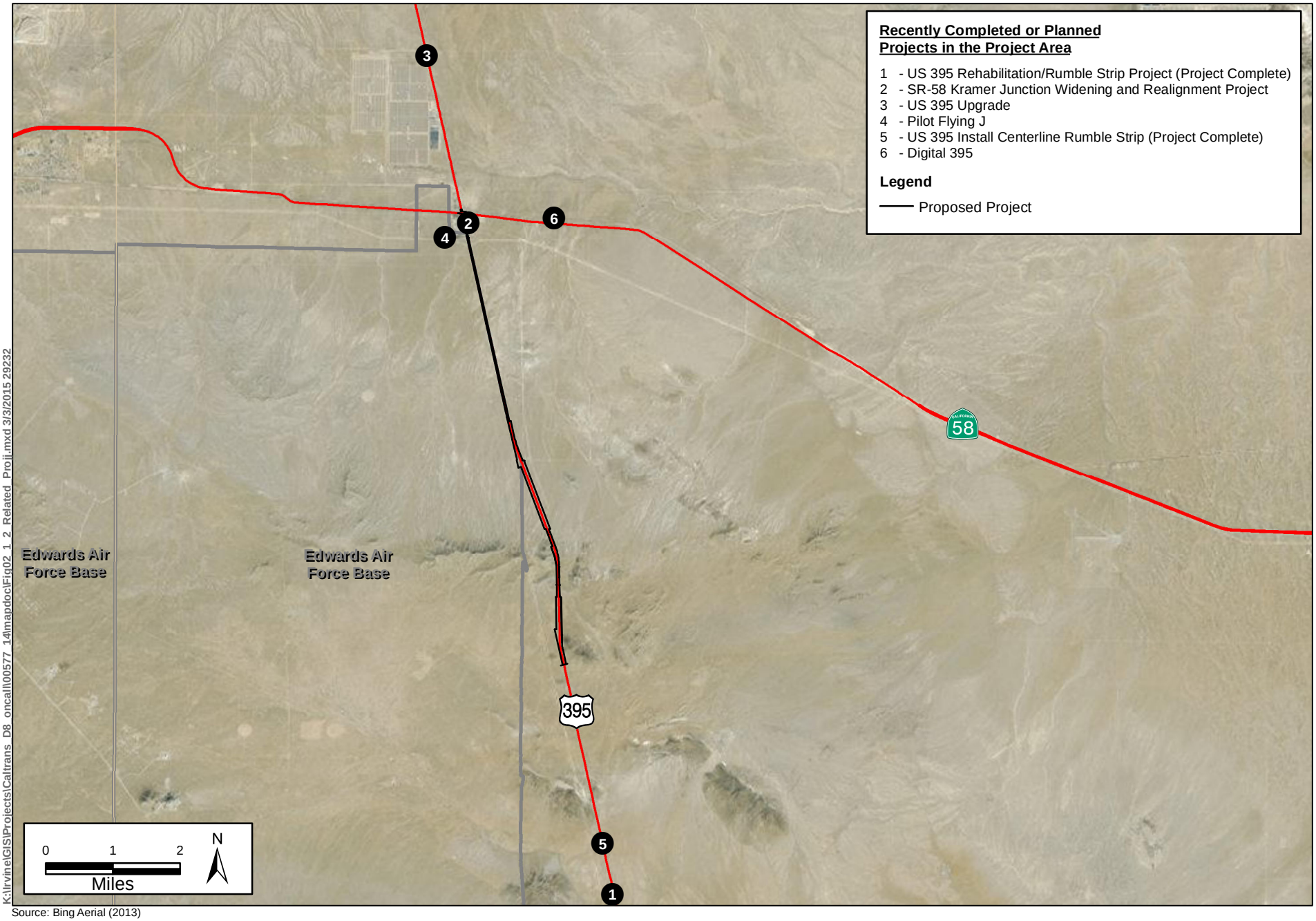


Figure 2.1-1
Build Alternative
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

This page intentionally left blank.

Table 2.1-2. Recently Completed or Planned Projects in the Project Area

Map ID	Name	Sponsor	Project Description	Status
1	US-395 Rehabilitation/ Rumble Strip Project	Caltrans	A project to widen the median and shoulders, install median and shoulder rumble strips and construct turnouts from approximately 8 miles north of State Route (SR) 18 to approximately 11 miles south of SR-58/Kramer Junction (PM 19.0 to PM 35.6).	Construction completed, fully opened to traffic as of 2014.
2	SR-58 Kramer Junction Widening and Realignment Project	Caltrans	Project will realign and widen a 13.3-mile segment of SR-58 from 0.4 mile west of the Kern County/San Bernardino County line to approximately 7.5 miles east of US-395, from a two-lane conventional highway to a four-lane expressway, and construct an interchange at the SR-58/US-395 Junction. The project will also construct a crossing structure above the Burlington Northern Santa Fe rail line where it intersects with SR-58 approximately 2.5 miles east of Kramer Junction.	Approved Final Environmental Impact Report/Environmental Impact Statement was circulated in July and August of 2014. Record of Decision signed on September 28, 2014.
3	US-395 Realignment and Widening	Caltrans	A project on US-395 from KP 0.0 to 77.25 (PM 0.0 to 48.0) Purple Sage Road to 0.5 mile south of Farmington Road to construct a four-lane expressway along the Northern Alignment. The purpose of the project is to realign and widen the existing highway. The proposed project runs between Interstate 15 in San Bernardino County and SR-14 in Kern County. Alternatives under consideration include various alignments with a four- to six-lane freeway or a four-lane expressway.	The project is currently in the planning and preliminary engineering phases.
4	Pilot Flying J	County of San Bernardino	Revision to add 20,000 AST B100 Tank, B100 injection system, and 80-square-foot B100 shed to house injection system. Located on the southwest corner of SR-58 and US-395.	Permit issued on November 18, 2014.
5	US-395 Install Centerline Rumble Strip	Caltrans	The project is located in the County of San Bernardino on US-395 from 3.09 miles south of Kramer Hills to SR-58 near Kramer west of Barstow. The scope of the project is to eliminate the passing zones in this area with the installation of “No Passing” striping and a centerline rumble strip.	Construction completed, fully opened to traffic as of July 2010.
6	Digital 395	National Telecommunication and Information Administration and California Public Utilities Commission	The project involves the installation of 583 miles of underground fiber optic cables within Caltrans right of way/easements, county-maintained dirt roads, Los Angeles Department of Water and Power, or Nevada Department of Transportation rights-of-way/easements. The project would run along US-395 to the north of Kramer Junction and along SR-58 from Boron to Barstow.	Construction was completed in the summer of 2013.



Source: Bing Aerial (2013)

Figure 2.1-2
Recently Completed or Planned Projects in the Project Area
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS AND PROGRAMS

California Transportation Plan 2025 and 2030 Addendum

The California Department of Transportation's (Caltrans) California Transportation Plan (CTP) 2025 and Addendum for 2030 aim to guide long-term strategic decisions and investments in the state's transportation system. The CTP identifies US-395 as a "Focus Route" prioritized for future improvements.

The goals of the CTP are as follows:

- Goal 1: Improve mobility and accessibility
- Goal 2: Preserve the transportation system
- Goal 3: Support the economy
- Goal 4: Enhance public safety and security
- Goal 5: Reflect community values
- Goal 6: Enhance the environment

Southern California Association of Governments 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy

The Regional Transportation Plan (RTP) is a long-range transportation plan that is developed and updated by the Southern California Association of Governments (SCAG) every 4 years. The RTP provides a vision for transportation investments throughout the region. Using growth forecasts and economic trends that project out over a 20-year period, the RTP considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address our mobility needs.

On June 6, 2013, the Regional Council of SCAG approved Amendment #1 to the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Amendment #13-04 to the 2013 Federal Transportation Improvement Program (FTIP) after a 30-day public review and comment period. The Draft Amendments were developed as a response to changes to projects in the 2012-2035 RTP/SCS and 2013 FTIP. A total of 43 projects were modified or added in these Amendments, with a majority of the changes being minor in nature, including changes to completion years, as well as minor modifications to project scopes, costs, and funding.

On September 11, 2014, the Regional Council of SCAG approved Amendment #2 to the 2012-2035 RTP/SCS after a 30-day public review and comment period. The Draft Amendment was developed as a response to changes to projects in the 2012-2035 RTP/SCS. The majority of the changes made in the Amendment are minor in nature, and include changes to completion years, as well as minor modifications to project scopes, costs, and funding.

Southern California Association of Governments 2015 Federal Transportation Improvement Program

The FTIP is a capital listing of all transportation projects proposed over a 6-year period for the SCAG region. The projects include highway improvements, transit, rail and bus facilities, high occupancy vehicle (HOV) lanes, signal synchronization, intersection improvements, freeway ramps, and other projects. In the SCAG region, a biennial FTIP update is produced on an even-year cycle.

The FTIP is prepared to implement projects and programs listed in the RTP and is developed in compliance with state and federal requirements. County Transportation Commissions have the responsibility under state law of proposing county projects, using the current RTP's policies, programs, and projects as a guide, from among submittals by cities and local agencies. The locally prioritized lists of projects are forwarded to SCAG for review. From this list, SCAG develops the FTIP based on consistency with the current RTP, inter-county connectivity, financial constraint, and conformity satisfaction.

The SCAG 2015 FTIP is a capital listing of all transportation projects proposed over Fiscal Years 2014/15–2019/20 for the SCAG region. As the Metropolitan Planning Organization for the region, SCAG is responsible for developing the FTIP for submittal to Caltrans and the federal funding agencies. The 2015 FTIP for the SCAG region has been developed in partnership between the six County Transportation Commissions of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. This listing identifies specific funding sources and fund amounts for each project. It is prioritized to implement the region's overall strategy for providing mobility and improving both the efficiency and safety of the transportation system, while supporting efforts to attain federal and state air quality standards for the region by reducing transportation-related air pollution. Projects in the FTIP include highway improvements, transit, rail and bus facilities, HOV lanes, signal synchronization, intersection improvements, freeway ramps, and non-motorized projects. The SCAG 2015 FTIP was Adopted by SCAG's Executive/Administration Committee on September 11, 2014. The Federal Approval Letter from FHWA and the Federal Transit Administration was issued on December 15, 2014.

County of San Bernardino General Plan

Adopted in March 2007, the County of San Bernardino General Plan has jurisdiction over the unincorporated parts of the County, excluding those areas in the project vicinity that are owned by BLM and EAFB. The General Plan includes the following goals and policies pertinent to the proposed project:

CIRCULATION AND INFRASTRUCTURE

- **Goal CI 1**: The County will provide a transportation system, including public transit, which is safe, functional, and convenient; meets the public's needs; and enhances the lifestyles of County residents.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

Implementation of Alternative 1 would widen the shoulders and add a median buffer to the existing US-395 facility. With the exception of the Kramer Junction uses identified at the northern terminus of the alignment, areas adjacent to the proposed alignment are undeveloped. Because Alternative 1 would not limit access to, or otherwise conflict with, land uses at Kramer Junction and would not change the undeveloped area around the alignment, land use impacts would not result.

CALIFORNIA TRANSPORTATION PLAN 2025 AND 2030 ADDENDUM

Alternative 1 (Build Alternative) would be consistent with the goals outlined in the CTP, specifically Goal 4, which calls for enhancing public safety and security. Alternative 2 (No Build) would not be consistent with the goals outlined in the CTP.

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS 2012–2035 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

The project is funded by the State Highway Operation and Protection Program (SHOPP) Reservation Project, under the Safety Improvement Program, in the 2016/2017 fiscal year. The proposed project is grouped with other SHOPP projects in a lump-sum listing under Project Identification Number SBDLS01 in the 2012-2035 SCAG RTP.

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS 2015 FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM

The project is funded by the SHOPP Reservation Project, under the Safety Improvement Program, in the 2016/2017 fiscal year. The proposed project is grouped with other SHOPP projects in a lump-sum listing under Project Identification Number SBDLS01 in Amendment #13-19 to the FTIP.

COUNTY OF SAN BERNARDINO GENERAL PLAN

Alternative 1 (Build Alternative) is expected to contribute to the improved safety of a portion of US-395, part of the regional transportation system, consistent with Goal CI 1. Alternative 2 (No-Build) would not be consistent with Goal CI 1.

Alternative 2 (No-Build Alternative)

No project-related improvements would be implemented and no adverse effects related to land use would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No measures are required.

2.2 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 consequences, 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

For this project, the analysis of growth-related indirect impacts follows the first-cut screening guidelines provided in Caltrans' *Guidelines for Preparers of Growth-Related Indirect Impact Analysis* (2006). The first-cut screening analysis focused on addressing the four following questions:

- How, if at all, would the project change accessibility?
- How, if at all, would the project type, project location, and growth-pressure influence growth?
- Would project-related growth be "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, would that affect resources of concern?

Factors that influence land use and development in an area may include population and economic growth, desirability of certain locations, the costs and availability of developable land, physical and regulatory constraints, transportation, and the costs of sewer and water services. Transportation agencies play a role in land use changes by providing infrastructure that can improve mobility and/or open up access to new locations. At the same time, new development generates travel to that location, and this additional travel creates the need for new transportation facilities. The relationship between transportation and land use and the degree to which one influences the other is a topic of ongoing debate.

With respect to the project area, growth is expected at the regional level. According to population projections prepared by SCAG for purposes of the RTP, the County of San Bernardino's population is anticipated to grow to 2.75 million, an increase of approximately 36%

over a period of 25 years. The number of households in the County of San Bernardino is expected to increase approximately 40% by 2035. At the project area level, however, growth is constrained by both federal land ownership and minimal amounts of utility services outside of the already-developed Kramer Junction area.

Table 2.2-1. Existing and Projected Population

Area	2010 Population[1]	Projected 2035 Population[2]	Projected Increase (2010 to 2035)
County of San Bernardino	2,023,452	2,750,000	35.9%
Sources: [1] U.S. Census Bureau, 2007–2011 American Community Survey, Table B01001 (2011a). [2] SCAG 2012 Draft RTP Forecast.			

The potential for the proposed project to influence growth is discussed below.

- **How, if at all, would the project change accessibility?**

Alternative 1 (Build Alternative) would involve widening the existing roadbed to construct a 4-foot median buffer with installation of rumble strips, widening shoulders to 8 feet on both sides (northbound and southbound) also including installation of rumble strips, eliminating existing passing zones that do not meet the current Caltrans design standard, and restoring the passing lanes on the northbound and southbound portions of US-395 between PM 39.0 and PM 42.7 that were removed in conjunction with completion of an interim project in 2014. Alternative 1 would not increase capacity and would not create new access points to previously undeveloped properties adjacent to the US-395 alignment. Under Alternative 1, all properties that are currently accessible along the alignment would continue to be accessible.

- **How, if at all, would the project type, project location, and growth-pressure influence growth?**

The project type, project location, and growth pressure in the area suggest that there is little, if any, potential for implementation of the proposed project to influence growth. Implementation of Alternative 1 is intended to improve safety along a portion of US-395, and would do so without creating additional capacity. Although roadway safety is desirable, improvements in safety are generally not identified as incentives or a specific basis for businesses and residents choosing to locate to an area. It is not anticipated that safety improvements would be identified as primary location criteria in numbers large enough such that growth would be notable. Furthermore, the project's location in a rural area that is largely undeveloped and has large areas of land owned by the federal government makes development of the area improbable. Therefore, there is only limited land available for development. Although the population of the County of San Bernardino is projected to increase substantially over the next 20 years, the development potential in the project vicinity is low, and the project would not increase the attractiveness for development. Consequently, the project type, location, and overall growth pressure indicates that the project would exert little, if any, influence on growth.

- **Would project-related growth be "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.**

As discussed above, the project type, project location, and factors affecting growth pressure suggest that the area surrounding the project alignment is not likely to experience notable growth. Furthermore, implementation of Alternative 1 would not influence growth, as it would not add roadway capacity, nor would it create additional accessibility. Therefore, project-related growth is not foreseeable.

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

No project-related growth is expected.

Based on the above first-cut screening, no further analysis is required.

2.3 Community Impacts

COMMUNITY CHARACTER AND COHESION

Regulatory Setting

The National Environmental Policy Act of 1969 (NEPA), as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). The Federal Highway Administration in its implementation of NEPA (23 United States Code [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

The proposed project is within the Mojave Desert region of San Bernardino County, California. The nearest incorporated cities are California City, Barstow, and Adelanto, which are approximately 30 miles north, east, and south of the project area, respectively. The nearest unincorporated communities are Boron, 6 miles to the west of Kramer Junction, and Hinkley, 20 miles to the east of Kramer Junction. Aside from the incorporated cities in the area, small unincorporated residential communities can be found scattered throughout the region.

The alignment of the proposed project falls entirely within census tract 116 in San Bernardino County, demographic characteristics of which are shown in Table 2.3-1 below. Census tract 116 is home to nearly 7,400 people, representing a small proportion of the overall San Bernardino population of just over 2 million. In terms of race and ethnicity, non-Hispanic White individuals make up the bulk of the population of census tract 116, representing 70% of residents. Hispanic/Latino individuals make up the next largest demographic group, making up 20% of the census tract population. The remaining 10% of the census tract comprises the following racial/ethnic groups, in descending order of prevalence: Black/African-Americans, Asians, American Indians/Native Americans, Native Hawaiians/Pacific Islanders, multi-racial people, and people of other races.

Table 2.3-1. Existing Regional and Local Population Characteristics—Race/Ethnicity (2009–2013)

	Area					
	Census Tract 116		County of San Bernardino		State of California	
Race/Ethnicity	Total	%	Total	%	Total	%
White	5,186	70.3	667,933	32.5	14,937,880	39.7
Black	417	5.7	170,307	8.3	2,153,341	5.7
Native American	38	0.5	7,723	0.4	146,496	0.4
Asian	200	2.7	129,480	6.3	4,938,488	13.1
Native Hawaiian/ Pacific Islander	36	0.5	6,302	0.3	136,053	0.4
Other Race	14	0.2	4,639	0.2	81,604	0.2
Two or More Races	27	0.4	43,935	2.1	994,974	2.6
Hispanic or Latino	1,460	19.8	1,026,596	49.9	14,270,345	37.9
Total	7,378	100	2,056,915	100	37,659,181	100
Source: U.S. Census Bureau, 5-year estimates, 2009-2013, Table B03002.						

For the purposes of this section, the project area is defined as the area within a half-mile in all directions of the project's limits of disturbance; an area that is considerably smaller and less populated than census tract 116, of which the study area is a part. Kramer Junction is primarily a commercial area with approximately ten residents, according to an informal survey conducted on January 18, 2013 (Caltrans 2014). Kramer Junction is reliant on business from passersby stopping while traveling along either SR-58 or US-395. Local businesses and facilities include restaurants, gas stations, gift stores, and utilities. A small number of people live in residences in the vicinity of Kramer Junction, but the community in the area is primarily a business community rather than a residential community. With the exception of Kramer Junction, there is no development within one-half mile of the entire project alignment.

Environmental Consequences

ALTERNATIVE 1 (BUILD ALTERNATIVE)

During the construction period, minor delays in the form of lower speed limits within the project limits and temporary traffic disruptions may occur, which would affect employees and the small number of residents at Kramer Junction, as well as travelers using US-395 to reach other destinations. A Traffic Management Plan (TMP) will be developed that outlines measures to minimize traffic impacts and delays during construction. The TMP will also detail the efforts that will be undertaken to maintain access to all businesses at Kramer Junction and operation of US-395 in both directions throughout the construction period. With implementation of the TMP (see **TRAF-1b** in Section 2.5), construction is expected to result in only minor, temporary impacts.

Following the construction period, the operation of US-395 would be indistinguishable from existing conditions in terms of community impacts. Employees, residents, and other travelers

who use US-395 would continue to be able to use US-395 to reach their destinations, and no impact would occur.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

No improvements along US-395 would be implemented under Alternative 2, and no impacts on the community would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

To help minimize potential impacts during construction, a TMP, which is standard practice for all Caltrans projects involving roadway modifications, would be implemented, as described in measures **TRAF-1a** and **TRAF-1b** (see Section 2.5).

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) 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.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 United States Code [USC] 2000d, et seq.). Please see Appendix B for a copy of the Department's Title VI Policy Statement.

Affected Environment

US-395 is a north-south two-lane roadway within the 6.9-mile project limits. In order to increase the shoulder widths to 8 feet and install a 4-foot median buffer, additional right of way is required along the eastern and western sides of the existing alignment. With the exception of the uses at Kramer Junction, all areas along the proposed project are vacant of structures.

Environmental Consequences

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Alternative 1 is anticipated to potentially require partial permanent acquisition of slivers of two privately owned parcels, as well as establishment of a defined easement on a small portion of EAFB land(refer to Table 2.3-2 below). All of the land involved is undeveloped and vacant, and does not contain structures. Accordingly, no residents or businesses would need to be relocated as a result of the implementation of Alternative 1 and no relocation assistance would be required.

Acquisitions will be conducted in accordance with applicable regulations, and all requirements pertaining to completing the easement on the small portion of EAFB land will be completed.

Table 2.3-2. Potential Partial Acquisitions or Easements Anticipated Under Alternative 1

No.	San Bernardino County Tax Assessor Parcel Number (APN)	Acquisition Type	Assessor Zone Type	Owner	Preliminary Engineering Phase Estimate of Area Potentially Needed (square feet)
1	0492-101-14	P	Vacant	Individual	8,891
2	0492-101-08	P	Vacant	Individual	21,712
3	0492-201-02	E	Government	U.S. Government (Edwards Air Force Base)	165,117
4	0492-201-05	E	Government	U.S. Government (Edwards Air Force Base)	659,437
5	0492-111-02	E	Government	U.S. Government (Edwards Air Force Base)	659,307
6	0492-111-08	E	Government	U.S. Government (Edwards Air Force Base)	329,532

Source: Draft Right of Way Data Sheet Summary, Caltrans, 2/17/15
P = Partial Acquisition
E = Easement

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

No acquisitions would be required under Alternative 2, and no residents or businesses would be relocated as a result. No impact would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following minimization measure, which is standard practice on all Caltrans projects involving real property acquisition(s), will be implemented:

- **RPA-1:** Right of way 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.

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 2014, this was $23,850 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

The project area, which includes the areas within one-half mile of the proposed alignment, is uninhabited with the exception of a small number of housing units at Kramer Junction. Table 2.3-1 shows the demographic characteristics of the project area. The U.S. Census Bureau does not release ethnicity and income data to the public for small units of geography because of the low number of residents and concerns for privacy. However, based on an informal survey conducted in January 2013, there are approximately 10 residents living at Kramer Junction, some of whom are minority individuals and may have incomes less than the Department of Health and Human Services poverty thresholds (Caltrans 2014). Although there is not a large residential population at Kramer Junction, the presence of minority individuals residing within the project area indicates that there is an environmental justice community of concern and that the project is subject to the provisions of EO 12898.

Environmental Consequences

ALTERNATIVE 1 (BUILD ALTERNATIVE)

The project would improve safety within the project area, which benefits the community at large, and benefits would accrue to environmental justice populations in addition to the general public.

Potential temporary impacts related to safety and traffic operations during the construction period would be minimized through the implementation of a TMP, as identified in measures **TRAF-1a** and **TRAF-1b**, which would detail efforts to minimize any temporary traffic disruptions to drivers and the surrounding businesses and residents. Any potential impacts related to safety that may result during the construction period would be experienced by the entire community, regardless of race or socioeconomic status. No disproportionately high and adverse effects would result.

All residents and businesses in the vicinity of the project (regardless of their minority status or income level) would experience the same benefits following the completion of construction. Impacts would be comparable for all affected populations in proximity to the project and would not be appreciably more severe or greater in magnitude in a particular area. Furthermore, the Build Alternative is expected to improve safety that would benefit all local populations. Additionally, in the project area and vicinity there is not a substantial minority or low-income population.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have been included in the project.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Based on the above discussion and analysis, Alternatives 1 and 2 would not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice. No avoidance, minimization, and/or mitigation measures are required or proposed.

2.4 Utilities/Emergency Services

AFFECTED ENVIRONMENT

Utilities

Nine utility providers have been identified as having physical infrastructure in proximity to the proposed project, as identified in Table 2.4-2.

NATURAL GAS AND OIL PIPELINES

South of SR-58, along US-395, natural gas pipelines are owned and operated by the Southern California Gas Company and the Kern River Gas Transmission Company. Natural gas pipelines in the rest of the project area are owned and operated by Pacific Gas & Electric (PG&E), the Mojave Pipeline Operating Company, the El Paso Natural Gas Company, and South West Gas.

ELECTRICITY TRANSMISSION

Southern California Edison (SCE) provides electricity to the project area. SCE maintains a utility substation in the project area at the southwest portion of the existing Kramer Junction, south of SR-58 and west of US-395. There are several electric transmission lines, transmission towers, and wooden transformer poles in all quadrants of Kramer Junction. Transmission towers tend to be placed in a north–south alignment parallel to US-395 in the project area, while wooden poles and transformer poles tend to align east-west, parallel to SR-58. There is an SCE transmission substation located on a large portion of the southwestern quadrant of Kramer Junction, west of US-395 and south of the Pilot Travel Center.

TELECOMMUNICATIONS

AT&T and Verizon are the telecommunications companies that provide telephone, cable, and internet service for the project area.

WATER AND WASTEWATER SERVICES

Water service for businesses and the few residential properties at Kramer Junction is provided by private ownership wells. All water and wastewater services are located outside the limits of disturbance for the proposed project. A 42-inch pipeline south of SR-58 is maintained by the Mojave Water Agency. Most residential properties in the High Desert area are on private sewage treatment systems (septic), but some of the businesses and a small number of residences at Kramer Junction are connected to wastewater impoundments in the northeastern portion of the project area, to the east of US-395.

SOLID WASTE

The County contracts with Benz Sanitation Incorporated for collection and hauling of solid waste in the Kramer Junction area. According to the *Circulation and Infrastructure Background Report*

(San Bernardino County 2006), San Bernardino County continues to have disposal capacity available for solid waste generated but not diverted in excess of 15 years. Permitted disposal capacity is available at the Barstow, California Street, Colton, Fort Irwin, Landers, Marine Corps Air Ground Combat Center, Mid-Valley, San Timoteo, and Victorville landfills (San Bernardino County 2006). The Barstow and Victorville landfill sites are both approximately 32 miles from Kramer Junction.

Emergency Services

Emergency service providers in the area rely on US-395 for mobility, access, and emergency response. Providers in the area include the California Highway Patrol, the San Bernardino County Sheriff's Department, the San Bernardino County Fire Department, and hospitals and medical centers.

CALIFORNIA HIGHWAY PATROL

The California Highway Patrol (CHP) ensures safety and provides public services to those who use the State Highway System. The CHP also assists local government during emergencies when requested. The nearest CHP station is the Barstow CHP office, at 300 East Mountain View in the city of Barstow, approximately 35 miles east of the project area (refer to Table 2.4-1). This office services the project area. The CHP has mutual assistance agreements with all local and state emergency, fire, and ambulance services.

SAN BERNARDINO COUNTY SHERIFF'S DEPARTMENT

The San Bernardino County Sheriff's Department (SBCSD) Barstow Station is also responsible for providing law enforcement to the project area. Its jurisdiction encompasses over 10,000 square miles, just over half of the total square miles of the County (San Bernardino County Sheriff's Department 2009). Deputy Sheriffs assigned to the Barstow Station patrol the communities of Baker, Daggett, Hinkley, Lenwood, Ludlow, Newberry Springs, Sandy Valley, Yermo, Red Mountain, and Trona. Because of the large area that the deputies cover, they regularly assist and are assisted by the CHP, Barstow Police Department, and the Bureau of Land Management Rangers (San Bernardino County Sheriff's Department 2013). They also work closely with the Provost Marshal's Office and the Criminal Intelligence Division investigators at Fort Irwin and the Marine Corps Logistics Base, which are both within the Barstow Station jurisdiction (San Bernardino County Sheriff's Department 2013).

SAN BERNARDINO COUNTY FIRE DEPARTMENT

The San Bernardino County Fire Department's (SBCFD's) North Desert Division is responsible for fire protection within the project area. SBCFD's North Desert Division covers an area of 10,884 square miles and serves approximately 150,000 people in 19 different communities and cities in the County. There are currently 20 fire stations within the division (San Bernardino County Fire Department 2013). The closest San Bernardino County Fire Station to the proposed project is Station 4 in Helendale, approximately 20 driving miles to southeast of southern project limits.

Kern County Fire Department's Station 17 at 26965 Cote Street in Boron is the closest fire station to the project area. It serves the community of Boron and has a response area of 144 square miles. The Kern County Fire Department responds to emergencies in the Kramer Junction area under an agreement as needed as backup for County of San Bernardino Fire Department.

HOSPITALS

There are no hospitals in the vicinity of the project area. The closest hospital is the Barstow Community Hospital, located approximately 30 miles to the east.

Table 2.4-1. Emergency Service Providers

Facility	Address	Direction from Project Site	Driving Distance from Project Site (miles)
Fire			
San Bernardino County Fire Department – Station 4	27089 Helendale Rd., Helendale, CA 92342	South on US-395	20
Kern County Fire Department – Station 17	26965 Cote Street, Boron, CA 93516	West on SR-58	7
Police			
Kern County Sheriff's Department - Boron Substation	26949 Cote Street, Boron, CA 93516	West on SR-58	7
California Highway Patrol	300 East Mountain View, Barstow, CA 92311	East on SR-58	33
San Bernardino County Sheriff – Coroner Department, Barstow Sheriff's Office	225 East Mountain View, Barstow, CA 92311	East on SR-58	33

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

The existing utilities located in the project vicinity are shown in Table 2.4-2. Based upon current design and right of way information, the project is not expected to have to move any utilities to different alignments, and the project is not expected to affect any utilities with the exception of a PG&E low-pressure natural gas line, which will be lowered by approximately 5 feet, but still remain within its current alignment. The low-pressure gas line is located at the northern limits of the project. This facility will not require relocation outside of existing State right of way. Service disruption will be avoided or minimized to the extent possible, as specified in measure **UTL-1** below. No existing utilities that extend onto EAFB land are expected to be affected at all by this project.

Table 2.4-2. Utilities

Utility	Type	Impact/Disposition
Kern River Gas Transmission Company	Natural gas pipeline	No impacts anticipated*
Pacific Gas & Electric (PG&E)	Low pressure gas line	Minor impact—no relocation. Plan to lower approx. 5 feet
Southern California Gas Victorville	Natural gas pipeline	No impacts anticipated*
Southern California Edison	Overhead electrical	No impacts anticipated*
AT&T	Telecommunications	No impacts anticipated*
El Paso Natural Gas Company	Natural gas pipeline	No impacts anticipated*
Mojave Pipeline Operating Company	Natural gas pipeline	No impacts anticipated*
South West Gas	Natural gas pipeline	No impacts anticipated*
Contel of California	Fiber optic	No impacts anticipated*
*Based on available information and information received to date in conjunction with requests for as built plans. On-site potholing will be completed prior to approval of the Final Environmental Document for this project, which will confirm absence of impacts on utilities as a result of this project, or will confirm if the utility simply needs to be lowered within the same alignment. Source: Caltrans Right of Way Utilities and Caltrans Project Design		

Alternative 2 (No-Build Alternative)

Under the No-Build Alternative, there would be no changes to utilities or emergency services from existing conditions, and therefore there would be no impacts to either.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following measure for CEQA and NEPA would avoid or minimize impacts on the low-pressure gas line.

- **UTL-1**: Coordinate with PG&E to avoid disruption of service in conjunction with lowering the low-pressure gas line in place. If avoidance is not feasible, then to the maximum extent practicable, establish minimal service disruption and ensure affected properties receive appropriate advance notification.

2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

REGULATORY SETTING

The Department, as assigned by 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 Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). 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

Information from this section is based on the April 2015 Draft Project Report. Within the project limits, US-395 is a two-lane undivided conventional highway with one lane in each direction. The width of the existing lanes is 12 feet, the outside shoulder widths vary from 2 to 8 feet, and one double-yellow line with recessed pavement markers separates northbound and southbound traffic at non-passing locations. Existing passing zones occur between post mile (PM) 44.26 and PM 44.41 (790 feet) in the northbound direction and between PM 44.78 and PM 44.62 (840 feet) in the southbound direction.

Existing conditions (2014) and traffic projections for 2018 Opening Year and 2040 Horizon Year are identified below.

	Existing (2014)	Opening Year (2018)	Horizon Year (2040)
Annual Average Daily Traffic	10,100	11,400	19,900
Source: Draft Project Report, Caltrans 2015			

The existing Annual Average Daily Traffic (AADT) for this segment of US-395 is 10,100 vehicles. Opening Year (2018) AADT is expected to grow to 11,400 vehicles, and AADT for Horizon Year 2040 is expected to increase to 19,900 vehicles. This represents a 97% increase in AADT from existing conditions to Horizon Year 2040.

No bicycle or pedestrian facilities are present within the project limits. However, at the signalized US-395/SR-58 intersection, immediately north of the project limits on US-395, there are signalized crosswalks on both of the east-west crossings on US-395, north leg and south leg

of the intersection, and also one signalized crosswalk for north-south crossing of SR-58, located on the east leg of the intersection.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

During the construction period, the implementation of Alternative 1 may result in temporary disruptions to vehicular traffic on US-395, which may result in intermittent delays of limited duration to vehicles using US-395 within the project limits, or for vehicles traveling through the US-395/SR-58 intersection, or for pedestrians utilizing the cross-walks at the US-395/SR-58 intersection. However, traffic minimization efforts outlined in the TMP are expected to facilitate continued operation of one lane of traffic in each direction along US-395 throughout the construction period. With the implementation of measure **TRAF-1a**, such delays would be minimized and not considered adverse.

Following the construction period, the project limits on US-395 under Alternative 1 would include the following safety features: shoulders widened to 8 feet with rumble strips, a 4-foot median buffer with rumble strips, restoration of passing lanes between PM 39.0 and PM 42.7, and removal of non-standard passing zones. As Alternative 1 would neither add nor reduce capacity on US-395, there would be no difference between the Opening Year 2018 build and no-build conditions and also no difference in the design Horizon Year of 2040 between the build and no-build conditions.

PUBLIC SAFETY

This project is expected to reduce the number and severity of cross-centerline and run-off-the-road accidents through the installation of a 4-foot median buffer, rumble strips, a clear recovery zone, and full standard shoulder widths on both sides of US-395 within the project limits. The proposed four-foot median buffer would increase separation between opposing traffic streams, the wider shoulders would provide increased recovery zone for errant vehicles and together the median buffer and wider shoulders would improve sight distance and maneuverability. The proposed rumble strips would act as audible and vibrating warning devices to inattentive or sleepy drivers. In addition, replacing the pavement markers and re-striping will enhance the visibility of pavement delineation.

The constructed improvements to the portion of US-395 covered by this project are expected to result in a beneficial effect to users.

This project will not include any changes to any aspect of the existing pedestrian crossings at the US-395/SR-58 intersection.

Alternative 2 (No-Build Alternative)

No changes to the existing shoulder and median features on the portion of US-395 within the project limits would be implemented under Alternative 2.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

A TMP, which is standard practice for all Caltrans projects involving roadway improvements, will be prepared during the final design phase of the project. Implementation of the TMP will minimize impacts on traffic during construction.

- **TRAF-1a (Minimization Measure):** A Traffic Management Plan (TMP) will be implemented. At a minimum, the TMP will detail the efforts to minimize traffic delays and maintain safety for travelers along US-395 during the construction period. The following elements will be major components of the TMP: Public Awareness Campaign, particularly related to the scheduling of work; Construction Zone Enforcement Enhancement Program (COZEEP); Utilization of Portable Changeable Message Signs (PCMSs); and notifications to the local emergency service providers and any residents or businesses that may be affected by any traffic disruptions at least 2 weeks in advance of the planned closure or diversion. The TMP will be provided to county police and fire departments with construction plans prior to commencement. The TMP will also describe the efforts to be undertaken in order to maintain access to all businesses at Kramer Junction throughout the entire construction period.
- **TRAF-1b (Minimization Measure):** The Traffic Management Plan will describe the efforts to be undertaken in order to maintain access to all businesses at Kramer Junction throughout the entire construction period.

2.6 Cultural Resources

REGULATORY SETTING

The term "cultural resources" as used in this document refers to all built environment resources, such as structures, bridges, railroads, water conveyance systems, etc., culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. 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 the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation [36 Code of Federal Regulations (CFR) 800].

On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, the Federal Highway Administration (FHWA), State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. This PA was renewed, with small changes, on January 1, 2014, Titled the *First Amended Section 106 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 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,* the PA implements the Advisory Council'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 Archaeological Resources Protection Act (ARPA) applies when a project may involve archaeological resources located on federal or tribal land. The ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

Cultural resources are considered under the California Environmental Quality Act (CEQA), as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources (CRHR). PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the NRHP listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way. 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.

Caltrans' policy is to conduct NHPA Section 106 and CEQA cultural resources studies concurrently and to use the NHPA Section 106 determinations for the basis of making CEQA conclusions.

AFFECTED ENVIRONMENT

Unless otherwise noted, the information from this section was taken from the project's *Historic Property Survey Report* (HPSR) (2014), which included an *Archaeological Survey Report* (ASR) (2014) documenting cultural resource identification and evaluation efforts and effects findings in the project Area of Potential Effects (APE).

The HPSR and associated documentation were prepared in accordance with Caltrans' Section 106 PA executed on January 1, 2004 and under the First Amended Caltrans Section 106 PA executed on January 1, 2014. Archaeological and built environment resources were identified as required by 36 CFR Part 800 and the regulations implementing Section 106 of the NHPA.

The APE for the project was established in consultation with Gary Jones, Caltrans Principal Investigator Prehistoric Archaeology (PQS), and Bruce Ko, Caltrans Project Manager. The APE was delineated to encompass the maximum extent of ground disturbances as well as direct, indirect, and cumulative effects, including visual and atmospheric effects on the setting, required by the project design. Because proposed project activity and components are primarily at-grade, the project APE was not further expanded for visual considerations to built resources but was limited to existing and proposed rights of way.

Consultation with interested parties, including Native American groups, was initiated in 2012. A request was made to the Native American Heritage Commission (NAHC) for a search of the Sacred Lands File on March 5, 2012. The NAHC responded on March 7, 2012, stating that a search of the Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC also provided a list of Native American groups or individuals who should be contacted for additional information in the project vicinity. Table 2.6-1 summarizes the results of that consultation.

Table 2.6-1. Native American Consultation Summary Matrix

Tribe/Individual	Consultation summary
Ramona Band of Cahuilla Indians, Joseph Hamilton Attn: John Gomez, Jr.	3/19/12 :Initial contact letter sent. No response received. 5/1/14: Notification of Extended Phase 1 (XP1) and California Archaeological Resource Identification and Data Acquisition Program (CARIDAP) letter sent6/20/14: Phone message left with receptionist for John Gomez, Jr., explaining project and requesting return call. 7/9/14: Second message left for Mr. Gomez, Jr. requesting return call.
San Manuel Band of Mission Indians, James Ramos Attn: Ann Brierty, Daniel F. McCarthy	3/19/12: Initial contact letter sent. No response received. 5/1/14: Notification of XP1 and CARIDAP letter sent. 5/30/14: Email received from Daniel McCarthy stating that he will wish to discuss the findings of the CARIDAP and XPI investigations once they are complete. A tribal monitor from the San Manuel Band participated in all field work. 12/23/15: Electronic copies of the CARIDAP and XP1 Reports were sent to Mr. McCarthy.
Chemehuevi Reservation, Charles Wood, Edward Smith	3/19/12: Initial contact letter sent. No response received. 5/1/14: Notification of XP1 and CARIDAP letter sent. 6/20/14: Phone call with Chairman Edward Smith who has no concerns with the project, but wishes to be informed if any human remains are encountered.
Fort Mojave Indian Tribe, Tim Williams (see AhaMaKav Cultural Society)	3/19/12: Initial contact letter sent. No response received. 5/1/14: Notification of XP1 and CARIDAP letter sent. 6/20/14: Informed by Fort Mojave Indian Tribe that all correspondence regarding cultural reviews should be directed to Linda Otero of the AhaMaKav Cultural Society.
AhaMaKav Cultural Society, (FMIT) Linda Otero	3/19/12: Initial contact letter sent. No response received. 5/1/14: Notification of XP1 and CARIDAP letter sent. 6/20/14: Voice message left with brief overview and request for a return call. 7/9/14: Second voice mail left with request for return call.
San Fernando Band of Mission Indians, John Valenzuela	3/19/12: Initial contact letter sent. No response received. 5/1/14: Notification of XP1 and CARIDAP letter sent. 6/20/14: During a phone conversation, Mr. Valenzuela stated he does not wish to consult on projects that are not in sensitive areas or that do not require monitoring. Because the San Manuel Band was monitoring the field work for this project, he had no concerns with this project.
Morongo Band of Mission Indians, Michael Contreras, William Madrigal, Jr.	3/19/12: Initial contact letter sent. No response received. 5/1/14: Notification of XP1 and CARIDAP letter sent. 6/20/14: Voice mail left with project overview and a request for a return call. 7/9/14: Second voice mail left with request for return call.
Serrano Nation of Indians, Goldie Walker	3/19/12: Initial contact letter sent. No response received. 5/1/14: Notification of XP1 and CARIDAP letter sent. 6/20/14: Ms. Walker's phone is no longer in service and mail has been returned to sender.

A cultural resources literature and records search of a 1-mile radius surrounding the project APE was conducted by SBAIC Assistant Coordinator Robin Laska on October 11 and 16, 2012. Results of the records search indicate that no less than 52 cultural resources studies have been conducted previously within 1 mile of the project APE since 1972. A number of these previous studies paralleled, intersected, or encompassed portions of the project APE, but the APE in its entirety had not been previously surveyed. These previous investigations resulted in the

documentation of 105 archaeological sites and 129 isolates within a 1-mile radius of the project APE.

The records search indicated that 15 resources, including 5 archaeological sites, 8 isolates, and 2 built-environment structures, had been previously recorded in or adjacent to the project APE. The archaeological sites are primarily prehistoric lithic scatters or historic-period refuse deposits. Similarly, the isolates are primarily single prehistoric lithic flakes or single historic-period cans or bottles. The two historic-period structures are segments of US-395 and the adjacent Southern California Edison Company's Kramer-Victor 115 kilovolt transmission line. A detailed discussion of records search results is provided in the HPSR.

Additional sources consulted during the records search include: the NRHP (1997–2002 and supplements); *Survey of Surveys: A Summary of California's Historical and Architectural Resources* (1989); *Five Views: An Ethnic Sites Survey for California* (1988, updated in 2004); California Historical Landmarks; and California Points of Historical Interest. Records from the Listing of NRHP Properties and the Inventory of Historic Structures entered into the Office of Historic Preservation computer files were also consulted.

Intensive archaeological and architectural surveys of the APE were carried out between October 22 and October 31, 2012

During the cultural resources field surveys of the project APE, 18 cultural resources, including 9 archaeological sites, 4 features of the built environment, and 5 isolates, were identified. The archaeological sites included primarily prehistoric lithic scatters, historic-period refuse, and two prospect pits. The built-environment features include six historic-period roads. All isolates within the project APE meet the criteria for Section 106 Programmatic Agreement Attachment 4 (Properties Exempt from Evaluation).

Following the pedestrian survey, an ASR and Historical Resources Evaluation Report (HRER) were prepared to discuss preliminary findings. These reports are included as attachments to the HPSR. An Extended Phase I (XPI) was performed for site CA-SBR-17169 and California Archaeological Resource Identification and Data Acquisition Program (CARIDAP) surveys were conducted at lithic scatters CA-SBR-17161, CA-SBR-17165, and CA-SBR-17168. Detailed discussions of the findings and conclusions for these sites are provided in the XP1 and CARIDAP reports, also included as attachments to the HPSR. A summary of the eligibility determinations resulting from these studies of all non-exempt cultural resources within the APE is presented in Table 2.6-2. The SHPO concurred with these determinations on February 17, 2015 (see letter in Chapter 3).

Table 2.6-2. Non-Exempt Cultural Resources within the APE

Trinomial/Temporary Number	Description	Disposition
AE-2334-9H	Historic era segment of dirt road	Evaluated in HRER, not eligible
AE-2334-32H	Historic era segment of dirt road	Evaluated in HRER, not eligible
AE-2334-33H	Historic era segment of dirt road	Evaluated in HRER, not eligible
CA-SBR-7545H	Historic-period refuse scatter	Evaluated in HRER, not eligible
CA-SBR-17156H	Historic shallow pit and associated refuse	Assumed eligible, Stipulation VIII.C.3
CA-SBR-17157H	Historic refuse deposit	Assumed eligible, Stipulation VIII.C.3
CA-SBR-17160	Lithic scatter	Assumed eligible, Stipulation VIII.C.3
CA-SBR-17161	Sparse lithic scatter	Evaluated in CARIDAP Report, not eligible
CA-SBR-17162	Cobble quarry and lithic scatter	Assumed eligible, Stipulation VIII.C.3
CA-SBR-17163	Cobble quarry and lithic scatter	Assumed eligible, Stipulation VIII.C.3
CA-SBR-17165	Sparse lithic scatter	Evaluated in CARIDAP Report, not eligible
CA-SBR-17168	Sparse lithic scatter	Evaluated in CARIDAP Report, not eligible
CA-SBR-17169	Lithic scatter	Assumed eligible, Stipulation VIII.C.3

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

No evaluated historic properties that have been determined eligible are present in the project APE. Six unevaluated archaeological sites within the APE have been assumed eligible for inclusion in the National Register of Historic Places for the purposes of this project only because they will be protected from any potential effects through the establishment of an Environmentally Sensitive Area (ESA) in accordance with Stipulation VIII.C.3 of the Section 106 Programmatic Agreement. An ESA Action Plan can be found as an attachment to the HPSR.

Alternative 2 (No-Build Alternative)

The No-Build Alternative would not result in any impacts on cultural resources.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following measures for CEQA and NEPA will be included in order to reduce the potential for impacts related to the discovery of previously unknown cultural resources or human remains during construction of the proposed project.

- **CR-1:** 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.
- **CR-2:** If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to

overlie remains, and the county coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact Gary Jones, District 8 Native American Coordinator at (909) 383-7505 so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC Section 5097.98 are to be followed as applicable.

- **CR-3:** An Environmentally Sensitive Area (ESA) will be delineated around sites CA-SBR-17156H, CA-SBR-17157H, CA-SBR-17160, CA-SBR-17162, CA-SBR-17163, and CA-SBR-17169 and managed as described in the ESA Action Plan.

This page intentionally left blank.

PHYSICAL ENVIRONMENT

2.7 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 requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

In order 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."

State Regulations

The California Reclamation Board cooperates with various federal, state, and local agencies and governments in establishing, planning, constructing, operating, and maintaining flood control works. The board also maintains the integrity of the existing flood control system and designated floodways through its regulatory authority by issuing permits for encroachments.

Local Regulations

SAN BERNARDINO COUNTY GENERAL PLAN

The County's general plan includes goals and policies intended to provide adequate flood protection to minimize hazards and structural damage in the County. The following policies would be applicable to the proposed project:

- **LU 7.2.** Enact and enforce regulations that will limit development in environmentally sensitive areas, such as those adjacent to river or streamside areas, and hazardous areas, such as flood plains, steep slopes, high fire risk areas, and geologically hazardous areas.

- **M/CI 4.1.** Retain the natural channel bottom for all storm water drainage facilities and flood control channels when such facilities are required for a specific development. This protects wildlife corridors and prevents loss of critical habitat in the region.
- **D/CI 3.10.** Encourage the retention of natural drainage areas unless such areas cannot carry flood flows without damage to structures or other facilities.
- **GOAL S 5.** The County will provide adequate flood protection to minimize hazards and structural damage.

AFFECTED ENVIRONMENT

Unless otherwise noted, information in this section is summarized from the February 2015 Location Hydraulic Study, the February 2015 Summary Floodplain Encroachment Report, the February 2015 Scoping Questionnaire for Water Quality Issues, and the January 2015 Initial Site Assessment.

Topography and Drainage

Topography of the area varies from rugged rocky mountaintops, surrounded by gravel-laden alluvial fans and aprons, to sand and clay deposits in flat valley areas. The basins that drain to the project area include Saddleback Mountain, Leuhman Ridge, Boron, Kramer Junction, The Buttes, and Kramer Hills. Drainage flow lines are generally well defined in the higher elevations and on the steeper alluvial fans. However, they lose definition as the gradient decreases, becoming wide and flat areas of shallow flows.

The highway and surrounding area consists mainly of relatively flat, gently rolling desert terrain composed of Pleistocene and Holocene alluvial deposits that form desert terraces, intermittent drainages, and broad basins and playas with sedimentary deposits from a dry lake. The local topography traverses both flat and rolling desert terrain. The general slope along tributary areas to the project site is toward the north, and runoff generated from the various hydrologic basins flows northerly.

The elevation along the alignment of the proposed project range from 2,470 feet above mean sea level (amsl) at the intersection of SR-58 and US-395 to approximately 3,070 feet amsl at the southern terminus of the alignment of the proposed project. The headwater elevation at Saddleback Mountain is approximately 2,795 feet, and 3,207 feet amsl at Kramer Hills.

Surface Water Hydrology

The project area is within the Mojave hydrologic basin of the Coyote-Cuddeback Lakes Watershed. The overall Mojave hydrologic basin, which has a surface area of approximately 4,500 square miles, is entirely within the County of San Bernardino. The Mojave River, approximately 15 miles southeast of the project site, is the nearest major watercourse. Most of the Mojave River is subterranean, but flows breach the surface between the cities of Barstow and Victorville. Additionally, several washes occur along the proposed site, totaling an area of approximately 1.5 acres.

Groundwater Hydrology

Groundwater is anticipated to flow north/northeast generally mimicking surface topography of the Kramer Junction area. The Environmental Data Resources (EDR) report prepared as part of the Initial Site Assessment (ISA) reports groundwater at depths greater than 250 feet below ground surface (bgs) in the eastern portion of Edwards Air Force Base. According to the GeoTracker website, depth to groundwater is reported to be between 60 and 120 feet bgs near Kramer Junction. The Harper Valley Groundwater Basin underlies the project area.

HARPER VALLEY GROUNDWATER BASIN

The Harper Valley groundwater basin, which underlies the entire project area, has a total surface area of 410,000 acres (approximately 640 square miles). The basin is bounded on the east by Fremont Peak, Black Mountain, the Gravel Hills, and the Mud Hills; on the west by a combination of surface drainage divides, portions of the Harper, Kramer Hills, and Lockhart faults, and other low-lying basement hills; on the south by subsurface drainage patterns and Mount General, Iron Mountain, and the Waterman Hills; and on the north by portions of the Rand Mountains. Drainage in the basin occurs via numerous ephemeral streams that flow toward Harper Lake, which is a dry lake.

The natural recharge of the basin occurs mainly from rainfall infiltration and surface runoff percolation through alluvial fans around the edges of the valley. Harper Valley receives some groundwater underflow from the Middle Mojave River Valley and Cuddeback Valley groundwater basins. The Middle Mojave River Valley Groundwater Basin is south of the Harper Valley Groundwater Basin and drains to a tributary named the Fremont Wash. In general, groundwater flows toward Harper Lake in the southern part of the valley.

A water-level hydrograph for a well in the northwestern part of the basin indicates a rapid rise of 34 feet in 1957. In this same well, the water level was relatively stable from 1974 to 1999, rising only about one and six-tenths of a foot. Hydrographs for wells in the western portion of the basin indicate steady groundwater levels from 1992 to 1998. The hydrograph for a well in the southern part of the basin indicates that the groundwater levels declined about 12 feet from 1992 to 1998. The hydrograph for a well in the southeastern part of the basin shows a drop of 17 feet from 1967 to 1999. A nearby well remained steady from 1987 to 1993. However, from 1996 to 1999, the water level in this well fluctuated widely. In general, groundwater flows toward Harper Lake.

Floodplain Characteristics

The Federal Emergency Management Agency (FEMA) identifies zones with flood hazard potential and provides information regarding flood hazards and frequency for cities and counties through its Flood Insurance Rate Maps (FIRMs). FIRMs were consulted to determine if any part of the proposed project area is located within an area that has an identified flood hazard. According to FEMA, the entire project area is within Zone D. The Zone D designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted. Zone D is not considered a special flood hazard area (FEMA 2011).

The entire project area, including the portion of the project that is adjacent to EAFB, is on non-printed panel 06071C3825H. Based on the February 2015 Location Hydraulic Study and February Summary Floodplain Encroachment Report prepared for the largest wash, the proposed project has no effect on any of the land within the project area, whether on EAFB or not. There are no FEMA-designated 100-year or 500-year floodplains nor floodways along US-395 within the project limits.

There are no permanent streams within the project limits, although several blue-line intermittent streams cross the highway. None of these has a drainage area of more than a few square miles, and there is no history of substantial runoff being observed in the area.

See Figure 2.7-1 below, which shows the FIRM panel in which the project is located. Figure 2.7-2 shows the Zone D designation in the area surrounding the project based on FEMA data.

ENVIRONMENTAL CONSEQUENCES

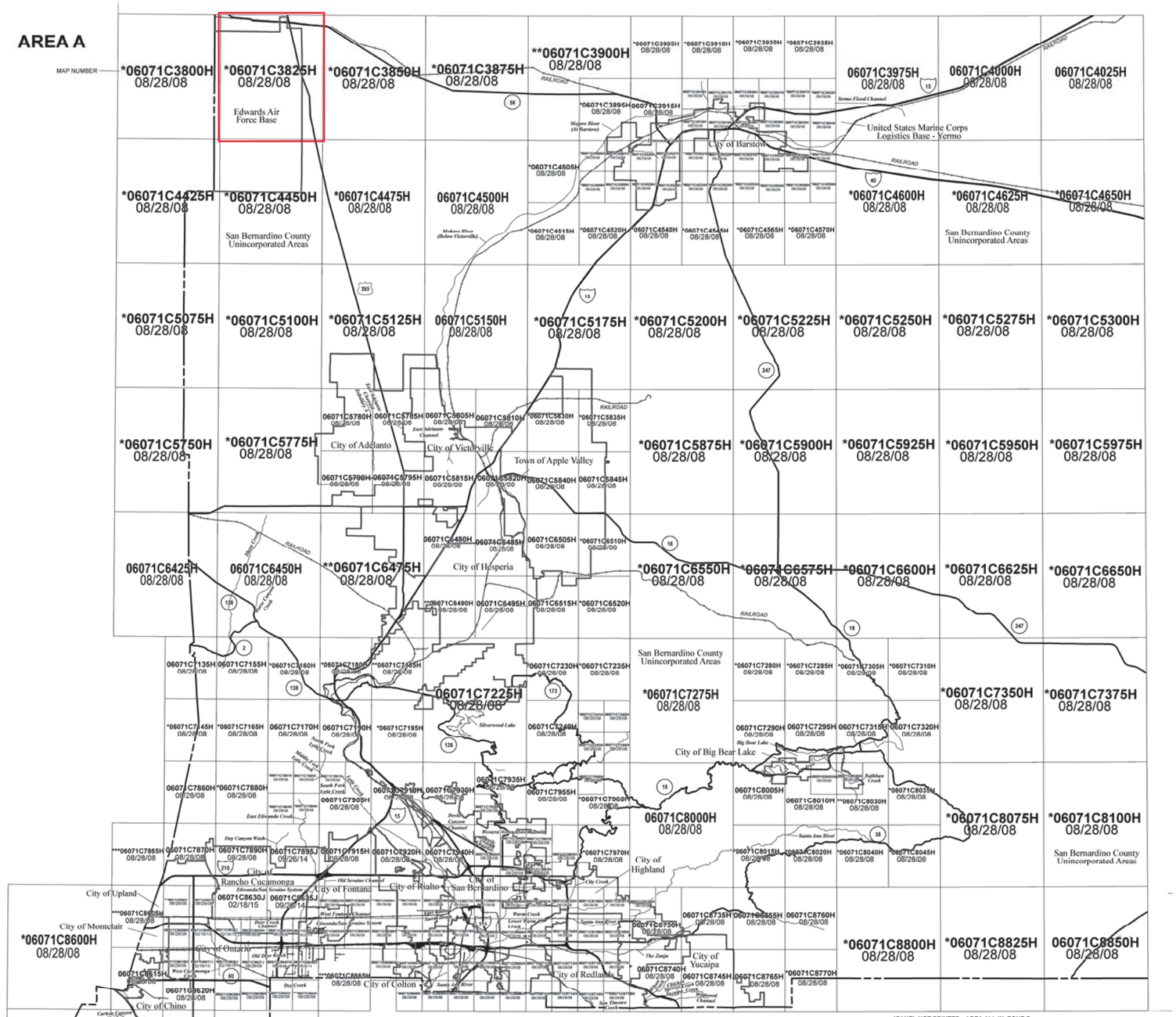
Alternative 1 (Build Alternative)

Construction activities could temporarily disturb soil surfaces, which would alter site drainage patterns. Grading and excavation activities would also require temporary vegetation removal and potential fill of natural drainage features. The project site boundaries have been delineated to avoid vegetation removal/disturbance and infringement upon natural drainage features to the maximum extent practicable. However, some drainage areas would be disturbed during site development, exposing the underlying surfaces to erosion forces.

Following the implementation of the Best Management Practices (BMPs), pervious area soil stability and infiltration properties would be restored in accordance with the Storm Water Pollution Prevention Plan (SWPPP) and avoidance and minimization measures identified in Section 2.8, *Water Quality and Storm Water Runoff*. Impacts would be considered minor.

Maintained or extended drainage facilities would be included as part of the roadway improvements under Alternative 1 to maintain drainage functionality. The hydrology analysis presented in the Location Hydraulic Study indicates that anticipated storm flows would be conveyed under the proposed highway alternatives. Portions of the project site include relatively limited flow lines due to the flat terrain. Accordingly, generalized ponding in areas on either side of US-395 could occur.

Groundwater hydrology is not expected to be adversely affected by the proposed project, nor would groundwater hydrology adversely affect the proposed project. Groundwater could occur as perched water in areas where water collects on impermeable layers in the subsurface strata. Upon completion of proposed cuts in this area, it is possible that flowing water along the bedrock/soil contact may seep out and flow downslope toward US-395. Seepage out of the cut face is not expected to be a permanent condition because there is not enough rainfall to create a year-round flow. This condition would occur only after periods of heavy rainfall and be minimized by the maintenance or extension of drainage facilities under Alternative 1.



*PANEL NOT PRINTED - AREA ALL IN ZONE D
**PANEL NOT PRINTED - UNINCORPORATED AREAS ZONE D; OTHER AREAS ZONE X
***PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS
****PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY

ELEVATION DATUM

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N / NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

NOTE TO USER

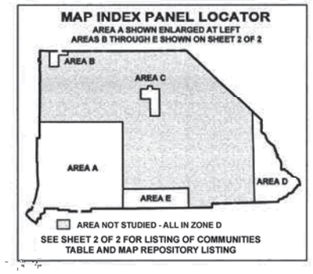
Future revisions to this FIRM Index will only be issued to communities that are located on FIRM panels being revised. This FIRM Index therefore remains valid for FIRM panels dated February 18, 2015 or earlier. Please refer to the "MOST RECENT FIRM PANEL DATE" column in the Listing of Communities table to determine the most recent FIRM Index date for each community.

MAP DATES

This FIRM Index displays the map date for each FIRM panel at the time this Index was printed. Beacuse this Index may not be distributed to unaffected communities in subsequent revisions, users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website at http://msc.fema.gov or by calling the FEMA Information eXchange (FMIX) at 1-877-336-2627.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

Project Location



NFIP
NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM
FLOOD INSURANCE RATE MAP

SAN BERNARDINO COUNTY, CALIFORNIA AND INCORPORATED AREAS
(SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX
SHEET 1 OF 2

PANELS PRINTED: 3915, 3916, 3917, 3918, 3919, 3935, 3936, 3939, 3945, 3975, 4000, 4025, 4500, 4507, 4509, 4526, 4527, 4528, 4529, 4532, 4551, 4556, 5150, 5750, 5785, 5790, 5795, 5805, 5810, 5815, 5820, 5840, 5845, 6425, 6450, 6480, 6485, 6495, 6505, 6515, 7135, 7155, 7170, 7190, 7225, 7240, 7243, 7244, 7290, 7295, 7315, 7320, 7860, 7870, 7882, 7890, 7895, 7901, 7905, 7910, 7915, 7920, 7930, 7933, 7935, 7940, 7942, 7944, 7945, 7955, 7956, 7961, 7963, 7965, 8000, 8005, 8007, 8010, 8026, 8507, 8608, 8609, 8615, 8616, 8617, 8620, 8628, 8629, 8630, 8633, 8634, 8635, 8636, 8637, 8638, 8639, 8641, 8642, 8651, 8652, 8653, 8654, 8658, 8666, 8670, 8677, 8678, 8679, 8681, 8682, 8683, 8684, 8690, 8687, 8688, 8689, 8691, 8692, 8693, 8694, 8701, 8702, 8703, 8704, 8706, 8707, 8708, 8709, 8711, 8712, 8714, 8716, 8717, 8718, 8726, 8730, 8735, 8740, 8745, 8755, 8760, 8765, 8850, 9330, 9335, 9345, 9375

(SEE SHEET 2 FOR ADDITIONAL PANELS PRINTED)

MAP NUMBER
06071CIND1D

MAP REVISED
FEBRUARY 18, 2015

Federal Emergency Management Agency

Figure 2.7-1. FEMA FIRM Panel Location

This page intentionally left blank.

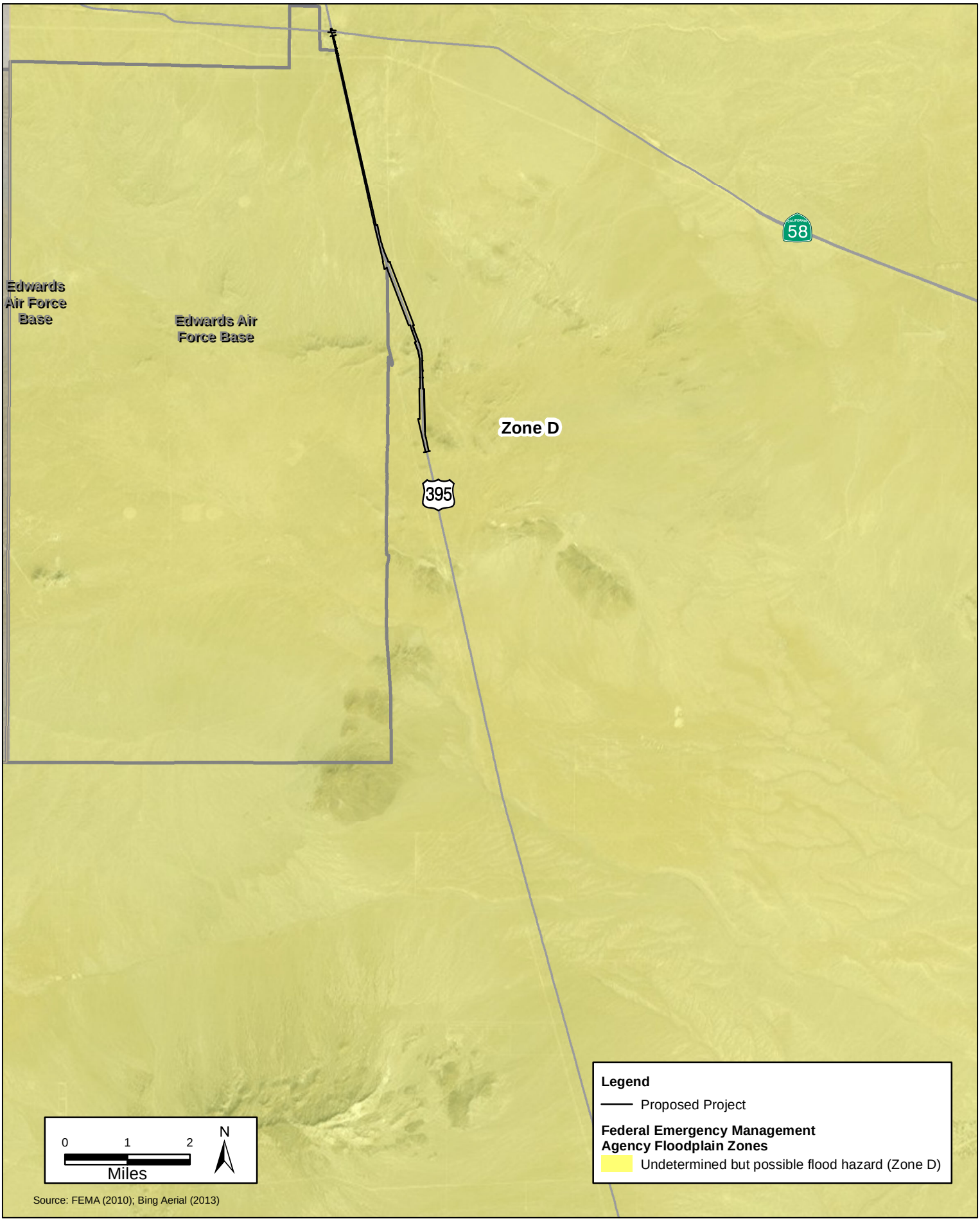


Figure 2.7-2
FEMA Flood Zones
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

Implementation of Alternative 1 (Build Alternative) is not expected to bring about an appreciable change in the quantity of groundwater through direct additions or withdrawal, or substantial loss of groundwater recharge capability. Although the proposed project would add additional impervious area, this is not anticipated to have a substantial impact on groundwater recharge. The proposed project would not degrade groundwater quality or alter the groundwater's direction or rate of flow. Therefore, effects on the quantity, flow, and/or quality of groundwater would be minor.

The build alternative would not result in "significant encroachment," as defined by 23 CFR 650.105, into a floodplain. Furthermore, it would not result in the interruption or termination of a transportation facility that is needed for emergency vehicles or a community's only evacuation route. Finally, it would not result in a substantial adverse risk to life or property, nor would it result in impacts on natural and beneficial floodplain values because drainage would be appropriately conveyed as part of the project design.

According to the County of San Bernardino General Plan, the project site is not within a dam inundation area; therefore, the proposed project would not expose people or structures to any new risks associated with dam failures.

Given the distance of the Pacific Ocean from the site and the relatively flat topography of the surrounding area, the build alternative would not result in a tsunami or mudflow hazard.

The build alternative would result in minor indirect permanent impacts related to hydrology or flooding in adjacent areas. Long-term or permanent impacts would be considered minor.

Alternative 2 (No-Build Alternative)

Under the No-Build Alternative, there would be no improvements made to US-395. Consequently, there would be no substantial adverse impacts on hydrology and floodplains in the project area. The existing surface and groundwater hydrology and floodplains would remain the same.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, or mitigation measures are required.

2.8 Water Quality and Storm Water 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[1] 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 United States. 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 Standard permits. There are two types of General permits: Regional permits and Nationwide permits. 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 Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA

[1] A point source is any discrete conveyance such as a pipe or a man-made ditch.

in conjunction with 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[2] 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, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these 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.

[2] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

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. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM

Municipal Separate Storm Sewer Systems (MS4)

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 Department's MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit 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 Best Management Practices (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

Construction General Permit (Order No. 2009-0009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites which 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 results 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; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 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 Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (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 United States 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 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 Waste Discharge Requirements (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

Unless otherwise noted, information in this section is summarized from the February 2015 Scoping Questionnaire for Water Quality Issues.

Water Quality

The project is contained within the North Muroc and Lockhart sub-watersheds. There are no named surface waters in the project area; however, beneficial uses of the minor surface waters in the project vicinity that would apply to the project vicinity could include groundwater recharge and wildlife habitat. According to the CWA Section 303(d) list, no surface waters in the project area are listed as impaired (State Water Resources Control Board 2006).

Based on the highway stormwater runoff data collected by Caltrans' Stormwater Research and Monitoring Program, pollutants that are expected to be found in roadway runoff include conventional constituents (e.g., biochemical oxygen demand, calcium carbonate, chemical oxygen demand, total dissolved solids, total organic carbon, total suspended solids, total volatile suspended solids), hydrocarbons, metals, microbial agents, nutrients, volatile and semi-volatile organics, pesticides, and herbicides. Pollutants are usually deposited on the roadway as a result of fuel combustion processes, lubrication system losses, tire and brake wear, transportation load losses, paint from infrastructure, and atmospheric fallout. Sources of specific pollutants are outlined in Table 2.8-1.

It should be noted that these potential pollutants from project roadway runoff would not impact a domestic or municipal drinking water resource. Stormwater runoff would contribute to groundwater recharge; however, it would not impact any "high risk" area such as a reservoir, lake, river, creek, or other recharge facility.

Table 2.8-1. Known Roadway Pollutants

Constituents	Primary Sources
Particulates	Pavement wear, vehicles, atmosphere, maintenance, snow/ice abrasives, sediment disturbance
Nitrogen, Phosphorus	Atmosphere, roadside fertilizer application, sediments
Lead	Auto exhaust, tire wear, lubricating oil and grease, bearing wear, atmospheric fallout
Zinc	Tire wear, motor oil, grease
Iron	Auto body rust, steel highway structures, moving engine parts
Copper	Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicide and insecticide application
Cadmium	Tire wear, insecticide application
Chromium	Metal plating, moving engine parts, brake lining wear
Nickel	Diesel fuel and gasoline, lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving
Manganese	Moving engine parts
Bromide	Exhaust
Cyanide	Anticake compound used to keep deicing salt granular
Sodium, Calcium	Deicing salts, grease
Chloride	Deicing salts
Sulphate	Roadway bed, fuel, deicing salts
Petroleum	Spills, leaks or blow-by of motor lubricants, antifreeze and hydraulic fluids, asphalt leachate
Polychlorinated biphenyls (PCBs), Pesticides	Spraying of highway rights-of-way, atmospheric deposition, PCB catalyst in synthetic tires
Pathogenic Bacteria	Soil litter, bird droppings, trucks hauling livestock/stockyard waste
Rubber	Tire wear
Asbestos*	Clutch and brake lining wear
Source: U.S. Department of Transportation, Federal Highway Administration 1996. * Runoff does not contain mineral asbestos; however, some breakdown products of asbestos have been measured.	

Groundwater

As previously discussed in Section 2.7, the ISA prepared for the proposed project stated that groundwater would occur at depths greater than 250 feet bgs in the eastern portion of Edwards Air Force Base and at depths between 60 and 120 feet bgs near Kramer Junction.

Groundwater quality in the Harper Valley Groundwater Basin, which underlies the entire alignment, is generally too poor to support irrigation and domestic uses. The basin's groundwater type varies by location with a primarily sodium sulfate-bicarbonate in the north, sodium chloride in the west, and calcium-sodium sulfate in the south. Boron, fluoride, and sodium concentrations are very high in this basin. No other impairments have been reported.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

Alternative 1 would increase the existing acreage of impervious surfaces within the project area by approximately 9.7 acres. Although there would be an increase in impervious surfaces, the potential for increased runoff is limited by the dry climate of the area. Given the distance of the proposed improvements from impaired receiving water bodies, implementation would not affect the beneficial uses of minor surface waters in the North Muroc and Lockhart sub-watersheds and other various unnamed water bodies in the region. Alternative 1 would affect 0.97 acre of CDFW jurisdictional waters (0.62 acre of temporary impacts and 0.35 acre of permanent impacts). Minimization measure **BIO-2,** identified in Section 2.14, *Wetlands and Other Waters*, would minimize potential impacts on these water resources. A Water Quality Certification from the Lahontan RWQCB (Region 6) will be required. Under Section 401 of the CWA, the RWQCB must certify that the discharge of dredged or fill material into waters of the U.S. does not violate state water quality standards. Slopes steeper than 4:1 will require an erosion control plan approved by the District Landscape Architect.

The release of hazardous materials could occur as a result of spills from vehicles using the highway. The transportation and cleanup of hazardous materials is strictly regulated by the U.S. EPA, the California and Federal Occupational Health and Safety Administrations, and a number of other federal, state, and local agencies. No substantial adverse effects are anticipated.

Alternative 2 (No-Build Alternative)

No project improvements would be implemented under Alternative 2, and no impacts related to water quality or storm water would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

In addition to the measure contained in Section 2.14, *Wetlands and Other Waters*, implementation of the avoidance and/or mitigation measures identified below would ensure that adverse impacts related to water quality would not occur. In addition, earthwork in the project area would be performed in accordance with the most current edition of Caltrans' Standard Specifications and Storm Water Quality Handbook, with consideration of the requirements of applicable government agencies, and the SWPPP and WPCP will be generated using the templates provided in the June 2011 preparation manuals.

- **WQ-1:** The project will comply with the provisions of the Statewide NPDES permit (NPDES NO. CAS000003 and CAS000002). Treatment BMPs, as described in Section 3 of Caltrans' Statewide SWMP (Caltrans 2003a) and the Project Planning and Design Guide (PPDG) (Caltrans 2010), will be evaluated prior to completion of the Project Approval and Environmental Document phase and incorporated into the project's engineering plans and specifications during final design. Design pollution prevention BMPs are selected to reduce post-construction discharges. If greater than 90% of the water quality volume cannot be infiltrated within state right of way, approved treatment BMPs will be included to remove

general pollutants; for example, infiltration devices or detention basins. Construction site BMPs, as described in WQ-3, will be itemized in the final contract documents, incorporated into the SWPPP, and implemented during the construction period.

- **WQ-2:** The contractor will be responsible for preparing a SWPPP according to Caltrans standards, incorporating all the BMPs listed in the contract plans, and amending the SWPPP during the course of construction as necessary. The Resident Engineer will review and accept the SWPPP. The Resident Engineer will file electronically all compliance documents related to the Construction General Permit using the Storm Water Multi Application and Report Tracking System (SMARTS). The general contractor will also implement, inspect, and maintain all measures with oversight by the Resident Engineer.
- **WQ-3:** Table 1-1 of Caltrans' Construction Site Best Management Practices Manual (Caltrans 2003b) and/or Storm Water Quality Handbooks, Project Planning and Design Guide (Caltrans 2010), includes the following BMPs:
    - Temporary soil stabilization
    - Temporary sediment controls
    - Tracking control
    - Non-stormwater management
    - Waste management
    - Material storage and handling controls

  At a minimum, the contractor will implement all of the appropriate BMPs under the minimum requirement column of Table 1-1 of the Caltrans' Construction Site Best Management Practices Manual (Caltrans 2003b) and/or Storm Water Quality Handbooks, Project Planning and Design Guide (Caltrans 2010). During completion of the final engineering and design plans, specific BMPs will be specified in the contract documents to protect water quality. Specified BMPs will be implemented by the contractor through the SWPPP. The plan will also include post-construction erosion control measures such as stabilization of all disturbed soil areas.
- **WQ-4**: In order to minimize water quality impacts on the 34 natural drainages that cross the project area, coordination with USACE, CDFW, and Lahontan RWQCB will be completed prior to the end of PS&E. It is expected that a WDR from the Lahontan RWQCB would be required.
- **WQ-5**: Construction staging areas will be sited outside stream channels and other surface waters.
- **WQ-6**: Construction equipment will use existing roads.

2.9 Geology/Soils/Seismicity/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. The Department's Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. 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

Regional Geology

The alignment of the proposed project lies within the Mojave Desert geomorphic province. This triangular region is bounded on the east by the Colorado River and the California-Nevada border, on the north by the Garlock fault, and on the southwest by the San Gabriel and San Bernardino Mountains and the San Andreas fault. In the vicinity of the project, the western Mojave Desert is a wedge-shaped area, bordered on the southwest and northwest by rugged mountain ranges that reach altitudes of 7,900 to 10,080 feet above sea level. The desert itself, which has a comparatively low relief, is virtually an alluviated plain with irregularly trending bedrock hills and low mountains. The alluvial area contains seven dry lakes or playa flats in the lowest parts. The only through-going drainage channel is the Mojave River, an intermittent river that flows from the San Bernardino Mountains northward and then eastward.

The desert plain ranges from an elevation of about 2,000 feet at the playa flats and along the Mojave River channel to about 4,000 feet adjacent to the bordering mountains. The hill areas within the desert region are generally 1,500 feet above the surrounding alluvial plain, with the highest peak rising approximately 2,400 feet above the plain.

Site Geology

The alignment of the proposed project is underlain by thick alluvial deposits of Quaternary-age[3] material, derived from the mountains that border the desert region and the highlands within it. Near the eastern end of the project site, the alignment passes through a low rise composed of

[3] The Quaternary period in the geologic time scale spans from 2.588 million years ago to the present.

Cretaceous[4] or Jurassic[5] quartz monzonite. A few miles west of the project site, the alluvial material consists of slightly compact to very dense silty sands and sandy silts, with scattered pebbles. Additionally, according to the geotechnical report, carbonate pieces and seams may also be present within the alluvial material.

In addition to the surficial alluvial deposits, artificial fills composed of various earth materials are most likely present along the proposed alignment. Relatively thick accumulations of these fills may be present locally where the project traverses developed areas.

Topography and Surface Drainage

The existing topography of the alignment is relatively flat terrain of a broad alluvial plain, with a steady decline in the northbound direction. Elevations in the vicinity of the proposed project range from 2,470 feet at the intersection of SR-58 and US-395 to approximately 3,070 feet near the southern terminus of the alignment of the proposed project. Drainage along the proposed project is toward the north and northeast.

Groundwater

The proposed project lies within the Harper Valley groundwater basin. Groundwater pumping within the basin has increased over time, with a large increase occurring in the late 1940s. By the early 1950s, groundwater pumping exceeded the rate of recharge each year. Since the early 1960s, groundwater levels in wells near Harper Lake, northeast of the project site, have lowered by approximately 100 feet.

Seismicity

The study area is in a highly seismically active area, as is most of Southern California. Significant earthquake events have recently occurred within the general vicinity. For example, the Landers earthquake occurred on June 28, 1992, in an area approximately 70 miles southeast of the project site. That earthquake, which had a moment magnitude of 7.3, ruptured the Landers, Johnson Valley, Homestead Valley, Emerson, and Camp Rick faults. Because it was centered in a sparsely populated area of the Mojave Desert, the Landers earthquake, which ruptured the ground surface along a 50-mile stretch of the desert floor, resulted in only one fatality.

On October 16, 1999, the Hector Mine earthquake occurred approximately 60 miles southeast of the site. That earthquake, which had a moment magnitude of 7.1, ruptured along 25 miles of the Lavic Lake fault. The Hector Mine earthquake occurred in an area that was even less populated than the area of the Landers quake and therefore caused little damage.

Liquefaction

Liquefaction is defined as a substantial and relatively sudden reduction in the stiffness and shear strength of saturated sandy soils caused by a seismically induced increase in pore water pressures. The potential for seismically induced liquefaction exists whenever relatively loose

[4] The Cretaceous geologic period spans from approximately 145 to 66 million years ago.
[5] The Jurassic geologic period spans from approximately 201 to 145 million years ago.

sandy soils occur in areas with a high groundwater level and/or long-duration, high-level seismic shaking. When liquefaction occurs, a site can experience damage induced by permanent ground movements, resulting in differential settlement and flotation of structures, tanks, and pipelines. Since the proposed project is in an area with relatively deep groundwater, the potential for liquefaction during a seismic event is considered minimal to nonexistent.

Ground Shaking

Ground shaking is expected to occur at the site because of the predicted magnitude of peak ground accelerations from earthquakes along nearby faults. Strong ground motion occurs as energy is released during an earthquake. The intensity of ground motion at the site would depend on the distance from the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the area.

The nearest potentially active fault is the Kramer Hills fault, located immediately adjacent to the southern portion of the alignment of the proposed project, which is capable of generating a maximum credible earthquake moment magnitude of 6.25. In addition, the Lockhart/Lockhart South fault, 5 miles east of the alignment of the proposed project, is capable of generating a maximum credible earthquake moment magnitude of 7.25. The Helendale fault, approximately 5 miles from various portions of the proposed project, is capable of generating a maximum credible earthquake moment magnitude of 7.25.

Surface Rupture

Primary ground rupture is ground deformation that occurs along the surface trace of the causative fault during an earthquake. The proposed project would cross the Kramer Hills fault at the southern terminus of the alignment. This fault is not listed on the Alquist-Priolo Earthquake Fault Zone Map as a fault liable to have a high probability for ground rupture during an earthquake.

Scour

No perennially flowing creek or stream was observed within the limits of the proposed project during site reconnaissance. However, up to 34 ephemeral dry washes extend through the area that may be directly affected by the proposed project. Climatic conditions within the region are arid, and normally precipitation is negligible; however, flash floods do occur and their intensity is unpredictable. Therefore, scour may be an issue within culverts.

Landslides

Landslides are not anticipated to be a substantial issue because the topography of the area surrounding the alignment of the proposed project is subdued.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

LIQUEFACTION, GROUND SHAKING, AND SURFACE RUPTURE

Neither ground shaking nor fault rupture can be avoided when highways cross active faults. However, by placing a proposed highway at natural grade, in low cuts, or on low embankments, the potential for, and consequences of, failure can be limited. In addition, the highway can be restored to service with a comparatively small amount of reconstruction work following a seismic event.

The proposed design for the alternative is favorable with respect to accommodating future ground shaking or surface rupture. In addition, compliance with Caltrans procedures regarding seismic design, as detailed in Section 19, Earthwork, of the Caltrans 2010 Standard Specifications, would prevent or minimize adverse effects related to seismic ground shaking. Seismic design would also meet county requirements related to near-source design parameters of the Uniform Building Code (UBC).

Since the proposed project is in an area with relatively deep groundwater, the potential for liquefaction during a seismic event is considered minimal to nonexistent. The potential for other geologic hazards related to liquefaction, such as lateral spreading, is also considered minimal to nonexistent. Impacts related to seismic hazards would be minor.

GROUNDWATER

Groundwater is not expected to affect the proposed alignment. As discussed in Section 2.8, *Water Quality and Storm Water Runoff*, the implementation of Alternative 1 would not involve groundwater extraction, extensive grading, or tunneling that could affect groundwater resources. Within the cut sections of the alignment, however, groundwater may be perched, or may become perched, on the contact between rock and alluvium. Upon completion of cuts in this area, it is possible that water that flows along the bedrock/soil contact may seep out along the line of intersection between the cut face and the aforementioned geologic contact. In that case, water may flow downslope toward the proposed roadway. However, seepage out of the cut face is not expected to be a permanent condition because there is not enough rainfall to create year-round flow.

SOILS

Because of their sandy nature, on-site soils are easily erodible, and erosion could occur during construction. Development of the roadway would result in ground breaking and vegetation removal during construction. As a result, soil could be exposed to rain and wind, potentially causing accelerated erosion and the deposition of soil from the project site. Federal and state jurisdictions require an approved SWPPP to be prepared for projects that involve greater than 1 acre of disturbance. A SWPPP specifies BMPs to prevent construction pollutants from contacting storm water with the intent of keeping all products of erosion from moving off site

and into receiving waters. Earthwork in the project area would be performed in accordance with Section 19, Earthwork, of the Caltrans Standard Specifications 2010 Manual and/or the requirements of applicable government agencies. Impacts related to soils would be minor.

SETTLEMENT

Immediate settlement caused by the weight of embankment fill as well as compression is expected to occur during the construction of embankments. No substantial adverse effects are anticipated.

A comprehensive geotechnical study, including a field investigation and laboratory soil testing, will be performed during the Plans, Specifications, and Estimates (PS&E) phase of the proposed project. Any recommendations arising from that study will be implemented and incorporated into the proposed project.

Alternative 2 (No-Build Alternative)

Under Alternative 2 (No-Build Alternative), no effects involving geology, soils, seismicity, or topography would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, or mitigation measures are required.

2.10 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. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects. 16 United States Code (USC) 431-433 (the "Antiquities Act") prohibits appropriating, excavating, injuring, or destroying any object of antiquity situated on federal land without the permission of the Secretary of the Department of Government having jurisdiction over the land. Fossils are considered "objects of antiquity" by the Bureau of Land Management, the National Park Service, the Forest Service, and other federal agencies. 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. 16 United States Code (USC) 470aaa (the Paleontological Resources Preservation Act) prohibits the excavation, removal or damage of any paleontological resources located on federal land under the jurisdiction of the Secretaries of the Interior or Agriculture without first obtaining an appropriate permit. The statute establishes criminal and civil penalties for fossil theft and vandalism on federal lands. 23 United States Code (USC) 1.9(a) requires that the use of federal funds must be in conformity with federal and state law. Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

Paleontological resources are considered to have scientific value if they provide new data on fossil animals, distribution, evolution, or other scientifically important information. Caltrans uses a three-level scale to characterize paleontological sensitivity (see Table 2.10-1).

Table 2.10-1. Caltrans' Paleontology Sensitivity Scale

Potential	Description
High	Rock units that, based on previous studies, contain or are likely to contain significant vertebrate, significant invertebrate, or significant plant fossils. These units include sedimentary formations that contain significant nonrenewable resources anywhere within the geographical extent.
Low	Rock units that are not known to have produced significant fossils in the past but possess a potential to contain fossils or those that yield common fossil invertebrates.
No	Rock units of intrusive igneous origin, most extrusive igneous rocks, and moderately to highly metamorphosed rocks.
Source: Caltrans 2011.	

AFFECTED ENVIRONMENT

The information in this section was synthesized from the January 2015 *Paleontological Identification Report and Paleontological Evaluation Report* (PIR/PER) prepared for the proposed project.

Stratigraphy

The project site lies within the Mojave Desert geomorphic province. This triangular region is bounded on the east by the Colorado River and California-Nevada border, on the north by the Garlock fault, and on the southwest by the San Gabriel and San Bernardino Mountains and the San Andreas fault. The geological mapping of this part of the Mojave Desert indicates that the proposed project alignment traverses surface exposures of Pleistocene older alluvium overlain by a thin sedimentary veneer of Holocene alluvium. The surface and subsurface Pleistocene sediments were derived from the ancestral Mojave River and have the potential to contain scientifically important nonrenewable paleontological resources.

Records Search and Field Reconnaissance

A paleontological records search was completed with online databases and published materials for the general project area. These included a paleontological record search requested from the San Bernardino County Museum (SBCM). The results of this search indicated that numerous previously known paleontological resources are recorded by the SBCM within the boundaries of the study area.

Records from the SBCM indicate that the remains of an extinct camel genus (*Camelops*) have been found near Kramer Junction and the remains of small terrestrial vertebrates have been found to the south and west of Kramer Junction. Aside from the extinct camel genus found within the study area, no time-diagnostic taxa were identified in the study area, and all of the identified taxa are extant.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

The construction of Alternative 1 would involve the expansion of the US-395 facility to allow for widened shoulders and a 4-foot median buffer on vacant, undeveloped land along the alignment. Earth-moving and excavation activities would be required, which could result in the uncovering of previously undiscovered fossil resources.

The records search and literature review demonstrate that excavation at depths greater than 4 feet may affect potentially fossil-bearing alluvial Pleistocene deposits. Excavation depths are expected to be maintained at a depth of well less than 4 feet throughout the project area, although caliche removal at some specific loci may result in excavation depths greater than 4 feet. A geotechnical study is scheduled to be performed during the final design phase of this project to identify the depth and extent of the caliche at these loci. Results of the study will be used to ascertain specific necessary excavation depths for the sake of construction and to identify the nature and age of underlying deposits and consequent paleontological sensitivity. If results of the geotechnical study suggest that potentially fossil-bearing deposits may be affected through project-related excavation, a Paleontological Mitigation Plan (PMP) will be prepared and additional measures will be stipulated.

Alternative 2 (No-Build Alternative)

Under Alternative 2 (No-Build Alternative), no effects on paleontological resources would occur, as no earth-moving activities would take place.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Because of the extensive nature of geologic units with high paleontological sensitivity in the study area, avoidance and minimization of the potential adverse effects are not feasible. With the implementation of the following measures, however, potential effects on paleontological resources would be reduced.

- **PA-1:** Grading, excavation, and other surface and subsurface excavation in the defined proposed project have the potential to affect nonrenewable paleontological resources. A Paleontological Mitigation Plan (PMP) shall be prepared during final project design by a qualified paleontologist. The PMP will detail all the measures to be implemented in the event of paleontological discoveries. The PMP shall include, at a minimum, the following elements.
- **PA-2:** Required 1-hour preconstruction paleontological awareness training for earthmoving personnel, including documentation of training, such as sign-in sheets and hardhat stickers, to establish communication protocols between construction personnel and the principal paleontologist.
- **PA-3:** There will be a signed repository agreement with an appropriate repository that meets Caltrans requirements and is approved by Caltrans.
- **PA-4:** Monitoring, by a principal paleontologist, of Pleistocene older alluvium during excavation.
- **PA-5:** Field and laboratory methods that meet the curation requirements of the appropriate repository will be implemented for monitoring, reporting, collection, and curation of collected specimens. Curation requirements are available for public review at the appropriate repository.
- **PA-6:** All elements of the PMP will follow the PMP Format published in the Caltrans Environmental Reference (Caltrans 2003c).
- **PA-7:** A paleontological Mitigation Report (PMR) discussing findings and analysis will be prepared by a principal paleontologist upon completion of project earthmoving. The report will be included in the environmental project file and also submitted to the curation facility.

2.11 Hazardous Waste/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 of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as "Superfund," is to identify and clean up 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 clean up 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 clean up 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

The information in this section was synthesized from the January 2015 Initial Site Assessment (ISA) prepared for the proposed project. The purpose of the ISA is to identify recognized environmental conditions (RECs), as defined by American Standard Testing Methods (ASTM) Standard Practice E1527-13, associated with the acquisition of new rights-of-way. According to this ASTM standard, a REC is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property, even if those substances are present under conditions in compliance with environmental laws. The environmental "footprint" or study area evaluated in the ISA comprises the areas adjacent to the 6.9-mile long alignment of the proposed project. The only potential REC within the project design footprint is related to the possibility of unknown locations of exploded ordnance (EOD) and unexploded ordnance (UXO) that may be present, as discussed further below under the *Other Potential Environmental Hazards Issues* section.

Site Reconnaissance

A reconnaissance of the environmental footprint was performed on September 5, 2014. Reconnaissance of private properties was limited to observations made from the public right of way. Although several facilities at Kramer Junction store hazardous materials, no properties encroaching onto the alignment of the proposed project were observed to store hazardous materials. Hazardous materials stored on adjacent properties (Southern California Edison [SCE] substation and Caltrans Beecher's Corner Maintenance Station) were 150 feet or more from the alignment of the proposed project and stored in sealed containers, equipment, or buildings. In addition, no surface staining or discolored soils were observed from observation points within the alignment of the proposed project.

Potential for RECs Within the Limits of the Project's Proposed Right of Way

Within the limits of the proposed project's right of way, areas not currently part of the US-395 facility are predominantly undeveloped, natural desert land with some hills. The right of way also includes segments of dirt frontages of the few adjacent businesses (SCE substation, Caltrans Beecher's Corner Maintenance Station, Burger King, and antique shops) along with evaporation ponds at the northern end of the construction zone. High-pressure natural gas pipelines and electrical transmission lines appear to traverse the proposed project right of way as indicated by posted signage in the area. All associated electrical transformers, substations, and natural gas meter stations were located outside the proposed project right of way. No potential RECs were identified within the proposed right of way.

Potential for RECs Outside the Limits of the Project's Proposed Right of Way

The following properties and/or structures were observed within the environmental footprint but outside of the proposed project right of way.

- Reyes Truck Polishing and Former Shell Service Station

- Auto-Compu-Tune
- Former Atchison Topeka Santa Fe Railroad (currently operated by Burlington Northern Santa Fe)
- Pilot Travel Center Station
- Chevron Station
- Unocal 76 Station
- Express Tires
- Arco AM/PM Station
- Vehicle maintenance, repair, or scrap yards
- Southern California Edison Substation
- Wastewater Impoundments
- Caltrans Beecher's Corner Maintenance Station

Because of the distance of the facilities listed above from the proposed project right of way, these facilities do not represent an environmental constraint to the construction activities within the project's proposed right of way limits.

Public Records Review

Table 2.11-1 shows the results of the Environmental Data Resources (EDR) records search conducted for the proposed project. In addition, inquiries with the Lahontan Regional Water Quality Control Board, County of San Bernardino Department of Environmental Health, County of San Bernardino Fire Department, and Department of Conservation, Division of Oil, Gas, and Geothermal Resources did not yield results that were likely to result in contaminant releases within the proposed project right of way.

Table 2.11-1. EDR Listings Within the Environmental Footprint

Facility	Location	Database Listings	Description	Likelihood of a Contaminant Affecting the Proposed Project Right of Way.
Edwards Air Force Base (EAFB)	West of the proposed project right of way	NPL, CERCLIS, CORRACTS, RCRA-TSDF, RCRA-LQG, US ENG CONTROL, US INST CONTROL, DOD, ROD, FINDS, RAATS, PRP, US AIRS, CA HIST Cal-Sites, CA Cortese, NY MANIFEST, CA DEED, CA HAZNET, and CA ENVIROSTOR	The area of the EAFB has been used by the military for practice bombing and as a gunnery range since the late 1920s, when it was called Murmoc Army Air Field. The EDR report maps the entire boundary of the air force base as a Department of Defense facility and the majority as a Superfund Site. 469 potential or confirmed hazardous materials release sites have been documented at EAFB; the majority of these sites are present in the central and southern portions of the main air force base and south base. This subsurface contamination includes heavy metals (including chromium and arsenic), chlorinated and non-chlorinated solvents, and pesticides (DDT and chlordane) in soil and groundwater. Additionally, EOD and UXO burial sites have also been documented by EAFB.	Unlikely because of distance from the proposed project right of way.
Four Corners Unocal	southeast corner of Kramer Junction	GeoTracker, CA LUST	A perched groundwater zone is present at approximately 75 feet bgs. Past subsurface soil investigations have indicated that a vadose zone plume consisting primarily of benzene, toluene, ethylbenzene, and total xylenes is present below the underground storage tank cluster approximately 55 feet south of the existing SR-58 right of way. Past remedial actions have included excavation of petroleum contaminated soils, soil vapor extraction, and dual phase extraction.	Unlikely because of distance from the proposed project right of way.
Caltrans Beecher's Corner Maintenance Facility	one-third mile south of Kramer Junction and adjacent to the west side of the Alternative 1 ROW	SWF/LF, CA SWEEPS, CA HIST UST, and CA FID UST databases.	This facility referenced under Beecher's Corner is listed as currently or historically having two underground storage tanks (1,000-gal diesel UST and 2,000-gal gasoline UST). EDR does not report this facility as having historically had a release and is not listed in the LUST or SLIC databases	Unlikely because of distance from the proposed project right of way.

Facility	Location	Database Listings	Description	Likelihood of a Contaminant Affecting the Proposed Project Right of Way.
Four Corners Chevron	northeast corner of Kramer Junction	CA HIST Cortese, CA LUST, CA SWEEPS UST, CA FID UST, CA San Bernardino Co. permit databases; GeoTracker	Under the LUST database this facility is listed with a case status of "open - verification monitoring". Records available at the GeoTracker website indicate that this facility has had a release of gasoline in which Methyl tert-butyl ether, a fuel oxygenate, affected groundwater beneath the facility. In addition, these documents indicate that several groundwater monitoring wells and vapor extraction wells were installed since the release was discovered in 1995 resulting from two 10,000-gallon USTs that were abandoned in place due to their location beneath the dispenser islands and canopy.	Unlikely because of distance from the proposed project right of way.
Kramer Potash Plant	northeast of Kramer Junction	ENVIROSTOR	Kramer Potash Plant was a formerly used defense site and shown on a Map of California circa 1941–1945 held by the National Archives in College Park, Maryland. The referenced map reportedly shows military sites, sites of potential military use, and sites of potential military importance during World War II.	Unlikely because of distance from the proposed project right of way.
Source: Initial Site Assessment January 2015				

Edwards Air Force Base Hazardous Materials

US-395 passes through the northeast corner of Edwards Air Force Base (EAFB). EAFB occupies 307,517 acres, west and south of the US-395 and SR-58 junction. EAFB is recognized for numerous environmental conditions, including the widespread potential for exploded or unexploded ordnance both within and outside of base boundaries.

The EDR report indicates that 469 potential or confirmed hazardous materials release sites have been documented at EAFB; the majority of these sites are present in the central and southern portions of the main air force base and south base. This subsurface contamination includes heavy metals (including chromium and arsenic), chlorinated and non-chlorinated solvents, and pesticides (DDT and chlordane) in soil and groundwater. Additionally, exploded and unexploded ordnance burial sites have also been documented by EAFB and, according to EAFB personnel, the surrounding desert area outside of EAFB boundaries is believed to have been used extensively for bombing practice prior to and during World War II, the limits of which are not well documented and could extend beyond the existing EAFB boundaries.

Through the Department of Defense's Installation Restoration Program, EAFB identified 469 potential hazardous waste sites within the boundaries of EAFB. EAFB has designated these as Site 1 through Site 469 and grouped them into Operable Units (OU) 1 through 10. OUs 1 and 2, 5 through 8, and 10 are located in the main base and south base areas. OU 3 references base-wide

water wells, OUs 4 and 9 are located in the eastern portion of EAFB, and OU 7 is made up of base-wide miscellaneous sites.

The main/south base areas (OUs 1 and 2, 5 through 8, and 10) are located at the west edge of Rogers Dry Lake approximately 19 miles west of the existing US-395 alignment. The main/south base is the primary area for maintenance and refueling of aircraft. In this area, large amounts of fuel have spilled and poor disposal practices resulted in releases or disposal of organic solvents that have affected groundwater. A sanitary landfill is also located in this area that is the site of dumped waste including pesticides, heavy metals, and electroplating wastes. An industrial waste pond, which contains sediments rich in heavy metals, is also located in this area. Asbestos-containing waste was also dumped in designated landfills approximately 1.7 miles south of EAFB's south base and 19 miles from the existing US-395. Additionally, these landfills have been reported to possibly contain UXO.

The two closest OUs to the proposed construction zone are OU 7 (Site 469) and OU 9 (Sites 6 and 113). These are discussed in more detail below.

SITE 469

No information was provided in the EDR report regarding Site 469 but a sampling report was obtained from the RWQCB. According to the report, Site 469 (also known as "Kramer Junction Unauthorized Dump Site") was discovered on March 23, 1999 in the far northeastern corner of the base, adjacent to two auto repair/salvage businesses (40808 and 40716 Highway 395). The southern extent of Site 469 is approximately 0.25 mile from the northern end of the proposed project right of way, to the west of US-395.

Site 469 reportedly contained a variety of salvage/scrap vehicles and equipment, as well as septic wastewater discharges from adjacent vehicle repair and salvage businesses. An open trench (100 feet long by 2 feet wide by 4 feet deep) was found in the dump site and contained water with a septic odor. The north end of the trench was connected to a 600-foot-long pipe that conveyed the trench water to a graded drainage area to the northwest. Another smaller pipe extending vertically out of the ground at a crushed rock pile also appeared to discharge wastewater to the ground. Six shallow soil samples (0.5 feet bgs) were collected from the salvage area, discharge location from the small pipe, and at the former standing water location in the graded drainage area. One background sample was also collected outside of Site 469 to evaluate background metals concentrations. Each of the six soil samples were analyzed for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals. No TPH, VOCs, or SVOCs were detected in any of the 31 samples above laboratory reporting limits. Additionally, metals concentrations were within naturally occurring background concentrations for the area.

As of August 2, 1999, the stored equipment had been removed, the open trench was graded to the surrounding grade level, and the previously observed piping had been removed. Based on the removal of the equipment related to the dump site and on the absence of chemically impacted media, no further investigation was recommended for Site 469. According to information obtained from the Department of Toxic Substances Control's (DTSC's) Envirostor database, Site 469 was issued a "no further action" status by the DTSC on May 31, 2001. However, the

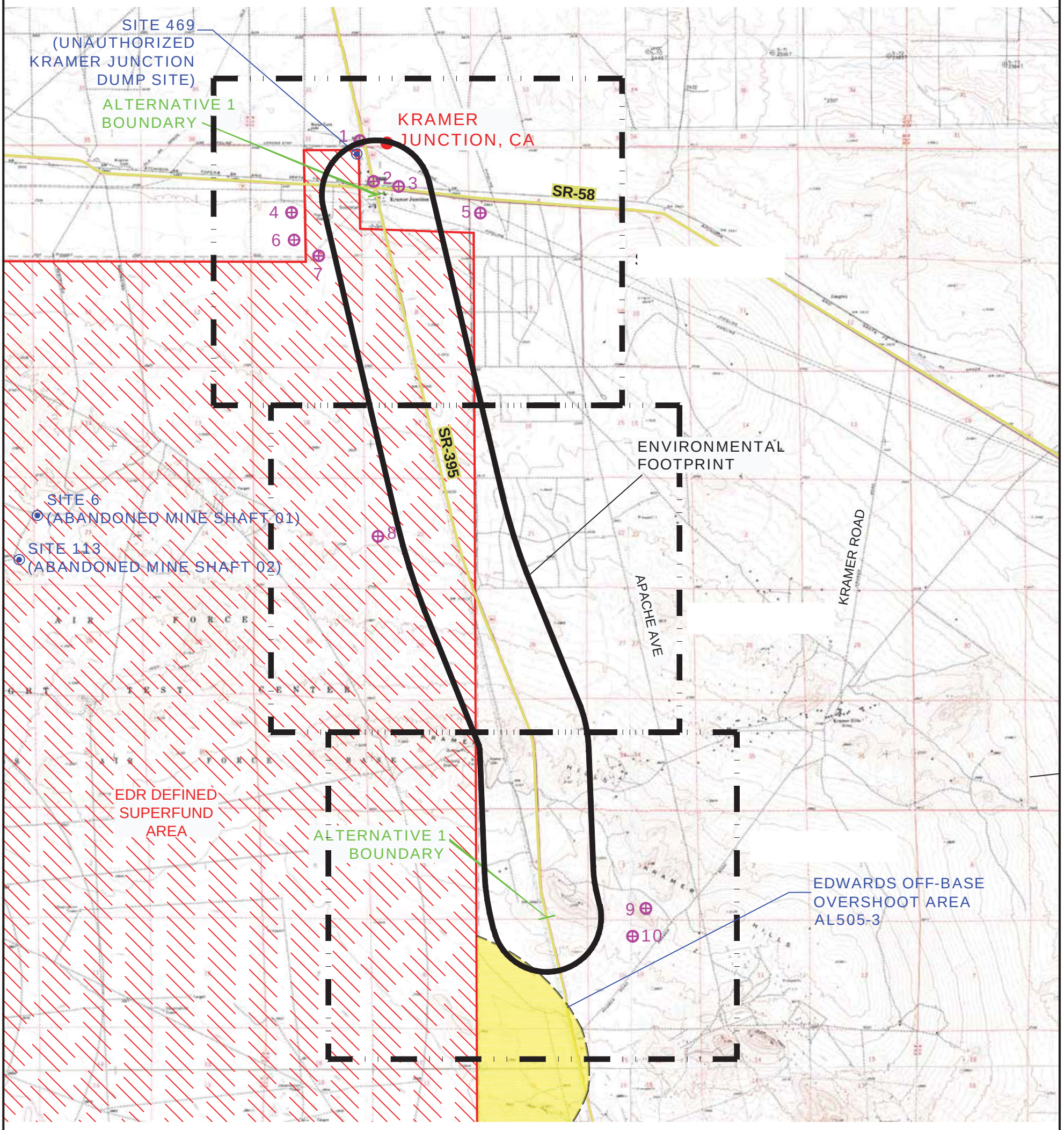
Geotracker database lists Site 469 as "open-verification monitoring" with the RWQCB as of April 30, 2010.

SITES 6 AND 113

Sites 6 and 113 in OU 9 were abandoned mine shafts identified as "Abandoned Mine Shaft 1" and "Abandoned Mine Shaft 2," respectively. These mine shafts were vertical shafts that reportedly extended to depths greater than 200 feet (groundwater is reportedly present at approximately 250 feet bgs in this area). According to the EDR report, these mine shafts were reportedly used for disposal of containerized fuels and oxidizers between 1959 and 1967. Stainless steel, scrap iron, and contaminated plumbing from one of the test areas were also placed in the mine shafts. After placement of these wastes, liquid rocket fuel was reportedly poured down the mine shafts over the waste containers and then ignited, resulting in an 8-hour-long series of explosions. The Air Force has since backfilled the mine shafts, placed asphalt caps over the surface, and fenced off the abandoned mine shaft sites. Contaminants of concern at these locations include petroleum fuel, polynuclear aromatic hydrocarbons, dioxin, pentaborane, high-energy fuels, and fluorine. To date, soil samples have not been collected in the immediate vicinity of Sites 6 and 113 because of concern that the mine shafts may still contain explosive material. Groundwater wells were installed hydrologically down-gradient of each mine shaft, and no VOCs or SVOCs were detected above laboratory reporting limits. However, RWQCB has required long-term monitoring of the wells installed at Sites 6 and 113. Sites 6 and 113 of OU 9 are located at least 2.75 miles from the westernmost portion of the environmental footprint (3.25 miles from the proposed project right of way). The locations of Sites 6 and 113 in relation to the environmental footprint are shown in small scale on Figure 2.11-1. Other areas of contamination within EAFB boundaries are even farther from the project area.

Based on a distance of 0.25 mile or greater from the above-referenced contaminated sites, it is unlikely that contaminants associated with the known extent of impact at EAFB would affect media within the construction zone of the proposed highway. See Figure 2.11-1.

This page intentionally left blank.



LEGEND:

EDR MAPPED WELLS
(USGS, DOGGR - REFER TO EDR WELL REPORT)

Source: Initial Site Assessment, Caltrans, 2015

N

0 5,000 10,000

APPROXIMATE SCALE IN FEET

Figure 2.11-1. Location of Edwards Air Force Base Off-Base Overshoot Area AL505-3

This page intentionally left blank.

Other Potential Environmental Issues

POLYCHLORINATED BIPHENYLS (PCBS)

Electrical transformers, hydraulic equipment capacitors, fluorescent light fixtures, and similar equipment may contain polychlorinated biphenyls (PCBs) in the hydraulic fluids or dielectric insulating fluids within the units. The federal Toxic Substances Control Act generally prohibited the domestic manufacture of PCBs after 1979. There is, however, potential that the dielectric fluid in electrical and hydraulic equipment manufactured and constructed prior to that date contains PCBs.

PCBs were used in railroad engine oils and may be present on the railroad right of way. Additionally, pole-mounted electrical transformers associated with power lines were observed along US-395 and at the SCE substation.

LEAD-BASED PAINT (LBP)

Lead is a pliable, soft metal that is used in the construction of pipes, rods, and containers. Before 1978, lead was a common ingredient in paint because it added strength, shine and extended the life of the paint. In 1978, the EPA banned the use of lead pigments in paints used on interior and exterior residential surfaces. Lead poisoning can result from children having access to, and ingestion (by chewing) of LBP covered surfaces. Inhalation of dust produced by normal oxidation, or scraping/sand-blasting of the paint, which may contain significant amounts of lead, is also a health hazard. The EPA and the Housing and Urban Development Department action level for LBP is 0.5% dry weight. The original scope of services did not include an assessment of LBP at the site.

LBP is not anticipated in lane striping paint along the current US-395 alignment and there are no bridge components in which it would be present.

AERIALLY DEPOSITED LEAD (ADL)

No reports have been prepared evaluating the potential for presence of ADL within the proposed Alternative 1 right of way. However, ADL is likely present along the existing highway shoulders.

ASBESTOS CONTAINING MATERIALS (ACM)

Asbestos is a common term for a group of naturally occurring mineral fibers. Because of its durability and insulating quality, it was used in a wide variety of building products including structural fireproofing, pipe and duct insulation, plasters, roofing, floor tile, and linoleum. Adverse health effects have been associated with the inhalation of airborne asbestos fibers. The asbestos fibers that are tightly bound in building materials, however, do not represent an exposure hazard unless disturbed in such a way as to release airborne fibers (i.e., cutting, drilling,

or sanding). By June of 1978, EPA had effectively banned the use of asbestos in building materials.

SOLID WASTE DISPOSAL

Piles of debris including wood, metal car parts, concrete debris, and fencing were observed in the creek beds and along the shoulders of several unmarked unpaved roadways extending from US-395. Other than minor amounts of scattered litter within the environmental footprint, no other solid waste was noted within the environmental footprint.

PESTICIDES

Based on a field reconnaissance of the environmental footprint and on historical research (aerial photographs and topographic maps), properties were primarily undeveloped land prior to existing developments.

RADON GAS

Radon-222 (radon) is a naturally occurring gas that is prevalent in certain areas of the country. EPA has determined that exposure to 4.0 picocuries per liter of radon gas on a regular basis increases the risk of lung cancer.

POTENTIAL ISSUES RELATED TO MILITARY OPERATIONS

Based on information provided in the EDR report, the closest documented EOD burial location is Area 3 of Site 442 located within OU 4. Area 3 is reportedly 2 miles south/southeast of Haystack Butte and 0.5 mile northeast of Precision Bombing (PB) target PB-5. According to the above measurements, Area 3 appears to be more than 5 miles west of the environmental footprint and more than 5.5 miles west of the existing US-395 alignment.

To further evaluate this issue, Mr. Shannon Walline of EAFB's Unexploded Ordnance Disposal Unit and Mr. Paul Schiff of EAFB's Site Restoration Unit were contacted. Figures showing the proposed project area and the proposed construction zone were submitted. EAFB provided a copy of the Military Munitions Response Program's "Final CSE Phase II Report (Revision 04)," dated August 2010. This report describes investigations and assessments at identified Munitions Response Areas (MRAs) to assess whether additional response actions were necessary. Of the various areas assessed, one of these areas, AL505-3, known as Off Base Overshoot Area 3, includes a small portion that falls within 0.5 mile of the proposed project area—at the southern limits, encroaching onto the southwestern portion of the project area; however, this area is approximately 0.40 mile from the nearest mapped boundary to the southern end of the proposed Alternative 1 right of way (see Figure 2.11-1). The overshoot area is 1 mile east of former target PB-10 used between 1943 and 1953 for dive bombing practice, including the use of photoflash bombs. Based on information obtained through EDR and from EAFB, AL505-3 has been minimally affected by past use of bombing targets located within EAFB boundaries. Target PB-10 was heavily used for practice, high explosive, and incendiary munitions. Survey teams were deployed to survey transects spaced across the MRA. Miscellaneous debris was encountered at

three locations including the suspected access door of a tail fin assembly for a 100-pound practice bomb. The nearest of these locations appears to be at least 1,000 feet west of US-395. Three soil samples were collected and analyzed for metals, explosives, nitroglycerin, and pentaerythritol tetranitrate (PETN). Explosives, nitroglycerin, and PETN were reported at nondetect levels, while metals were reported in the expected range for background concentrations. The report ultimately concluded that "the human exposure to explosive hazards was inconclusive for MRA AL505-3."

Based on information provided in the January 2015 ISA, the closest documented EOD burial location is Area 3 of Site 442 located within OU 4, which is more than 5 miles west of the existing US-395 alignment.

EAFB's findings regarding EOD and UXO notwithstanding, according to EAFB personnel contacted, there is still potential that unknown UXO and EOD (some of which may be undocumented) could be present within the project area because of the long history of the base, as US-395 extends through the northeastern boundary of EAFB and along the eastern boundary of Edwards, and because the surrounding desert was historically used for bombing practice prior to, and during, World War II. Related ordnance could include unexploded munitions, munitions debris, and chemical weapons residuals.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

POLYCHLORINATED BIPHENYLS (PCBS)

Given the distance from the railroad and the above mentioned electrical transformers, PCBs are not considered a concern to the proposed Alternative 1 right of way.

LEAD-BASED PAINT (LBP)

LBP is not anticipated in lane striping paint along the current US-395 alignment, as restriping efforts have been undertaken since the 1978 ban of LBP by U.S. EPA. Accordingly, no impacts related to LBP are expected.

AERIALLY DEPOSITED LEAD (ADL)

Although not considered a REC, ADL may be encountered during the construction period. Prior to completion and public circulation of the Environmental Document for this project, ADL surveys to evaluate the potential for presence of ADL will be conducted. To avoid potential impacts related to ADL soils, if presence of such is determined, measure **HAZ-4** below will be implemented. With implementation of this measure, impacts related to ADL are expected to be avoided.

ASBESTOS CONTAINING MATERIALS (ACM)

Based on the lack of built structures close to the proposed project, ACM is not expected to be encountered. Accordingly, no impacts related to ACM are expected.

SOLID WASTE DISPOSAL

No solid waste disposal issues were noted within the proposed Alternative 1 right of way. Accordingly, no impacts related to solid waste disposal are expected.

PESTICIDES

No evidence of existing or historic row cropping or orchards was observed within the environmental footprint. Accordingly, no impacts related to pesticides are expected.

RADON GAS

Given that no buildings are planned to be constructed during the proposed highway construction activities, radon is not considered to be a concern to the proposed Alternative 1 right of way. Accordingly, no impacts related to radon gas are expected.

POTENTIAL RECS

The only potential RECs within the project limits are EOD and UXO that may be present on and around EAFB land resulting from extensive use of the desert area for bombing practice in the era leading up to, and including, World War II. Based on information obtained from the EDR as well as contacts with EAFB Site Restoration personnel, no EOD or UXO are known to exist within the proposed construction zone. Based on communication with EAFB referencing EAFB's August 2010 Final CSE Phase II Report (Revision 04) Military Munitions Response Program Comprehensive Site Evaluation Phase II, performance of any additional survey for the potential existence of EOD or UXO is planned, unless EAFB informs Caltrans that ordnance investigations are not needed. With the implementation of measures **HAZ-1a, HAZ-1b**, **HAZ-2**, **HAZ-3a**, and **HAZ-3b**, potential impacts related to EOD and UXO are not expected.

Following construction of the Alternative 1 improvements, operations are not expected to result in the creation of any new health hazards or to expose people to potential new health hazards.

Alternative 2 (No-Build Alternative)

Under Alternative 2 (No-Build Alternative), no effects related to hazardous waste or materials would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following measures would be implemented to avoid or minimize potential impacts related to hazardous materials that may be encountered during the construction period.

- **HAZ-1a:** In conjunction with completing the requirements for the EAFB Easement, a visual site inspection will be performed to assess the potential existence of EOD and UXO within the proposed right of way of the project, extending from the northern radial perimeter of Off Base Overshoot Area 3 in relation to the existing western edge of pavement of US-395, known as AL505-3, extending north to what will be the limits of the EAFB Easement.
- **HAZ-1b:** A separate visual site inspection will be performed to assess the potential existence of EOD and UXO within the limits of the project, outside of the area intended to be established as an EAFB Easement. This visual site inspection will not be included in the Environmental Baseline Survey prepared for the EAFB, but will be included as part of the analysis for the project.
- **HAZ-2**: Prior to construction, a Construction Monitoring and Response Plan (CMRP) will be prepared, which will describe the steps to be taken to (1) identify buried ordnance during construction activities and (2) respond to ordnance or potential ordnance encountered during construction activities. At a minimum, the CMRP will include the following:
  - A description of areas of concern and types of ordnance that may be encountered.
  - A summary of geophysical instrumentation to be used to monitor for ordnance before and during construction.
  - A description of monitoring procedures and documentation.
  - An outline of response measures to be implemented when ordnance or suspected ordnance is encountered.
- **HAZ-3a:** In the event that buried EOD or UXO is encountered during construction within the boundaries of the base, all work will stop, personnel will be evacuated from the area, and the EAFB command post will be notified immediately at (661) 277-3040.
- **HAZ-3b**: If any apparent ordnance is found outside of the base boundaries, all work will stop and personnel will be evacuated from the area. EAFB personnel and the San Bernardino County Sheriff will be contacted to evaluate whether the material encountered is military related.
- **HAZ-4:** An applicable site-specific lead compliance plan to address the health and safety of construction workers will be implemented based on the results of the ADL investigation. If any measures are identified based on the ADL investigation, these shall be implemented.

2.12 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 is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and California Air Resources Board (CARB), 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 transportation-related 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($PM_{2.5}$), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (PB) and 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 type of environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity

The conformity requirement is based on Federal Clean Air Act 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 attainting 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. 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 attainment 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 TIP). 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 Clean Air Act 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 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, scope, and "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.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a "hot-spot" analysis if an area is "nonattainment" or "maintenance" for carbon monoxide (CO) and/or particulate matter (PM_{10} or $PM_{2.5}$). A region is "nonattainment" if one or more of the monitoring stations in the region measures a violation of the relevant standard and the U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA and are then called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the "hot-spot" related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

The proposed project would improve the shoulders of US-395 and add a median, both of which fall under the definition of a safety project that is exempt from the requirement that an agency must determine a project's conformity with a transportation plan or transportation implementation program (40 CFR 93.126). As such, the requirement to demonstrate conformity (regional and project-level) is not required.

AFFECTED ENVIRONMENT

The information in this section was based on the analysis provided in the air quality sections of the July 2014 Final EIR/EIS for the SR-58/Kramer Junction Expressway Project as well as analysis performed for this proposed project in accordance with the guidance provided in Caltrans' Annotated Outline for preparation of an IS/EA.

Topography and Climate

The project site is located in San Bernardino County, in the western portion of the Mojave Desert Air Basin (MDAB or Basin).

Most of the Basin is commonly referred to as the "high desert" because elevations range from approximately 2,000 to 5,000 feet above sea level. The Basin is characterized by extreme temperature fluctuations, strong seasonal winds, and clear skies. With respect to ozone, the greatest air pollution impacts throughout the Basin occur from June through September. This condition is generally attributed to the large amount of pollutant transport from within the South Coast Air Basin and San Joaquin Valley Air Basin to the Mojave Desert Air Basin.

The most representative climate monitoring station in the project vicinity with accurately recorded and complete monitoring data is located in Barstow, which is in the same general area as the project site. At the Barstow climate monitoring station, the average minimum and maximum January temperatures are 31 degrees and 60 degrees Fahrenheit, respectively, while the July average minimum and maximum temperatures increase to 67 degrees and 102 degrees Fahrenheit, respectively. The annual average precipitation is four inches.

Existing Air Quality

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 2.12-1 shows the state and federal standards for a variety of pollutants. The Mojave Desert Air Quality Management District (MDAQMD) administers air quality regulations developed at the federal, state, and local levels in the Basin.

The project site is located in the western portion of the Mojave Desert Air Basin. The monitoring station located closest to the project site is the Barstow station (ARB Station No. 36155), located 27 miles east of the alignment of the proposed project at 1301 West Mountain View Street, Barstow. The Barstow station monitors major criteria pollutants, including CO, NO_2, SO_2, PM_{10}, and O_3. The closest monitoring station that monitors the remaining pollutant, $PM_{2.5}$, is the Victorville – Park Avenue station (ARB Station No. 36306), located 28 miles south of the southern terminus of the alignment of the proposed project at 14306 Park Avenue, Victorville. The existing air quality conditions in the area of the proposed project can be characterized from monitoring data collected at these stations. Table 2.12-2 presents air monitoring data from the Barstow and Victorville monitoring stations.

As shown in Table 2.12-2, both the one-hour and eight-hour O_3 concentrations exceeded state and federal standards during the three-year reporting period, except for the one-hour standard in 2011. PM_{10} concentrations also exceeded state standards. CO, NO_2, and $PM_{2.5}$ concentrations remained below state and federal standards during the same three-year reporting period.

If a pollutant concentration is lower than the state or federal standard, the area is classified as being in attainment for that pollutant. If a pollutant violates the standard, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated as unclassified. The State of California has designated the western portion of the Basin as being a nonattainment area for ozone (O_3), $PM_{2.5}$, and PM_{10}.

U.S. EPA has designated this area as being a nonattainment area (moderate) for both ozone (eight-hour standard) and PM_{10} (see Table 2.12-1).

Table 2.12-1. State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[9] Standard	Federal[9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Ozone (O_3)[2]	1 hour 8 hours	0.09 ppm 0.070 ppm	---[4] 0.075 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 (NO_X) 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.	Federal: Nonattainment, Moderate State: Nonattainment
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm[1] 6 ppm	35 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.	Federal: Unclassified/ Attainment/ State: Attainment
Respirable Particulate Matter (PM_{10})[2]	24 hours Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 ---[2] (expected number of days above standard < or equal to 1)	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.	Federal: Nonattainment, Moderate State: Nonattainment

Pollutant	Averaging Time	State[9] Standard	Federal[9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Fine Particulate Matter ($PM_{2.5}$) [2]	24 hours Annual 24 hours (conformity process [5]) Secondary Standard (annual; also for conformity process [5])	--- 12 µg/m^3 --- ---	35 µg/m^3 12.0 µg/m^3 65 µg/m^3 12 µg/m^3 (98th percentile over 3 years)	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 NO_X, sulfur oxides (SO_X), ammonia, and ROG.	Federal: Unclassified/ Attainment State: Nonattainment
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm [6] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NO_X" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Federal: Unclassified/ Attainment State: Attainment
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours	0.25 ppm --- 0.04 ppm	0.075 ppm [7] (99th percentile over 3 years) 0.5 ppm [9] 0.14 ppm	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.	Federal: Unclassified State: Attainment
Lead (Pb)[3]	Monthly Calendar Quarter Rolling 3-month average	1.5 µg/m^3 --- ---	--- 1.5 µg/m^3 0.15 µg/m^3 [11]	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.	Federal: Unclassified/ Attainment State: Attainment
Sulfate	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.	State Only: Attainment (entire state)

Pollutant	Averaging Time	State[9] Standard	Federal[9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
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.	State Only: Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. 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.	See particulate matter above. May be related more to aerosols than to solid particles.	State Only: Unclassified
Vinyl Chloride[3]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	State Only: Unclassified (entire state)

Pollutant	Averaging Time	State[9] Standard	Federal[9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status

Based on the ARB Air Quality Standards chart (ARB 2013).

Notes: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; ppb = parts per billion (thousand million)

1. Rounding to an integer value is not allowed for the State 8-hour CO standard. A violation occurs at or above 9.05 ppm.
2. Annual PM_{10} NAAQS revoked October 2006; was 50 $\mu g/m^3$. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 $\mu g/m^3$. Annual $PM_{2.5}$ NAAQS tightened from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ December 2012 and secondary annual standard set at 15 $\mu g/m^3$.
3. 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.
4. Prior to 6/2005, the 1-hour ozone NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still be in use in some areas where 8-hour ozone emission budgets have not been developed, such as the S.F. Bay Area.
5. The 65 $\mu g/m^3$ $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 $\mu g/m^3$ NAAQS was promulgated in 2006. The 15 $\mu g/m^3$ annual $PM_{2.5}$ standard was not revoked when the 12 $\mu g/m^3$ standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (7/20/2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with a emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.
6. 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 redesignation to nonattainment in some areas after 2016.
7. EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010. Nonattainment areas have not yet been designated as of 9/2012.
8. State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as described above.
9. Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.
10. Standards no longer apply in CA starting in 2013 (1 year after designations to attainment/unclassified statewide) were completed. Do not use or quote any more. Will be removed in 2013 edition of this table.
11. Lead NAAQS are not considered in Transportation Conformity analysis.

Table 2.12-2. Ambient Air Quality Monitoring Data Measured at the Barstow Station

Pollutant Standards	2011	2012	2013
1-Hour Ozone			
Maximum 1-hour concentration (ppm)	0.093	0.090	0.099
Number of days standard exceeded[a]			
CAAQS 1-hour (> 0.09 ppm)	0	0	1
8-Hour Ozone			
National maximum 8-hour concentration (ppm)	0.083	0.084	0.092
National second-highest 8-hour concentration (ppm)	0.080	0.082	0.086
State maximum 8-hour concentration (ppm)	0.084	0.085	0.093
State second-highest 8-hour concentration (ppm)	0.080	0.083	0.087
Number of days standard exceeded[a]			
NAAQS 8-hour (> 0.075 ppm)	9	15	10
CAAQS 8-hour (> 0.070 ppm)	35	36	31

Pollutant Standards	**2011**	**2012**	**2013**
Carbon Monoxide (CO)			
National[b] maximum 8-hour concentration (ppm)	1.35	0.66	-
California[c] maximum 8-hour concentration (ppm)	1.35	0.66	-
Number of days standard exceeded[a]			
NAAQS 8-hour (≥ 9 ppm)	0	0	0
CAAQS 8-hour (> 9.0 ppm)	0	0	0
Particulate Matter (PM_{10})[d]			
National[b] maximum 24-hour concentration ($\mu g/m^3$)	98.0	42.0	87.1
National[b] second-highest 24-hour concentration ($\mu g/m^3$)	43.0	39.0	53.0
State[c] maximum 24-hour concentration ($\mu g/m^3$)	96.0	39.0	85.6
State[c] second-highest 24-hour concentration ($\mu g/m^3$)	93.0	38.0	48.8
State annual average concentration ($\mu g/m^3$)[e]	21.5	19.2	-
Number of days standard exceeded[a]			
NAAQS 24-hour (> 150 $\mu g/m^3$)[f]	0	0	0
CAAQS 24-hour (> 50 $\mu g/m^3$)[f]	2	0	1
Particulate Matter ($PM_{2.5}$) – Victorville – Park Avenue Monitoring Station (ARB Station No. 36306)			
National[b] maximum 24-hour concentration ($\mu g/m^3$)	15.0	12.0	13.1
National[b] second-highest 24-hour concentration ($\mu g/m^3$)	11.0	12.0	11.8
State[c] maximum 24-hour concentration ($\mu g/m^3$)	16.0	12.0	13.8
State[c] second-highest 24-hour concentration ($\mu g/m^3$)	12.0	12.0	12.7
National annual designation value ($\mu g/m^3$)	-	-	-
National annual average concentration ($\mu g/m^3$)	-	-	-
State annual designation value ($\mu g/m^3$)	9	8	-
State annual average concentration ($\mu g/m^3$)[e]	-	-	-
Number of days standard exceeded[a]			
NAAQS 24-hour (> 35 $\mu g/m^3$)	0	0	0

Notes: CAAQS = California Ambient Air Quality Standards.
NAAQS = National Ambient Air Quality Standards.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[d] Measurements usually are collected every 6 days.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2012

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

CONFORMITY

Per 40 CFR 93.126, certain types of highway projects, such as shoulder improvements and the addition of medians as shown in Table 2 of 40 CFR 93.126, are exempt from the requirement to determine conformity. The proposed project specifically involves construction of shoulder improvements and median improvements. Accordingly, no coordination with Southern California Association of Governments' Transportation Conformity Working Group is required for this project.

MOBILE-SOURCE AIR TOXICS (MSAT)

According to FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents* (Federal Highway Administration 2012), FHWA has identified three levels of analysis:

1. No analysis for exempt projects or projects with no potential for meaningful MSAT effects
2. Qualitative analysis for projects with low potential MSAT effects
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects

Since the proposed project falls under the exempt project category, no analysis is required or has been undertaken related to the emission of MSAT. The purpose of this project is to reduce the number and severity of collisions by constructing a 4-foot median buffer and improving the existing shoulders to 8 feet on either side (northbound and southbound), installing rumble strips on the centerline and shoulders, eliminating existing passing zones that do not meet the current Caltrans design standard, and restoring the passing lanes on the northbound and southbound portions of US-395 that were removed in conjunction with completion of an interim project in 2014. This project has been determined to generate minimal air quality impacts for Clean Air Act Amendments criteria pollutants and has not been linked with any special MSAT concerns.

CONSTRUCTION EMISSIONS

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Emissions from construction equipment also are expected and would include carbon monoxide (CO), nitrogen oxides (NO_X), volatile organic compounds (VOCs), directly-emitted particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_X and VOCs in the presence of sunlight and heat. Estimates of construction-period emissions are shown in Table 2.12-3, and were identified using the Sacramento Metropolitan Air Quality Management District Road Construction Model (version 7.1.5.1).

Table 2.12-3. Estimate of Criteria Pollutant Emissions during Construction (pounds per day)

Construction Phase	ROG	CO	NO_X	PM_{10}	$PM_{2.5}$
Grubbing and Clearing	2	13	16	38	8
Grading/Excavation	9	53	98	41	12
Drainage/Utilities/Sub-Grade	5	31	44	39	10
Paving	2	17	19	1	1
Daily Maximum Regional Emissions (Combined Grubbing and Clearing and Grading/Excavation Phases)	11	66	114	79	20
MDAQMD Regional Emissions Daily Significance Threshold	137	548	137	82	82

Assumptions: A compressed construction schedule of 11 months and a daily maximum disturbance of 10% of the total project area.
Note: Although the Road Construction Model was developed for Sacramento-area conditions in terms of fleet emission factors, silt loading, and other modeling assumptions, it is considered adequate by MDAQMD for estimating road construction emissions under its indirect source regulations. As such, it is used for that purpose in this project analysis.
Source: Sacramento Metropolitan Air Quality Management District Road Construction Model (version 7.1.5.1) 2014.

The MDAQMD significance thresholds provided in Table 2.12-3 are provided for informational purposes only. As the Lead Agency under CEQA, Caltrans has not adopted or endorsed such thresholds for the evaluation of construction emissions. The implementation of the exhaust and fugitive dust emission control measures identified below under the subsection "Avoidance, Minimization, and/or Mitigation Measures" would avoid and/or minimize any impacts on air quality during construction.

OPERATIONAL EMISSIONS

Alternative 1 would implement safety enhancements. No increase or decrease in roadway capacity would occur as a result of the implementation of Alternative 1 and no further evaluation of operational emissions is required.

Alternative 2 (No-Build Alternative)

No project improvements would be implemented under Alternative 2, and no impact related to air quality under NEPA or CEQA would occur.

Climate Change

Climate change is analyzed at the end of this chapter. Neither the United States Environmental Protection Agency (U.S. EPA) nor Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders on climate change, the issue is addressed in a separate California Environmental Quality Act (CEQA) discussion at the end of this chapter and may be used to inform the National Environmental Policy Act (NEPA) decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Any potential impacts on air quality from construction would be short-term in duration and are not expected to result in long-term impacts. Implementation of the following measures based on Caltrans' Standard Specifications, Section 14-9 (Air Quality), and MDAQMD Rule 403.2 (Fugitive Dust Control) would avoid and/or minimize any potential air quality impacts resulting from construction activities.

- **AQ-1a:** The construction contractor shall comply with Caltrans' current Standard Specifications in Section 14.
- A**Q-1b:** Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- **AQ-2:** Measures to reduce exhaust emissions specified in MDAQMD Rule 403.2 (Fugitive Dust Control) include the following:

  The owner or operator of any construction/demolition source shall:

  a) Use periodic watering for short-term stabilization of disturbed surface areas to minimize visible fugitive dust emissions. For purposes of this rule, use of a water truck to moisten disturbed surfaces and actively spread water during visible dusting episodes shall be considered adequate to maintain compliance.

  b) Take actions to prevent project-related trackout onto paved surfaces.

  c) Cover loaded haul vehicles while operating on publicly maintained paved surfaces.

  d) Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than 30 days, except when such a delay is due to precipitation that dampens the disturbed surface enough to eliminate visible fugitive dust emissions.

  e) Clean up project-related trackout or spills on publicly maintained paved surfaces within 24 hours.

  f) Reduce nonessential earthmoving activity under high wind conditions. For purposes of this rule, a reduction in earthmoving activity when visible dusting occurs shall be considered enough to maintain compliance.

e) Clean up project-related trackout or spills on publicly maintained paved surfaces within 24 hours.

f) Reduce nonessential earthmoving activity under high wind conditions. For purposes of this rule, a reduction in earthmoving activity when visible dusting occurs shall be considered enough to maintain compliance.

This page intentionally left blank.

BIOLOGICAL ENVIRONMENT

2.13 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 2.17). Wetlands and other waters are discussed in Section 2.14.

AFFECTED ENVIRONMENT

Unless otherwise noted, the information from this section summarizes the January 2015 Natural Environment Study (NES) and January 2015 Biological Assessment (BA) prepared for the proposed project. References used in the NES are not carried over into this section. The Biological Study Area (BSA) for biological resources for the proposed project is defined as the project right-of-way as well as the permanent and temporary disturbance footprints, and is shown in Figure 2.13-1.

Vegetation communities within the BSA include creosote bush series with areas of mixed saltbush series, primarily occurring adjacent to the existing road shoulder. Figure 2.13-1 shows the locations of the different communities within the BSA. Dominant plant species include creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), cheesebush (*A. salsola*), fourwing saltbush (*Atriplex canescens*) and cattle saltbush (*A. polycarpa*). Sparsely scattered Joshua trees (*Yucca brevifolia*), and several species of cacti are intermittently distributed throughout. No natural communities of special concern (as listed in the California Natural Diversity Database [CNDDB]) are known or expected within the BSA.

The road shoulders are barren in some areas, especially in turnouts. Where vegetation occurs, it is mostly creosote bush series with mixed saltbush series adjacent to the existing road shoulder. There are 70.05 acres of creosote bush series and 12.85 acres of mixed saltbush series within the BSA (see Figure 2.13-1). An additional 56.10 acres of developed or highly disturbed areas (e.g., existing paved areas, largely barren dirt road, road shoulders, turn-outs, parking areas) are also present within the BSA.

Storm drainage culverts along SR-58 to the north of the BSA have been effectively serving as corridors for wildlife such as desert tortoise, Mohave ground squirrel (*Xerospermophilus mohavensis*), and various small mammals (Caltrans 2014). Culverts provide safe migration corridors and connectivity for wildlife populations across the highway and hence reduce habitat fragmentation. Evidence of successful utilization of the crossings by a kit fox (*Vulpes macrotis*), numerous rodents and other small mammals, and a single desert tortoise (*Gopherus agassizii*)

was noted during focused surveys conducted during late spring 2007 for adjacent Caltrans projects (Caltrans 2014).

Prepared By: Mindy Beohm, AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm, AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm, AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Prepared By: Mindy Beohm,AMEC

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm, AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Prepared By: Mindy Beohm,AMEC

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportationn

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm, AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm, AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm, AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

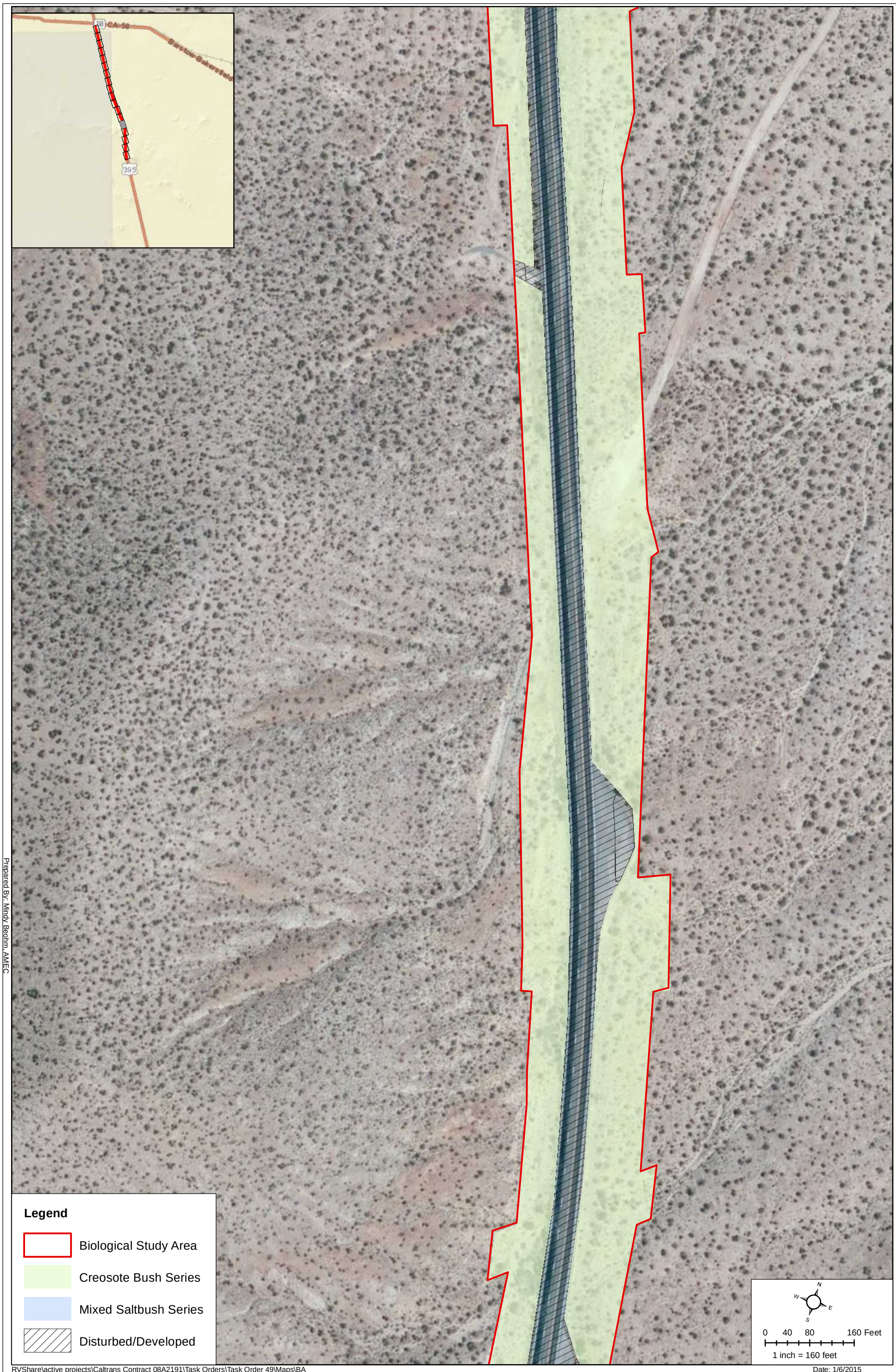
Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.



Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

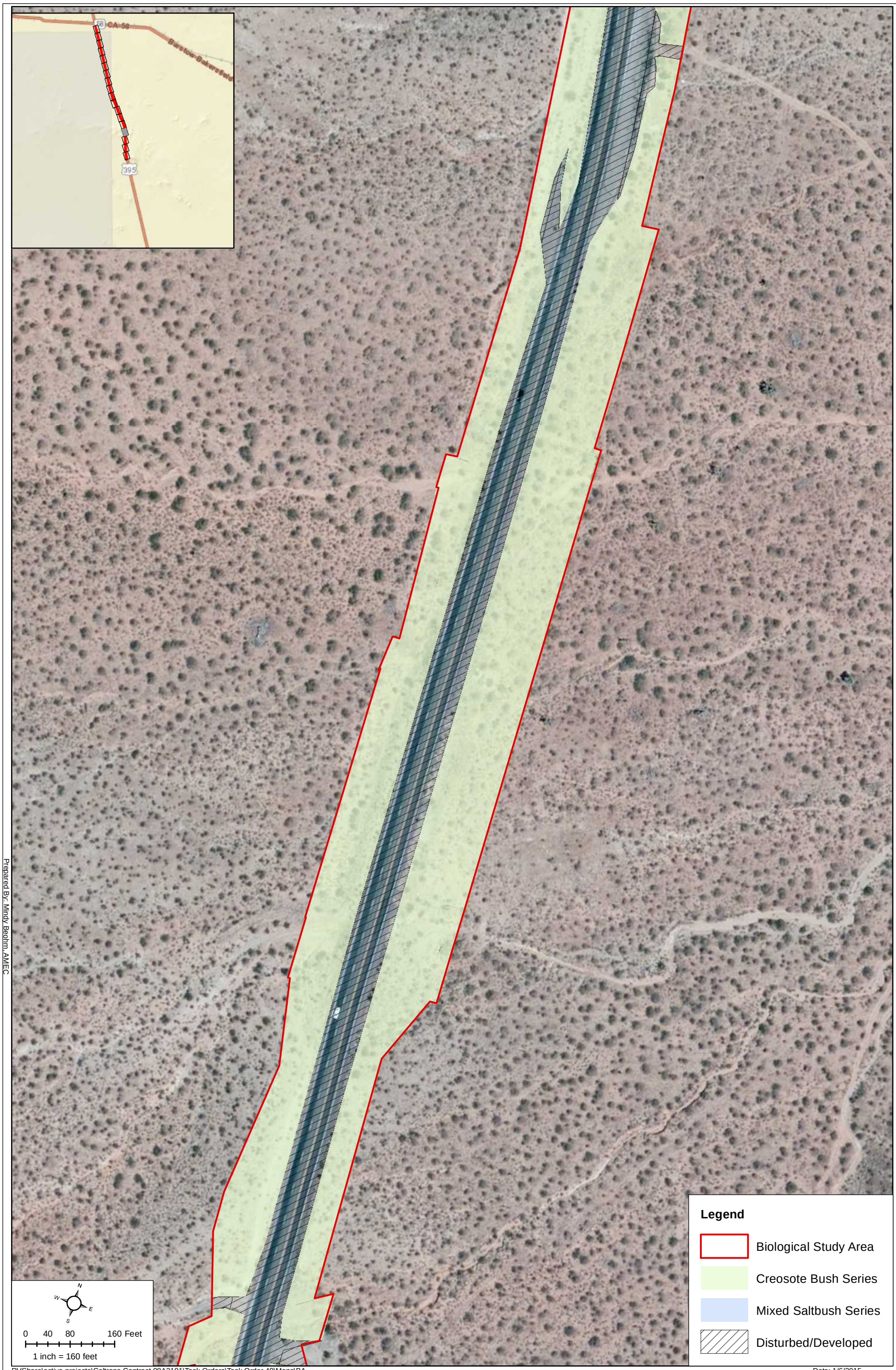
Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.



Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

Prepared By: Mindy Beohm,AMEC

RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\BA

Date: 1/6/2015

Map Notes:
Projection: NAD 83 cal state plane 406ft
BSA:D_T-Fence_Environment_New_Bio(2014)
background: ESRI world Imagery

Biological Study Area Vegetation Communities
US Highway 395 Widen Median and Should and Install Rumble Strips Project
California Department of Transportation

Figure 2.13-1

This page intentionally left blank.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

The proposed project would directly affect 70.05 acres of creosote bush scrub series and 12.85 acres of mix saltbush series as result of road widening and off-highway operation of project-related equipment and vehicles, respectively. These vegetation communities are not natural communities of concern; none are known or expected to be present within the BSA. An additional 56.10 acres of developed/disturbed areas would be affected. Table 2.13-1 summarizes the permanent and temporary impacts on vegetation communities from surface disturbance.

Table 2.13-1. Project Direct Natural Communities Impact Area

Vegetation Community	Temporary Impact	Permanent Impact	Total Impacts
Creosote Bush Series	41.72 acres	28.33 acres	70.05 acres
Mixed Saltbush Series	8.26 acres	14.59 acres	12.85 acres
Developed/Disturbed	6.19 acres	49.91 acres	56.10 acres
Total	56.17 acres	82.83 acres	139.00 acres
Source: NES, Caltrans 2015a.			

The removal of creosote bush scrub series and mix saltbush series under Alternative 1 has the potential to contribute to the disruption of animal movement and habitat fragmentation from the expansion of the US-395 right-of-way. In addition, existing culverts crossing under US-395 would either be replaced or extended. The widening of the surface of US-395 could increase mortality of a number of species and individuals, including desert tortoise (*Gopherus agassizii*) and Mohave ground squirrel (*Xerospermophilus mohavensis*), that could potentially cross the roadway. Details of the impacts on desert tortoise and Mohave ground squirrel are discussed in Section 2.17. The potential disruption of animal movement and habitat fragmentation would be considered substantially adverse. To reduce the potential for impacts on wildlife crossing the widened roadway, measure **BIO-1** would be implemented to minimize disruption of animal movement by funneling small- to medium-sized wildlife from one side of US-395 to the other, thereby decreasing the potential mortality of individuals that would otherwise cross over US-395. With the implementation of **BIO-1**, potential impacts on animal movement and habitat fragmentation would be reduced to less-than-significant levels.

Alternative 2 (No-Build Alternative)

No project improvements would occur under Alternative 2. Therefore, no impacts related to natural communities of concern or wildlife movement corridors would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following NEPA and CEQA avoidance measure is proposed to mitigate the build alternatives' impacts on wildlife corridors and movement.

- **BIO-1:** Permanent desert tortoise exclusion fencing will be constructed prior to project-related surface disturbance in most areas and maintained in perpetuity throughout the project limits following completion of construction activities. Temporary desert tortoise exclusion

fencing will be used across all drainages during construction, maintained during construction, and removed after project completion. Permanent desert tortoise exclusion fencing will be permanently attached to the wing walls of all culverts on both sides of US-395 to allow for the safe movement of desert tortoises from one side of the highway to the other.

2.14 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. 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 United States Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits, Regional permits and Nationwide permits. 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 Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with *U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 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, this EO states that a federal agency, such as the FHWA and/or Caltrans, 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.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or 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 (Section 2.9) for additional details.

AFFECTED ENVIRONMENT

Unless otherwise noted, the information from this section was synthesized from the January 2015 Natural Environment Study (NES) and the January 2015 Delineation of Jurisdictional Waters (JD) prepared for the proposed project.

The average rainfall for the area is 3.6 inches per year and the average snowfall is 1.1 inches per year.

Surface hydrology in the study area is dominated by ephemeral washes typical of dryland fluvial systems, flowing only during storm events and remaining dry for most of the year. The study area is within the Mojave River and Harper Dry Lake watersheds. The northern half of the study area generally occurs within the Harper Dry Lake watershed and the southern half generally occurs within the Mojave River watershed. Drainages within the Mojave River watershed generally flow southeast for approximately 14 miles through Buckthorn Wash and other un-named ephemeral washes before flowing into the Mojave River near the community of Helendale. The Mojave River is an intermittent watercourse at this point.

The drainages in the northern portion of the study area flow northeast through un-named ephemeral washes for approximately 15 miles before flowing into Harper Dry Lake. Harper Dry Lake is approximately 13 straight miles from the study area.

The BSA contains 34 ephemeral drainages or drainage segments identified as Drainage 1 through Drainage 34 (see Table 2.14-1 and Appendix E). All of these drainages are ephemeral with no wetlands present. A total of 1.33 acres of non-wetland drainages on the property of Edwards Air Force Base (EAFB), waters of the U.S., and waters of the state and CDFW jurisdiction were delineated within the project area. All of the drainages identified in this study are un-named ephemeral drainages. Waters of the U.S. and waters of the state were delineated to the extent of the ordinary high water mark (OHWM), which included a break in bank slope, a change in the average sediment texture, and/or a change in vegetation cover. CDFW jurisdiction was delineated to the bankfull width. Because of bank morphology in the project area (gently to steeply sloping, vertically incised, or no bank), boundaries of waters of the U.S., waters of the state, and CDFW jurisdiction were determined to be generally the same for all drainages. Bank height ranged from no bank to 6 feet deep. The substrate within the drainages included sand, coarse sand, coarse sand with cobbles, silt, and bedrock.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

Table 2.14-1. Temporary and Permanent Impacts on Drainages within the Project Limits

Drainage	Temporary Impacts (acres)	Permanent Impacts (acres)	Property	Temporary Impact Length (feet)	Permanent Impact Length (feet)
1	0.004	0.003	EAFB	60	45
2	0.006	0.006	EAFB	67	70
3	0.004	0.004	EAFB	50	48
4	0.006	0.008	EAFB	64	75
5	0.002	0.003	EAFB	28	35
6	0.005	0.008	EAFB	60	85
7	0.004	0.005	EAFB	58	72
8	0.015	0.023	EAFB	63	91
9	0.002	0.002	EAFB	95	97
10	0.005	0.007	EAFB	60	81
11	0.005	0.006	EAFB	52	61
12	0.012	0.002	EAFB	181	32
13	0.007	0.002	EAFB	148	37
14	0.032	0.033	EAFB	649	259
15	0.117	0.035	EAFB	866	225
16	0.084	0.037	WSC, CDFW	370	155
17	0.199	0.016	WSC, CDFW	151	150
18	0.010	0.016	WSC, CDFW	148	149
19	0.055	0.017	WSC, CDFW	475	178
20	0.075	0.016	WSC, CDFW	1334	303
21	0.039	0.037	WSC, CDFW	395	263
22	0.014	0.024	WSC, CDFW	226	251
23	0.014	0.014	WSC, CDFW	301	302
24	0.022	0.016	WSC, CDFW	394	218
25	0.006	0.014	WSC, CDFW	80	194
26	0.014	0.021	WSC, CDFW	188	268

Drainage	Temporary Impacts (acres)	Permanent Impacts (acres)	Property	Temporary Impact Length (feet)	Permanent Impact Length (feet)
27	0.004	0.013	WSC, CDFW	77	196
28	0.009	0.019	WSC, CDFW	165	303
29	0.009	0.017	WSC, CDFW	131	243
30	0.017	0.024	WSC, CDFW	255	460
31	0.008	0.004	WSC, CDFW	177	88
32	0.006	0.011	WSC, CDFW	92	199
33	0.028	0.014	WUS, WSC, CDFW	624	430
34	0.002	0.015	WUS, WSC, CDFW	40	394
Total	0.84	0.49	n/a	8,124	6,057

WUS Waters of the United States
WSC Waters of the State of California
CDFW California Department of Fish and Wildlife Jurisdictional Waters
EAFB Drainages on Edwards Air Force Base Property
Source: Delineation of Jurisdictional Waters.

Surface waters within Harper Dry Lake watershed flow into an isolated dry lake and are likely not jurisdictional to USACE. Waters that are not tributaries of traditional navigable waters (TNWs), or waterways with no link to interstate or foreign commerce, would most likely be considered isolated, intrastate waterways, removed from federal CWA jurisdiction by the Solid Waste Agency of Northern Cook County (USACE 2007). Furthermore, all intrastate tributaries to those waterways that do not, themselves, have a link to interstate commerce would not be considered jurisdictional waters of the U.S. under the CWA.

The Mojave River is considered a TNW by USACE and a waterway with a connection to interstate and foreign commerce. All ephemeral drainages identified in the project area would be considered non-relatively permanent waterways (RPWs) by USACE, typically flowing only in response to storm events. It is likely that USACE would consider all non-RPWs with an OHWM and physical surface channel connectivity to the Mojave River to have a significant nexus to a TNW, and would therefore be determined to be waters of the U.S. themselves. Although drainages 1 through 15 lie within the portion of Harper Dry Lake watershed located on EAFB property, USACE previously determined that these drainages are not waters of the U.S. Drainages 16 through 32 lie within the Harper Dry Lake watershed outside of EAFB property. Drainages 33 through 34 lie within the Mojave River watershed.

The proposed project improvements were overlaid on the jurisdictional delineation boundary to determine the extent of impacts on jurisdictional areas. The extension of asphalt and culverts were considered permanent impacts. Temporary impacts will be caused by access for construction equipment and grading limits. Table 2.14-2 summarizes impacts on jurisdictional waters. Table 2.14-3 summarizes the proposed modifications to culverts on EAFB property and the related temporary and permanent impacts.

Table 2.14-2. Temporary and Permanent Impacts on Jurisdictional Waters Summary

Agency and Impacts	CDFW temporary (acres)	CDFW permanent (acres)	U.S. Temporary (acres)	U.S. Permanent (acres)	U.S. Temporary (linear feet)	U.S. Permanent (linear feet)
Total	0.62	0.35	0.03	0.03	664.00	824.00

Caltrans is seeking an approved jurisdictional determination from USACE. Under the approved jurisdictional determination, only drainages 33 and 34 (shown in Figure 2.14-1 below) would likely be considered waters of the U.S. because they are tributary to the Mojave River. The remaining drainages are tributary to Harper Dry Lake, which is not a traditional navigable water, and therefore not USACE jurisdictional. Drainages 16 through 34 would be considered CDFW state streambeds.

Table 2.14-3. Proposed Modifications to Culverts and Impacts on Waters on Edwards Air Force Base Property

Culvert	Drainage [a]	Post Mile	Existing Culvert Diameter (Inch)	Existing Culvert Length (ft)	Existing Culvert Area		Area of Impact			
					Sq Ft	Acres	Length of Extension (ft)	Area to Modify and Re-Contour	Permanent Impact (Acres)	Temporary Impact (Acres)
1	15	42.14	36	132.9	980	0.023	20	Headwall & Wing Wall and RSP	0.035	0.117
2	n/a	42.37	24	81.9	415	0.01	35.5	Headwall and RSP	n/a	n/a
3	14	42.45	24	69.5	356	0.08	39.4	Headwall and RSP	0.033	0.032

[a] See Table 2.14-1 for drainages with which each culvert is associated.
n/a not applicable; culvert does not occur within a drainage
RSP Rock Slope Protection

Alternative 2 (No-Build Alternative)

No project improvements would occur under Alternative 2. Therefore, no impacts related to wetlands and other waters would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

- **BIO-2:** Plans for water pollution and erosion control will be prepared in accordance with the Caltrans guidance manual for Best Management Practices. The plans will describe sediment and hazardous materials control, dewatering, fueling and equipment management practices, and use of plant material for erosion control. Plans will be reviewed by Caltrans prior to construction.

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

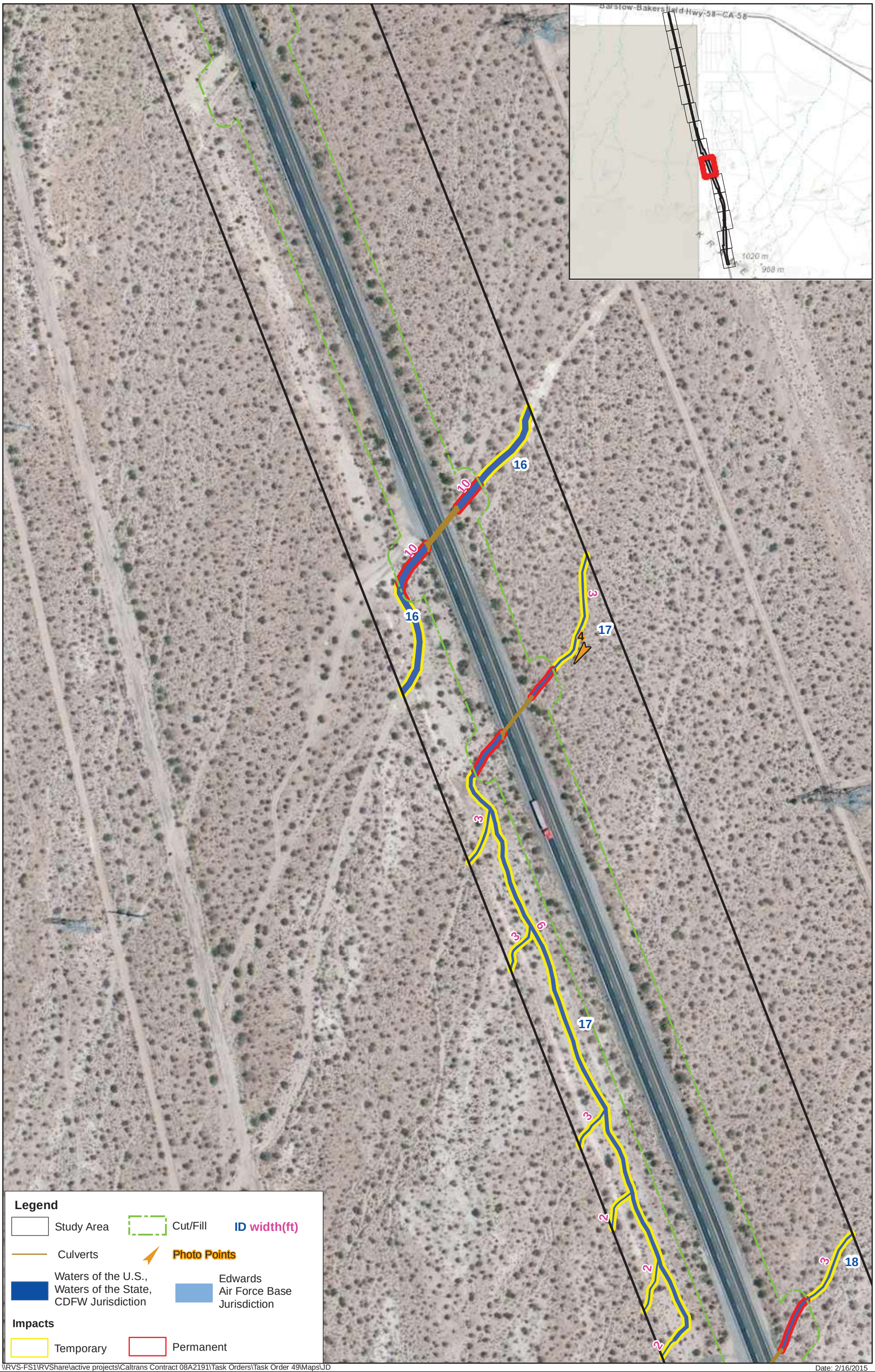
N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.



\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

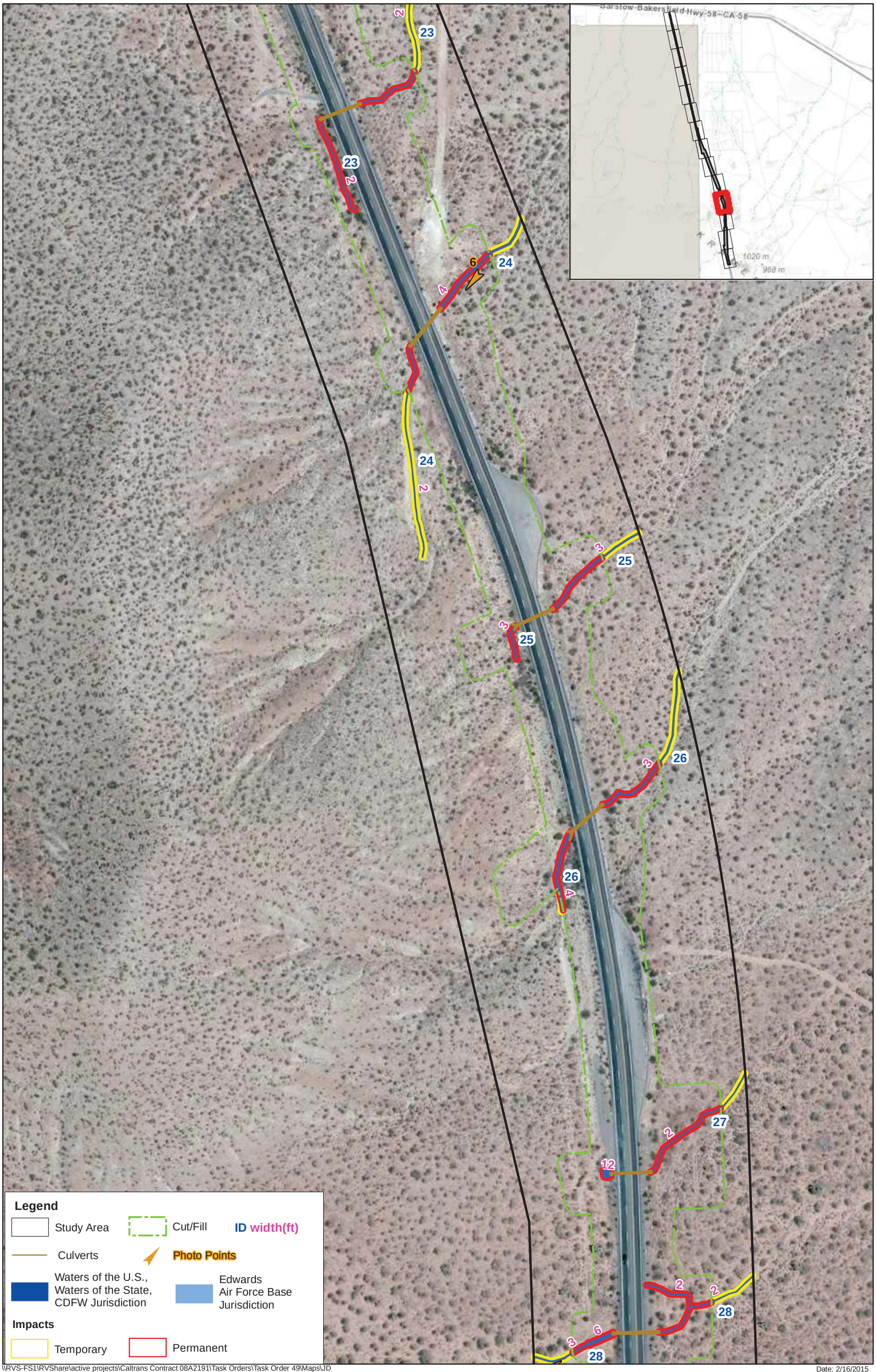
N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.



\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

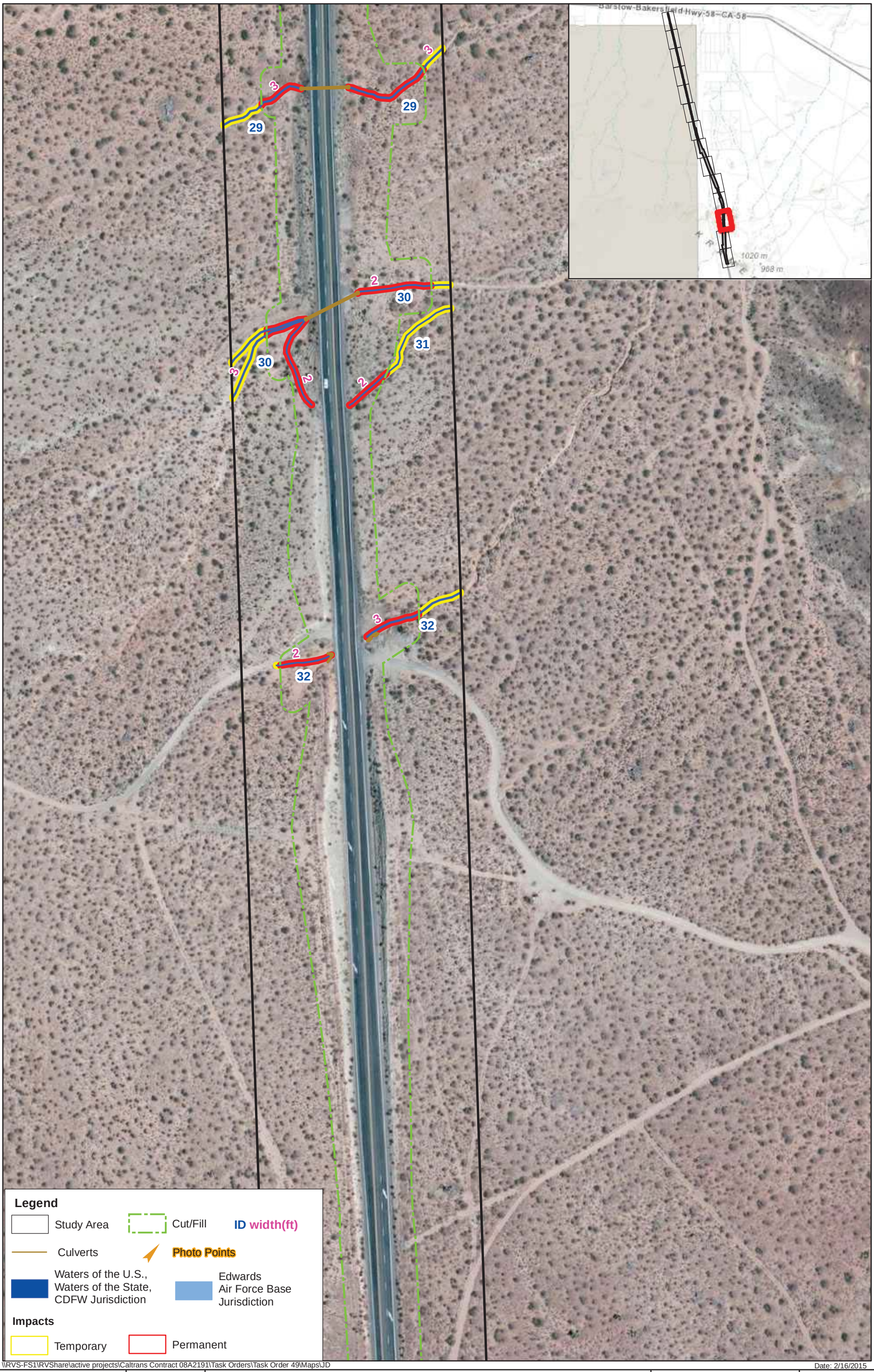
N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.



\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

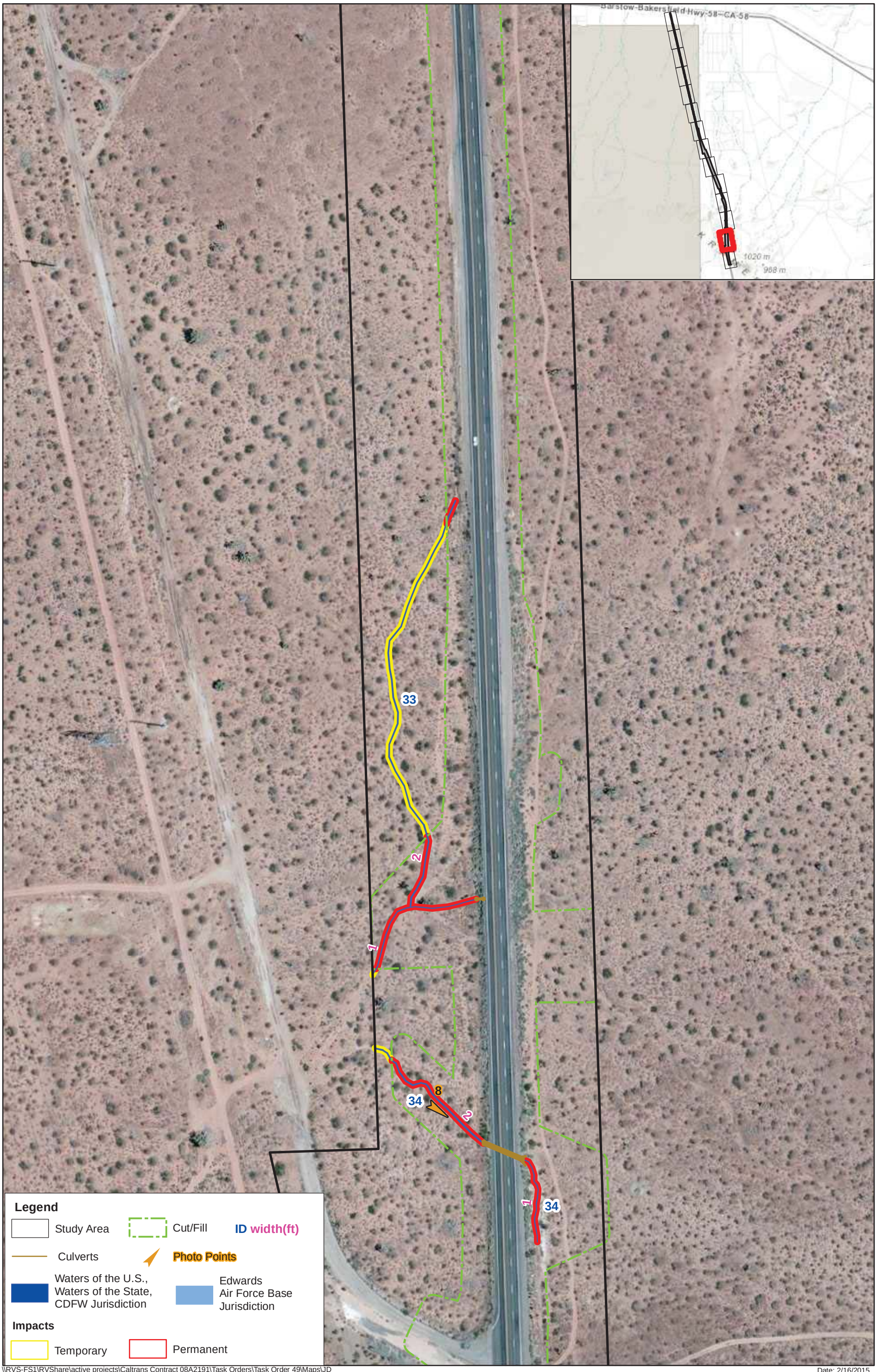
N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.



\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

\\RVS-FS1\RVShare\active projects\Caltrans Contract 08A2191\Task Orders\Task Order 49\Maps\JD

Date: 2/16/2015

Map notes
Projection: NAD 83 cal state plane 405ft
BSA: L1-47(caltrans)
surveys: 5/21-5/23/12
background: World Imagery (ESRI online)

N

Jurisdiction & Impact Map
Kramer Hills Widening Project North
California Department of Transportation

1 inch = 160 feet
0 40 80 160
Feet

Figure 2.14-1

This page intentionally left blank.

2.15 Plant Species

REGULATORY SETTING

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) share 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 (Section 2.18) in this document for detailed information about these species.

This section of the document discusses all the 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 United States Code 16 (USC) Section 1531, et seq. See also 50 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 Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, CA Public Resources Code, Sections 2100-21177.

AFFECTED ENVIRONMENT

Unless otherwise noted, the information from this section was synthesized from the January 2015 NES prepared for the proposed project. According to the NES, focused surveys for special-status plant species have not been conducted for this project to date, but will be conducted during the appropriate blooming period for each species. Results of these surveys will be addressed in the final environmental document. Therefore, only the potential for the special-status plants known to occur in the project vicinity based on CNDDB and CNPS records can be assessed at this time. A review of the CNDDB and CNPS records reported seven special-status plants in the vicinity of the project site. These include: white pygmy poppy (*Canbya candida*), Mojave spineflower (*Chorizanthe spinosa*), desert cymopterus (*Cymopterus deserticola*), Booth's evening-primrose (*Eremothera boothii* ssp. *boothii),* Barstow woolly sunflower (*Eriophyllum mohavense*), sagebrush leoflingia (*Loeflingia squarrosa* var. *artemisiarum*) and beaver dam breadroot (*Pediomelum castoreum*). Based on the presence of suitable habitat for these species throughout the BSA and the known occurrence either within the same sections as the project occurs or in the vicinity (within approximately 3 miles), these seven species are considered to have a moderate to high potential of occurrence within the BSA, as described in Table 2.15-1.

Table 2.15-1. Special-Status Plant Species

Scientific Name	Common Name	Status	General Habitat Description	Occurrence Probability	Rationale
Plants					
Canbya candida	white pygmy-poppy	CRPR 4.2	Sandy places in Joshua tree woodland and Mojavean desert scrub; 725–1250 meters.	High	Reported occurring within one of the same sections that a portion of the site is also within (CDFW 2012); suitable habitat present.
Chorizanthe spinosa	Mojave spineflower	CRPR 4.2	Chenopod scrub, Joshua tree woodland, Mojave desert scrub, playas, sometimes alkaline; 6–1300 meters.	High	Reported occurring within two of the same quadrangles (Kramer Junction and Red Buttes) that the site is also within (CDFW 2012) and by Sapphos Environmental Inc. during rare plant surveys conducted for another Caltrans project in the immediate vicinity; suitable habitat present.
Cymopterus deserticola	desert cymopterus	CRPR 1B.2	Joshua tree woodland and Mojavean Desert scrub with fine to course, loose, sandy soils of flats and old dune areas with well drained soils; 625–910 meters.	High	Reported occurring within one of the same sections that a portion of the site is also within (CDFW 2012); suitable habitat present.
Eremothera boothii ssp. *boothii*	Booth's evening-primrose	CRPR 2B.3	Joshua tree "woodland," Pinyon and juniper woodland; 815–2400 meters.	High	Reported within vicinity by Sapphos Environmental Inc. during rare plant surveys conducted for another Caltrans project in the immediate vicinity; suitable habitat present.
Eriophyllum mohavense	Barstow woolly sunflower	CRPR 1B.2	Desert chenopod scrub, Mojavean Desert scrub and desert playas with open, silty or sandy areas with saltbush scrub or creosote bush scrub and along the barren ridges or margins of playas; 500–900 meters.	Moderate	Reported within the same sections that a portion of the site is also within (CDFW 2012); suitable habitat present.
Loeflingia squarrosa var. *artemisiarum*	Sagebrush leoflingia	CRPR 2B.2	Great Basin scrub, Sonoran Desert scrub and desert dunes with sandy flats, dunes and sandy areas around clay slicks with *Sarcobatus* (greasewood), *Atriplex* (saltbush), *Tetradymia*, etc.; 700–1200 meters.	Moderate	Reported from approximately 3 miles west of the site (CDFW 2012); suitable habitat present.

Scientific Name	Common Name	Status	General Habitat Description	Occurrence Probability	Rationale
Pediomelum castoreum	beaver dam breadroot	CRPR 1B.2	Joshua tree woodland, Mojavean Desert scrub with sandy soils, washes and roadcuts; 610–825 meters.	Moderate	Reported from approximately 2 miles northeast of the site (CDFW 2012); suitable habitat present.

CNPS California Rare Plant Rank (CRPR): 1A - Plants Presumed Extinct in California; List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere; List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere; List 3: Plants About Which We Need More Information - A Review List; List 4: Plants of Limited Distribution - A Watch List.

CNPS Threat Ranks

0.1: Seriously threatened in California (high degree/immediacy of threat).

0.2: Fairly threatened in California (moderate degree/immediacy of threat).

0.3: Not very threatened in California (low degree/immediacy of threats or no current threats known).

White Pygmy Poppy

Focused surveys for rare plants, including for this species, will be conducted during the species blooming period (March through June) to determine the species' status on site and ensure compliance with CEQA. White pygmy poppy was reported by the CNDDB (2012) as occurring in the Kramer Hills; Section 15, Range 6 West, Township 9 North which is a section also shared by the project alignment. Surveys for rare plants, including white pygmy poppy, have not been conducted for this project to date. White pygmy poppy was also not encountered during the survey conducted for the desert tortoise. Because of the occurrence of suitable habitat within the project BSA and the reported occurrence of this species within a section shared by the project alignment, the potential for white pygmy poppy to occur is considered to be high.

Mojave Spineflower

Focused surveys for rare plants, including Mojave spineflower, will be conducted during the species blooming period (March through July) to determine the species' status on site and ensure compliance with CEQA. Mojave spineflower was reported by the CNPS (2012) as occurring on the Kramer Junction and Red Buttes quadrangles on which the project alignment also occurs. Surveys for Mojave spineflower have not been conducted for this project to date. Mojave spineflower was also not incidentally observed during the survey conducted for the desert tortoise. Because of the occurrence of suitable habitat within the BSA and the reported occurrence of this species within two of the same quadrangles shared by the project alignment, the potential for Mojave spineflower to occur is considered to be high.

Desert Cymopterus

Focused surveys for desert cymopterus will be conducted during the species blooming period (March through May) to determine the species' status on site and ensure compliance with CEQA. Desert cymopterus was reported by the CNDDB (2012) as occurring within Section 20, Range 6 West, Township 9 North, which is a section also shared by a portion of the project alignment. Surveys for desert cymopterus have not been conducted for this project to date. Desert cymopterus was also not encountered during the survey conducted for the desert tortoise. Because of the occurrence of suitable habitat within the BSA and the reported occurrence of this species within a section shared by the project alignment, the potential for desert cymopterus to occur is considered to be high.

Booth's Evening-Primrose

Focused surveys for Booth's evening-primrose will be conducted during the species blooming period (April to September) to determine the species status on site and ensure compliance with CEQA. Because of the occurrence of suitable habitat within the BSA and the reported occurrence of this species within the vicinity of the project alignment, the potential for Booth's evening-primrose to occur is considered to be high.

Barstow Woolly Sunflower

Focused surveys for Barstow woolly sunflower will be conducted during the species blooming period (March through May) to determine the species' status on site and ensure compliance with CEQA. The closest reported location of Barstow woolly sunflower relative to the project alignment is from the northeast corner of Edwards Air Force Base on Section 24, Range 7 West, Township 10 North, which is approximately 3 miles northwest of the project alignment (CDFW 2012). Surveys for Barstow woolly sunflower have not been conducted for this project to date. Barstow woolly sunflower was also not incidentally observed during the survey conducted for the desert tortoise. Because of the occurrence of suitable habitat within the project BSA and the reported occurrence of this species within the vicinity of the project alignment, the potential for Barstow woolly sunflower to occur on site is considered moderate.

Sagebrush Leoflingia

Focused surveys for sagebrush leoflingia will be conducted during the species blooming period (April through May) to determine the species' status on site and ensure compliance with CEQA. The closest reported location of sagebrush leoflingia relative to the project alignment is from Edwards Air Force Base on Section 3, Range 7 West, Township 9 North, which is approximately 3 miles west of the project alignment (CDFW 2012). Surveys for sagebrush leoflingia have not been conducted for this project to date. Sagebrush leoflingia was also not encountered during the survey conducted for the desert tortoise. Because of the occurrence of suitable habitat within the BSA and the reported occurrence of this species within the vicinity of the project alignment, the potential for sagebrush leoflingia to occur on site is considered moderate.

Beaver Dam Breadroot

Focused surveys for beaver dam breadroot will be conducted during the species' blooming period (April through May) to determine the species' status on site and ensure compliance with CEQA. Beaver dam breadroot was reported as occurring in the Kramer Hills within Section 36, Range 6 West, Township 10 North, which is approximately 2 miles northeast of the project alignment (CDFW 2012). Surveys for beaver dam breadroot have not been conducted for this project to date. Beaver dam breadroot was also not incidentally observed during the survey conducted for the desert tortoise. Because of the occurrence of suitable habitat within the BSA and the reported occurrence of this species within the vicinity of the project alignment, the potential for beaver dam breadroot to occur on site is considered moderate.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

WHITE PYGMY POPPY

Project impacts on the white pygmy poppy, if present, would include the direct permanent removal of up to 32.92 acres of suitable habitat and up to 49.98 acres of suitable habitat temporarily affected. In addition, there is a potential for indirect impacts to occur during

construction from a potential increase in dust, invasive species, or risk of fire. Direct impacts would be potentially minimized with the implementation of measure **BIO-3**.

MOJAVE SPINEFLOWER

Project impacts on Mojave spineflower, if present, would include the direct permanent removal of up to 32.92 acres of suitable habitat and up to 49.98 acres of suitable habitat temporarily affected. In addition, there is a potential for indirect impacts to occur during construction from a potential increase in dust, invasive species, or risk of fire. Impacts would be potentially minimized with the implementation of measure **BIO-4**.

DESERT CYMOPTERUS

Project impacts on desert cymopterus, if present, would include the direct permanent removal of up to 32.92 acres of suitable habitat and up to 49.98 acres of suitable habitat temporarily affected. In addition, there is a potential for indirect impacts to occur during construction from a potential increase in dust, invasive species, or risk of fire. Impacts would be minimized with the implementation of measure **BIO-5**.

BOOTH'S EVENING-PRIMROSE

Project impacts on Booth's evening-primrose, if present, would include the direct permanent removal of up to 32.92 acres of suitable habitat and up to 49.98 acres of suitable habitat temporarily affected. In addition, there is a potential for indirect impacts to occur during construction from a potential increase in dust, invasive species, or risk of fire. Impacts would be minimized with the implementation of measure **BIO-6**.

BARSTOW WOOLLY SUNFLOWER

Project impacts on Barstow woolly sunflower, if present, would include the direct permanent removal of up to 32.92 acres of suitable habitat and up to 49.98 acres of suitable habitat temporarily affected. In addition, there is a potential for indirect impacts to occur during construction from a potential increase in dust, invasive species, or risk of fire. Impacts would be minimized with the implementation of measure **BIO-7**.

SAGEBRUSH LEOFLINGIA

Project impacts on sagebrush leoflingia, if present, would include the direct permanent removal of up to 32.92 acres of suitable habitat and up to 49.98 acres of suitable habitat temporarily affected, as well as corresponding losses of topsoil within the project permanent and temporary disturbance footprints. In addition, there is a potential for indirect impacts to occur during construction from a potential increase in dust, invasive species, or risk of fire. Impacts would be minimized with the implementation of measure **BIO-8**.

BEAVER DAM BREADROOT

Project impacts on beaver dam breadroot, if present, would include the direct permanent removal of up to 32.92 acres of suitable habitat and up to 49.98 acres of suitable habitat temporarily affected. In addition, there is a potential for indirect impacts to occur during construction from a potential increase in dust, invasive species, or risk of fire. Impacts would be minimized with the implementation of measure **BIO-9**.

Alternative 2 (No-Build Alternative)

No project improvements would occur under Alternative 2. Therefore, no impacts on rare or special-status plant populations or their habitats would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

White Pygmy Poppy

The following avoidance and minimization measure would minimize impacts on the white pygmy poppy:

- **BIO-3**: If white pygmy poppy is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld global positioning system (GPS) and mapped at that time. Prior to construction, a qualified biologist shall flag the on-site locations of white pygmy poppy (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on this species are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.

Mojave Spineflower

The following avoidance and minimization measure would minimize impacts on the Mojave spineflower:

- **BIO-4**: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If Mojave spineflower is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on Mojave spineflower are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.

Desert Cymopterus

The following avoidance and minimization measure would minimize impacts on the desert cymopterus:

- **BIO-5**: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If desert cymopterus is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on desert cymopterus are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.

Booth's Evening-Primrose

The following avoidance and minimization measure would minimize impacts on the Booth's evening-primrose:

- **BIO-6**: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If Booth's evening-primrose is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on Booth's evening-primrose are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.

Barstow Woolly Sunflower

The following avoidance and minimization measure would minimize impacts on the Barstow woolly sunflower:

- **BIO-7**: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If Barstow woolly sunflower is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on Barstow woolly sunflower are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.

Sagebrush Leoflingia

The following avoidance and minimization measure would minimize impacts on the sagebrush leoflingia:

- **BIO-8**: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If sagebrush leoflingia is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on sagebrush leoflingia are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.

Beaver Dam Breadroot

The following avoidance and minimization measure would minimize impacts on the beaver dam breadroot:

- **BIO-9**: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If beaver dam breadroot is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on beaver dam breadroot are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.

2.16 Animal Species

REGULATORY SETTING

Many state and federal laws regulate impacts to wildlife. The US Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (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 wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.18, 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 pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600–1603 of the California Fish and Game Code
- Section 4150 and 4152 of the California Fish and Game Code

AFFECTED ENVIRONMENT

Unless otherwise noted, the information from this section was synthesized from the January 2015 NES prepared for the proposed project. A total of five non-listed special-status animals are known to occur in the general region, four of which are either highly likely or are known to occur within the BSA. These four non-listed special-status species are the burrowing owl (*Athene cunicularia*), yellow warbler (*Dendroica petechia brewsteri*), loggerhead shrike (*Lanius ludovicianus*), and American badger (*Taxidea taxus*). Although the Le Conte's thrasher (*Toxostoma lecontei*) has been reported in the area, only the San Joaquin Valley population is considered a CDFW species of special concern and would not occur within the BSA. Therefore, Le Conte's thrasher is not discussed further.

Table 2.16-1 shows the non-listed special-status animal species that were listed in the CNDDB for the Kramer Junction 7.5' U.S. Geological Survey quadrangles. Threatened and endangered special-status species are discussed in Section 2.17.

Table 2.16-1. Non-Listed Special-Status Animal Species Potentially Occurring or Known to Occur in the Project Area

Scientific Name	Common Name	Status	General Habitat Description	Occurrence Probability	Rationale
Birds					
Athene cunicularia	burrowing owl	CSC	Open, dry annual or perennial grassland, desert and scrubland characterized by low-growing vegetation.	**High** (burrowing owl sign observed in vicinity but not within the project BSA)	Focused surveys not conducted. Burrowing owl sign detected at desert tortoise burrow along the 400-meter sampling transect east of alignment. Suitable habitat is present throughout the project BSA.
Setophaga petechia brewsteri	yellow warbler	CSC (nesting only)	Riparian scrub and woodland	Nesting: Absent Foraging: **Occurs**	Suitable riparian (nesting) habitat not present in project BSA. Observed foraging in BSA during migration.
Lanius ludovicianus	loggerhead shrike	CSC	Open habitats with small trees or large shrubs (nesting); winters in open habitats, including agricultural fields; widespread but declining in s. Calif.	Nesting: Moderate Foraging: **Occurs**	Observed in BSA while conducting desert tortoise surveys.
Toxostoma lecontei	Le Conte's thrasher	CSC (San Joaquin Valley population only)	Prefers open desert wash, desert scrub, alkali desert scrub and desert succulent scrub habitats. Nests in dense, spiny shrubs or densely branched cacti in desert wash communities.	**Absent** (for the San Joaquin Valley population)	Desert scrub and desert wash habitat present. Le Conte's thrasher has been reported from approximately 2.5 miles west of the site; however, there is no potential for an individual from the San Joaquin Valley population to be present.
Taxidea taxus	American badger	CSC	Occurs in a wide variety of vegetation communities including Mojavean desert scrub and Joshua tree woodland.	**Moderate**	Species reported by Sapphos Environmental Inc. in immediate Vicinity.

CSC State (California) Species of Special Concern
Source: NES, Caltrans 2015.

Burrowing Owl

Up to 82.90 acres of suitable habitat are present within the BSA. Focused surveys for the burrowing owl have not been conducted for the proposed project to date. One burrow exhibiting burrowing owl sign (whitewash and pellets) was, however, incidentally observed at a desert tortoise burrow along the eastern 400-meter sampling transect during the focused desert tortoise

survey. Suitable habitat and suitable burrows for burrowing owl occur throughout the BSA and adjacent areas. Because of the presence of suitable habitat and burrows, focused surveys for burrowing owl are required by CDFW and would be conducted prior to commencement of project activities.

Yellow Warbler

Although avian surveys have not been conducted for the proposed project, a single yellow warbler was observed within the project footprint during surveys conducted for the desert tortoise. Although the yellow warbler forages on site during migration, nesting habitat for this species is not present on or in the vicinity of the BSA. No additional surveys for this species will be conducted, as the affected habitat is not considered biologically important for this species.

Loggerhead Shrike

Although avian surveys, including focused surveys for this species, have not been conducted for this project, the loggerhead shrike was incidentally observed while conducting focused surveys for the desert tortoise. The BSA provides suitable foraging and nesting habitat for loggerhead shrike, as the affected habitat is not considered biologically important for this species .

American Badger

Although focused surveys for this species have not been conducted for the proposed project, sign (excavations) of American badger was reported while conducting focused burrowing surveys for another Caltrans project in the immediate vicinity. No additional surveys for this species will be conducted, as the affected habitat is not considered biologically important for this species.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

BURROWING OWL

Up to 49.98 acres of suitable habitat for burrowing owl would be affected during project construction, and the permanent loss of up to 32.92 acres of suitable habitat would occur as result of implementation of Alternative 1. Potential impacts on burrowing owl include permanent and temporary loss of nesting burrows, satellite burrows, foraging habitat, dispersal and migration habitat, winter habitat, habitat linkages, habitat supporting prey, and habitat supporting host burrowers as well as potential mortalities during construction. Indirect impacts could also occur, such as territory abandonment or nest failure due to human presence and noise. Any impact resulting in nest abandonment or mortality would be adverse; however, if after the focused survey is conducted it is determined that burrowing owls are present within the project footprint, full avoidance of occupied burrows would be achieved through the implementation of measures **BIO-10** through **BIO-16**. These measures would also ensure full compliance with the MBTA and similar provisions under the California Fish and Game Code, and impacts would be less than significant.

If full avoidance of occupied burrows during the nonbreeding season (September 1 through January 31) is not feasible, **BIO-17** and **BIO-18** would be implemented to exclude burrowing owls from the project and compensate for the loss of habitat. There is a potential for these measures to result in the loss of access to burrows, potentially stress owls, increase predation, increase competition for burrows, and depress reproduction (CDFW 2012). Therefore, impacts may be significant.

If unavoidable impacts such as permanent habitat loss occur as a result of project implementation, habitat replacement/compensation will be developed and implemented as required by CDFW. In general, an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well-drained soils, and abundant and available prey close to the owl's original burrows or the project site are among the habitat compensation goals of CDFW.

YELLOW WARBLER

Impacts on the yellow warbler as result of the implementation of Alternative 1 would include direct permanent and temporary disturbance of potential foraging habitat used during migration only. The temporary loss of up to 49.98 acres of potential foraging habitat and the permanent loss of up to 32.92 acres of potential foraging habitat is not biologically important to the species because all work would be limited to areas directly adjacent to a traveled roadway.

LOGGERHEAD SHRIKE

Impacts on the loggerhead shrike as a result of the implementation of Alternative 1 would include direct temporary disturbance to potential nesting and foraging habitat. This temporary disturbance of up to 197.53 acres of potential foraging habitat is not biologically important to the species because all work would be limited to areas directly adjacent to a heavily traveled highway. Up to 32.92 acres of suitable nesting habitat would be permanently removed. To ensure that individuals potentially nesting within or adjacent to the project footprint are avoided during the breeding season, measure **BIO-24** through **BIO-26** would be implemented to comply with the MBTA and similar provisions in the California Fish and Game Code and ensure compliance with CEQA.

AMERICAN BADGER

Impacts on the American badger as result of the implementation of Alternative 1 would include direct removal of suitable habitat (up to 32.92 acres permanent and up to 49.98 acres temporary). In addition, there is a potential for vibrations from construction activities to collapse occupied burrows that may occur on areas just outside of the construction area and potentially result in mortality of a few individuals. However, because habitat occurs directly adjacent to a heavily traveled roadway, it is not biologically important to the species, and all work would be limited to the ROW, it is anticipated that impacts would not exceed a threshold of significance.

Alternative 2 (No-Build Alternative)

Under Alternative 2, the proposed project would not be implemented; therefore, no change to the BSA or impacts on burrowing owl, yellow warbler, loggerhead shrike, or American badger would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

If burrowing owls are found on site, coordination with CDFW will be conducted to determine the appropriate avoidance, minimization and mitigation measures required for the project. The following avoidance and minimization measures are those recommended in the 2012 Staff Report on Burrowing Owl Mitigation. The following CEQA avoidance and minimization measures are subject to change based on the results of forthcoming focused surveys and at the request of CDFW.

- **BIO-10:** Clearly marking areas supporting burrows and buffer zone setback areas (see Table 2.16-2 below). Disturbance to/project activities in these areas must be avoided.
- **BIO-11:** Avoid direct destruction of unoccupied burrows to the greatest extent possible.
- **BIO-12:** Occupied burrows and the established buffer zone setback area surrounding each of the occupied burrows (see Table 2.16-2 below) shall not be disturbed during the nesting season (February 1–August 31), unless a biologist can verify through noninvasive methods that either the owls have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent flight.
- **BIO-13:** Where possible, avoid disturbance to occupied burrows and the established buffer zone area (see Table 2.16-2 below) during the non-breeding season (September 1–January 31).
- **BIO-14:** A Worker Environmental Awareness Program (WEAP) will be developed and provided by a qualified biologist to all involved project personnel. A description of the burrowing owl, its ecology, and its on-site status will be summarized. Measures developed for burrowing owl protection and reporting will be outlined. A record of all personnel attending this training will be kept by Caltrans and updated as staff changes necessitate additional training.
- **BIO-15:** Where direct disturbance to burrowing owls and their habitat can be avoided, the incorporation of buffer zones, visual screens, or other measures will minimize the effects on owls. CDFW recommends the following restrictions and buffer zone setback distances for burrowing owl nesting sites.

Table 2.16-2. Burrowing Owl Buffer Zone Setback Distances

Time of Year	Level of Disturbance		
	Low	Med	High
April 1 to August 15	200 meters	500 meters	500 meters
August 16 to October 15	200 meters	200 meters	500 meters
October 16 to March 31	50 meters	100 meters	500 meters

- **BIO-16:** When avoidance of disturbance to occupied burrowing owl burrows during the non-breeding season is not possible, a Burrowing Owl Exclusion Plan approved by CDFW may be required.
- **BIO-17:** For unavoidable impacts on occupied burrowing owl burrows, the burrows must be excluded and closed by a qualified biologist to permanently exclude burrowing owls. One-way doors would need to be temporarily installed in burrow openings during the non-breeding season (September 1–January 31) and before breeding behavior has begun. Suitable habitat (including suitable burrows) must be available adjacent or near the disturbance site or artificial burrows will need to be provided nearby. Once the biologist has confirmed that the owls have left the burrow, burrows will be excavated using hand tools and filled to prevent reoccupation. All burrowing owls associated with occupied burrows that will be directly affected (temporarily or permanently) by the project will be passively relocated.
- **BIO-18:** All burrowing owl relocation shall be approved by CDFW. The permitted biologist shall monitor the relocated owls a minimum of 3 days per week for a minimum of 3 weeks. A report summarizing the results of the relocation and monitoring shall be submitted to CDFW within 30 days following completion of the relocation and monitoring of the owls.

2.17 Threatened and Endangered Species

REGULATORY SETTING

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), 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 Service) 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, a Letter of Concurrence and/or documentation of a No Effect finding. 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 2081 of the 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 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 the FESA, 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.

AFFECTED ENVIRONMENT

Unless otherwise noted, the information from this section was synthesized from the January 2015 NES and the January 2015 BA prepared for the proposed project.

Desert Tortoise

The desert tortoise is a long-lived, terrestrial reptile with a domed carapace (upper shell) and rounded, stumpy elephantine hind limbs. The front limbs are flattened and heavily scaled for digging and without webbed toes. The carapace is oblong with rounded sides from the joining of the carapace to the plastron (lower shell). The scutes are often yellowish in the middle and have grooved, parallel, concentric growth rings that form outward with age toward the scat margins. The plastron is typically yellowish, becoming brown around the scute margins. The head is relatively small and rounded in front with reddish-tan coloring and the iris is greenish-yellow. The front and hind feet are about equal in size and the tail is of short length.

The Mojave population of the desert tortoise was listed as threatened by USFWS on April 2, 1990 (USFWS 1990). The desert tortoise is also listed as threatened by CDFW. Reasons for its protection include loss and degradation of habitat by development, off-road vehicles, military training maneuvers, mining, illegal dumping, livestock grazing and invasion of exotic grasses and forbs, predation by an increasingly large common raven population, illegal collecting (poaching), intentional killing, and harassment by a growing human population, and a serious and fatal upper respiratory disease.

The desert tortoise is found in a variety of desert habitats, including arid, sandy, or gravelly areas in creosote bush scrub. Desert tortoises feed on a variety of herbaceous annual forbs and grasses. They retreat into their horizontal burrow to avoid surface temperature extremes and to escape from predators. Desert tortoises are known to utilize an average of 7 to 12 burrows at any given time. Multiple tortoises are also known to occasionally share a single burrow.

Desert tortoises mate in spring and can lay two to three clutches of eggs. Their populations have decreased dramatically in recent years for a variety of reasons, including habitat loss and a serious respiratory disease.

For purposes of the FESA of 1973, desert tortoise habitat is defined as: (1) areas with presence of desert tortoises or desert tortoise sign (e.g., shells, bones, scutes, scats, burrows or other shelter sites, tracks, egg shell fragments, courtship rings, drinking depressions) that are likely to be part or all of a lifetime home range; (2) dispersal areas (i.e., habitat corridors); or (3) areas suitable for desert tortoises as identified by the USFWS or in the most recent approved recovery plan for the Mojave population of the desert tortoise (USFWS 1994a).

The BSA is within the Western Mojave Recovery Unit as described in the *Revised Desert Tortoise Recovery Plan for the Mojave Population of the Desert Tortoise* (Gopherus agassizii) (USFWS 2011). The BSA is also within designated critical habitat, Fremont-Kramer Unit, for the desert tortoise (USFWS 1994b, 2011) (see Figure 2.13-1, as the entire BSA is considered critical habitat). Critical habitat is defined as “the specific areas within the geographic area occupied by a species on which are found those physical or biological features essential to the

conservation of the species and which may require special management considerations or protection" (USFWS 2011). The BSA is also within the Desert Coordinated Management Plan's (BLM 2002) Fremont-Kramer Desert Wildlife Management Area (DWMA).

Sign (i.e., burrows, scat, and carcasses) of desert tortoise was detected throughout the BSA and along the 200 meter (m), 400 m and 600 m sampling transects. A total of 74 occurrences of desert tortoise sign were recorded during the surveys. Observed desert tortoise sign included 30 burrows, 24 scat, and 20 carcasses, shell remains, and/or bone fragments. No live desert tortoises were observed (AMEC 2012).

Mohave Ground Squirrel

The Mohave ground squirrel is restricted to the western Mojave Desert and occurred historically from near Palmdale on the southwest, southeast to Lucerne Valley, northwest to Olancha, and northeast to the Avawatz Mountains. Records of the Mohave ground squirrel are known from the vicinity of Kramer Junction, including on two of the same sections that the project occurs (CDFW 2012). The Mohave ground squirrel is about 9 inches long, and is pale brown dorsally, with cream-colored underparts. It lacks obvious stripes or spots. It is active only seasonally, spending much of the year in torpidity underground, emerging to feed following winter and spring rains. It feeds on the leaves and seeds of forbs and shrubs, with perennial shrubs forming a large part of the diet, especially when annual forbs are not available. Habitats used by this species include creosote bush scrub, various types of saltbush scrub, and Joshua tree woodland.

Surveys for Mohave ground squirrel have not been conducted, nor are they planned to be conducted for this project. In lieu of trapping surveys, Caltrans has elected to assume presence of the Mohave ground squirrel throughout the project site.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

The proposed project area is located within the jurisdiction of the USFWS Ventura Office. Caltrans contacted USFWS biologist Ray Vizgirdas regarding the likelihood of using the programmatic biological opinion (PBO) for desert tortoise for this project. In May 2014, a draft NES was sent and Mr. Vizgirdas agreed that this project would most likely be suitable for the PBO. The PBO for desert tortoise was approved by USFWS on November 5, 2013, and is included as Appendix F to this IS/EA. As part of the NEPA Pilot Program, which began July 1, 2007 and continued through September 30, 2012, which is now NEPA assignment of federal responsibilities by the FHWA, effective October 1, 2012 and pursuant to 23 USC 326 or 23 USC 327, Caltrans will conduct formal Section 7 consultation with USFWS. In January 2015, a meeting with Ray Vizgirdas of USFWS was held where it was agreed upon that the project will be covered under the PBO. Caltrans will request a May Affect Likely to Adversely Affect determination from USFWS via the PBO.

DESERT TORTOISE

Potential direct effects resulting from implementation of Alternative 1 include temporary and permanent disturbance in the form of surface disturbance and vegetation removal within the 130-acre direct impact area; however, no utility relocations outside of any respective utility's existing alignment are expected to occur. Direct effects on vegetation as a result of road widening and off-highway operation of project-related equipment and vehicles would be permanent (32.92 acres) and temporary (49.98 acres), respectively. These potential direct effects could result in take of desert tortoise under FESA and CESA. In addition, 32.92 acres of federally designated critical habitat for desert tortoise would be permanently removed and 49.98 acres would be temporarily affected. Because desert tortoise sign was found throughout the BSA and sampling transects, the species could potentially enter or occupy the project site at any time. Project construction activities that may directly affect the desert tortoise include construction and use of temporary access roads, detour roads, work off the paved roadway, and existing or new disposal sites. Potential harassment through handling and relocation of individual desert tortoise found within the work area prior to or during construction activities and potential direct mortality resulting from project construction activities could also occur. These direct effects on desert tortoise would constitute "take" of the species under FESA and CESA. Measures **BIO-19** through **BIO-46** would be implemented to provide avoidance and/or minimization of potential impacts on desert tortoise. Installation of desert tortoise exclusion fencing (**BIO-1)** would ensure that there is no mortality to desert tortoise as a result of construction activities and would minimize disruption of animal movement from one side of US-395 to the other over the long term.

Table 2.17-1. Potential Impacts on Occupied Desert Tortoise Habitat

Vegetation Community	Temporary Impact	Permanent Impact	Total Impacts
Creosote Bush Series	41.72 acres	28.33 acres	70.05 acres
Mixed Saltbush Series	8.26 acres	14.59 acres	12.85 acres
Developed/Disturbed	6.19 acres	49.91 acres	56.10 acres
Total	56.17 acres	82.83 acres	139.00 acres
Source: January 2015 Natural Environment Study			

In conjunction with installing desert tortoise fence (**BIO-1**), consistent with the direction provided in the *November 5, 2013 Programmatic Biological Opinion for Routine Highway Improvements, Maintenance Activities, and Safety Projects in San Bernardino and other Counties* issued by USFWS to Caltrans, the existing 23 culvert drainage features would be accounted for. Of the 23 existing culvert drainages, 21 are between 2 and 3 feet in diameter, one is 1.5 feet in diameter, and one is 4 feet in diameter. No new drainages are expected to be added.

Temporary and permanent impacts on desert tortoise habitat on EAFB land that would occur as a result of modification of three culverts are detailed in Table 2.17-1. Permanent impacts were calculated by measuring the area needed to install new features. Temporary impacts were calculated by measuring the area needed for construction equipment access and grading limits. During construction around the culverts, temporary tortoise fence would be connected to the permanent fence in order to exclude desert tortoise from entering culverts while allowing

construction equipment access. During this time period, tortoise would not be able to use culverts as a wildlife crossing. Once construction activities around the culvert are complete, permanent fencing would be installed that would exclude tortoise from the road, but would allow tortoise access to the culvert as a wildlife crossing. Short-term negative impacts associated with culvert construction include reduced movement of tortoise across the road and disturbance of tortoise habitat.

Table 2.17-2. Culvert Modification Impacts on Desert Tortoise Habitat within Edwards Air Force Base Property

Culvert	Drainage [a]	Post Mile	Permanent Impacts (acres)	Temporary Impacts (acres)
1	15	42.14	0.12	0.24
2	n/a	42.37	0.01	0.30
3	14	42.45	0.01	0.16

[a] See Table 2.14-1 for drainages with which each culvert is associated
n/a: not applicable; culvert does not occur within a drainage

Acquisition of a 2081 permit under CESA would be required prior to project implementation. The proposed project area is within the jurisdiction of the USFWS Ventura Office. Caltrans contacted USFWS biologist Ray Vizgirdas regarding the likelihood of using the PBO for desert tortoise for this project. In May 2014, a draft NES was sent and Mr. Vizgirdas agreed that this project would be suitable for the PBO. As part of the NEPA Pilot Program, which began July 1, 2007 and continued through September 30, 2012, which is now NEPA assignment of federal responsibilities by the FHWA, effective October 1, 2012 and pursuant to 23 USC 326 or 23 USC 327, Caltrans will conduct formal Section 7 consultation with USFWS. Caltrans will request a May Affect Likely to Adversely Affect determination from USFWS via the PBO. The Bureau of Land Management (BLM) has been contacted but has not had any comments on the project. The portions of this project that cross BLM land correspond to parts of two existing easements Caltrans has with BLM. No changes to the limits of Caltrans' easements with BLM in relation to this project will be necessary; however. Caltrans will continue to coordinate with BLM on this project.

A meeting was held with CDFW biologist Becky Jones on January 8, 2014 to discuss the status of the project. At this meeting, CDFW stated that because the project is within designated critical habitat, the compensation ratio for impacts on the desert tortoise will need to be 5:1.

Compensatory mitigation for permanent impacts would occur through acquisition of habitat for desert tortoise and is proposed at a 5:1 ratio, but this would be determined in forthcoming negotiations with CDFW. For permanent impacts on desert tortoise habitat, compensation would occur at a 5:1 ratio, but this would be finalized in consultation with CDFW during Section 2081 permitting, which occurs during the Final Design phase of the project, which follows completion of the current phase of the project, the project approval and environmental document phase.

FESA Determination: Caltrans has determined that the proposed project "may affect, likely to adversely affect" desert tortoise and "may adversely affect critical habitat" for desert tortoise.

Take of critical habitat and impacts on desert tortoise would be addressed through formal Section 7 consultation. Caltrans will seek concurrence of the effect determination from USFWS in order to obtain coverage of the project utilizing the PBO.

MOHAVE GROUND SQUIRREL

As a result of the implementation of Alternative 1, potential impacts on Mohave ground squirrel include the permanent loss of 47.44 acres and temporary disturbance to 68.19 acres of habitat presumed to be occupied by Mohave ground squirrel. Potential mortality of Mohave ground squirrel from project activities would result in take under CESA. Measures **BIO-47** through **BIO-56** would avoid and/or minimize the direct and/or indirect impacts on Mohave ground squirrel. Measure **BIO-46** would compensate for impacts on Mohave ground squirrel.

Acquisition of a 2081 permit from CDFW for permanent and temporary impacts on Mohave ground squirrel would be required prior to project implementation. The potential impacts on Mohave ground squirrel and its habitat would be compensated with the acquisition of suitable Mohave ground squirrel habitat off site at a 5:1 ratio and would be incorporated into the mitigation for desert tortoise. The final amount and location of the compensation lands would be determined in negotiations with, and approved by, CDFW.

Alternative 2 (No-Build Alternative)

Under Alternative 2, the proposed project would not be implemented; therefore, no change to the BSA or impacts on desert tortoise or Mohave ground squirrel would occur. Under the No-Build Alternative, the proposed project would not be implemented and, therefore, no change to the BSA would occur. Under this scenario, a permanent desert tortoise exclusion fence proposed as impact avoidance and minimization would not be constructed along this approximately 6.9-mile stretch of US-395; therefore, desert tortoises occurring within this area of the Fremont-Kramer unit of designated critical habitat would remain at risk of mortality and/or injury resulting from collisions with traffic when attempting to cross the road.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Desert Tortoise

This section describes the efforts that Caltrans proposes to employ in order to avoid and/or minimize incidental take of desert tortoise. Eighteen standard avoidance and minimization measures have been identified to achieve this goal. Changes may occur as Caltrans navigates through the Section 7 and/or Section 2081 consultation process.

NEPA and CEQA general avoidance and minimization measures for this species include the following:

- **BIO-19:** Caltrans will submit the names and qualifications of biologists that they believe meet the minimum requirements to serve as Authorized Biologists to USFWS and CDFW for review and authorization under this biological opinion prior to beginning on-site activities.

- **BIO-20:** Caltrans will designate, on a project-by-project basis, an authorized biologist to be responsible for overseeing compliance with all protective measures and for coordination with USFWS and CDFW. The authorized biologist will immediately notify the resident engineer of project activities that may be in violation of this biological opinion. In such an event, the resident engineer will halt all construction activities until all protective measures are being fully implemented, as determined by the authorized biologist.
- **BIO-21:** When handling desert tortoises, authorized biologists (and trained individuals) must follow the guidelines outlined in the Desert Tortoise Field Manual (USFWS 2010), Chapters 6 and 7.
- **BIO-22:** Immediately prior to the start of any ground-disturbing activities and prior to the installation of any desert tortoise exclusion fencing, clearance surveys for the desert tortoise will be conducted by the authorized biologist, as appropriate. The entire project area will be surveyed for desert tortoise and their burrows by an authorized biologist or approved desert tortoise monitor before the start of any ground-disturbing activities following the 2010 field survey protocol (USFWS 2010) or more current approved protocol. If burrows are found, they will be examined by an authorized biologist to determine if desert tortoises are present. If a tortoise is present and the burrow cannot be avoided, it will be relocated in accordance with USFWS protocol (USFWS 2010). If the authorized biologist determines clearance surveys are not needed, clearance surveys would not be required. If desert tortoises are found at a project site where Caltrans (or the authorized biologist) had previously concluded they were unlikely to occur, all work in the area will stop and Caltrans will contact USFWS and CDFW to determine if the implementation of additional protective measures would be appropriate.
- **BIO-23:** An education program will be developed and presented by the authorized biologist prior to the onset of ground-disturbing activities to be conducted under the auspices of this consultation. All on-site personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel employed for a project will be required to participate in an education program regarding the desert tortoise before performing on-site work. The program will consist of a class presented by an authorized biologist or a video, provided the authorized biologist is present to answer questions. Wallet-sized cards or a one-page handout with important information for workers to carry are recommended as a future reference and a reminder of the program's content. The program will cover the following topics at a minimum:
    - the distribution, general behavior, and ecology of the desert tortoise;
    - its sensitivity to human activities;
    - the protection it is afforded by the Endangered Species Act;
    - penalties for violations of state and federal laws;
    - notification procedures by workers or contractors if a tortoise is found in a Construction Area; and
    - protective measures specific to each project.
- **BIO-24:** Whenever project vehicles are parked outside of a fence that is intended to preclude entry by desert tortoises, workers will check under the vehicle before moving it. If a desert tortoise is beneath the vehicle, the worker will notify the authorized biologist or an approved

desert tortoise monitor to relocate the tortoise. If an authorized biologist is not present on site, the Resident Engineer or supervisor must notify an authorized biologist. Workers will not be allowed to capture, handle, or relocate tortoises. Any such handling must be reported as described in the Reporting Requirements section of the programmatic biological opinion.

- **BIO-25:** The area of disturbance will be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other limiting factors. This measure includes temporary haul roads, staging/storage areas, or access roads. Work area boundaries will be clearly and distinctly delineated with flagging or other marking to minimize surface disturbance associated with vehicle movement. Special habitat features, such as desert tortoise burrows, will be identified and marked as environmentally sensitive areas by the authorized biologist, if they are to be avoided, and will be discussed and identified during the worker education program. To the extent possible, previously disturbed areas within the Caltrans right of way will be used for equipment storage, office trailer locations, and vehicle parking. The development of all temporary access and work roads associated with construction will be minimized and constructed without blading where feasible. Project-related vehicle traffic will be restricted to established roads, construction areas, staging/storage areas, and parking areas. The resident engineer, authorized biologist, or approved desert tortoise monitor will ensure that blading is conducted only where necessary.
- **BIO-26:** The resident engineer is responsible for ensuring that all protective measures are being fully implemented. If the resident engineer determines, or is notified by the authorized biologist, that one or more protective measures are not being fully implemented, he or she will halt all activities that are out of compliance until all non-compliance issues have been resolved to Caltrans biologist and/or USFWS staff's satisfaction. All workers, authorized biologists, and biological monitors will be required to notify the resident engineer of any such problem they notice. The resident engineer must always be able to contact an approved biological monitor or authorized biologist to resolve any unforeseen issues.
- **BIO-27:** Caltrans will determine whether the presence of authorized biologists and approved desert tortoise monitors will be required during project activities as outlined in the "criteria for use in reaching appropriate determination" section of this programmatic biological opinion and the submitted Appendix I notification form to USFWS.
- **BIO-28:** Permanent exclusion fencing will be used to prevent entry by desert tortoises into a work site, throughout the project limits, as shown on plans, with the exception of washes, which will feature use of temporary exclusion fencing. Exclusion fencing will be installed following USFWS guidelines (2005) or more current protocol. The authorized biologist will ensure that desert tortoises cannot pass under, over, or around the fence. However, the authorized biologist must periodically check the fenced area to search for breaks in the fence and to ensure no desert tortoises have breached the fence. Preconstruction surveys for tortoise and tortoise sign will be performed within all proposed construction areas prior to the fence being installed. In addition, prior to ground-disturbing activities beginning in a previously undisturbed or unfenced area, preconstruction surveys will be performed.
- **BIO-29:** Upon locating a dead or injured tortoise within a project site, the resident engineer will immediately notify the authorized biologist, who then will notify USFWS within 24 hours of the observation via telephone. Written notification must be made to the appropriate USFWS field office within 5 days of the finding. The information provided must include the

date and time of the finding or incident (if known), location of the carcass or injured animal, a photograph, cause of death or injury, if known, and other pertinent information (i.e., size, sex, recommendations to avoid future injury or mortality).

- **BIO-30:** Injured desert tortoises will be transported to a veterinarian for treatment at the expense of the contractor. Only the authorized biologist or an approved desert tortoise biological monitor will be allowed to handle an injured tortoise. If an injured animal recovers, the appropriate USFWS field office will be contacted for final disposition of the animal.
- **BIO-31:** Caltrans will notify the authorized biologist or approved desert tortoise biological monitor to collect and place the remains of intact desert tortoise carcasses with educational or research institutions holding the appropriate state and federal permits, per their instructions. If such institutions are not available or the animal's remains are in poor condition, the information noted in this section will be obtained and the carcass left in place. If left in place and sufficient pieces are available, the authorized biologist will mark the carcass to ensure that it is not reported again.
- **BIO-32:** If working outside of a desert tortoise-proof fenced area, auger holes or other excavations will be covered following inspection at the end of each workday to prevent desert tortoises from becoming trapped.
- **BIO-33:** When practicable, construction vehicles will be cleaned of all mud, dirt, and debris from other sites prior to entering the project area. The purpose of this measure is to minimize the spread of weedy plant species that may degrade desert tortoise habitat.
- **BIO-34:** Except on maintained public roads designated for higher speeds or within a desert tortoise-proof fenced area, driving speed will not exceed 20 miles per hour through potential desert tortoise habitat on both paved and unpaved roads.
- **BIO-35:** Any fuel or other hazardous materials spills will be promptly cleaned up; any leaks from equipment will be stopped and repaired immediately. Vehicle and equipment fluids that are no longer useful will be transported to an appropriate off-site disposal location. Fuel and lubricant storage and dispensing locations will be constructed to fully contain spilled materials until disposal can occur. Hazardous waste, including used motor oil waste and coolant, will be stored and transferred in a manner consistent with applicable regulations and guidelines.
- **BIO-36:** Upon completion of construction, all refuse, including but not limited to equipment parts, wrapping material, cable, wire, strapping, twine, buckets, metal or plastic containers, and boxes, will be removed from the site and disposed of properly.
- **BIO-37:** No firearms or pets, including dogs, will be allowed within the work area. Firearms carried by authorized security and law enforcement personnel and working dogs under the control of a handler will be exempt from this protective measure.
- **BIO-38:** To preclude attracting predators, such as the common raven (*Corvus corax*) and coyotes (*Canis latrans*), food-related trash items will be removed daily from the work site and disposed of at an approved refuse disposal site. Workers are prohibited from feeding all wildlife.

- **BIO-39:** Boring locations will not be established within 35 feet of an active desert tortoise burrow. If an active burrow is found within 35 feet after the boring location is established, the boring location will be moved until it is at least 35 feet from the active burrow.
- **BIO-40:** An authorized biologist will be on site during all drilling activities.
- **BIO-41:** Desert tortoise exclusion fence construction will follow the guidelines in Chapter 8 of the Desert Tortoise Field Manual (USFWS 2010).
- **BIO-42:** Desert tortoise-proof fencing will not cross washes. When washes and culverts are encountered, the desert tortoise-proof fence will follow the wash to the roadway and either tie into the existing bridge or cross over the top of a culvert.
- **BIO-43:** During fence inspections and repairs, if any desert tortoises are observed, workers are to notify the authorized biologist because only authorized biologists and approved biological monitors are permitted to handle tortoise. All desert tortoises encountered within the roadway side of the fence will be relocated across the fence to safety in accordance with USFWS protocol (USFWS 2010). Any such incident will be reported in the annual report.
- **BIO-44:** On a case-by-case basis, individual active burrows may be fenced if the authorized biologist determines this protective measure is necessary to prohibit desert tortoises from repeatedly entering work areas. Fencing around individual burrows will be removed when adjacent construction is complete.
- **BIO-45:** When gates are installed within the fence line, desert tortoise-proof fencing will be installed along the gate bottom beginning at least 2 feet above the fence bottom and extending towards the ground leaving less than a 1-inch gap (USFWS 2010).

CEQA mitigation measures for this species include the following:

- **BIO-46:** Off-site habitat for desert tortoise will be acquired at a 5:1 ratio to compensate for the permanent loss and temporary disturbance to desert tortoise and will be done in conjunction with Mohave ground squirrel.

Revisions to these measures may occur, as required by USFWS, CDFW, and/or BLM as Caltrans navigates through the Section 7 and/or Section 2081 consultation processes.

Mohave Ground Squirrel

CEQA general avoidance and minimization measures for this species include the following:

- **BIO-47:** Prior to the initiation of ground-disturbing activities, a representative (Designated Representative) responsible for communications with CDFW and for overseeing compliance with an acquired CESA 2081 Incidental Take Permit will be assigned. CDFW will be notified in writing prior to commencement of ground-disturbing activities of the representative's name, business address, and telephone number, and will be notified in writing if a substitute representative is designated.
- **BIO-48:** Prior to the commencement of ground-disturbing activities, a Designated Biologist knowledgeable and experienced in the biology and natural history of the Mohave ground squirrel will be assigned to monitor construction activities in areas of Mohave ground squirrel habitat to help avoid the take of individual animals and to minimize habitat

disturbance. CDFW will be notified in writing prior commencement of ground-disturbing activities of the Designated Biologist's name, business address, and telephone number. The Designated Biologist will be subject to approval by CDFW.

- **BIO-49:** A WEAP will be presented to all project personnel who will work on site during project implementation and construction will be prepared and presented. The program will consist of a brief presentation from the Designated Biologist. The WEAP will include a discussion of the biology of the Mohave ground squirrel, the habitat needs of this species, its status under the CESA, and the management measures provided in the associated incidental take permit. A fact sheet containing this information will also be prepared and distributed to personnel working on site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all protection measures. These forms will then be filed at Caltrans and on site with the Resident Engineer, to be made available to CDFW upon request.
- **BIO-50:** A trash abatement program will be initiated during pre-construction phases of the project and will continue through the duration of the project. Trash and food items will be contained in closed (common raven-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.
- **BIO-51:** The Designated Biologist will have authority to immediately stop any activity that is not in compliance with the issued CESA incidental take permit, and to order any reasonable measure to avoid the take of Mohave ground squirrel.
- **BIO-52:** Project personnel will access the project area using existing routes and will not enter or cross Mohave ground squirrel habitat outside of the project area. To the extent possible, previously disturbed areas within the project area will be used for temporary storage areas, material laydown sites, and any other surface-disturbing activities. If construction of off-site routes of travel are required, CDFW will be contacted prior to carrying out such an activity.
- **BIO-53:** Any fuel or hazardous waste leaks or spills will be stopped and repaired immediately, as well as cleaned up at the time of occurrence. The storage and handling of hazardous materials will be excluded from the construction zone and any unused or leftover hazardous products would be properly disposed of off site.
- **BIO-54:** All project-related parking and equipment storage will be confined to the project area. Off-site Mohave ground squirrel habitat will not be used for parking or equipment storage. Project-related vehicle traffic will be restricted to established roads, staging, and parking areas. Signs or posting stakes, flags, and/or rope, cord, or fencing will be installed as necessary to minimize the disturbance of Mohave ground squirrel habitat. Vehicle speeds will not exceed 20 miles per hour in order to avoid Mohave ground squirrels potentially on roads or traveling through the project area.
- **BIO-55:** Upon project construction completion, all project-related refuse and debris will be removed from the site and properly disposed of.
- **BIO-56:** All Mohave ground squirrel habitat temporarily disturbed through project activities will be restored.

2.18 Invasive Species

REGULATORY SETTING

On February 3, 1999, President Clinton signed Executive Order (EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States (U.S.). 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 California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

Mojave Weed Management Area

The Mojave Weed Management Area Memorandum of Understanding (MOU) is between the Mojave Desert Resource Conservation District and Caltrans, along with other state and federal agencies. This MOU went into effect August 31, 2010 and aims to facilitate the cooperation and coordination necessary to prevent and control weeds throughout the Mojave Desert. The emphasis of Mojave Weed Management Area activities is on the exclusion, detection, eradication, and suppression of weeds.

AFFECTED ENVIRONMENT

Roadside vegetation often contains nonnative, invasive species. Several nonnative species are present along the alignment of the proposed project, including Sahara mustard (*Brassica tournefortii*), red-stemmed filaree (*Erodium cicutarium*), and tocalote (*Centaurea melitensis*).

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

Roads have been identified as potential avenues for the spread of invasive and exotic plants. Post-construction bare ground can serve as a breeding ground for invasive plant species. During construction activities, construction vehicles may transport invasive plant species from past work sites to the BSA, or between work areas within the BSA. There is potential for adverse effects on natural open spaces from the introduction of invasive species from Alternative 1. Activities that would result in the spread of these species would be minimized through implementation of measure **BIO-57**. With the implementation of these measures, potential introduction of invasive species during construction would be minor.

Alternative 2 (No-Build Alternative)

Under Alternative 2, the proposed project would not be implemented; therefore, no change to the BSA would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following minimization and avoidance measures provided below would reduce the potential for introduction of invasive species during construction:

- **BIO-57:** Measures to minimize the introduction or spread of nonnative species would include cleaning all equipment and vehicles with water (or through another Caltrans-approved method) to remove dirt, seeds, vegetative material, or other debris before entering and upon leaving the project site and the removal and disposal off site of existing nonnative species within the project area.

2.19 Cumulative Impacts

REGULATORY SETTING

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effects 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 types of 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.

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 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 of the Council on Environmental Quality (CEQ) Regulations.

METHODOLOGY

Caltrans, in conjunction with FHWA and U.S. Environmental Protection Agency, developed a guidance document titled *Guidance for Preparers of Cumulative Impact Analysis* (2005). The following is based on the referenced guidance.

As specified in the guidance, if a proposed project would not cause direct or indirect impacts to a resource, it would not contribute to a cumulative impact on that resource, and need not be evaluated with respect to potential cumulative impact. As discussed at the beginning of Chapter 2 and in various sections of Chapter 2 of this Environmental Document, the project would not result in direct or indirect impacts on the following resources and, therefore, no discussion is provided:

- Land Use
- Growth
- Community Impacts
- Farmlands/Timberlands

- Coastal Zone
- Wild and Scenic Rivers
- 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/Seismicity/Topography
- Paleontological Resources
- Hazardous Waste and Materials
- Air Quality
- Noise

RESOURCES EVALUATED FOR POTENTIAL CUMULATIVE IMPACTS

The following discussion of potential cumulative impacts is presented by environmental resource area. A list of planned projects included in the analysis, the reasonably foreseeable projects considered in this analysis, are presented in Table 2-1.2 of this Environmental Document. Six projects are currently planned within the resource study areas of the proposed project. Based upon available information, none of the related projects would be constructed concurrently with the proposed project; therefore, there is no potential for cumulative temporary construction impacts resulting from the concurrent execution of multiple projects within the study area.

BIOLOGICAL ENVIRONMENT

Desert Tortoise

The proposed project would cumulatively contribute to the permanent loss of 32.92 acres and/or temporary disturbance to 49.98 acres of occupied and designated critical habitat for desert tortoise. However, because of the presence of the existing roadway, and with the implementation of the impact avoidance, minimization, and mitigation measures (refer to Section 2.17) and any others required by USFWS, BLM, and CDFW, the project's contribution to cumulative effects would not be considerable.

Mohave Ground Squirrel

Implementation of the proposed project would cumulatively contribute to the permanent loss of 32.92 acres of habitat and temporary impacts on 49.98 acres of habitat that is presumed to be occupied by Mohave ground squirrel. These impacts also include the ongoing conversion of, and disturbance to, undeveloped lands to developed areas that are no longer suitable for this species. The acquisition, permanent protection, and management of suitable habitat for this species

combined with the implementation of project-specific impact minimization measures (refer to Section 2.17) would ensure that project contributions to cumulative effects would not be considerable.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to threatened and endangered animals.

2.20 Climate Change (CEQA)

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: "Greenhouse Gas Mitigation" and "Adaptation." "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation" refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[1].

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued cooperatively.[2]

[1] http://climatechange.transportation.org/ghg_mitigation/
[2] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

REGULATORY SETTING

State

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

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order (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 the 2020, and 3) 80 percent below the year 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, the Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06: (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from 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 for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction is a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. 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 GHG analysis.[3] FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by FHWA to lessen climate change impacts correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

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

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.[4]

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next

[3] To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.
[4] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017–2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

Executive Order 13653 (November 1, 2013): Executive Order (EO) 13653 is focused on preparing the Nation for the impacts of climate change by undertaking actions to enhance climate preparedness and resilience. Section 1 (Policy) of EO 13653 states:

The impacts of climate change -- including an increase in prolonged periods of excessively high temperatures, more heavy downpours, an increase in wildfires, more severe droughts, permafrost thawing, ocean acidification, and sea-level rise -- are already affecting communities, natural resources, ecosystems, economies, and public health across the Nation. These impacts are often most significant for communities that already face economic or health-related challenges, and for species and habitats that are already facing other pressures. Managing these risks requires deliberate preparation, close cooperation, and coordinated planning by the Federal Government, as well as by stakeholders, to facilitate Federal, State, local, tribal, private-sector, and nonprofit-sector efforts to improve climate preparedness and resilience; help safeguard our economy, infrastructure, environment, and natural resources; and provide for the continuity of executive department and agency (agency) operations, services, and programs.

A foundation for coordinated action on climate change preparedness and resilience across the Federal Government was established by Executive Order 13514 of October 5, 2009 (Federal Leadership in Environmental, Energy, and Economic Performance), and the Interagency Climate Change Adaptation Task Force led by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA). In addition, through the U.S. Global Change Research Program (USGCRP), established by section 103 of the Global Change Research Act of 1990 (15 U.S.C. 2933), and agency programs and activities, the Federal Government will continue to support

scientific research, observational capabilities, and assessments necessary to improve our understanding of and response to climate change and its impacts on the Nation.

The Federal Government must build on recent progress and pursue new strategies to improve the Nation's preparedness and resilience. In doing so, agencies should promote: (1) engaged and strong partnerships and information sharing at all levels of government; (2) risk-informed decisionmaking and the tools to facilitate it; (3) adaptive learning, in which experiences serve as opportunities to inform and adjust future actions; and (4) preparedness planning.

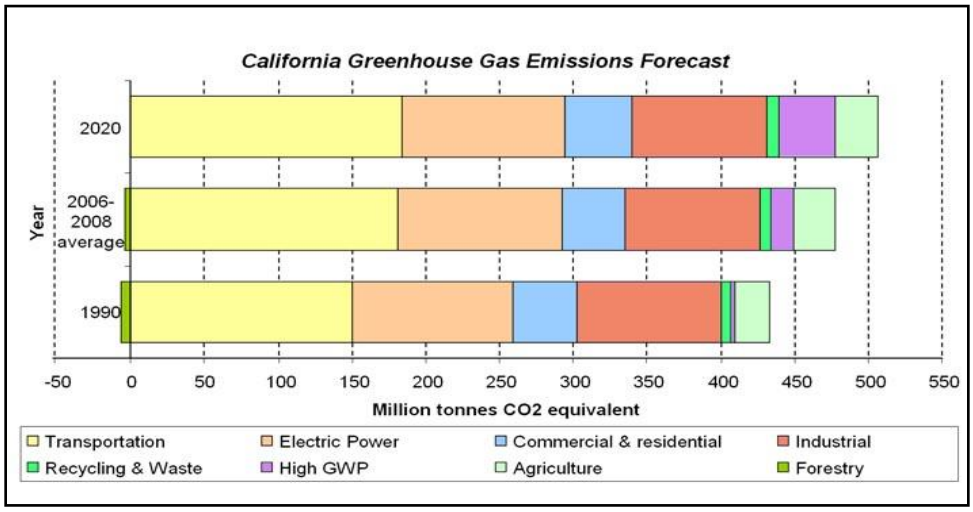
PROJECT ANALYSIS

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

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

[5] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Figure 2.20-1. California Greenhouse Gas Forecast



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[6]

CONSTRUCTION EMISSIONS

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from 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.

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 mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Approximately 935 metric tons of CO_2 emissions associated with proposed project construction would endure in the atmosphere with construction of Alternative 1. GHG emissions estimates are based on project-related construction parameters entered into the Sacramento Metropolitan AQMD's Road Construction Emissions Model, version 7.1.5.1.

[6] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

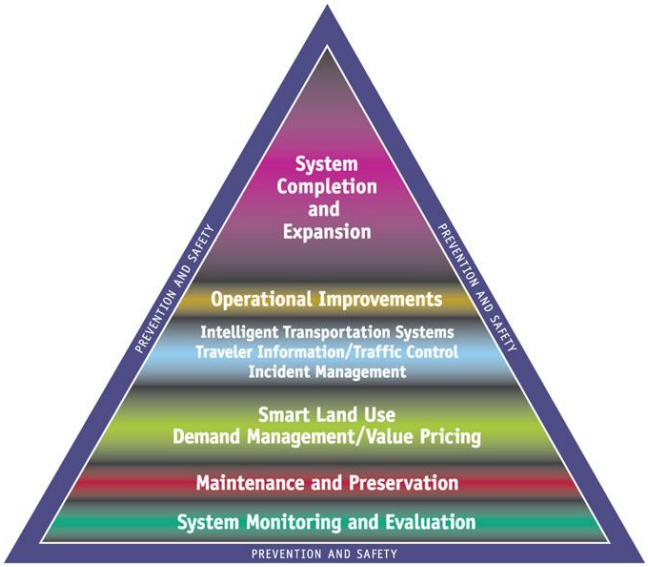
CEQA CONCLUSION

While it is Caltrans' determination that, in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

GREENHOUSE GAS REDUCTION STRATEGIES

The Department continues to be involved on the Governor's Climate Action Team as ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 2.20-2: The Mobility Pyramid.

Figure 2.20-2. The Mobility Pyramid



The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. The Department works closely with local jurisdictions on planning activities but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participating on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by U.S. EPA and ARB.

The Department is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391 (Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 2.20-1 summarizes the Departmental and statewide efforts that the Department is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans.[7]

[7]Caltrans. 2006. *Climate Action Program at Caltrans*. December.

Table 2.20-1. Climate Change Strategies/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)[8] provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- **GHG-1:** Per the Department's Standard Specifications, the contractor will comply with all local Air Pollution Control District's (APCD) rules, ordinances, and regulations for air quality restrictions.

ADAPTATION STRATEGIES

"Adaptation strategies" refer to how the Department and others can 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 intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011,[9] outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

[8] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml
[9] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009),[10] which summarizes the best- known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report[11] to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

[10] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF
[11] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able to review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. It helps planners to determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

There is no formal scoping requirement in conjunction with preparation of an Initial Study for CEQA or in conjunction with preparation of an Environmental Assessment for NEPA; however, Caltrans does require public notice of the intent to adopt a Mitigated Negative Declaration or a Negative Declaration and, when an Environmental Assessment has also been prepared, as for this project, Caltrans uses the same public notice to also inform of the availability of the Environmental Assessment. In addition to the 30-day circulation of this Environmental Document, an *Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment*, for public and agency review and comment, as indicated on the "General Information About This Document" page immediately following the cover of this Environmental Document, a public meeting (utilizing an open house format) is scheduled approximately midway through the circulation period, on Thursday, April 23, 2015.

Consultation and coordination occurred with public agencies in conjunction with preparation of the technical reports and this *Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment* prepared for this proposed project and was accomplished through a variety of formal and informal methods, including interagency coordination meetings, direct contact with resource agencies and Native American individuals and organizations, and project development team meetings.

3.1 Agency Correspondence and Documentation

Following is a summary of coordination efforts with agencies in conjunction with identifying and addressing project-related issues for the proposed project.

CULTURAL RESOURCES

The NAHC was contacted on March 5, 2012, and was sent a letter and map depicting the project location. A Sacred Lands Data Files search and list of potentially interested Native American Groups and Individuals was requested. The NAHC responded in writing on March 7, 2012. They stated that a search of their Sacred Lands Database did not yield any sacred lands or traditional cultural properties within the Area of Potential Effect (APE). In addition, the NAHC provided a list of Native American contacts in San Bernardino County. On March 19, 2012, Caltrans sent letters and maps showing the project location, and a project layout map, to eight individuals or groups. Follow-up letters were sent on May 1, 2014. On May 30, 2014, a response e-mail was received from Daniel McCarthy of the San Manuel Band of Mission Indians, wishing to discuss the findings of investigations once they are complete.

Follow-up calls were made to the remaining seven Tribes on June 20, 2014, and July 9, 2014. The names and affiliations of all groups and individuals are listed in Table 3-1, along with a summary of efforts to consult with them and their responses.

Table 3-1. Native American Contacts

Native American Individual/Tribe	Date of First Contact (Letter)	Date of Second Contact (Letter)	Dates of Written Replies	Additional Calls or Emails	Comments
Joseph Hamilton Attn: John Gomez Jr. *Ramona Band of Cahuilla Indians*	3/19/12	5/1/14	None	6/20/14 7/9/14	Phone message left with receptionist for John Gomez Jr. on 6/20/14, explaining project and requesting a return call. A second message was left for Mr. Gomez, Jr. on 7/9/14, requesting a return call.
James Ramos Attn: Ann Brierty, Daniel F. McCarthy *San Manuel Band of Mission Indians*	3/19/12	5/1/14	None 5/30/14	None	Email received from Daniel McCarthy on 5/30/14 stating that he will wish to discuss the findings of the investigations once they are complete.
Charles Smith Edward Smith *Chemehuevi Reservation*	3/19/12	5/1/14	None	6/20/14	Phone call on 6/20/14 with Chairman Edward Smith, who has no concerns with the project but wishes to be informed if any human remains are encountered.
Tim Williams *Fort Mojave Indian Tribe (FMIT)* (see AhaMaKay Cultural Society)	3/19/12	5/1/14	None	6/20/14	Informed on 6/20/14 by FMIT that all correspondence regarding cultural reviews should be directed to Linda Otero of the AhaMaKay Cultural Society.
Linda Otero *AhaMaKay Cultural Society, (FMIT)*	3/19/12	5/1/14	None	6/20/14 7/19/14	Phone message left on 6/20/14 with a brief overview of the project and a request for a return call. A second message was left on 7/9/14 with a request for a return call.
John Valenzuela *San Fernando Band of Mission Indians*	3/19/12	5/1/14	None	6/20/14	During a phone conversation on 6/20/14, Mr. Valenzuela stated he does not wish to consult on projects that are not in sensitive areas or that require monitoring. He has no concerns with this project.
Michael Contreras William Madrigal, Jr. *Morongo Band of Mission Indians*	3/19/12	5/1/14	None	6/20/14 7/9/14	Phone message left on 6/20/14 with a brief overview of the project and a request for a return call. A second message was left on 7/9/14 with a request for a return call.
Goldie Walker *Serrano Nation of Indians*	3/19/12	5/1/14	None	6/20/14	As of 6/20/14, Ms. Walker's phone is no longer in service and mail has been returned to sender.

On January 15, 2015, a letter was sent to the State Historic Preservation Officer initiating consultation in regard to the proposed project, a copy of which is shown in Section 3.2. The consultation is undertaken in accordance with the January 1, 2014 *First Amendment 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 (PA). This consultation is also in compliance with Public Resource Code (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 Section 5024 and Governor's Executive Order W-26-92.*

On February 17, 2015 the SHPO concurred with Caltrans' determination that the following properties are not eligible for the NRHP:

- Previously unrecorded segment of US 395 (CA-SBR-7545H)
- Historic era segment of dirt road (AE-2334-9H)
- Historic era segment of dirt road (AE-2334-32H)
- Historic era segment of dirt road (AE-233433H)
- Sparse lithic scatter (CA-SBR-17161)
- Sparse lithic scatter (CA-SBR-17165)
- Sparse lithic scatter (CA-SBR-17168)

A copy of the concurrence letter from SHPO is provided in the next section of this chapter, Section 3.2.

BIOLOGICAL RESOURCES

The Bureau of Land Management (BLM) Acting Field Manager William Quillman was sent a letter notice of project initiation on May 31, 2012, from Caltrans Project Manager, Xiao Zhang. Caltrans received an updated letter from Mr. Quillman requesting that BLM be included as a cooperating agency for the purposes of NEPA.

On July 12, 2012, Caltrans held a stakeholders meeting at Edwards Air Force Base (EAFB) to discuss project details and address any questions and/or comments from EAFB personnel, and representatives from BLM and the California Department of Fish and Wildlife (CDFW). A project introduction, the schedule, some general environmental issues, right-of-way issues, and an overview of biological and cultural issues were presented by Caltrans at this meeting. BLM stated that its contact would be Lorenzo Encinas. CDFW stated that desert tortoise exclusion fencing would be required as part of project impact minimization measures and that habitat acquisition would be required for unavoidable impacts.

Although the U.S. Fish and Wildlife Service (USFWS) was not represented at the stakeholders meeting on July 12, 2012, USFWS representatives John Taylor and Felicia Sirchia were consulted in 2014 regarding the status of the project.

Caltrans submitted a Draft Natural Environment Study (NES) with the desert tortoise survey report to EAFB on April 2, 2014 for comment.

A meeting with USFWS Ventura Field Office representative Ray Vizgirdas was held on September 11, 2013 to discuss the status of the project. Caltrans discussed the likelihood of using the programmatic biological opinion (PBO) for desert tortoise for this project. In May 2014, a draft NES was provided and Mr. Vizgirdas agreed that this project would be suitable for the PBO. The species list provided by USFWS is shown in Section 3.2 but incorrectly shows the absence of desert tortoise. A memo from USFWS was then acquired to accurately identify that the desert tortoise is included on the species list.

The project is expected to require 2081 permitting under the CESA for take of desert tortoise and Mohave ground squirrel. A meeting was held with CDFW biologist Becky Jones on January 8, 2014 to discuss the status of the project. At this meeting, CDFW stated that because the project is within designated critical habitat, the compensation ratio for impacts on the desert tortoise and Mohave ground squirrel will need to be 5:1. Mitigation and impact avoidance and minimization measures will be required for Mohave ground squirrel and possibly for the burrowing owl, if found to be present following focused surveys to be conducted prior to project implementation. Mitigation for desert tortoise will be acquired in conjunction with mitigation for Mohave ground squirrel.

EAFB reviewed an initial administrative draft version of the *Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment* transmitted on January 22, 2015. EAFB sent comments on a Draft Environmental Document to Caltrans on February 6, 2015 indicating that drainages 1–15 were jurisdictional to EAFB. Heather Weiche from CDFW was contacted to confirm that drainages 1–15 would not be under jurisdiction of CDFW, to which she agreed.

EDWARDS AIR FORCE BASE EASEMENT

On July 12, 2012, Caltrans held a stakeholders meeting at EAFB to discuss project details and address any questions and/or comments from EAFB personnel and representatives from BLM and CDFW. A project introduction, the schedule, some general environmental issues, right of way issues, and an overview of biological and cultural issues were presented by Caltrans at this meeting.

Caltrans submitted a Draft Natural Environment Study (NES) with the desert tortoise survey report to EAFB on April 2, 2014.

Archaeological Resources Protection Act (ARPA) Permit negotiations between Caltrans and EAFB for excavations on Base property began in March of 2014. There were specific emails between Caltrans cultural staff and the EAFB Base Historic Preservation Officer on this subject between March 28, 2014 and July 24 2014. Caltrans requested lead agency status for National Historic Preservation Act (NHPA) Section 106 from EAFB. This status was given to Caltrans by Reymundo Chapa, EAFB Historic Preservation Officer, on April 10, 2014. Caltrans exchanged emails with Mr. Thomas Rademacher, EAFB Chief of Environmental Assets, on July 24 and July 30, 2014. Mr. Rademacher issued the approved ARPA permit to Applied Earthworks on July 31, 2014. Reymundo Chapa of EAFB sent a follow up email to Caltrans on August 7, 2014 to ask if everything had gone according to plan. EAFB cultural staff subsequently visited the Applied Earthworks field team on November 5, 2014 during XP1 excavations at site CA-SBR-

17169. Caltrans sent a complete set of the Final Project Historic Property Survey Report (HPSR) to Mr. Rademacher of EAFB on January 16, 2015 for his records and to fulfill Applied Earthwork's reporting requirements for the ARPA permit.

A meeting was scheduled at EAFB on March 27, 2014 to update EAFB on progress on the project. At this meeting, EAFB personnel indicated that preparation of an Environmental Assessment would be necessary.

On July 10, 2014 A meeting was held at EAFB to discuss right of way issues. The goal of this meeting was to determine how to obtain right of way clearance from EAFB. The requirement for Caltrans to complete a full Environmental Baseline Survey (EBS) for the planned US-395 project was identified.Caltrans requested a teleconference with EAFB staff on January 9, 2015. The purpose of the teleconference was to provide the project status to EAFB and get EAFB input prior to Caltrans providing the environmental document to EAFB. It was requested by EAFB real estate division staff to discuss the urgency of completing this safety project. The goal was to request that EAFB shorten the 2-year duration for processing the new easement. EAFB staff recommended that Caltrans provide a map and letter indicating Caltrans' request for an easement.

On February 4, 2015, a meeting was held at EAFB to discuss the State Route 58 Kramer Junction project. This meeting was also utilized as an opportunity to discuss this project. Caltrans right of way hand-delivered a letter formally conveying Caltrans' interest in applying for an easement, pursuant to the provisions of Title 10 United States Code, Section 2688, and included a prepared exhibit identifying the area.

On January 22, 2015 an initial administrative draft version of the *Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment* was transmitted to EAFB for review and comment. As follow up, on March 4, 2015 a revised administrative draft version of the *Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment* was transmitted to EAFB for review and comment.

3.2 Agency Correspondence and Documentation

Agency correspondence letters are provided on the pages that follow this chapter.

- SHPO Consultation Initiation Letter
- SHPO Concurrence Letter
- USFWS Species List
    - The species list (08ECAR00-2015-SLI-0150) Caltrans requested through USFWS's on-line Information, Planning, and Conservation (IPaC) system did not include the Mojave desert tortoise (*Gopherus agassizii*). A March 4, 2015 email from Ray Vizgirdas of USFWS stated, "based on our knowledge and familiarity with the location of the US-395 project, the desert tortoise should be considered in your analysis."

SHPO Consultation Initiation Letter

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
ENVIRONMENTAL PLANNING (MS 825)
464 W. FOURTH STREET, 6TH FLOOR
SAN BERNARDINO, CA 92401-1400
PHONE: (909) 383-6933
FAX: (909) 383-6494
TTY: (909) 383-6300

Serious drought.
Help save water!

January 15, 2015

Dr. Carol Roland-Nawi
State Historic Preservation Officer
1725 23rd Street, Suite 100
Sacramento, CA 95816

US 395 Shoulder Widening Project
San Bernardino County
EA 0N971

Attention: Lucinda Woodward

Re: Historic Property Survey Report and Determination of Eligibility for the US 395 Shoulder Widening Project, San Bernardino County

Dear Dr. Roland-Nawi:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), is initiating consultation with the State Historic Preservation Officer (SHPO) in regard to the proposed US 395 Shoulder Widening Project in San Bernardino County. This consultation is undertaken in accordance with 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* (PA). Caltrans is concurrently 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 Resources Code Section 5024 and Governor's Executive Order W-26-92.*

Enclosed you will find a Historic Property Survey Report (HPSR) for the proposed undertaking. The HPSR is intended to fulfill three of Caltrans' responsibilities under Section 106 of the National Historic Preservation Act: determination of the Area of Potential Effects (APE); identification of potential historic properties located within the undertaking's APE; and evaluation of potential historic properties for eligibility to the National Register of Historic Places (National Register). Under the PA, Caltrans is responsible for ensuring the appropriateness of the APE (Stipulation VIII.A) and the adequacy of historic property identification efforts (Stipulation VIII.B). We are consulting with you at the present time under Stipulation VIII.C.6 of the PA, which requires concurrence with Caltrans' determinations of eligibility for potential historic properties.

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

US 395 Shoulder Widening Project
January 15, 2015
Page 2

In conjunction with FHWA, Caltrans is proposing to build a 4-foot median buffer and widen the existing shoulders to 8 feet along United States Route (US) 395 from 2.5 miles north of Kramer Hills to State Route (SR) 58, near Kramer Junction in San Bernardino County, California. A full project description and depiction of the Area of Potential Effects (APE) can be found on page one of the HPSR and Exhibit C, located in Attachment A of the HPSR.

Consultation and identification efforts resulted in the identification of seven cultural resources within the APE for the proposed project that required NRHP evaluation. All seven of those resources have been determined ***not eligible*** for listing in the National Register.

Pursuant to Stipulation VIII.C.6 of the PA, Caltrans is requesting your concurrence with the eligibility determination of ***not eligible*** for inclusion in the National Register for the following cultural resources within the APE:

MRN	Name/Address	Location	OHP Status
01	Previously unrecorded segment of US 395 (CA-SBR-7545H)	From SR 58 at Kramer Junction to 10.4 miles south of Kramer Junction between Mile Post (MP) 35.5 and 45.9.	6Y
02	Historic era segment of dirt road (AE-2334-9H)	5.85 miles S from intersection of U.S. 395 and SR 58, on a ridge that forms the crest of the Kramer Hills	6Y
03	Historic era segment of dirt road (AE-2334-32H)	4.0 miles S of intersection of U.S. 395 and SR 58	6Y
04	Historic era segment of dirt road (AE-2334-33H	5.0 miles S of intersection of U.S. 395 and SR 58.	6Y
05	Sparse lithic scatter (CA-SBR-17161)	43 m east of US 395, approx. 250 m north of a ridge that forms the crest of the Kramer Hills.	6Z
06	Sparse lithic scatter (CA-SBR-17165)	55 m southeast of milepost 40.9, or 29 m due east of the edge of pavement of US 395.	6Z
07	Sparse lithic scatter (CA-SBR-17168	1.48 miles S of intersection of US 395 and SR 58, 11 m east of edge of pavement.	6Z

In addition, pursuant to Stipulation VIII.C.3 of the PA, six archaeological sites, CA-SBR-17156H, CA-SBR-17157H, CA-SBR-17160, CA-SBR-17162, CA-SBR-17163, and CA-SBR-17169, are being considered eligible for inclusion in the National Register of Historic Places for the purposes of this project only, and they will be protected in place through establishing an Environmentally Sensitive Area.

Pursuant to Stipulation X.B.1(a) of the Section 106 PA, Caltrans District 8 is consulting with the Cultural Studies Office (CSO) regarding a finding of No Adverse Effect-Standard Conditions (NAE-SC).

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

If Caltrans does not receive a reply from your office within 30 days of your receipt of this document, Caltrans will assume you have no comments. Please contact Mary K. Smith, Principal Architectural Historian at (909) 383-5950 or Gary Jones, Principal Investigator – Prehistoric Archaeology at (909) 383-7505 if you have any questions regarding this document.

Sincerely,

Gabrielle Duff
Environmental Branch Chief
Caltrans, District 8

Enclosure: *Historic Property Survey Report for the US 395 Shoulder Widening Project, San Bernardino County, California (2015)*

cc: Kelly Hobbs, Caltrans HQ

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

SHPO Concurrence Letter

STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY EDMUND G. BROWN, JR., *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

February 17, 2015 Reply To: FHWA_2015_0116_001

Gabrielle Duff, Environmental Branch Chief
Caltrans District 8
464 W Fourth Street, 6th Floor
San Bernardino, CA 92401-1400

Re: Determinations of Eligibility for the Proposed US 395 Shoulder Widening Project, San Bernardino County, CA

Dear Ms. Duff:

You are consulting with me about the subject undertaking in accordance with the January 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 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 has determined that the following properties are not eligible for the National Register of Historic Places (NRHP):

- Previously unrecorded segment of US 395 (CA-SBR-7545H)
- Historic era segment of dirt road (AE-2334-9H)
- Historic era segment of dirt road (AE-2334-32H)
- Historic era segment of dirt road (AE-2334-33H)
- Sparse lithic scatter (CA-SBR-17161)
- Sparse lithic scatter (CA-SBR-17165)
- Sparse lithic scatter (CA-SBR-17168)

Based on my review of the submitted documentation, I concur.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 or email at natalie.lindquist@parks.ca.gov.

Sincerely,

Carol Roland-Nawi, Ph.D.

Carol Roland-Nawi, Ph.D.
State Historic Preservation Officer

USFWS Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish and Wildlife Office
2177 SALK AVENUE - SUITE 250
CARLSBAD, CA 92008
PHONE: (760)431-9440 FAX: (760)431-5901
URL: www.fws.gov/carlsbad/

Consultation Code: 08ECAR00-2015-SLI-0150 January 20, 2015
Event Code: 08ECAR00-2015-E-00343
Project Name: kramer widening

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species 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 in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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 Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: kramer widening

Official Species List

Provided by:

Carlsbad Fish and Wildlife Office
2177 SALK AVENUE - SUITE 250
CARLSBAD, CA 92008
(760) 431-9440
http://www.fws.gov/carlsbad/

Consultation Code: 08ECAR00-2015-SLI-0150
Event Code: 08ECAR00-2015-E-00343

Project Type: Highway Safety and Maintenance

Project Name: kramer widening
Project Description: Modify and Widen US
-
395
This alternative would modify the current roadway along US
-
395 by constructing four (4)
median buffers and widening the existing shoulder to eight (8) feet. The existing
centerlin
e would be modified by constructing centerline and shoulder rumble strips. This
would also include verifying that all existing passing zones meet current Highway Design
Manual (HDM) standards. Any existing passing zone shorter than the current standard(s)
will be eliminated.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

United States Department of Interior
Fish and Wildlife Service

Project name: kramer widening

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-117.5431345 34.9906719, -117.5386714 34.9901094, -117.5142954 34.9172287, -117.5118922 34.8983648, -117.5187586 34.8975201, -117.5431345 34.9906719)))

Project Counties: San Bernardino, CA

United States Department of Interior
Fish and Wildlife Service

Project name: kramer widening

Endangered Species Act Species List

There are a total of 0 threatened or endangered species on your 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. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

There are no listed species identified for the vicinity of your project.

United States Department of Interior
Fish and Wildlife Service

Project name: kramer widening

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Chapter 4 List of Preparers

The following people were principally responsible for review and preparation of this Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment.

California Department of Transportation

Illeen Prentiss	Environmental Planner – Generalist
Rosanna Roa	Transportation Engineer, District Hazardous Waste Coordinator
Kurt Heidelberg	Senior Environmental Planner
Scott Quinnell	Senior Environmental Planner – Biology
Gabrielle Duff	Senior Environmental Planner – Cultural
Tony Louka	Senior Transportation Engineer – Environmental Engineering
Bruce Ko	Project Manager
Mark Pertile	Senior Transportation Engineer
Justine Niu	Project Engineer
Thomas Ngo	Project Engineer
Anthony Rizzi	Right-of-Way – Acquisitions
James Shankel	Senior Environmental Planner

ICF International

Brian Calvert	Project Director
Rusty Whisman	Project Manager/Environmental Planner
Daniela Sanaryan	Environmental Planner
Mark Robinson	Archaeologist
Mario Anaya	Environmental Planner
Namrata Cariapa	Environmental Planner
Peter Feldman	Environmental Planner
Keith Cooper	Air Quality Specialist
Marisa Flores	Biologist
Saadia Byram	Technical Editor
Elizabeth Irvin	Technical Editor
David Duncan	GIS Specialist
Christy Corzine	QA/QC Review

Arellano Associates

Cheryl Donahue	Public Outreach Specialist
Edna Jimenez	Public Outreach Specialist

Chapter 5 Distribution List

Agencies

Carl Benz
U.S. Fish and Wildlife Service
Ventura Fish and Wildlife Office
2493 Portola Rd, Suite B
Ventura, CA 93003

Edythe Seehafer
Environmental Coordinator
U.S. Bureau of Land Management
Barstow Field Office
2601 Barstow Road
Barstow, CA 92311

Veronica Chan
U.S. Army Corps of Engineers
Regulatory Division
911 Wilshire Boulevard
Los Angeles, CA 90017

Susan Bromm
Director
Environmental Protection Agency
Office of Federal Activities
401 M Street, SW (Mail Code 2251-A)
Washington, DC 20460

Sam Cox
Environmental Planner
412 CEG/CEVA
12 Laboratory Road
Edwards AFB, CA 93524

Mark Nechodom
Director
California Department of Conservation
801 K Street, 24th Floor
Sacramento, CA 95814

Willie R. Taylor
Director
Office of Environmental Policy and Compliance
Department of the Interior
Main Interior Building, MS 2462
1849 "C" Street, NW
Washington, DC 20240

John Fowler
Executive Director
Advisory Council on Historic Preservation
401 F Street NW, Suite 308
Washington DC 20001-2637

Nancy Vogel
Director of Public Affairs
California Department of Water Resources
1416 9th Street
Sacramento, CA 95814

Mike Plaziak
Supervising Engineering Geologist
California Regional Water Quality Control Board
Lahontan Region 6
14440 Civic Drive, Suite 200
Victorville, CA 92392

Paul D. Thayer
Executive Director
State Lands Commission
Executive Officer
100 Howe Avenue, Ste. 100 South
Sacramento, CA 95825-8202

Alan J. De Salvio
Supervising Air Quality Engineer
Mojave Desert Air Quality Management District
14306 Park Ave
Victorville, CA 92392

David Elms
State of California, Dept. of Fish & Wildlife, Region 6
3602 Inland Empire Boulevard, Suite C-220
Ontario, CA 91764

Carol Roland-Nawi
State Historic Preservation Officer
California Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 95814

Jennifer Gress
Legislative Director
California Air Resources Board
Office of the Chair
P.O. Box 2815
Sacramento, CA 95812

Administrator
California Highway Patrol
1313 Highway 58
Mojave, CA 93501-1900

Tom Howard
Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Stephen Testa
Executive Officer
California Department of Conservation
State Mining & Geology Board
801 K Street, Suite 2015
Sacramento, CA 95814

Cynthia Gomez
Executive Secreatary
Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691

Gary Bush
Division Chief
San Bernardino County Fire Department, Division 2
11741 Hardy Ave.
Adelanto, CA 92301

Commissioner Joseph Tavaglione
California Transportation Commission
1120 N Street, Rm. 2221 (MS-52)
Sacramento, CA 95814

Arnold San Miguel
Southern California Association of Governments
San Bernardino County Regional Office
1170 West Third Street, Suite 140
San Bernardino, CA 92410-1715

Dr. Raymond Wolfe
Executive Director
San Bernardino Associated Governments
1170 W. Third St., 2nd Floor
San Bernardino, CA 92410

Sarah Bleyl
Branch Supervisor
Boron Branch Library
26967 Twenty Mule Team Road
Boron, CA 93516

Barry Fox
County of San Bernardino
Fire Department Communication Center
1743 W Miro Way
Rialto, CA 92376

County Recorder
Hall of Records, 1st Floor
222 West Hospitality Lane
San Bernardino, CA 92415-0022

David Wert, Public Information Officer
San Bernardino County
385 N. Arrowhead Ave., 5th Floor
San Bernardino, CA 92401

Gerry Newcombe, Director
San Bernardino County Public Works
825 East Third Street, Room 145
San Bernardino, CA 92415-0835

Adelanto Branch Library
11497 Bartlett Avenue
Adelanto, CA 92301

Elected Officials

Hon. Dianne Feinstein, Senator
U.S. Senate
11111 Santa Monica Blvd., Suite 915
Los Angeles, CA 90025-3343

Hon. Barbara Boxer, Senator
U.S. Senate
3403 10th Street, Suite 704
Riverside, CA 92501

Jean Fuller, Senator
California State Senate, District 16
5701 Truxtun Avenue, Suite 150
Bakersfield, CA 93309
661-323-0443

Hon. Representative Paul Cook
U.S. House of Representatives, District 8
14955 Dale Evans Parkway
Apple Valley, CA 92307
909-980-1492

Hon. Jay Obernolte, Assembly Member
California State Assembly, District 33
15900 Smoke Tree Street, # 125
Hesperia, CA 92345
760-244-5277

Hon. Robert A. Lovingood, Vice Chair
San Bernardino County Board of Supervisors
First District
385 N. Arrowhead Ave., 5th Floor
San Bernardino, CA 92415

Interested Groups, Organizations, and Individuals

William Madrigal, Jr.
Morongo Band of Mission Indians
Cultural Heritage Program Manager
12700 Pumarra Road
Banning, CA 92220

John Gomez, Jr., Cultural Resources
Ramona Band of Cahuilla Indians
P.O. Box 391670
Anza, CA 92539

Robert Dorame, Tribal Chair/Cultural Resources
Gabrielino/Tongva Indians of California Tribal Council
P.O. Box 490
Bellflower, CA 90707

Anthony Morales, Chairperson
Gabrieleño/Tongva Tribal Council
P.O. Box 693
San Gabriel, CA 91778

Sam Dunlap, Cultural Resources Director
Gabrielino/Tongva Nation
P.O. Box 86908
Los Angeles, CA 90086

Daniel F. McCarthy
San Manuel Band of Serrano Mission Indians
Director, Cultural Resources Management Dept.
26569 Community Center Drive
Highland, CA 92346

Ann Brierty
San Manual Band of Serrano Mission Indians
Cultural Resources Field Manager
26569 Community Center Drive
Highland, CA 92346

Eric Sauer
California Trucking Association
4148 East Commerce Way
Sacramento, CA 95834

Representative
Pacific Gas and Electric
Environmental Health & Safety Services
77 Beale St
San Francisco, CA 94105

Jose Moreno-Jimenez
Pacific Gas and Electric
22999 Community Blvd.
Hinkley, CA 92347

Representative
Time Warner Cable
1881 West Main Street
Barstow, CA 92311

Representative
Southwest Gas Corporation
Southern California Division
13471 Mariposa Road
Victorville, CA 92395-5315

Property Owners Located Within 500-foot Project Radius

Thru The Bible Radio Network
1146 E Green St
Pasadena, CA 91106

Southern California Edison Company
1851 W. Valencia Dr.
Fullerton, CA 92833

Karen D Caillier
25831 Cherry Hill Dr.
Boron, CA 93516

Robert & Esther L Caillier
25831 Cherry Hill Dr.
Boron, CA 93516

David Ilsun Paek
3450 Wilshire Blvd., #610
Los Angeles, CA 90010

Hsieh Ying P & Ming C 1997 Family Trust
3496 Budleigh Dr
Hacienda Heights, CA 91745

Kramer Service Corp
40716 Highway 395
Boron, CA 93516

Kramer Apartments Corp
40716 Highway 395
Boron, CA 93516

D & P Restaurant Corporation
40716 Highway 395
Boron, CA 93516

Jayantilal M & Gayatriben J Patel
5875 Highway 58
Kramer Junction, CA 93516

High Desert Land Acquisition LLC
700 Universe Blvd.
Juno Beach, FL 33408

Southern California Edison Company
P O Box 410
Long Beach, CA 90801

SO California Public Power Authority
DEPT WTR & PWR RM 633
P O Box 51111
Los Angeles, CA 90051

D & P Restaurant Corporation
Pilot Travel Centers LLC
P O Box 54470
Lexington, KY 40555

Caillier, Karen Rev Trust 3-25-1999
Roch Meier
P O BOX 931
Hoxie, KS 67740

D & P RESTAURANT CORP
Star RT, Kramer Junction
Boron, CA 93516

Chapter 6 References Cited

Chapter 1: Proposed Project

California Department of Transportation (Caltrans). 2015. Transportation Permits. Available: http://www.dot.ca.gov/hq/traffops/permits/.

Southern California Association of Governments (SCAG). 2012. 2012 Regional Transportation Plan/Sustainable Communities Strategy.

Southern California Association of Governments (SCAG). 2015. Federal Transportation Improvement Program. Available: http://ftip.scag.ca.gov/Pages/default.aspx.

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

Human Environment

California Department of Transportation (Caltrans). 2011. Traffic Noise Analysis Protocol. Available: http://www.dot.ca.gov/hq/env/noise/pub/ca_tnap_may2011.pdf. Accessed January 11, 2014.

California Department of Transportation (Caltrans). 2014. Final EIR/EIS for the SR-58 Kramer Junction Expressway Project. Available: http://www.dot.ca.gov/dist8/projects/san_bernardino/sr58/kramerjunction/pdf/Kramer_Junction_Final_EIR-EIS_Vol_II_July_2014_eNEPA.pdf. Accessed: December 30, 2014.

National Wild and Scenic Rivers System. No date. Kern River, California webpage. Available: http://www.rivers.gov/rivers/kern.php. Accessed: December 18, 2014.

San Bernardino County Fire Department. 2013. *San Bernardino County Fire Department, North Desert Division.* Available: http://www.sbcfire.org/fire_rescue/northd1.asp. Accessed: January 2015.

San Bernardino County. 2006. Circulation and Infrastructure Background Report for the County of San Bernardino General Plan. Santa Ana, CA: URS Corporation.

County of San Bernardino. 2007a. *County of San Bernardino 2007 General Plan*. Adopted March 2007; Amended May 2012. Prepared by URS, Santa Ana, CA. Available: http://www.sbcounty.gov/Uploads/lus/GeneralPlan/FINALGP.pdf.

County of San Bernardino. 2007b. Development Code. http://cms.sbcounty.gov/lus/Planning/DevelopmentCode.aspx. Accessed January 12, 2015.

Southern California Association of Governments. 2012. 2012 Draft RTP Forecast. Available: http://www.scag.ca.gov/Documents/2012AdoptedGrowthForecastPDF.pdf.

U.S. Census Bureau. 2015.American Community Survey, 5-year estimates. Available: http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t. Accessed: January 12, 2015.

Physical Environment

California Air Resources Board (ARB). 2013. Ambient Air Quality Standards. Available: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

California Department of Transportation (Caltrans). 2003a. Statewide SWMP. May. Available: http://www.dot.ca.gov/hq/env/stormwater/pdf/swmp_may2003final.pdf.

California Department of Transportation (Caltrans). 2003b. Construction Site Best Management Practices Manual. January. Available: http://www.dot.ca.gov/hq/construc/stormwater/BMP_Field_Master_FullSize_Final-Jan03.pdf.

California Department of Transportation (Caltrans). 2003c. Standard Environmental Reference. Updated January 2015. Available: http://www.dot.ca.gov/ser/index.htm.

California Department of Transportation (Caltrans). 2010. Storm Water Quality Handbooks, Project Planning and Design Guide. July. Available: http://www.dot.ca.gov/hq/oppd/stormwtr/ppdg/swdr2012/PPDG-May-2012.pdf.

Federal Emergency Management Agency (FEMA). 2011. Fact Sheet for Stakeholders: Unmapped Areas on Flood Hazard Maps, Understanding Zone D. Accessed: February 16, 2015. http://www.fema.gov/media-library-data/20130726-1806-25045-7880/zone_d_fact_sheet.pdf.

Regional Water Quality Control Board, Region 6. 2010. *Water Quality Control Plan for the Lahontan Region North and South Basins*. Available: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml. Accessed: January 15, 2015. Plan effective March 31, 1995 with most recent amendment on November 16, 2010.

State Water Resources Control Board. 2006. *2006 Revision of Clean Water Act Section 303(d) List of Water Quality Limited Segments.* Available: http://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/index.shtml. Accessed: January 13, 2015.

U.S. Department of Transportation, Federal Highway Administration. 1996. FHWA-PD-96-032, Washington, D.C.

Biological Environment

AMEC Environment & Infrastructure, Inc. 2012. Kramer Hills Widening Project Focused Survey for Desert Tortoise. PN: 08-0000-05500 (Old EA 0N9700). Prepared for Caltrans District 8.

Bureau of Land Management (BLM), California Desert District. 2002. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan. Available: http://www.blm.gov/ca/news/pdfs/neco2002/.

California Department of Transportation (Caltrans). 2014. Final EIR/EIS for the SR-58 Kramer Junction Expressway Project. Available: http://www.dot.ca.gov/dist8/projects/san_bernardino/sr58/kramerjunction/pdf/Kramer_Junction_Final_EIR-EIS_Vol_II_July_2014_eNEPA.pdf. Accessed: December 30, 2014.

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency, Department of Fish and Game. March 7, 2012.

California Department of Fish and Wildlife (CDFW). 2012. California Natural Diversity Database Rarefind records of sensitive elements reported from the Kramer Junction, Astley Rancho, and Red Buttes, CA USGS quadrangles.

United States Fish and Wildlife Service (USFWS). 1990. Endangered and Threatened Wildlife and Plants: Determination of Threatened Status for the Mojave Population of the Desert Tortoise, *Federal Register*, 55:12178-12191.

United States Fish and Wildlife Service (USFWS). 1994a. Desert Tortoise (Mojave Population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon.

United States Fish and Wildlife Service (USFWS). 1994b. Endangered and Threatened Wildlife and Plants. Determination of Critical Habitat for the Mojave Population of the Desert Tortoise, Federal Register, 59: 5820-5866.

U.S. Fish and Wildlife Service (USFWS). 2009. Desert Tortoise (Mojave Population) Field Manual: (*Gopherus agassizii*). Region 8, Sacramento, California.

United States Fish and Wildlife Service (USFWS). 2011. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherinus agassizii*).

Climate Change

American Association of State Highway and Transportation Officials (AASHTO). No date. Transportation and Climate Change Resource Center: GHG Mitigation. Available: http://climatechange.transportation.org/ghg_mitigation/.

Barth, Matthew, and Kanok Boriboonsomsin. 2010. Traffic Congestion and Greenhouse Gases. *TR News* 268 May–June. Available: http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf.

California Air Resources Board. 2014. 2020 Business-as-Usual (BAU) Emissions Projection, 2014 Edition. Available: http://www.arb.ca.gov/cc/inventory/data/bau.htm. Last updated December 22, 2014.

California Department of Transportation (Caltrans). 2006. Climate Action Program at Caltrans. Available: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf. December.

California Department of Transportation (Caltrans). No date. Climate Change Branch: Current Projects and Studies. Available: http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml.

California Natural Resources Agency. 2009. 2009 California Climate Adaptation Strategy. http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF.

Center for Climate and Energy Solutions. No date. EPA Greenhouse Gas Regulation FAQ. Available: http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq.

Committee on Sea Level Rise in California, Oregon, and Washington; Board on Earth Sciences and Resources; Ocean Studies Board; Division on Earth and Life Studies; National Research Council. 2012. *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Available: http://www.nap.edu/catalog.php?record_id=13389.

Council on Environmental Quality (CEQ). No date. Climate Change Resilience. Available: http://www.whitehouse.gov/administration/eop/ceq/initiatives/resilience.

Federal Highway Administration (FHWA). No date. Climate Change: Mitigation. Available: http://www.fhwa.dot.gov/environment/climate_change/mitigation/.

Appendix A CEQA Environmental Checklist

08-SBD-395	**39.0/45.9**	**08-0N9710**
Dist.-Co.-Rte.	P.M/P.M.	E.A.

Supporting documentation of all California Environmental Quality Act (CEQA) checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment (IS/EA). Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

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 indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. 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.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
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) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

II. 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:

	Potentially Significant Impact	Less Than Significant with Mitigation	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?	☐	☐	☐	☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to 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 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?	☐	☐	☐	☒

VII. GREENHOUSE GAS EMISSIONS: Would the project:	
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?	An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
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 for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) 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?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b)Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
XI. MINERAL RESOURCES: Would the project:				
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial 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 housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. 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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒
XV. RECREATION:				
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?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to 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?	☐	☐	☐	☒

This page intentionally left blank.

Appendix B Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711
www.dot.ca.gov

Flex your power!
Be energy efficient!

March 2013

NON-DISCRIMINATION
POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"

This page intentionally left blank.

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
COMMUNITY IMPACTS											
TRAF-1a, TRAF-1b	2-26, 2-27										
RPA-1: Right of way 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.	2-18										
UTILITIES/EMERGENCY SERVICES											
UTL-1: Coordinate with PG&E to avoid disruption of service in conjunction with lowering the low-pressure gas line in place. If avoidance is not feasible, then to the maximum extent practicable, establish minimal service disruption and ensure affected properties receive appropriate advance notification.	2-24										
TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES											
TRAF-1a (Minimization Measure): A Traffic Management Plan (TMP) will be implemented. At a minimum, the TMP will detail the efforts to minimize traffic delays and maintain safety for travelers along US-395 during the construction period. The following elements will be major components of the TMP: Public Awareness Campaign, particularly related to the scheduling of work; Construction Zone Enforcement Enhancement Program (COZEEP); Utilization of Portable Changeable Message Signs (PCMSs); and notifications to the local emergency service providers and any residents or businesses that may be affected by any traffic disruptions at least 2 weeks in advance of the planned closure or diversion. The TMP will be provided to county police and fire departments with construction plans prior to commencement. The TMP will also describe the efforts to be undertaken in order to maintain access to all businesses at Kramer Junction throughout the entire construction period.	2-26										
TRAF-1b (Minimization Measure): The Traffic Management Plan will describe the efforts to be undertaken in order to maintain access to all businesses at Kramer Junction throughout the entire construction period.	2-27										
CULTURAL RESOURCES											
CR-1: 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.	2-32										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
CR-2: If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the county coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact Gary Jones, District 8 Native American Coordinator at (909) 383-7505 so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC Section 5097.98 are to be followed as applicable.	2-32									
CR-3: An Environmentally Sensitive Area (ESA) will be delineated around sites CA-SBR-17156H, CA-SBR-17157H, CA-SBR-17160, CA-SBR-17162, CA-SBR-17163, CA-SBR-17169 and managed as described in the ESA Action Plan.	2-33										
WATER QUALITY AND STORM WATER RUNOFF											
WQ-1: The project will comply with the provisions of the Statewide NPDES permit (NPDES NO. CAS000003 and CAS000002). Treatment BMPs, as described in Section 3 of Caltrans' Statewide SWMP (Caltrans 2003a) and the Project Planning and Design Guide (PPDG) (Caltrans 2010), will be evaluated prior to completion of the Project Approval and Environmental Document phase and incorporated into the project's engineering plans and specifications during final design. Design pollution prevention BMPs are selected to reduce post-construction discharges. If greater than 90% of the water quality volume cannot be infiltrated within state right of way, approved treatment BMPs will be included to remove general pollutants; for example, infiltration devices or detention basins. Construction site BMPs, as described in WQ-3, will be itemized in the final contract documents, incorporated into the SWPPP, and implemented during the construction period.	2-49									
WQ-2: The contractor will be responsible for preparing a SWPPP according to Caltrans standards, incorporating all the BMPs listed in the contract plans, and amending the SWPPP during the course of construction as necessary. The Resident Engineer will review and accept the SWPPP. The Resident Engineer will file electronically all compliance documents related to the Construction General Permit using the Storm Water Multi Application and Report Tracking System (SMARTS). The general contractor will also implement, inspect, and maintain all measures with oversight by the Resident Engineer.	2-50									

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
WQ-3: Table 1-1 of Caltrans' Construction Site Best Management Practices Manual (Caltrans 2003b) and/or Storm Water Quality Handbooks, Project Planning and Design Guide (Caltrans 2010), includes the following BMPs: • Temporary soil stabilization • Temporary sediment controls • Tracking control • Non-stormwater management • Waste management • Material storage and handling controls At a minimum, the contractor will implement all of the appropriate BMPs under the minimum requirement column of Table 1-1 of the Caltrans' Construction Site Best Management Practices Manual (Caltrans 2003b) and/or Storm Water Quality Handbooks, Project Planning and Design Guide (Caltrans 2010). During completion of the final engineering and design plans, specific BMPs will be specified in the contract documents to protect water quality. Specified BMPs will be implemented by the contractor through the SWPPP. The plan will also include post-construction erosion control measures such as stabilization of all disturbed soil areas.	2-50									
WQ-4: In order to minimize water quality impacts on the 34 natural drainages that cross the project area, coordination with USACE, CDFW, and Lahontan RWQCB will be completed prior to the end of PS&E. It is expected that a WDR from the Lahontan RWQCB would be required.	2-50										
WQ-5: Construction staging areas will be sited outside stream channels and other surface waters.	2-50										
WQ-6: Construction equipment will use existing roads.	2-50										
PALEONTOLOGY											
PA-1: Grading, excavation, and other surface and subsurface excavation in the defined proposed project have the potential to affect nonrenewable paleontological resources. A Paleontological Mitigation Plan (PMP) shall be prepared during final project design by a qualified paleontologist. The PMP will detail all the measures to be implemented in the event of paleontological discoveries. The PMP shall include, at a minimum, the following elements.	2-58										
PA-2: Required 1-hour preconstruction paleontological awareness training for earthmoving personnel, including documentation of training, such as sign-in sheets and hardhat stickers, to establish communication protocols between construction personnel and the principal paleontologist.	2-58										
PA-3: There will be a signed repository agreement with an appropriate repository that meets Caltrans requirements and is approved by Caltrans.	2-58										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
PA-4: Monitoring, by a principal paleontologist, of Pleistocene older alluvium during excavation.	2-58										
PA-5: Field and laboratory methods that meet the curation requirements of the appropriate repository will be implemented for monitoring, reporting, collection, and curation of collected specimens. Curation requirements are available for public review at the appropriate repository.	2-58										
PA-6: All elements of the PMP will follow the PMP Format published in the Caltrans Environmental Reference (Caltrans 2003c).	2-58										
PA-7: A paleontological Mitigation Report (PMR) discussing findings and analysis will be prepared by a principal paleontologist upon completion of project earthmoving. The report will be included in the environmental project file and also submitted to the curation facility.	2-58										
HAZARDOUS WASTE/MATERIALS											
HAZ-1a: In conjunction with completing the requirements for the EAFB Easement, a visual site inspection will be performed to assess the potential existence of EOD and UXO within the proposed right of way of the project, extending from the northern radial perimeter of Off Base Overshoot Area 3 in relation to the existing western edge of pavement of US-395, known as AL505-3, extending north to what will be the limits of the EAFB Easement.	2-73										
HAZ-1b: A separate visual site inspection will be performed to assess the potential existence of EOD and UXO within the limits of the project, outside of the area intended to be established as an EAFB Easement. This visual site inspection will not be included in the Environmental Baseline Survey prepared for the EAFB, but will be included as part of the analysis for the project.	2-73										
HAZ-2: Prior to construction, a Construction Monitoring and Response Plan (CMRP) will be prepared, which will describe the steps to be taken to (1) identify buried ordnance during construction activities and (2) respond to ordnance or potential ordnance encountered during construction activities. At a minimum, the CMRP will include the following: • A description of areas of concern and types of ordnance that may be encountered. • A summary of geophysical instrumentation to be used to monitor for ordnance before and during construction. • A description of monitoring procedures and documentation. • An outline of response measures to be implemented when ordnance or suspected ordnance is encountered.	2-73										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance YES	Environmental Compliance NO
HAZ-3a: In the event that buried EOD or UXO is encountered during construction within the boundaries of the base, all work will stop, personnel will be evacuated from the area, and the EAFB command post will be notified immediately at (661) 277-3040.	2-73										
HAZ-3b: If any apparent ordnance is found outside of the base boundaries, all work will stop and personnel will be evacuated from the area. EAFB personnel and the San Bernardino County Sheriff will be contacted to evaluate whether the material encountered is military related.	2-73										
HAZ-4: An applicable site-specific lead compliance plan to address the health and safety of construction workers will be implemented based on the results of the ADL investigation. If any measures are identified based on the ADL investigation, these shall be implemented.	2-73										
AIR QUALITY											
AQ-1a : The construction contractor shall comply with Caltrans' current Standard Specifications in Section 14.	2-84										
AQ-1b: Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.	2-84										
AQ-2: Measures to reduce exhaust emissions specified in MDAQMD Rule 403.2 (Fugitive Dust Control) include the following: The owner or operator of any construction/demolition source shall: a) Use periodic watering for short-term stabilization of disturbed surface areas to minimize visible fugitive dust emissions. For purposes of this rule, use of a water truck to moisten disturbed surfaces and actively spread water during visible dusting episodes shall be considered adequate to maintain compliance. b) Take actions to prevent project-related trackout onto paved surfaces. c) Cover loaded haul vehicles while operating on publicly maintained paved surfaces. d) Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than 30 days, except when such a delay is due to precipitation that dampens the disturbed surface enough to eliminate visible fugitive dust emissions. e) Clean up project-related trackout or spills on publicly maintained paved surfaces within 24 hours. f) Reduce nonessential earthmoving activity under high wind conditions. For purposes of this rule, a reduction in earthmoving	2-84										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
activity when visible dusting occurs shall be considered enough to maintain compliance.											
NATURAL COMMUNITIES											
BIO-1: Permanent desert tortoise exclusion fencing will be constructed prior to project-related surface disturbance in most areas and maintained in perpetuity throughout the project limits following completion of construction activities. Temporary desert tortoise exclusion fencing will be used across all drainages during construction, maintained during construction, and removed after project completion. Permanent desert tortoise exclusion fencing will be permanently attached to the wing walls of all culverts on both sides of US-395 to allow for the safe movement of desert tortoises from one side of the highway to the other.	2-125										
WETLANDS AND OTHER WATERS											
BIO-2: Plans for water pollution and erosion control will be prepared in accordance with the Caltrans guidance manual for Best Management Practices. The plans will describe sediment and hazardous materials control, dewatering, fueling and equipment management practices, and use of plant material for erosion control. Plans will be reviewed by Caltrans prior to construction.	2-133										
PLANT SPECIES											
BIO-3: If white pygmy poppy is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld global positioning system (GPS) and mapped at that time. Prior to construction, a qualified biologist shall flag the on-site locations of white pygmy poppy (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on this species are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.	2-169										
BIO-4: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If Mojave spineflower is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on Mojave spineflower are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.	2-169										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-5: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If desert cymopterus is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on desert cymopterus are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.	2-170									
BIO-6: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If Booth's evening-primrose is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on Booth's evening-primrose are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.	2-170									
BIO-7: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If Barstow woolly sunflower is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on Barstow woolly sunflower are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.	2-170									
BIO-8: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If sagebrush leoflingia is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on sagebrush leoflingia are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.	2-171									

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-9: Vegetation removal will be limited to the project footprint and will be minimized to the maximum extent practicable. If beaver dam breadroot is detected within the project BSA during the forthcoming focused rare plant surveys, the locations of the plant(s) will be marked using a handheld GPS unit and mapped at that time. Prior to construction, a Caltrans biologist shall flag the on-site locations of this special-status plant species (if any) to avoid and/or minimize impacts to the greatest extent possible. In areas where impacts on beaver dam breadroot are unavoidable, Caltrans will notify CDFW at least 10 days prior to the date of the anticipated impact so CDFW can salvage the plants/seeds for transplantation/reseeding.	2-171									
ANIMAL SPECIES											
BIO-10: Clearly marking areas supporting burrows and buffer zone setback areas (see Table 2.16-2 below). Disturbance to/project activities in these areas must be avoided. *CEQA avoidance and minimization measure.*	2-176										
BIO-11: Avoid direct destruction of unoccupied burrows to the greatest extent possible. *CEQA avoidance and minimization measure.*	2-176										
BIO-12: Occupied burrows and the established buffer zone setback area surrounding each of the occupied burrows (see Table 2.16-2 below) shall not be disturbed during the nesting season (February 1–August 31), unless a biologist can verify through noninvasive methods that either the owls have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent flight. *CEQA avoidance and minimization measure.*	2-176										
BIO-13: Where possible, avoid disturbance to occupied burrows and the established buffer zone area (see Table 2.16-2 below) during the non-breeding season (September 1–January 31). *CEQA avoidance and minimization measure.*	2-176										
BIO-14: A Worker Environmental Awareness Program (WEAP) will be developed and provided by a qualified biologist to all involved project personnel. A description of the burrowing owl, its ecology, and its on-site status will be summarized. Measures developed for burrowing owl protection and reporting will be outlined. A record of all personnel attending this training will be kept by Caltrans and updated as staff changes necessitate additional training. *CEQA avoidance and minimization measure.*	2-176										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-15: Where direct disturbance to burrowing owls and their habitat can be avoided, the incorporation of buffer zones, visual screens, or other measures will minimize the effects on owls. CDFW recommends the following restrictions and buffer zone setback distances for burrowing owl nesting sites. *CEQA avoidance and minimization measure.* **Table 2.16-2. Burrowing Owl Buffer Zone Setback Distances** Time of Year / Level of Disturbance: Low / Med / High April 1 to August 15: 200 meters / 500 meters / 500 meters August 16 to October 15: 200 meters / 200 meters / 500 meters October 16 to March 31: 50 meters / 100 meters / 500 meters	2-176										
BIO-16: When avoidance of disturbance to occupied burrowing owl burrows during the non-breeding season is not possible, a Burrowing Owl Exclusion Plan approved by CDFW may be required.	2-177										
BIO-17: For unavoidable impacts on occupied burrowing owl burrows, the burrows must be excluded and closed by a qualified biologist to permanently exclude burrowing owls. One-way doors would need to be temporarily installed in burrow openings during the non-breeding season (September 1–January 31) and before breeding behavior has begun. Suitable habitat (including suitable burrows) must be available adjacent or near the disturbance site or artificial burrows will need to be provided nearby. Once the biologist has confirmed that the owls have left the burrow, burrows will be excavated using hand tools and filled to prevent reoccupation. All burrowing owls associated with occupied burrows that will be directly affected (temporarily or permanently) by the project will be passively relocated. *CEQA avoidance and minimization measure.*	2-177										
BIO-18: All burrowing owl relocation shall be approved by CDFW. The permitted biologist shall monitor the relocated owls a minimum of 3 days per week for a minimum of 3 weeks. A report summarizing the results of the relocation and monitoring shall be submitted to CDFW within 30 days following completion of the relocation and monitoring of the owls. *CEQA avoidance and minimization measure.*	2-177										
THREATENED AND ENDANGERED SPECIES											
BIO-19: Caltrans will submit the names and qualifications of biologists that they believe meet the minimum requirements to serve as Authorized Biologists to USFWS and CDFW for review and authorization under this biological opinion prior to beginning on-site activities.	2-183										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-20: Caltrans will designate, on a project-by-project basis, an authorized biologist to be responsible for overseeing compliance with all protective measures and for coordination with USFWS and CDFW. The authorized biologist will immediately notify the resident engineer of project activities that may be in violation of this biological opinion. In such an event, the resident engineer will halt all construction activities until all protective measures are being fully implemented, as determined by the authorized biologist.	2-184										
BIO-21: When handling desert tortoises, authorized biologists (and trained individuals) must follow the guidelines outlined in the Desert Tortoise Field Manual (USFWS 2010), Chapters 6 and 7.	2-184										
BIO-22: Immediately prior to the start of any ground-disturbing activities and prior to the installation of any desert tortoise exclusion fencing, clearance surveys for the desert tortoise will be conducted by the authorized biologist, as appropriate. The entire project area will be surveyed for desert tortoise and their burrows by an authorized biologist or approved desert tortoise monitor before the start of any ground-disturbing activities following the 2010 field survey protocol (USFWS 2010) or more current approved protocol. If burrows are found, they will be examined by an authorized biologist to determine if desert tortoises are present. If a tortoise is present and the burrow cannot be avoided, it will be relocated in accordance with USFWS protocol (USFWS 2010). If the authorized biologist determines clearance surveys are not needed, clearance surveys would not be required. If desert tortoises are found at a project site where Caltrans (or the authorized biologist) had previously concluded they were unlikely to occur, all work in the area will stop and Caltrans will contact USFWS and CDFW to determine if the implementation of additional protective measures would be appropriate.	2-184										
BIO-23: An education program will be developed and presented by the authorized biologist prior to the onset of ground-disturbing activities to be conducted under the auspices of this consultation. All on-site personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel employed for a project will be required to participate in an education program regarding the desert tortoise before performing on-site work. The program will consist of a class presented by an authorized biologist or a video, provided the authorized biologist is present to answer questions. Wallet-sized cards or a one-page handout with important information for workers to carry are recommended as a future reference and a reminder of the program's content. The program will cover the following topics at a minimum: • the distribution, general behavior, and ecology of the desert tortoise; • its sensitivity to human activities; • the protection it is afforded by the Endangered Species Act;	2-184										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
• penalties for violations of state and federal laws; • notification procedures by workers or contractors if a tortoise is found in a Construction Area; and • protective measures specific to each project.											
BIO-24: Whenever project vehicles are parked outside of a fence that is intended to preclude entry by desert tortoises, workers will check under the vehicle before moving it. If a desert tortoise is beneath the vehicle, the worker will notify the authorized biologist or an approved desert tortoise monitor to relocate the tortoise. If an authorized biologist is not present on site, the Resident Engineer or supervisor must notify an authorized biologist. Workers will not be allowed to capture, handle, or relocate tortoises. Any such handling must be reported as described in the Reporting Requirements section of the programmatic biological opinion.	2-184										
BIO-25: The area of disturbance will be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other limiting factors. This measure includes temporary haul roads, staging/storage areas, or access roads. Work area boundaries will be clearly and distinctly delineated with flagging or other marking to minimize surface disturbance associated with vehicle movement. Special habitat features, such as desert tortoise burrows, will be identified and marked as environmentally sensitive areas by the authorized biologist, if they are to be avoided, and will be discussed and identified during the worker education program. To the extent possible, previously disturbed areas within the Caltrans right of way will be used for equipment storage, office trailer locations, and vehicle parking. The development of all temporary access and work roads associated with construction will be minimized and constructed without blading where feasible. Project-related vehicle traffic will be restricted to established roads, construction areas, staging/storage areas, and parking areas. The resident engineer, authorized biologist, or approved desert tortoise monitor will ensure that blading is conducted only where necessary.	2-185										
BIO-26: The resident engineer is responsible for ensuring that all protective measures are being fully implemented. If the resident engineer determines, or is notified by the authorized biologist, that one or more protective measures are not being fully implemented, he or she will halt all activities that are out of compliance until all non-compliance issues have been resolved to Caltrans biologist and/or USFWS staff's satisfaction. All workers, authorized biologists, and biological monitors will be required to notify the resident engineer of any such problem they notice. The resident engineer must always be able to contact an approved biological monitor or authorized biologist to resolve any unforeseen issues.	2-185										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-27: Caltrans will determine whether the presence of authorized biologists and approved desert tortoise monitors will be required during project activities as outlined in the "criteria for use in reaching appropriate determination" section of this programmatic biological opinion and the submitted Appendix I notification form to USFWS.	2-185										
BIO-28: Permanent exclusion fencing will be used to prevent entry by desert tortoises into a work site, throughout the project limits, as shown on plans, with the exception of washes, which will feature use of temporary exclusion fencing. Exclusion fencing will be installed following USFWS guidelines (2005) or more current protocol. The authorized biologist will ensure that desert tortoises cannot pass under, over, or around the fence. If such a fence is used, authorized biologists or desert tortoise monitors will not be required to be present at the site at all times. However, the authorized biologist must periodically check the fenced area to search for breaks in the fence and to ensure no desert tortoises have breached the fence. Preconstruction surveys for tortoise and tortoise sign will be performed within all proposed construction areas prior to the fence being installed. In addition, prior to ground-disturbing activities beginning in a previously undisturbed or unfenced area, preconstruction surveys will be performed.	2-185										
BIO-29: Upon locating a dead or injured tortoise within a project site, the resident engineer will immediately notify the authorized biologist, who then will notify USFWS within 24 hours of the observation via telephone. Written notification must be made to the appropriate USFWS field office within 5 days of the finding. The information provided must include the date and time of the finding or incident (if known), location of the carcass or injured animal, a photograph, cause of death or injury, if known, and other pertinent information (i.e., size, sex, recommendations to avoid future injury or mortality).	2-185										
BIO-30: Injured desert tortoises will be transported to a veterinarian for treatment at the expense of the contractor. Only the authorized biologist or an approved desert tortoise biological monitor will be allowed to handle an injured tortoise. If an injured animal recovers, the appropriate USFWS field office will be contacted for final disposition of the animal.	2-186										
BIO-31: Caltrans will notify the authorized biologist or approved desert tortoise biological monitor to collect and place the remains of intact desert tortoise carcasses with educational or research institutions holding the appropriate state and federal permits, per their instructions. If such institutions are not available or the animal's remains are in poor condition, the information noted in this section will be obtained and the carcass left in place. If left in place and sufficient pieces are available, the authorized biologist will mark the carcass to ensure that it is not reported again.	2-186										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-32: If working outside of a desert tortoise-proof fenced area, auger holes or other excavations will be covered following inspection at the end of each workday to prevent desert tortoises from becoming trapped.	2-186										
BIO-33: When practicable, construction vehicles will be cleaned of all mud, dirt, and debris from other sites prior to entering the project area. The purpose of this measure is to minimize the spread of weedy plant species that may degrade desert tortoise habitat.	2-186										
BIO-34: Except on maintained public roads designated for higher speeds or within a desert tortoise-proof fenced area, driving speed will not exceed 20 miles per hour through potential desert tortoise habitat on both paved and unpaved roads.	2-186										
BIO-35: Any fuel or other hazardous materials spills will be promptly cleaned up; any leaks from equipment will be stopped and repaired immediately. Vehicle and equipment fluids that are no longer useful will be transported to an appropriate off-site disposal location. Fuel and lubricant storage and dispensing locations will be constructed to fully contain spilled materials until disposal can occur. Hazardous waste, including used motor oil waste and coolant, will be stored and transferred in a manner consistent with applicable regulations and guidelines.	2-186										
BIO-36: Upon completion of construction, all refuse, including but not limited to equipment parts, wrapping material, cable, wire, strapping, twine, buckets, metal or plastic containers, and boxes, will be removed from the site and disposed of properly.	2-186										
BIO-37: No firearms or pets, including dogs, will be allowed within the work area. Firearms carried by authorized security and law enforcement personnel and working dogs under the control of a handler will be exempt from this protective measure.	2-186										
BIO-38: To preclude attracting predators, such as the common raven (*Corvus corax*) and coyotes (*Canis latrans*), food-related trash items will be removed daily from the work site and disposed of at an approved refuse disposal site. Workers are prohibited from feeding all wildlife.	2-186										
BIO-39: Boring locations will not be established within 35 feet of an active desert tortoise burrow. If an active burrow is found within 35 feet after the boring location is established, the boring location will be moved until it is at least 35 feet from the active burrow.	2-187										
BIO-40: An authorized biologist will be on site during all drilling activities.	2-187										
BIO-41: Desert tortoise exclusion fence construction will follow the guidelines in Chapter 8 of the Desert Tortoise Field Manual (USFWS 2010).	2-187										

Date of ECR: *April 2015*
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ PA/ED (*DED*/*FED*)
☐ PS&E Submittal _____%
☐ ReValidation (# __) During: __ Phase
☐ Ready To List
☐ Construction

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-42: Desert tortoise-proof fencing will not cross washes. When washes and culverts are encountered, the desert tortoise-proof fence will follow the wash to the roadway and either tie into the existing bridge or cross over the top of a culvert.	2-187										
BIO-43: During fence inspections and repairs, if any desert tortoises are observed, workers are to notify the authorized biologist because only authorized biologists and approved biological monitors are permitted to handle tortoise. All desert tortoises encountered within the roadway side of the fence will be relocated across the fence to safety in accordance with USFWS protocol (USFWS 2010). Any such incident will be reported in the annual report.	2-187										
BIO-44: On a case-by-case basis, individual active burrows may be fenced if the authorized biologist determines this protective measure is necessary to prohibit desert tortoises from repeatedly entering work areas. Fencing around individual burrows will be removed when adjacent construction is complete.	2-187										
BIO-45: When gates are installed within the fence line, desert tortoise-proof fencing will be installed along the gate bottom beginning at least 2 feet above the fence bottom and extending towards the ground leaving less than a 1-inch gap (USFWS 2010).	2-187										
BIO-46: Off-site habitat for desert tortoise will be acquired at a 5:1 ratio to compensate for the permanent loss and temporary disturbance to desert tortoise and will be done in conjunction with Mohave ground squirrel.	2-187										
BIO-47: Prior to the initiation of ground-disturbing activities, a representative (Designated Representative) responsible for communications with CDFW and for overseeing compliance with an acquired CESA 2081 Incidental Take Permit will be assigned. CDFW will be notified in writing prior to commencement of ground-disturbing activities of the representative's name, business address, and telephone number, and will be notified in writing if a substitute representative is designated.	2-187										
BIO-48: Prior to the commencement of ground-disturbing activities, a Designated Biologist knowledgeable and experienced in the biology and natural history of the Mohave ground squirrel will be assigned to monitor construction activities in areas of Mohave ground squirrel habitat to help avoid the take of individual animals and to minimize habitat disturbance. CDFW will be notified in writing prior commencement of ground-disturbing activities of the Designated Biologist's name, business address, and telephone number. The Designated Biologist will be subject to approval by CDFW.	2-187										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-49: A WEAP will be presented to all project personnel who will work on site during project implementation and construction will be prepared and presented. The program will consist of a brief presentation from the Designated Biologist. The WEAP will include a discussion of the biology of the Mohave ground squirrel, the habitat needs of this species, its status under the CESA, and the management measures provided in the associated incidental take permit. A fact sheet containing this information will also be prepared and distributed to personnel working on site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all protection measures. These forms will then be filed at Caltrans and on site with the Resident Engineer, to be made available to CDFW upon request.	2-188									
BIO-50: A trash abatement program will be initiated during pre-construction phases of the project and will continue through the duration of the project. Trash and food items will be contained in closed (common raven-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.	2-188										
BIO-51: The Designated Biologist will have authority to immediately stop any activity that is not in compliance with the issued CESA incidental take permit, and to order any reasonable measure to avoid the take of Mohave ground squirrel.	2-188										
BIO-52: Project personnel will access the project area using existing routes and will not enter or cross Mohave ground squirrel habitat outside of the project area. To the extent possible, previously disturbed areas within the project area will be used for temporary storage areas, material laydown sites, and any other surface-disturbing activities. If construction of off-site routes of travel are required, CDFW will be contacted prior to carrying out such an activity.	2-188										
BIO-53: Any fuel or hazardous waste leaks or spills will be stopped and repaired immediately, as well as cleaned up at the time of occurrence. The storage and handling of hazardous materials will be excluded from the construction zone and any unused or leftover hazardous products would be properly disposed of off site.	2-188										
BIO-54: All project-related parking and equipment storage will be confined to the project area. Off-site Mohave ground squirrel habitat will not be used for parking or equipment storage. Project-related vehicle traffic will be restricted to established roads, staging, and parking areas. Signs or posting stakes, flags, and/or rope, cord, or fencing will be installed as necessary to minimize the disturbance of Mohave ground squirrel habitat. Vehicle speeds will not exceed 20 miles per hour in order to avoid Mohave ground squirrels potentially on roads or traveling through the project area.	2-188										

Date of ECR: ***April 2015***
Type/Date of Environmental Compliance:
CEQA – IS
4 / 8 / 2015

NEPA – EA
4 / 8 / 2015
Project Phase:
☒ **PA/ED (*DED*/*FED*)**
☐ **PS&E Submittal _____%**
☐ **ReValidation (# __) During: __ Phase**
☐ **Ready To List**
☐ **Construction**

ENVIRONMENTAL COMMITMENTS RECORD
US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project

08—SBd—395
39.0/45.9

EA 08-0N9710
PN 0815000101

Avoidance, Minimization, and/or Mitigation Measures	Page # in Env. Doc.	Environmental Analysis Source (Technical Study, Environmental Document, and/or Technical Discipline)	Responsible for Development and/or Implementation of Measure	Timing/ Phase	If applicable, corresponding construction provision: (standard, special, non-standard)	Action(s) Taken to Implement Measure	Measure Completed (Date and Initials)		Remarks	Environmental Compliance	
										YES	NO
BIO-55: Upon project construction completion, all project-related refuse and debris will be removed from the site and properly disposed of.	2-188										
BIO-56: All Mohave ground squirrel habitat temporarily disturbed through project activities will be restored.	2-188										
INVASIVE SPECIES											
BIO-57: Measures to minimize the introduction or spread of nonnative species would include cleaning all equipment and vehicles with water (or through another Caltrans-approved method) to remove dirt, seeds, vegetative material, or other debris before entering and upon leaving the project site and the removal and disposal off site of existing nonnative species within the project area.	2-190										
CLIMATE CHANGE											
GHG-1: Per the Department's Standard Specifications, the contractor will comply with all local Air Pollution Control District's (APCD) rules, ordinances, and regulations for air quality restrictions.	2-202										

Appendix D List of Abbreviated Terms

AADT	Annual Average Daily Traffic
AB	Assembly Bill 1493
ACM	asbestos containing materials
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
amsl	above mean sea level
APE	Area of Potential Effects
ARB	Air Resources Board
ARPA	Archaeological Resources Protection Act
ASR	Archaeological Survey Report
ASTM	American Standard Testing Methods
BA	Biological Assessment
bgs	below ground surface
BLM	Bureau of Land Management
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe
BSA	Biological Study Area
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARIDAP	California Archaeological Resource Identification and Data Acquisition Program
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERFA	Community Environmental Response Facilitation Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHP	California Highway Patrol
CMRP	Construction Monitoring and Response Plan
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO-CAT	Coastal Ocean Climate Action Team
COZEEP	Construction Zone Enforcement Enhancement Program
CR	Rural Commercial
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSC	California Species of Special Concern
CTP	California Transportation Plan
CWA	Clean Water Act
DSA	Disturbed Soil Area

DTSC	Department of Toxic Substances Control
DWMA	Desert Wildlife Management Area
EAFB	Edwards Air Force Base
EDR	Environmental Data Resources
EO	Executive Order
EOD	exploded ordnance
ESA	Environmentally Sensitive Area
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
FMIT	Fort Mojave Indian Tribe
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	greenhouse gas
GPS	global positioning system
H_2S	hydrogen sulfide
HMA	Hot Mix Asphalt
HOV	high occupancy vehicle
HPSR	Historic Property Survey Report
HRER	Historical Resources Evaluation Report
I-15	Interstate 15
IPCC	Intergovernmental Panel on Climate Change
IRRS	Inter-Regional Road System
ISA	Initial Site Assessment
JD	Delineation of Jurisdictional Waters
LBP	lead-based paint
LEDPA	least environmentally damaging practicable alternative
MDAB or Basin	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
MLD	Most Likely Descendant
MOU	Memorandum of Understanding
mph	miles per hour
MPO	Metropolitan Planning Organization
MRA	Munitions Response Area
MS4s	Municipal Separate Storm Sewer Systems
MSAT	Mobile-Source Air Toxics
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration

NOAA Fisheries Service	National Oceanic and Atmospheric Administration's National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O_3	ozone
OHWM	ordinary high water mark
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Act
OSTP	Office of Science and Technology Policy
OU	Operable Unit
PA	Programmatic Agreement
PB	lead
PB	Precision Bombing
PBO	programmatic biological opinion
PCB	polychlorinated biphenyl
PCMSs	Portable Changeable Message Signs
PDT	Project Development Team
PETN	pentaerythritol tetranitrate
PG&E	Pacific Gas & Electric
PIR/PER	Paleontological Identification Report and Paleontological Evaluation Report
PM	post mile
PM	particulate matter
PM_{10}	particles of 10 micrometers or smaller
$PM_{2.5}$	particles of 2.5 micrometers and smaller
PMP	Paleontological Mitigation Plan
PPDG	Project Planning and Design Guide
PRC	California Public Resources Code
PS&E	Plans, Specifications, and Estimates
RAP	Relocation Assistance Program
RC	Resource Conservation
RCRA	Resource Conservation and Recovery Act of 1976
RECs	recognized environmental conditions
Resources Agency	California Natural Resources Agency
RL	Rural Living
RPWs	relatively permanent waterways
RTP	Regional Transportation Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Boards
SB 97	Senate Bill 97
SBCFD	San Bernardino County Fire Department
SBCM	San Bernardino County Museum
SBCSD	San Bernardino County Sheriff's Department
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SD	Special Development

SDC	Seismic Design Criteria
SF_6	sulfur hexafluoride
SHOPP	State Highway Operation and Protection Program
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMARTS	Storm Water Multi Application and Report Tracking System
SO_2	sulfur dioxide
SR	State Route
STAA	Surface Transportation Assistance Act
STRAHNET	Strategic Highway Network
SVOC	semivolatile organic compound
SWDR	Storm Water Data Report
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TASAS	Traffic Accident Surveillance and Analysis System
TDM	Transportation Demand management
TMDLs	Total Maximum Daily Loads
TMP	Traffic Management Plan
TNW	traditional navigable water
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
TSM	Transportation System Management
U.S.	United States
UBC	Uniform Building Code
US-395	United States Highway 395
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance
VOCs	volatile organic compounds
WDRs	Waste Discharge Requirements
WEAP	Worker Environmental Awareness Program
WPCP	Water Pollution Control Plan
XP1	Extended Phase 1

Appendix E List of Technical Studies

The technical studies listed below were utilized in conjunction with the preparation of this Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment. All of the technical studies listed were prepared specifically for the proposed US Highway 395 Widen Median and Shoulder and Install Rumble Strips Project.

Archaeological Survey Report (January 2015)

Biological Assessment (January 2015)

Delineation of Jurisdictional Waters (January 2015)

Draft Project Report (April 2015)

Historic Property Survey Report (January 2015)

Historic Resources Evaluation Report (January 2015)

Initial Site Assessment Report (January 2015)

Location Hydraulic Study Form (January 2015)

Natural Environment Study (January 2015)

Paleontological Identification Report/Paleontological Evaluation Report (January 2015)

Scoping Questionnaire for Water Quality Issues (February 2015)

Summary Floodplain Encroachment Report (February 2015)

This page intentionally left blank.

Appendix F Biological Opinion for Routine Highway Improvement, Maintenance Activities, and Safety Projects in Imperial, Inyo, Kern, Los Angeles, Riverside, and San Bernardino Counties, California (8-8-10-F-59)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
81440-2007-F-0270

November 5, 2013

David Bricker, Deputy District Director
Attn: Mahmoud Sadeghi
Caltrans, District 8, Environmental Division
464 West 4th Street, 6th Floor
San Bernardino, California 92401-1400

Subject: Biological Opinion for Routine Highway Improvement, Maintenance Activities, and Safety Projects in Imperial, Inyo, Kern, Los Angeles, Riverside, and San Bernardino Counties, California (8-8-10-F-59)

Dear Mr. Bricker:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion regarding the effects of routine highway improvement, maintenance activities, and safety projects, funded under the Federal Highway Administration's (FHWA) Federal aid program, on the federally threatened desert tortoise (*Gopherus agassizii*) and its critical habitat, in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et seq.). This document also contains our programmatic concurrence regarding projects funded under the FHWA's Federal aid program that are not likely to adversely affect the desert tortoise or its critical habitat.

This biological opinion is based on information contained in a previous biological opinion for small projects and routine operational highway improvement activities (Service 2006), personal communications with staff from the California Department of Transportation (Caltrans), and information contained in our files. A complete record of this consultation can be made available at the Ventura Fish and Wildlife Office (VFWO).

CONSULTATION HISTORY

The FHWA previously consulted with the Service regarding routine highway maintenance activities and their effects on the desert tortoise and its critical habitat (Service 1994, 1995). On January 12, 2006, the Service replaced the previous two biological opinions with a new programmatic biological opinion (Service 2006) for maintenance activities, and other similar scale projects, in the transmontane portions of Imperial, Riverside, Los Angeles, San Bernardino, Inyo, and Kern counties. During 2006, Caltrans identified issues in the new biological opinion that required clarification from our office on several different occasions. As a result of these discussions, we met with representatives from the FHWA and Caltrans in December 2006 to

discuss the potential for further streamlining the consultation process. Following this meeting, Caltrans and the Service began to collaborate on the development of a revised consultation process that would replace the 2006 biological opinion.

Review of the Draft Biological Opinion

We provided a draft biological opinion for your review on July 29, 2013. We received your comments on the draft document by memorandum, dated August 29, 2013. We have incorporated your comments into this final biological opinion, as appropriate.

ADMINISTRATION OF THE CONSULTATION

Caltrans has assumed FHWA's responsibilities under the Act for this consultation in accordance with Section 1313, Surface Transportation Project Delivery Program, of the Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012, as described in the National Environmental Policy Act assignment Memorandum of Understanding between FHWA and Caltrans (effective October 1, 2012) and codified in 23 U.S.C. 327. As this programmatic biological opinion extends over the jurisdictions of the VFWO and Palm Springs Fish and Wildlife Office (PSFWO), which is under the Carlsbad Fish and Wildlife Office, any Caltrans activity in Imperial and Riverside counties will be coordinated with the PSFWO, and activities in Los Angeles, San Bernardino, Inyo, and Kern counties will be coordinated with the VFWO Desert Division.

Caltrans will prepare all required environmental documents for individual projects that may be conducted pursuant to this biological opinion, including those needed to satisfy its responsibilities under the Act and the National Environmental Policy Act. Based upon the appropriate documentation, the consultation process will proceed as follows:

1. A Caltrans biologist will make a determination of not likely to adversely affect or likely to adversely affect for a proposed action and then notify the senior biologist in the VFWO Desert Division or the PSFWO via electronic mail, using a standardized notification form (Appendix 1).

2. We will review the notification form and respond via electronic mail or other approved written format. In our response, we will concur or not concur with Caltrans' determination and proposed protective measures, as needed. If we determine that use of this consultation is appropriate for a proposed project, the provisions of this programmatic consultation will apply and no further communication would be needed (other than required reporting and notifications). We will attempt to respond within 30 days; however, if Caltrans does not receive a response from us within 30 days, it must not assume we concur.

3. In the event that Caltrans has not received a response from us within 30 days, Caltrans will contact, via telephone, the Desert Division senior biologist or Caltrans Liaison in the VFWO or the PSFWO, and ask us to clarify our position regarding its determination. (Note that our concurrence will cover all aspects of consultation; that is, our concurrence will be made with regard to the Caltrans proposal at hand according to the guidance contained in this document

and not merely with regard to 'not likely to adversely affect' situations, as would be expected in a standard consultation.)

4. If we believe protective measures, in addition to those proposed by Caltrans, are necessary, we will convey that information to Caltrans within 45 days of receipt of the notification form. We will insert any additional protective measures into our response with which Caltrans agrees. We will provide written documentation of any discussions or information regarding additional protective measures in the project file.

5. If we determine that use of this consultation is not appropriate for a proposed project, we will notify Caltrans, in writing within 45 days of receipt of the notification form, and the standard provisions for section 7 consultation will apply.

6. If the proposed project does not meet the criteria to be covered by the programmatic biological opinion, the regulations which implement section 7 allow the Service up to 90 days to conclude formal consultation and an additional 45 days to prepare our biological opinion. If we require additional information to complete our biological opinion, we will describe our needs in our letter; if additional information is not required, we will consider consultation to have been initiated on the date we received the original notification of Caltrans' intent to conduct its proposed project pursuant to this biological opinion.

7. Barring any unresolvable problems, and if stated thresholds for take and impacts to critical habitat are not reached, this biological opinion will be in effect for 5 years from the date it is issued. At the end of 5 years, if the programmatic biological opinion is working properly and impacts to the desert tortoise and its habitat are minor, as projected, the biological opinion may be renewed for 5 more years by mutual agreement between the Service and Caltrans. If reinitiation is required for whatever reason before the end of any 5-year period, the revised biological opinion would be in effect for 5 years starting on the date the new biological opinion is issued.

Failure to Adhere to the Terms of the Biological Opinion

In the event that a particular project being implemented under the auspices of this biological opinion fails to adhere to the protective measures and other conditions described below, that particular project must be suspended until the project is back in compliance with the biological opinion. If a project is suspended under this condition, any further action that would result in take of the desert tortoise would not be exempted from the prohibitions of section 9 (as described under Incidental Take Statement). Because several Caltrans Districts are covered within the scope of this biological opinion, other projects that are in compliance with this biological opinion may continue as long as none of the reinitiation criteria (defined later) are triggered (e.g., take limit exceeded). Those reinitiation criteria apply to the sum total of all actions undertaken pursuant to this biological opinion and are not parsed out by Caltrans District.

Issue Resolution

Issue resolution may be initiated by the FHWA, Caltrans, or the Service. Any issues that are not readily resolved at the staff or project manager level will promptly be referred to the supervisory level. The supervisory contact for the Service is the Assistant Field Supervisor of the Desert Division for the VFWO or Assistant Field Supervisor, PSFWO. The supervisory contact for Caltrans is the Deputy District Director for the Environmental Division in each District. The supervisory contact for the FHWA is the Division Administrator.

Any issues that cannot be resolved at the supervisory level will be referred to upper management. The Deputy Field Supervisor will be the upper management contact for the Service. Any issue that is not resolved with the Deputy Field Supervisor will be promptly referred to the Field Supervisor. Again, unresolved issues are directed to the Deputy District Director for the Environmental Division in each district. The FHWA, Caltrans, and the Service are responsible for ensuring timely elevation and resolution of issues.

Criteria for Use in Reaching Appropriate Determinations

Caltrans will use the following outline to determine the appropriate level of consultation required for each proposed action.

1) Projects that would occur outside of desert tortoise habitat or known range would have *no effect* on the species; Caltrans would not need to contact the Service. If Caltrans requires technical assistance from the Service to determine if suitable habitat for desert tortoises would be affected, it should contact us by electronic mail.

2) If all of the following criteria are met, a determination of *may affect, not likely to adversely affect* the desert tortoise would be appropriate:

    a) The project is within the range of the desert tortoise;

    b) Desert tortoise habitat is present, but degraded or disturbed, in the project area. For the purposes of this consultation, Caltrans and Service consider degraded habitat to be habitat that has been affected by previous highway maintenance activities or routine use of the area by the public. *Degraded habitat* will generally exhibit a lower diversity and density of native shrubs and disrupted substrates than undisturbed habitat. The presence of ongoing human activity, such as residences or businesses will also be considered to be evidence of degraded habitat. In some washes, evidence of activities would no longer be visible after an event where water flows in the wash. Such washes would also be considered disturbed. The loss or disturbance of a minor amount of undisturbed habitat may also be considered as being not likely to adversely affect the species, when considered with regard to its distribution in the action area; and

c) Suitable desert tortoise habitat is present, but neither desert tortoises nor their diagnostic sign are observed during protocol-level surveys (Service 2010) or more current agency approved protocol.

3) If any of the following criteria are met, a determination of *not likely to adversely affect critical habitat* for the desert tortoise would be appropriate:

a) The project is within designated critical habitat, but the primary constituent elements of desert tortoise critical habitat are not present;

b) The primary constituent elements would not be affected by the proposed project; or

c) Effects to the primary constituent elements would be so minor that they cannot be meaningfully measured, detected, or evaluated when considered within the context of the critical habitat unit. Such effects may occur, for example, when a narrow strip of land supporting the primary constituent elements of critical habitat at the edge of an existing road may be affected by an action.

4) If all of the following criteria are met, a determination of *may affect, likely to adversely affect* the desert tortoise would be appropriate:

a) The project is within the range of the desert tortoise;

b) Suitable desert tortoise habitat is present in the project area and is not disturbed or degraded (as described under 1(b) above), and

c) Desert tortoises or their diagnostic sign are observed during surveys or a habitat assessment.

5) If any of the following criteria are met, a determination that a project *may adversely affect critical habitat* would be appropriate:

a) The project is within designated critical habitat and the primary constituent elements of desert tortoise critical habitat are present;

b) The primary constituent elements would be affected by the proposed project; or

c) Effects to the primary constituent elements could be meaningfully measured, detected, or evaluated, when considered within the context of the critical habitat unit. Such effects may occur, for example, when an area supporting the primary constituent elements of critical habitat, and not otherwise subject to disturbance, would be altered and the primary constituent elements would no longer be present over a measurable portion of the critical habitat unit.

In cases where a determination is not entirely clear from a verbal description, Caltrans will provide the Service with a photograph (aerial or otherwise, as appropriate) of the project site to assist in its determination.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Actions that would be considered appropriate to conduct pursuant to this biological opinion are projects and operational improvements, such as road widening and lane additions associated with safety projects that would occur within the existing Caltrans rights-of-way (ROW), a limited amount of seismic work, and minor improvements to ports-of-entry that would be conducted outside the ROW (upon Service approval, pursuant to the administration of this consultation). All projects and activities associated with operational improvement, with the exception of the geotechnical studies proposed herein, would occur within the ROW fence or unmarked boundary. The projects considered in this biological opinion could occur anywhere within the Caltrans ROW; however, in any given year, most of the ROW included in the action area for this biological opinion is not likely to be disturbed. This biological opinion does not cover impacts associated with the realignment and widening of freeways outside the existing Caltrans ROW specifically intended to accommodate increased traffic.

Project Categories

Actions included in the following eight categories would be appropriate to conduct pursuant to this biological opinion:

TYPE 1: HIGHWAY REHABILITATION AND DRAINAGE AND SAFETY STANDARDIZATION

Highway rehabilitation consists of grinding existing road pavement, proper disposal of resulting waste, and overlaying the prepared surface with new asphaltic concrete. Actions include grading of shoulders and road embankments, placement of shoulder backing, striping or widening of existing shoulders, replacing or installing guardrails, trimming or removing vegetation, installing traffic signals or left/right turn lanes, re-striping, and instituting traffic control measures. Drainage standardization consists of grading existing roadside channels, installing new roadside channels or drainage devices, and extending culverts. Additionally, all activities related to the storage of equipment and materials, and to the disposal of spoils will be considered as Type 1 activities.

TYPE 2: CATCH DAM, CATCH BASIN, STILLING BASIN, OR DRAINAGE IMPROVEMENT

Type 2 projects consist of constructing new erosion control devices adjacent to existing culverts or bridges, or repairing existing facilities, and the installation or replacement of culverts and armoring including upgrading to larger sized culverts. Check dams and stilling basins require excavating soil within the wash or channel and its bank, and placing concrete or rock slope

protection. Sediment catch basins require excavating areas on the inlet side of culverts or ditches, and constructing dikes to direct the flow of water. This may include the replacement of in-kind culverts.

TYPE 3: WIDENING HIGHWAYS FOR TURN POCKETS, ACCELERATION/ DECELERATION LANES, PASSING LANES, TWO-WAY LEFT TURN LANES, INTERSECTION WIDENING, CURVE REALIGNMENTS, REPAVING, AND PAVEMENT REHABILITATION.

Turn pockets and acceleration/deceleration lanes require widening both sides of the existing roadway and shoulder for up to 0.25 mile from an intersection. Passing lanes may consist of widening one side of the roadway by one lane. Two-way left-turn lanes require widening both sides of the roadway by a half-lane width and re-striping for the length of the project area. Curve realignment requires moving the roadway or excavation of the roadway and adjacent shoulders. Intersection widening usually consists of widening both sides of the roadway, adding shoulders and/or sidewalks, curb ramps, and signals.

TYPE 4: BRIDGE REHABILITATION AND REPLACEMENT

Bridge rehabilitation consists of removing the asphaltic concrete deck or replacing decks, reconstructing approaches, applying a seal coat, replacing/repairing guardrails, and sand blasting the underside of the bridge to inspect for damage. Bridge replacement consists of removing and replacing the entire bridge structure and its pillars and guardrails with a new bridge; pillar removal requires excavation. Temporary access roads may be needed to access the area underneath the bridges. Some bridge rehabilitation work may require installing temporary traffic detour crossovers across the highway median; crossovers would include construction of drainage structures to channel run-off from the construction site.

TYPE 5: PRELIMINARY PROJECT STUDIES AND SURVEYS

Geotechnical studies are required to provide information regarding the feasibility and/or best construction design for future projects. These early studies can assist with long- range planning to determine viable alternatives. Geotechnical boring typically entails drilling a test hole to analyze the subsurface geology and temporarily placing fill material adjacent to the boring activity. Immediately following the geotechnical study at a test pit, the borehole is filled and covered with surrounding material or bentonite. Cross-country travel may be required for geotechnical studies. Cross-country travel can either use the same route to return from the boring activities or continue forward in a linear fashion. Areas affected by geotechnical borings will include the entire width and length of the access route and all areas affected by vehicles and boring activities.

Archaeological studies are required to provide information and documentation of historical land use areas, archaeological sites (both prehistoric and historical), and areas of cultural concern (all of these are considered “historic resources”). Initial archaeological surveys are intended to inventory proposed project areas for historic resources, are non-intrusive (no surface collection or excavation), and include mapping and photographing of archaeological sites and resources.

Archaeological evaluations are intended to evaluate the previously inventoried historic resources; these evaluations generally require both mechanical (trenching) and hand-excavation to determine depth of archaeological sites and to find buried resources. These evaluations generally provide stratigraphic information based on depth of resource, and generally are conducted using 1-meter x 1-meter (1 meter^2) hand-excavated control units (may be multiple units depending on size and area of site). If mechanical trenching is used, the depth is generally 1 meter; any excavation deeper than 5 feet (1.524-m) requires shoring and exit ramps (also dependent upon site size). Archaeological data recovery uses the same methods as the above-mentioned evaluation efforts.

TYPE 6: RECONSTRUCTION OF EXISTING MAINTENANCE YARDS, PORTS OF ENTRY, REST AREAS, AND WEIGH STATIONS

Type 6 projects consist mainly of reconstructing or repairing existing maintenance yards, ports of entry, rest areas, and weigh stations to respond to legislative mandates or increased demands in geographical areas. As part of the process, Type 6 projects will require some limited road work.

TYPE 7: PERMANENT FENCE INSTALLATION, INSPECTION, AND MAINTENANCE

Type 7 projects consist of installing permanent fencing, cattle guards, and other features necessary to keep desert tortoises from entering the rights-of-way. Fence installation will follow the 2005 Recommended Design for Desert Tortoise Exclusion Fence, which is available through the VFWO website (http://www.fws.gov/ventura). Fence maintenance will occur when necessary to ensure that desert tortoises do not enter the ROW.

TYPE 8: SAFETY PROJECTS

Examples of safety projects include minor road realignments within the ROW, guard rail installation, California Highway Patrol enforcement areas/emergency passageways, glare screen, median barrier and cross slopes, remove/relocate or shield fixed objects, and traffic signs installation.

Protective Measures

Caltrans proposes to implement the following protective measures to avoid and minimize impacts to the desert tortoise and its critical habitat:

1. Caltrans will submit the names and qualifications of biologists that they believe meet the minimum requirements to serve as Authorized Biologists to the Service for review and authorization under this biological opinion prior to beginning on-site activities (forms at http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/). Once a biologist has been authorized by the Service, that individual may work on subsequent projects pursuant to this biological opinion without additional approval, provided that his or her performance remains satisfactory. Caltrans will maintain a record of all authorized biologists who work on its projects.

2. Caltrans will designate, on a project-by-project basis, an authorized biologist to be responsible for overseeing compliance with all protective measures and for coordination with the Service. The authorized biologist will immediately notify the resident engineer of project activities that may be in violation of this biological opinion. In such an event, the resident engineer can halt all construction activities until all protective measures are being fully implemented, as determined by the authorized biologist.

3. A resident engineer is, according to Caltrans' May 2006 Standard Specifications, "the Chief Engineer, Department of Transportation, acting either directly or through properly authorized agents, the agents acting within the scope of the particular duties delegated to them." The resident engineer has authority over the contract and is responsible for all aspects of the specific projects to which he or she is assigned. The resident engineer has the authority to stop work on a project. The authorized biologist will have the authority to halt any activity, through the Resident Engineer or other identified authority in charge of implementation that may pose a threat to desert tortoises and to direct movements of equipment and personnel to avoid injury or mortality to desert tortoise.

4. When handling desert tortoises, authorized biologists (and trained individuals) must follow the guidelines outlined in the Desert Tortoise Field Manual (Service 2010), chapters 6 and 7. The manual is available on the web through the VFWO website (www.fws.gov/ventura).

5. Immediately prior to the start of any ground-disturbing activities and prior to the installation of any desert tortoise exclusion fencing, clearance surveys for the desert tortoise will be conducted by the authorized biologist, as appropriate. The entire project area will be surveyed for desert tortoise and their burrows by an authorized biologist or approved desert tortoise monitor before the start of any ground-disturbing activities following the 2010 field survey protocol (Service 2010) or more current approved protocol. If burrows are found, they will be examined by an authorized biologist to determine if desert tortoises are present. If a tortoise is present and the burrow cannot be avoided, it will be relocated in accordance with Service protocol (Service 2010). If the authorized biologist determines clearance surveys are not needed, clearance surveys would not be required. If desert tortoises are found at a project site where Caltrans (or the authorized biologist) had previously concluded they were unlikely to occur, Caltrans will contact the Service to determine if the implementation of additional protective measures would be appropriate.

6. For construction projects determined likely to may affect desert tortoise, an education program will be developed and presented by the authorized biologist prior to the onset of ground-disturbing activities to be conducted under the auspices of this consultation. All onsite personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel employed for a project will be required to participate in an education program regarding the desert tortoise before performing on-site work. The program will consist of a class presented by an authorized biologist or a video, provided the authorized biologist is present to answer questions. Wallet-sized cards or a one-page handout with important information for workers

to carry are recommended as a future reference and a reminder of the program's content. The program will cover the following topics at a minimum:

- the distribution, general behavior, and ecology of the desert tortoise;
- its sensitivity to human activities;
- the protection it is afforded by the Endangered Species Act;
- penalties for violations of State and Federal laws;
- notification procedures by workers or contractors if a tortoise is found in a construction area, and;
- protective measures specific to each project.

7. Whenever project vehicles are parked outside of a fence that is intended to preclude entry by desert tortoises, workers will check under the vehicle before moving it. If a desert tortoise is beneath the vehicle, the worker will notify the authorized biologist or an approved desert tortoise monitor to relocate the tortoise. If an authorized biologist is not present on-site, the Resident Engineer or supervisor must notify an authorized biologist. Workers will not be allowed to capture, handle, or relocate tortoises. Any such handling must be reported as described in the Reporting Requirements section of this biological opinion.

8. The area of disturbance will be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other limiting factors. This measure includes temporary haul roads, staging/storage areas, or access roads. Work area boundaries will be clearly and distinctly delineated with flagging or other marking to minimize surface disturbance associated with vehicle movement. Special habitat features, such as desert tortoise burrows, will be identified and marked as environmentally sensitive areas by the authorized biologist, if they are to be avoided and will be discussed and identified during the worker education program. To the extent possible, previously disturbed areas within the Caltrans ROW will be used for equipment storage, office trailer locations, and vehicle parking. The development of all temporary access and work roads associated with construction will be minimized and constructed without blading where feasible. Project-related vehicle traffic will be restricted to established roads, construction areas, staging/storage areas, and parking areas. The resident engineer, authorized biologist or approved desert tortoise monitor will ensure that blading is conducted only where necessary.

9. Caltrans will require all contractors to comply with the Act in the performance of work necessary for project completion. Evidence of compliance is required prior to Caltrans accepting or receiving materials or goods produced from outside of the right-of-way or through the use of facilities located outside of the right-of-way, including but not limited to, non-commercial batch plants, haul roads, quarries, and similar operations. Copies of the compliance documents will be maintained at the work-site by the resident engineer.

10. The resident engineer is responsible for ensuring that all protective measures are being fully implemented. If the resident engineer determines, or is notified by the authorized biologist, that one or more protective measures are not being fully implemented, he or she will halt all

activities that are out of compliance until all problems have been remedied. All workers, authorized biologists, and biological monitors will be required to notify the resident engineer of any such problem they notice. The resident engineer must always be able to contact an approved biological monitor or authorized biologist to resolve any unforeseen issues.

11. Caltrans will determine whether the presence of authorized biologists and approved desert tortoise monitors will be required during project activities as outline in the 'criteria for use in reaching appropriate determination' section of this programmatic biological opinion and the submitted Appendix I notification form to the Service. In general, where the risk to desert tortoises is low, the authorized biologist or an approved biological monitor will be present at the onset of the project to ensure protective measures are in place and will, if necessary (for example, for projects that will require a substantial length of time to complete), conduct periodic field checks to ensure compliance.

12. Permanent or temporary exclusion fencing may be used to prevent entry by desert tortoises into a work site, if Caltrans and the authorized biologist determine this measure is appropriate. Exclusion fencing will be installed following Service guidelines (2005) or more current protocol. The authorized biologist will ensure that desert tortoises cannot pass under, over, or around the fence. If such a fence is used, authorized biologists or desert tortoise monitors will not be required to be present at the site at all times. However, the authorized biologist must periodically check the fenced area to search for breaks in the fence and to ensure no desert tortoises have breached the fence. Preconstruction surveys for tortoise and tortoise sign will be performed within all proposed construction areas prior to the fence being installed. In addition, prior to ground disturbing activities beginning in a previously undisturbed or unfenced area, preconstruction surveys will be performed.

13. Upon locating a dead or injured tortoise within a project site, the resident engineer will immediately notify the authorized biologist whom then will notify the Service within 24 hours of the observation via telephone. Written notification must be made to the appropriate Fish and Wildlife field office within 5 days of the finding. The information provided must include the date and time of the finding or incident (if known), location of the carcass or injured animal, a photograph, cause of death or injury, if known, and other pertinent information (i.e., size, sex, recommendations to avoid future injury or mortality).

14. Injured desert tortoises will be transported to a veterinarian for treatment at the expense of the contractor or Caltrans. Only the authorized biologist or an approved desert tortoise biological monitor will be allowed to handle an injured tortoise. If an injured animal recovers, the appropriate Fish and Wildlife field office will be contacted for final disposition of the animal.

15. Caltrans will notify the authorized biologist or approved desert tortoise biological monitor to collect and place the remains of intact desert tortoise carcasses with educational or research institutions holding the appropriate State and Federal permits per their instructions. If such institutions are not available or the animal's remains are in poor condition, the information noted in this section will be obtained and the carcass left in place. If left in place and

sufficient pieces are available, the authorized biologist will attempt to mark the carcass to ensure that it is not reported again.

16. If working outside of a desert tortoise-proof fenced area, auger holes or other excavations will be covered following inspection at the end of each workday to prevent desert tortoises from becoming trapped.

17. When feasible or practicable, construction vehicles will be cleaned of all mud, dirt, and debris from other sites prior to entering the project area. The purpose of this measure is to minimize the spread of weedy plant species that may degrade desert tortoise habitat.

18. Except on maintained public roads designated for higher speeds or within a desert tortoise-proof fenced area, driving speed will not exceed 20 miles per hour through potential desert tortoise habitat on both paved and unpaved roads.

19. Any fuel or other hazardous materials spills will be promptly cleaned up; any leaks from equipment will be stopped and repaired immediately. Vehicle and equipment fluids that are no longer useful will be transported to an appropriate off-site disposal location. Fuel and lubricant storage and dispensing locations will be constructed to fully contain spilled materials until disposal can occur. Hazardous waste, including used motor oil waste and coolant, will be stored and transferred in a manner consistent with applicable regulations and guidelines.

20. Desert tortoise habitat, outside of the ROW, that is temporarily affected by grading during project construction (e.g., temporary access roads, detention basins) will be restored following construction, using salvaged topsoil. Habitat restoration will also incorporate desert bioregion revegetation/restoration guidance measures. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch. Temporary access roads and crossovers, outside of the ROW, will be re-graded, restored, and stabilized. Prior to the start of construction, potential temporary impact areas that have been identified by a botanist as having more than 75 percent cover of non-native grasses will not require restoration; areas that may be subject to temporary disturbance and would require revegetation following construction would be identified on Appendix I.

21. Plant species listed in Lists A and B of the California Exotic Pest Plant Council's list of exotic pest plants (latest edition) will not be used to restore or stabilize areas within or near desert tortoise habitat.

22. Upon completion of construction, all refuse, including, but not limited to equipment parts, wrapping material, cable, wire, strapping, twine, buckets, metal or plastic containers, and boxes will be removed from the site and disposed of properly.

23. If explosives need to be used, the authorized biologist will survey any area that may be affected by their use (via noise, vibration, or blown-up material) to determine if desert tortoises are present. If desert tortoises are present in this area, the resident engineer, with the cooperation of the authorized biologist or approved desert tortoise biological monitor, will implement necessary measures to protect these animals. Such measures may include, but are not limited to, installing temporary fencing and moving desert tortoises outside of it, holding desert tortoises in a secure location until after explosion, and other actions that protect the desert tortoises from injury or mortality during the blasting.

24. No firearms or pets, including dogs, will be allowed within the work area. Firearms carried by authorized security and law enforcement personnel and working dogs under the control of a handler will be exempt from this protective measure.

25. To preclude attracting predators, such as the common raven (*Corvus corax*) and coyotes (*Canis latrans*), food-related trash items will be removed daily from the work site and disposed of at an approved refuse disposal site. Workers are prohibited from feeding all wildlife.

26. Sandblasted material will either be vacuum-retrieved or contained by a tarp. All refuse material from sandblasting will be disposed of in compliance with Federal law.

27. During all off-road cross-country travel outside of any area surrounded by desert tortoise-proof fencing, the authorized biologist will select and flag the access route to avoid burrows, to minimize disturbance of vegetation, and to relocate any desert tortoises that are found in the access route, out of harm's way. The authorized biologist will walk in front of the lead vehicle to ensure that no desert tortoise or burrows are present. All vehicles will follow the lead vehicle's tracks and stay within the designated access route.

28. Boring locations will not be established within 35 feet of an active desert tortoise burrow. If an active burrow is found within 35 feet after the boring location is established, the boring location will be moved until it is at least 35 feet from the active burrow.

29. An authorized biologist will be onsite during all drilling or boring activities.

30. Desert tortoise exclusion fence construction will follow the guidelines in chapter 8 of the Desert Tortoise Field Manual (Service 2010) which is available at the VFWO website (www.fws.gov/ventura).

31. Cattle guards will be installed where appropriate, with technical assistance from the Service, if necessary. All cattle guards that serve as barriers to the movement of desert tortoises will be installed and maintained (e.g., removal of soil build-up) to ensure that any desert tortoise that falls underneath has a path of escape via a sloped escape ramp without crossing the intended barrier.

32. Desert tortoise-proof fencing will be tied to cattle guards in a manner that ensures juvenile desert tortoises cannot pass through (Service 2010)

33. When gates are installed within the fence line, desert tortoise-proof fencing will be installed along the gate bottom beginning at least 2 feet above the fence bottom and extending towards the ground leaving less than a 1-inch gap (Service 2010).

34. All desert tortoise fences, gates, and cattle guards will be regularly maintained at a frequency sufficient to ensure that they will continually provide an effective barrier to passage of desert tortoises.

35. Desert tortoise-proof fencing will not cross washes. When washes and culverts are encountered, the desert tortoise-proof fence will follow the wash to the roadway and either tie into the existing bridge or cross over the top of a culvert.

36. During fence inspections and repairs, if any desert tortoises are observed, workers are to notify the authorized biologist because only authorized biologists and approved biological monitors are permitted to handle tortoise. All desert tortoises encountered within the roadway side of the fence will be relocated across the fence to safety in accordance with Service protocol (Service 2010). Any such incident will be reported in the annual report.

37. On a case by case basis, individual active burrows may be fenced if the authorized biologist determines this protective measure is necessary to prohibit desert tortoises from repeatedly entering work areas. Fencing around individual burrows will be removed when adjacent construction is complete.

38. To further ensure that actions implemented under the auspices of this consultation do not substantially degrade the status of the desert tortoise or its critical habitat, Caltrans will reinitiate formal consultation in the event either of the following thresholds regarding injury or mortality to desert tortoises or loss or disturbance of their critical habitat is reached:

    a. two (2) desert tortoises injured or killed in any calendar year, within the action area, in each county considered in this biological opinion; or seven (7) desert tortoises injured or killed, within the action area (regardless of county) considered in this biological opinion, in any calendar year; and

    b. five (5) acres located outside of the ultimate rights-of-way containing the primary constituent elements of critical habitat of the desert tortoise are adversely affected on a long-term basis within each of the critical habitat units considered in this biological opinion, in any calendar year.

39. Each Caltrans district in the action area will record with a global positioning system (GPS) all new fence locations, culverts, and under crossings available to the desert tortoise within the range of roads covered by this programmatic biological opinion. All recorded data will be input into a geographical information system (GIS) database and submitted on an annual

basis to the Service to assist with future planning for fencing high priority roadways to reduce vehicle strikes to desert tortoises. The database will be updated as projects install new drainage structures, permanent desert tortoise proof fencing, and other structures such as cattle-guards and desert tortoise proof fencing.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

The jeopardy analysis in this biological opinion relies on four components: (1) the *Status of the Species*, which describes the range-wide condition of the desert tortoise, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which describes the condition of the desert tortoise in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the desert tortoise; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the desert tortoise; and (4) the *Cumulative Effects*, which are the effects of future, non-Federal activities in the action area on the desert tortoise. In accordance with regulation and policy, the jeopardy determination is made by evaluating the effects of the proposed federal action in the context of the current status of the desert tortoise, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the desert tortoise in the wild.

Adverse Modification Determination

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied on the statutory provisions of the ESA to complete the following analysis with respect to critical habitat. In accordance with regulation and policy, the adverse modification analysis in this biological opinion relies on four components: (1) *Status of Species*, which includes a description of the range-wide condition of designated critical habitat for the desert tortoise in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) *Environmental Baseline*, which analyzes the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the PCEs and how that will influence the recovery role of the affected critical habitat units; and (4) *Cumulative Effects*, which evaluates the effects of future non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units. The analysis in this biological opinion places an emphasis on using the intended range-wide recovery function of critical habitat for the desert tortoise and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the adverse modification determination.

STATUS OF THE SPECIES

Section 4(c)(2) of the Act requires the Service to conduct a status review of each listed species at least once every 5 years. The purpose of a 5-year review is to evaluate whether or not the species' status has changed since it was listed (or since the most recent 5-year review); these reviews, at the time of their completion, provide the most up-to-date information on the range-wide status of the species. For this reason, we are appending the 5-year review of the status of the desert tortoise (Appendix 1; Service 2010b) to this biological opinion and are incorporating it by reference to provide most of the information needed for this section of the biological opinion. The following paragraphs provide a summary of the relevant information in the 5-year review.

In the 5-year review, the Service discusses the status of the desert tortoise as a single distinct population segment and provides information on the Federal Register notices that resulted in its listing and the designation of critical habitat. The Service also describes the desert tortoise's ecology, life history, spatial distribution, abundance, habitats, and the threats that led to its listing (i.e., the 5-factor analysis required by section 4(a)(1) of the Act). In the 5-year review, the Service concluded by recommending that the status of the desert tortoise as a threatened species be maintained.

With regard to the status of the desert tortoise as a distinct population segment, the Service concluded in the 5-year review that the recovery units recognized in the original and revised recovery plans (Service 1994 and 2011e, respectively) do not qualify as distinct population segments under the Service's distinct population segment policy (61 Federal Register 4722; February 7, 1996). We reached this conclusion because individuals of the listed taxon occupy habitat that is relatively continuously distributed, exhibit genetic differentiation that is consistent with isolation-by-distance in a continuous-distribution model of gene flow, and likely vary in behavioral and physiological characteristics across the area they occupy as a result of the transitional nature of, or environmental gradations between, the described subdivisions of the Mojave and Colorado deserts.

In the 5-year review, the Service summarizes information with regard to the desert tortoise's ecology and life history. Of key importance to assessing threats to the species and to developing and implementing a strategy for recovery is that desert tortoises are long-lived, require up to 20 years to reach sexual maturity, and have low reproductive rates during a long period of reproductive potential. The number of eggs that a female desert tortoise can produce in a season is dependent on a variety of factors including environment, habitat, availability of forage and drinking water, and physiological condition. Predation seems to play an important role in clutch failure. Predation and environmental factors also affect the survival of hatchlings.

In the 5-year review, the Service also discusses various means by which researchers have attempted to determine the abundance of desert tortoises and the strengths and weaknesses of those methods. The Service provides a summary table of the results of range-wide monitoring, initiated in 2001, in the 5-year review. This ongoing sampling effort is the first comprehensive attempt to determine the densities of desert tortoises across their range. Table 1 of the 5-year review provides a summary of data collected from 2001 through 2007; we summarize data from the 2008 through

2010 sampling efforts in subsequent reports (Service 2010b, 2010c, 2010d). As the Service notes in the 5-year review notes, much of the difference in densities between years is due to variability in sampling; determining actual changes in densities will require many years of monitoring. Additionally, due to differences in area covered and especially to the non-representative nature of earlier sample sites, data gathered by the range-wide monitoring program cannot be reliably compared to information gathered through other means at this time.

In the 5-year review, the Service provides a brief summary of habitat use by desert tortoises; more detailed information is available in the revised recovery plan (Service 2011a). In the absence of specific and recent information on the location of habitable areas of the Mojave Desert, especially at the outer edges of this area, the 5-year review also describes and relies heavily on a quantitative, spatial habitat model for the desert tortoise north and west of the Colorado River that incorporates environmental variables such as precipitation, geology, vegetation, and slope and is based on occurrence data of desert tortoises from sources spanning more than 80 years, including data from the 2001 to 2005 range-wide monitoring surveys (Nussear et al. 2009). The model predicts the probability that desert tortoises will be present in any given location; calculations of the amount of desert tortoise habitat in the 5-year review and in this biological opinion use a threshold of 0.5 or greater predicted value for potential desert tortoise habitat. The model does not account for anthropogenic effects to habitat and represents the potential for occupancy by desert tortoises absent these effects.

To begin integrating anthropogenic activities and the variable risk levels they bring to different parts of the Mojave and Colorado deserts, the Service completed an extensive review of the threats known to affect desert tortoises at the time of their listing and updated that information with more current findings in the 5-year review. The review follows the format of the five-factor analysis required by section 4(a)(1) of the Act. The Service described these threats as part of the process of its listing (55 Federal Register12178; April 2, 1990), further discussed them in the original recovery plan (Service 1994), and reviewed them again in the revised recovery plan (Service 2011).

To understand better the relationship of threats to populations of desert tortoises and the most effective manner to implement recovery actions, the Desert Tortoise Recovery Office is developing a spatial decision support system that models the interrelationships of threats to desert tortoises and how those threats affect population change. The spatial decision support system describes the numerous threats that desert tortoises face, explains how these threats interact to affect individual animals and habitat, and how these effects in turn bring about changes in populations. For example, we have long known that the construction of a transmission line can result in the death of desert tortoises and loss of habitat. In addition, common ravens, known predators of desert tortoises, use transmission line pylons for nesting, roosting, and perching and that the access routes associated with transmission lines provide a vector for the introduction and spread of invasive weeds and facilitate increased human access into an area. Increased human access can accelerate illegal collection and release of desert tortoises and their deliberate maiming and killing, as well as facilitate the spread of other threats associated with human presence, such as vehicle use, garbage and dumping, and invasive plants (Service 2011a). Changes in the abundance of native plants because of invasive weeds can compromise the physiological health of desert

tortoises, making them more vulnerable to drought, disease, and predation. The spatial decision support system allows us to map threats across the range of the desert tortoise and model the intensity of stresses that these multiple and combined threats place on desert tortoise populations.

The threats described in the listing rule and both recovery plans continue to affect the species. Indirect impacts to desert tortoise populations and habitat occur in accessible areas that interface with human activity. Most threats to the desert tortoise or its habitat are associated with human land uses; research since 1994 has clarified many mechanisms by which these threats act on desert tortoises. As stated earlier, increases in human access can accelerate illegal collection and release of desert tortoises and deliberate maiming and killing, as well as facilitate the spread of other threats associated with human presence, such as vehicle use, garbage and dumping, and invasive weeds.

Some of the most apparent threats to the desert tortoise are those that result in mortality and permanent habitat loss across large areas, such as urbanization and large-scale renewable energy projects, and those that fragment and degrade habitats, such as proliferation of roads and highways, off-highway vehicle (OHV) activity, and habitat invasion by non-native invasive plant species. However, we remain unable to quantify how threats affect desert tortoise populations. The assessment of the original recovery plan emphasized the need for a better understanding of the implications of multiple, simultaneous threats facing desert tortoise populations and of the relative contribution of multiple threats on demographic factors (i.e., birth rate, survivorship, fecundity, and death rate; Tracy et al. 2004).

We have enclosed a map that depicts the 12 critical habitat units of the desert tortoise and the aggregate stress that multiple, synergistic threats place on desert tortoise populations (Appendix 2). The map also depicts linkages between conservation areas for the desert tortoise (which include designated critical habitat) recommended in the revised recovery plan (Service 2011a) that are based on an analysis of least-cost pathways (i.e., areas with the highest potential to support desert tortoises) between conservation areas for the desert tortoise. This map illustrates that areas under the highest level of conservation management for desert tortoises remain subjected to numerous threats and stresses, which suggests that current conservation actions for the desert tortoise are not substantially reducing mortality sources for the desert tortoise across its range.

Since the completion of the 5-year review, the Service has issued several biological opinions that affect large areas of desert tortoise habitat because of numerous proposals to develop renewable energy within its range. These biological opinions concluded that proposed solar plants were not likely to jeopardize the continued existence of the desert tortoise primarily because they were located outside of critical habitat and Desert Wildlife Management Areas (DWMAs) that contain most of the land base required for the recovery of the species. The proposed actions also included numerous measures intended to protect desert tortoises during the construction of the projects, such as translocation of affected individuals. Additionally, the Bureau of Land Management (Bureau) and California Energy Commission, the agencies permitting these facilities, have required the project proponents to fund numerous measures, such as land acquisition and the implementation of recovery actions intended to offset the adverse effects of the proposed actions. In aggregate, these projects resulted in an overall loss of approximately 30,180 acres of desert

tortoise habitat; three of the projects (i.e., BrightSource Ivanpah, Stateline Nevada, and Desert Sunlight) constricted linkages between conservation areas that are important for the recovery of the desert tortoise. We also predicted that these projects would translocate, injure, or kill up to 1,621 desert tortoises (see table below); we concluded that most of the individuals in these totals would be juveniles. The mitigation required by the Bureau and California Energy Commission will result in the acquisition of private land within critical habitat and DWMAs and funding for the implementation of various actions that are intended to promote the recovery of the desert tortoise; at this time, we cannot assess how successful these measures will be.

The following table summarizes information regarding the proposed solar projects that have undergone formal consultation with regard to the desert tortoise. Data are from Service (2010d [Chevron Lucerne Valley], f [Calico], g [Genesis], h [Blythe]; 2011f [BrightSource Ivanpah], g [Desert Sunlight], h [Abengoa Harper Lake], i [Palen]; and Burroughs (2012; Nevada projects). Projects are in California, unless noted.

Project	Acres of Desert Tortoise Habitat	Estimated Number of Desert Tortoises Onsite	Recovery Unit
BrightSource Ivanpah	3,582	1,136	Eastern Mojave
Stateline Nevada - NV	2,966	123	Eastern Mojave
Amargosa Farm Road - NV	4,350	4	Eastern Mojave
Calico*			Western Mojave
Abengoa Harper Lake	Primarily in abandoned agricultural fields	4	Western Mojave
Chevron Lucerne Valley	516	10	Western Mojave
Nevada Solar One - NV	400	**	Northeastern Mojave
Copper Mountain North - NV	1,400	30 **	Northeastern Mojave
Copper Mountain - NV	380	**	Northeastern Mojave
Moapa K Road Solar - NV	2,152	202	Northeastern Mojave
Genesis	1,774	8	Colorado
Blythe	6,958	30	Colorado
Palen	1,698	18	Colorado
Desert Sunlight	4,004	56	Colorado
Total	30,180	1,621	

* The applicant has proposed changes to the proposed action; the Bureau has re-initiated formal consultation with the Service, pursuant to section 7(a)(2) of the Endangered Species Act, as part of its re-evaluation of the project (Service 2012a)

** These projects occurred under the Clark County Multi-species habitat conservation plan; we estimate that all three projects combined will affect fewer than 30 desert tortoises.

In addition to the biological opinions issued for solar development within the range of the desert tortoise, the Service (2012a) also issued a biological opinion to the Department of the Army for the use of additional training lands at Fort Irwin. As part of this proposed action, the Army removed approximately 650 desert tortoises from 18,197 acres of the southern area of Fort Irwin, which had been off-limits to training. The Army would also use an additional 48,629 acres that lie east of the former boundaries of Fort Irwin; much of this parcel is either too mountainous or too rocky and low in elevation to support numerous desert tortoises.

As the Service notes in the 5-year review (Service 2010b), "(t)he threats identified in the original listing rule continue to affect the (desert tortoise) today, with invasive species, wildfire, and renewable energy development coming to the forefront as important factors in habitat loss and conversion. The vast majority of threats to the desert tortoise or its habitat are associated with human land uses." Oftedal's work (2002 in Service 2010b) suggests that invasive weeds may adversely affect the physiological health of desert tortoises. Modeling with the spatial decision support system indicates that invasive species likely affect a large portion of the desert tortoise's range; see Appendix 3. Furthermore, high densities of weedy species increase the likelihood of wildfires; wildfires, in turn, destroy native species and further the spread of invasive weeds.

Global climate change is likely to affect the prospects for the long-term conservation of the desert tortoise. For example, predictions for climate change within the range of the desert tortoise suggest more frequent and/or prolonged droughts with an increase of the annual mean temperature by 3.5 to 4.0 degrees Celsius. The greatest increases will likely occur in summer (June-July-August mean increase of as much as 5 degrees Celsius [Christensen et al. 2007 in Service 2010b]). Precipitation will likely decrease by 5 to 15 percent annually in the region, with winter precipitation decreasing by up to 20 percent and summer precipitation increasing by 5 percent. Because germination of the desert tortoise's food plants is highly dependent on cool-season rains, the forage base could be reduced due to increasing temperatures and decreasing precipitation in winter. Although drought occurs routinely in the Mojave Desert, extended periods of drought have the potential to affect desert tortoises and their habitats through physiological effects to individuals (i.e., stress) and limited forage availability. To place the consequences of long-term drought in perspective, Longshore et al. (2003) demonstrated that even short-term drought could result in elevated levels of mortality of desert tortoises. Therefore, long-term drought is likely to have even greater effects, particularly given that the current fragmented nature of desert tortoise habitat (e.g., urban and agricultural development, highways, freeways, military training areas) will make recolonization of extirpated areas difficult, if not impossible.

The Service notes in the 5-year review that the combination of the desert tortoise's late breeding age and a low reproductive rate challenges our ability to achieve recovery. When determining whether a proposed action is likely to jeopardize the continued existence of a species, we are required to consider whether the action would "reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02). Although the Service does not explicitly address these metrics in the 5-year review, we have used the information in that document to summarize the status of the desert tortoise with respect to its reproduction, numbers, and distribution.

In the 5-year review, the Service notes that desert tortoises increase their reproduction in high rainfall years; more rain provides desert tortoises with more high quality food (i.e., plants that are higher in water and protein), which, in turn, allows them to lay more eggs. Conversely, the physiological stress associated with foraging on food plants with insufficient water and nitrogen may leave desert tortoises vulnerable to disease (Oftedal 2002 in Service 2010b), and the reproductive rate of diseased desert tortoises is likely lower than that of healthy animals. Young desert tortoises also rely upon high-quality, low-fiber plants (e.g., native forbs) with nutrient levels

not found in the invasive weeds that have increased in abundance across its range (Tracy et al. 2004). Compromised nutrition of young desert tortoises likely represents an effective reduction in reproduction by reducing the number that reaches adulthood. Consequently, although we do not have quantitative data that show a direct relationship, the abundance of weedy species within the range of the desert tortoise has the potential to negatively affect the reproduction of desert tortoises and recruitment into the adult population.

Data from long-term study plots, which were first established in 1976, cannot be extrapolated to provide an estimate of the number of desert tortoises on a range-wide basis; however, these data indicate, "appreciable declines at the local level in many areas, which coupled with other survey results, suggest that declines may have occurred more broadly" (Service 2010b). Other sources indicate that local declines are continuing to occur. For example, surveyors found "lots of dead [desert tortoises]" in the western expansion area of Fort Irwin (Western Mojave Recovery Unit) in 2008 (Fort Irwin Research Coordination Meeting 2008). After the onset of translocation, coyotes killed 105 desert tortoises in Fort Irwin's southern translocation area (Western Mojave Recovery Unit); other canids may have been responsible for some of these deaths. Other incidences of predation were recorded throughout the range of the desert tortoise during this time (Esque et al. 2010). Esque et al. (2010) hypothesized that this high rate of predation on desert tortoises was influenced by low population levels of typical prey for coyotes due to drought conditions in previous years. Recent surveys in the Ivanpah Valley (Northeastern Mojave Recovery Unit) for a proposed solar facility detected 31 live desert tortoises and the carcasses of 25 individuals that had been dead less than 4 years (Ironwood 2011); this ratio of carcasses to live individuals over such a short period of time may indicate an abnormally high rate of mortality for a long-lived animal. In summary, the number of desert tortoises range-wide likely decreased substantially from 1976 through 1990 (i.e., when long-term study plots were initiated through the time the desert tortoise was listed as threatened), although we cannot quantify the amount of this decrease. Additionally, more recent data collected from various sources throughout the range of the desert tortoise suggest that local declines continue to occur (e.g., Bureau et al. 2005, Esque et al. 2010).

The distribution of the desert tortoise has not changed substantially since the publication of the original recovery plan in 1994 (Service 2010b) in terms of the overall extent of its range. Prior to 1994, desert tortoises were extirpated from large areas within their distributional limits by urban and agricultural development (e.g., cities of Barstow, Lancaster, Las Vegas, St. George; agricultural areas south of Edwards Air Force Base and east of Barstow), military training (e.g., Fort Irwin, Leach Lake Gunnery Range), and off-road vehicle use (e.g., portions of off-road management areas managed by the Bureau and unauthorized use in areas such as east of California City). Since 1994, urban development around Las Vegas has likely been the largest contributor to habitat loss throughout the range. Desert tortoises have been essentially removed from the 18,197-acre southern expansion area at Fort Irwin (Service 2012b).

The following table depicts acreages of habitat (as modeled by Nussear et al. 2009) within various regions of the desert tortoise's range and of impervious surfaces as of 2006 (Xian et al. 2009). Impervious surfaces include paved and developed areas and other disturbed areas that have zero probability of supporting desert tortoises.

Regions[1]	Modeled Habitat (acres)	Impervious Surfaces within Modeled Habitat	Percent of Modeled Habitat that is now Impervious
Western Mojave	7,582,092	1,864,214	25
Colorado Desert	4,948,900	494,981	10
Northeast Mojave	7,776,934	1,173,025	15
Upper Virgin River	232,320	80,853	35
Total	20,540,246	3,613,052	18

[1]The regions do not correspond to recovery unit boundaries; we used a more general separation of the range for this illustration.

On an annual basis, the Service produces a report that provides an up-to-date summary of the factors that were responsible for the listing of the species, describes other threats of which we are aware, describes the current population trend of the species, and includes comments of the year's findings. The Service's (2011d) recovery data call report describes the desert tortoise's status as 'declining,' and notes that "(a)nnual range-wide monitoring continues, but the life history of the desert tortoise makes it impossible to detect annual population increases (continued monitoring will provide estimates of moderate- to long-term population trends). Data from the monitoring program do not indicate that numbers of desert tortoises have increased since 2001. The fact that most threats appear to be continuing at generally the same levels suggests that populations are still in decline. Information remains unavailable on whether mitigation of particular threats has been successful."

In conclusion, we have used the 5-year review (Service 2010b), revised recovery plan (Service 2011), and additional information that has become available since these publications to review the reproduction, numbers, and distribution of the desert tortoise. The reproductive capacity of the desert tortoise may be compromised to some degree by the abundance and distribution of invasive weeds across its range; the continued increase in human access across the desert likely continues to facilitate the spread of weeds and further affect the reproductive capacity of the species. Prior to its listing, the number of desert tortoises likely declined range-wide, although we cannot quantify the extent of the decline; since the time of listing, data suggest that declines have occurred in local areas throughout the range. The continued increase in human access across the desert continues to expose more desert tortoises to the potential of being killed by human activities. The distributional limits of the desert tortoise's range have not changed substantially since the issuance of the original recovery plan in 1994; however, desert tortoises have been extirpated from large areas within their range (e.g., Las Vegas, other desert cities). The species' low reproductive rate, the extended time required for young animals to reach breeding age, and the multitude of threats that continue to confront desert tortoises combine to render its recovery a substantial challenge.

Critical Habitat

The Service designated critical habitat for the desert tortoise in portions of California, Nevada, Arizona, and Utah in a final rule, published February 8, 1994 (59 Federal Register 5820). Critical habitat is designated by the Service to identify the key biological and physical needs of the species and key areas for recovery and to focus conservation actions on those areas. Critical habitat is

composed of specific geographic areas that contain the biological and physical features essential to the species' conservation and that may require special management considerations or protection. These features, which include space, food, water, nutrition, cover, shelter, reproductive sites, and special habitats, are called the primary constituent elements of critical habitat. The specific primary constituent elements of desert tortoise critical habitat are: 1) sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow; 2) sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; 3) suitable substrates for burrowing, nesting, and overwintering; 4) burrows, caliche caves, and other shelter sites; 5) sufficient vegetation for shelter from temperature extremes and predators; and 6) habitat protected from disturbance and human-caused mortality.

Critical habitat of the desert tortoise would not be able to fulfill its conservation role without each of the primary constituent elements being functional. As examples, having a sufficient amount of forage species is not sufficient if human-caused mortality is excessive; an area with sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow would not support desert tortoises without adequate forage species.

The final rule for designation of critical habitat did not explicitly ascribe specific conservation roles or functions to the various critical habitat units. Rather, it refers to the strategy of establishing recovery units and desert wildlife management areas recommended by the recovery plan for the desert tortoise, which had been published as a draft at the time of the designation of critical habitat, to capture the "biotic and abiotic variability found in desert tortoise habitat" (59 Federal Register 5820, see page 5823). Specifically, we designated the critical habitat units to follow the direction provided by the draft recovery plan (Service 1994) for the establishment of desert wildlife management areas. The critical habitat units in aggregate are intended to protect the variability that occurs across the large range of the desert tortoise; the loss of any specific unit would compromise the ability of critical habitat as a whole to serve its intended function and conservation role.

Despite the fact that desert tortoises are not required to move between critical habitat units to complete their life histories, both the original and revised recovery plans highlight the importance of these critical habitat units and connectivity between them for the recovery of the species. Specifically, the revised recovery plan states that "aggressive management as generally recommended in the 1994 Recovery Plan needs to be applied within existing (desert) tortoise conservation areas (defined as critical habitat, among other areas being managed for the conservation of desert tortoises) or other important areas … to ensure that populations remain distributed throughout the species' range …. (Desert tortoise) conservation areas capture the diversity of the Mojave population of the desert tortoise within each recovery unit, conserving the genetic breadth of the species, providing a margin of safety for the species to withstand catastrophic events, and providing potential opportunities for continued evolution and adaptive change …. Especially given uncertainties related to the effects of climate change on desert tortoise populations and distribution, we consider (desert) tortoise conservation areas to be the minimum baseline within which to focus our recovery efforts (pages 34 and 35, Service 2011a)."

We did not designate the Desert Tortoise Natural Area and Joshua Tree National Park in California and the Desert National Wildlife Refuge in Nevada as critical habitat because they are "primarily managed as natural ecosystems" (59 Federal Register 5820, see page 5825) and provide adequate protection to desert tortoises. Since the designation of critical habitat, Congress increased the size of Joshua Tree National Park and created the Mojave National Preserve. A portion of the expanded boundary of Joshua Tree National Park lies within critical habitat of the desert tortoise; portions of other critical habitat units lie within the boundaries of the Mojave National Preserve.

Within each critical habitat unit, both natural and anthropogenic factors affect the function of the primary constituent elements of critical habitat. As an example of a natural factor, in some specific areas within the boundaries of critical habitat, such as within and adjacent to dry lakes, some of the primary constituent elements are naturally absent because the substrate is extremely silty; desert tortoises do not normally reside in such areas. Comparing the model of desert tortoise habitat developed by Nussear et al. (2009) to the gross acreages of the critical habitat units demonstrates quantitatively that the entire area within the boundaries of critical habitat likely does not support the primary constituent elements. As an example, the following table demonstrates this information; the acreage for modeled habitat is for the area in which the probability that desert tortoises are present is greater than 0.5. The acreages of modeled habitat are from Service (2010a); they do not include loss of habitat due to human-caused impacts.

Critical Habitat Unit	**Gross Acreage**	**Modeled Habitat**
Superior-Cronese	766,900	724,967
Fremont-Kramer	518,000	501,095
Ord-Rodman	253,200	184,155
Pinto Mountain	171,700	144,056
Piute-Eldorado	970,600	930,008
Ivanpah Valley	632,400	510,711
Chuckwalla	1,020,600	809,319
Chemehuevi	937,400	914,505
Gold Butte-Pakoon	488,300	418,189
Mormon Mesa	427,900	407,041
Beaver Dam Slope	204,600	202,499
Upper Virgin River	54,600	46,441
Totals	6,446,200	5,792,986

Condition of the Primary Constituent Elements of Critical Habitat

Human activities can have obvious or more subtle effects on the primary constituent elements. The grading of an area and subsequent construction of a building removes the primary constituent elements of critical habitat; this action has an obvious effect on critical habitat. The revised recovery plan identifies human activities such as urbanization and the proliferation of roads and highways as threats to the desert tortoise and its habitat; these threats are examples of activities that have a clear impact on the primary constituent elements of critical habitat.

We have included the following paragraphs from the revised recovery plan for the desert tortoise (Service 2011) to demonstrate that other anthropogenic factors affect the primary constituent

elements of critical habitat in more subtle ways. All references are in the revised recovery plan (i.e., in Service 2011); we have omitted some information from the revised recovery plan where the level of detail was unnecessary for the current discussion.

> Surface disturbance from OHV activity can cause erosion and large amounts of dust to be discharged into the air. Recent studies on surface dust impacts on gas exchanges in Mojave Desert shrubs showed that plants encrusted by dust have reduced photosynthesis and decreased water-use efficiency, which may decrease primary production during seasons when photosynthesis occurs (Sharifi et al. 1997). Sharifi et al. (1997) also showed reduction in maximum leaf conductance, transpiration, and water-use efficiency due to dust. Leaf and stem temperatures were also shown to be higher in plants with leaf-surface dust. These effects may also impact desert annuals, an important food source for [desert] tortoises.
>
> OHV activity can also disturb fragile cyanobacterial-lichen soil crusts, a dominant source of nitrogen in desert ecosystems (Belnap 1996). Belnap (1996) showed that anthropogenic surface disturbances may have serious implications for nitrogen budgets in cold desert ecosystems, and this may also hold true for the hot deserts that [desert] tortoises occupy. Soil crusts also appear to be an important source of water for plants, as crusts were shown to have 53 percent greater volumetric water content than bare soils during the late fall when winter annuals are becoming established (DeFalco et al. 2001). DeFalco et al. (2001) found that non-native plant species comprised greater shoot biomass on crusted soils than native species, which demonstrates their ability to exploit available nutrient and water resources. Once the soil crusts are disturbed, non-native plants may colonize, become established, and out-compete native perennial and annual plant species (DeFalco et al. 2001, D'Antonio and Vitousek 1992). Invasion of non-native plants can affect the quality and quantity of plant foods available to desert tortoises. Increased presence of invasive plants can also contribute to increased fire frequency.
>
> Proliferation of invasive plants is increasing in the Mojave and Sonoran deserts and is recognized as a significant threat to desert tortoise habitat. Many species of non-native plants from Europe and Asia have become common to abundant in some areas, particularly where disturbance has occurred and is ongoing. As non-native plant species become established, native perennial and annual plant species may decrease, diminish, or die out (D'Antonio and Vitousek 1992). Land managers and field scientists identified 116 species of non-native plants in the Mojave and Colorado deserts (Brooks and Esque 2002).
>
> Increased levels of atmospheric pollution and nitrogen deposition related to increased human presence and combustion of fossil fuels can cause increased levels of soil nitrogen, which in turn may result in significant changes in plant communities (Aber et al. 1989). Many of the non-native annual plant taxa in the Mojave region evolved in more fertile Mediterranean regions and benefit from increased levels of soil nitrogen, which gives them a competitive edge over native annuals. Studies at three sites within the central, southern, and western Mojave Desert indicated that increased levels of soil nitrogen can increase the dominance of non-native annual plants and promote the invasion of new species in desert regions. Furthermore, increased dominance by non-native annuals may decrease the diversity of native annual plants,

> and increased biomass of non-native annual grasses may increase fire frequency (Brooks 2003).

This summary from the revised recovery plan (Service 2011) demonstrates how the effects of human activities on habitat of the desert tortoise are interconnected. In general, surface disturbance causes increased rates of erosion and generation of dust. Increased erosion alters additional habitat outside of the area directly affected by altering the nature of the substrate, removing shrubs, and possibly destroying burrows and other shelter sites. Increased dust affects photosynthesis in the plants that provide cover and forage to desert tortoises. Disturbed substrates and increased atmospheric nitrogen enhance the likelihood that invasive species will become established and outcompete native species; the proliferation of weedy species increases the risk of large-scale fires, which further move habitat conditions away from those that are favorable to desert tortoises. The following paragraphs generally describe how the primary constituent elements are affected by the threats described in the revised recovery plan.

Sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow. Urban and agricultural development, concentrated use by off-road vehicles, and other activities of this nature completely remove habitat. Although we are aware of local areas within the boundaries of critical habitat that have been heavily disturbed by the unauthorized use of such activities, we do not know of any areas that have been disturbed to the intensity and extent that this primary constituent element has been compromised. To date, the largest losses of critical habitat are likely the result of the widening of existing freeways. Despite these losses of critical habitat, which occur in a linear manner, the critical habitat units continue to support sufficient space to support viable populations within each of the six recovery units.

In some cases, major roads likely disrupt the movement, dispersal, and gene flow of desert tortoises. State Route (SR) 58 and SR 395 in the Fremont-Kramer Critical Habitat Unit and Fort Irwin Road in the Superior-Cronese Critical Habitat Unit are examples of large and heavily travelled roads that likely disrupt movement, dispersal, and gene flow. Roads that have been fenced and provided with underpasses may alleviate this fragmentation to some degree; however, such facilities have not been in place for sufficient time to determine whether they would eliminate this effect.

The threats of invasive plant species described in the revised recovery plan generally do not result in the removal of this primary constituent element because they do not convert habitat into impervious surfaces, such as urban development would.

Sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species. This primary constituent element addresses the ability of critical habitat to provide adequate nutrition to desert tortoises. As described in the revised recovery plan and 5-year review, grazing, historical fire, invasive plants, altered hydrology, drought, wildfire potential, fugitive dust, and climate change/temperature extremes contribute to the stress of "nutritional compromise." Paved and unpaved roads through critical habitat of the desert tortoise provide avenues by which invasive native species disperse; these legal routes also provide the means by which unauthorized use occurs over large areas of critical habitat. Nitrogen deposition

from atmospheric pollution likely occurs throughout all the critical habitat units and exacerbates the effects of the disturbance of substrates. Because paved and unpaved roads are so widespread through critical habitat, we expect that this threat has, to some degree, compromised the conservation value and function of critical habitat throughout the range of the desert tortoise. Appendix 2 depicts the routes by which invasive weeds have access to critical habitat; we expect that the routes shown on this map are a subset of the actual number of routes that actually cross critical habitat of the desert tortoise.

Suitable substrates for burrowing, nesting, and overwintering. Surface disturbance, motor vehicles traveling off route, use of OHV management areas, OHV events, unpaved roads, grazing, historical fire, wildfire potential, altered hydrology, and climate change leading to shifts in habitat composition and location, storms, and flooding can alter substrates to the extent that they are no longer suitable for burrowing, nesting, and overwintering; erosion caused by these activities can alter washes to the extent that desert tortoise burrows placed along the edge of a wash, which is a preferred location for burrows, could be destroyed. We expect that the area within critical habitat that is affected by off-road vehicle use to the extent that substrates are no longer suitable is relatively small in relation to the area that desert tortoises have available for burrowing, nesting, and overwintering; consequently, we expect that off-road vehicle use does not have a substantial effect on this primary constituent element.

Most livestock allotments have been eliminated from within the boundaries of critical habitat. Additionally, we expect that livestock would compact substrates to the extent that they would become unsuitable for burrowing, nesting, and overwintering only in areas of concentrated use, such as around watering areas and corrals. Because livestock grazing occurs over a relatively small portion of critical habitat and the substrates in most areas within livestock allotments would not be substantially affected, we expect that suitable substrates for burrowing, nesting, and overwintering remain throughout most of the critical habitat units.

Burrows, caliche caves, and other shelter sites. We expect that human-caused effects to burrows, caliche caves, and other shelter sites likely occur at a similar rate as effects to substrates for burrowing, nesting, and overwintering for the same general reasons. Consequently, we expect that sufficient burrows, caliche caves, and other shelter sites remain throughout most of the critical habitat units.

Sufficient vegetation for shelter from temperature extremes and predators. In general, sufficient vegetation for shelter from temperature extremes and predators remains throughout critical habitat. In areas where large fires have occurred in critical habitat, many of the shrubs that provide shelter from temperature extremes and predators have been destroyed; in such areas, cover sites may be a limiting factor. The proliferation of invasive plants poses a threat to shrub cover throughout critical habitat as the potential for larger wildfires increases.

In 2005, wildfires in Nevada, Utah, and Arizona burned extensive areas of critical habitat (Service 2010a). Although different agencies report slightly different acreages, the following table provides an indication of the scale of the fires.

Critical Habitat Unit	Total Area Burned (acres)	Percent of the Critical Habitat Unit Burned
Beaver Dam Slope	53,528	26
Gold-Butte Pakoon	65,339	13
Mormon Mesa	12,952	3
Upper Virgin River	10,557	19

The revised recovery plan notes that the fires caused statistically significant losses of perennial plant cover, although patches of unburned shrubs remained. Given the patchiness with which the primary constituent elements of critical habitat are distributed across the critical habitat units and the varying intensity of the wildfires, we cannot quantify precisely the extent to which these fires disrupted the function and value of the critical habitat.

Habitat protected from disturbance and human-caused mortality. In general, the Federal agencies that manage lands within the boundaries of critical habitat have adopted land management plans that include implementation of some or all of the recommendations contained in the original recovery plan for the desert tortoise. (See pages 70 to 72 of Service 2010a.) To at least some degree, the adoption of these plans has resulted in the implementation of management actions that are likely to reduce the disturbance and human-caused mortality of desert tortoises. For example, these plans resulted in the designation of open routes of travel and the legal closure (and, in some cases, physical closure) of unauthorized routes. Numerous livestock allotments have been relinquished by the permittees and retired by the Bureau and National Park Service. As a result of planning efforts, the Bureau's record of decision included direction to withdraw areas of critical habitat from mineral entry. As a result of actions on the part of various agencies, many miles of highways and other paved roads have been fenced to prevent desert tortoises from wandering into traffic and being killed. The Service and other agencies of the Desert Managers Group in California are implementing a plan to remove common ravens that prey on desert tortoises and to undertake other actions that would reduce subsidies (i.e., food, water, sites for nesting, roosting, and perching) that facilitate their abundance in the California desert (Service 2008).

Despite the implementation of these actions, disturbance and human-caused mortality continue to occur in many areas of critical habitat (which overlap the desert wildlife management areas to a large degree and are the management units for which most data are collected) to the extent that the conservation value and function of critical habitat is, to some degree, compromised. For example, many highways and other paved roads in California remain unfenced. Twelve desert tortoises have been reported to be killed on paved roads from within Mojave National Preserve in 2011; we fully expect that desert tortoises are being killed at similar rates on many other roads, although these occurrences are not discovered and reported as diligently as by the National Park Service. Employees of the Southern California Gas Company reported two desert tortoises in 2011 that were crushed by vehicles on unpaved roads.

Unauthorized off-road vehicle use continues to disturb habitat and result in cleared areas within the boundaries of critical habitat (e.g., Coolgardie Mesa in the Western Mojave Recovery Unit); although we have not documented the death of desert tortoises as a result of this activity, it likely occurs. Additionally, the habitat disturbance caused by this illegal activity exacerbates the spread

of invasive plants, which displace native plants that are important forage for the desert tortoise, thereby increasing the physiological stress faced by desert tortoises.

Although the Bureau has approved through its land use planning processes the withdrawal of areas of critical habitat from mineral entry, the Bureau has not undertaken the administrative procedures to complete withdrawals in all areas. Absent this withdrawal, new mining claims can be filed and further disturbance of critical habitat would likely occur.

Finally, the Bureau has not allowed the development of solar power plants within the boundaries of its desert wildlife management areas, which largely correspond to the boundaries of critical habitat. Conversely, the Bureau is considering the approval of at least one wind energy facility within critical habitat, while the County of San Bernardino is also circulating planning documents for the construction and operation of at least two such facilities within the boundaries of the Superior-Cronese Critical Habitat Unit.

Summary of the Status of Critical Habitat of the Desert Tortoise

As noted in the revised recovery plan for the desert tortoise and 5-year review (Service 2011a, 2010a), critical habitat of the desert tortoise is subject to landscape level impacts in addition to the site-specific effects of individual human activities. On the landscape level, atmospheric pollution is increasing the level of nitrogen in desert substrates; the increased nitrogen exacerbates the spread of invasive plants, which out compete the native plants necessary for desert tortoises to survive. As invasive plants increase in abundance, the threat of large wildfires increases; wildfires have the potential to convert the shrubland-native annual plant communities upon which desert tortoises depend to a community with fewer shrubs and more invasive plants. In such a community, shelter and forage would be more difficult for desert tortoises to find.

Invasive plants likely have already compromised the conservation value and function of critical habitat to some degree with regard to the second primary constituent element (i.e., sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species). These effects likely extend to the entirety of critical habitat, given the numerous routes by which invasive plants can access critical habitat and the large spatial extent that is subject to nitrogen from atmospheric pollution. Appendix 2 demonstrates the extent of the threat of invasive plants; Appendix 3 illustrates the 12 critical habitat units of the desert tortoise and the aggregate stress that multiple threats, including invasive plants, place on critical habitat.

We also expect that critical habitat has also been compromised to some degree with regard to the last primary constituent element (i.e., habitat protected from disturbance and human-caused mortality) as a result of the wide variety of human activities that continues to occur within its boundaries. These effects result from the implementation of discrete human activities and are thus more site-specific in nature.

Although the remaining primary constituent elements have been affected to some degree by human activities, we expect that these impacts have not, to date, substantially compromised the conservation value and function of the critical habitat units. We have reached this conclusion

primarily because we expect the impacts to be more localized and thus not affect the conservation value and function over large areas of critical habitat.

Land managers have undertaken actions to improve the status of critical habitat. For example, as part of its efforts to offset the effects of the use of additional training maneuver lands at Fort Irwin (Service 2004), the Army acquired the private interests in the Harper Lake and Cronese Lakes allotments, which are located within critical habitat in the Western Mojave Recovery Unit; as a result, cattle have been removed from these allotments. (On April 20, 1994, the Service issued a biological opinion that evaluated the effects of cattle grazing on critical habitat of the desert tortoise, which had recently been designated; the Service concluded that the Bureau's rangewide cattle grazing program was not likely to adversely modify critical habitat of the desert tortoise (Service 1994). Numerous other allotments have been retired through various means throughout the range of the desert tortoise. The retirement of allotments assisted in the recovery of the species by eliminating disturbance to the primary constituent elements of critical habitat by cattle and range improvements.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) of the Act define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 C.F.R. 402.02). For the purposes of this biological opinion, we consider the action area to include the areas within Caltrans' ROW along the State highway system, within the range of the desert tortoise in California under the jurisdictions of the VFWO and PSFWO that are not included in approved habitat conservation plans. The action area also includes a minimal amount of desert tortoise habitat that would be disturbed during seismic testing conducted outside Caltrans ROW and during minor improvements (e.g., fence maintenance) to existing State points of entry.

The action area includes the acres in the counties indicated in Table 1 below, along with the specific acreage in each county in the action area. The acres that are included in Table 1 comprise the action area except for the small amount of habitat that would be disturbed by seismic testing.

The total acres in each county are divided between those acres that are within critical habitat for the desert tortoise, and those acres that are not within designated critical habitat, but are still within the range of the desert tortoise.

County	Acres in Critical Habitat	Acres outside Critical Habitat	Caltrans District
Kern	145	1,030	6
Los Angeles	0	242	7
San Bernardino	1,485	1,062	8
Riverside	242	150	8
Inyo	0	678	9
Imperial	747	96	11
Total acres	2,619	3,258	

Status of the Desert Tortoise in the Action Area

Caltrans did not conduct surveys for desert tortoises within the action area because the specific projects they may conduct under the auspices of this biological opinion have not been identified. However, research has shown that the density of desert tortoises is lower adjacent to existing roads than in more isolated areas (Nicholson 1978, Boarman and Sazakai 1996, von Seckendorff Hoff and Marlow 2002). Although we know that desert tortoises are frequently struck by vehicles and killed when they attempt to cross roads, we do not know if this mortality is solely responsible for the lowered density; poaching, habitat degradation, and noise from vehicle traffic may also be factors. Also, the quality of desert tortoise habitat adjacent to existing roads is often degraded as a result of non-native plant species and frequent disturbance of substrates resulting from the use of the roads. Therefore, because the action area includes previously disturbed areas near existing structures and the ROW along the State Highway system, we expect the action area to support lower densities of desert tortoises than adjacent areas outside of the ultimate ROW.

Status of Critical Habitat in the Action Area

Because of the nature of this consultation, Caltrans did not conduct surveys to assess the condition of the primary constituent elements of critical habitat within the action area. We assume that roadways (and the appurtenant ROW) that existed prior to the critical habitat designation have been degraded to some degree, and that existing ROW are not in pristine condition. Therefore, based upon our general knowledge of critical habitat in the vicinity of roads, we provide the following assessment of the likely condition of each primary constituent element adjacent to roadways within the action area:

Sufficient Space to Support Viable Populations Within Each of the Six Recovery Units and to Provide for Movement, Dispersal, and Gene Flow. All of the actions that would occur under the auspices of this consultation are likely to be located in the immediate vicinity of roadways; the vast majority would be within Caltrans' ROW. This area comprises a small portion of the critical habitat units in the action area. They are also linear segments of the critical habitat units, with a large edge-to-area ratio; such configuration is the least desirable from the perspective of establishing reserve areas. For these reasons, the areas where projects will occur currently do not support sufficient space to support viable populations; they are also not configured appropriately for the purposes of conservation.

Many of the roadways within the action area support volumes of traffic that likely prevent most desert tortoises from crossing them. In these cases, the existing road likely precludes movement, dispersal, and gene flow of desert tortoises. Portions of a few roads, such as SR 58 and Interstate 15, have been fenced to preclude entry by desert tortoises; desert tortoises can use culverts and undercrossings to move from one side of the road to the other.

Sufficient Quality and Quantity of Forage Species and the Proper Soil Conditions to Provide for the Growth of these Species. In the immediate vicinity of highly traveled roads, we expect that the quality and quantity of forage species have been substantially diminished due to routine use by vehicles and maintenance activities; we also expect that soil conditions have been highly altered by the frequent use. The condition of the habitat generally improves as distance from the road

increases; we expect this factor to hold for this and the remaining primary constituent elements of critical habitat.

Suitable Substrates for Burrowing, Nesting, and Overwintering. In general, roads will affect the ability of substrates to support burrowing, nesting, and overwintering in the same manner discussed in the previous paragraph. Shelter sites may be more abundant closer to roads in areas where rugged terrain precludes use and maintenance of roadside areas.

Burrows, Caliche Caves, and Other Shelter Sites. Again, roads will affect the ability of the area to support burrows, caliche caves, and other shelter sites; high levels of disturbance will generally eliminate these sites in most substrates. Burrows, caliche caves, and other shelter sites may be more abundant closer to roads in areas where rugged terrain precludes use and maintenance of roadside areas.

Sufficient Vegetation for Shelter from Temperature Extremes and Predators. The use and maintenance of roads generally results in the degradation of shrubs adjacent to heavily used roads. In some cases, such as where large scale road construction projects have occurred, shrubby vegetation has been completely removed and is highly unlikely to return.

Habitat Protected from Disturbance and Human-Caused Mortality. Roads can be a constant source of disturbance and human-caused mortality of desert tortoises in an area. Disturbance occurs as a result of general use, maintenance, and vehicle-related fires. Desert tortoises are crushed by vehicles that are using the roads; roads also serve as access to others who collect desert tortoises illegally. In general, habitat is not well protected from disturbance and human-caused mortality along roads. Fencing seems to reduce the incidence of mortality associated with road-killed desert tortoises.

In general, the condition of the primary constituent elements of critical habitat improves as the distance from a road increases because the amount of disturbance associated with the road decreases. Primary constituent elements adjacent to roads that do not receive heavy traffic and extensive maintenance generally are more capable of supporting the conservation functions because of the decreased amount of disturbance.

EFFECTS OF THE ACTION

Effects to the desert tortoise from the construction and maintenance activities being considered in this biological opinion include injury or mortality during construction, movement of desert tortoises out of harm's way, and predation by common ravens and other predators attracted to the construction sites. We did not analyze the effects of the existing roads themselves on the desert tortoise.

Injury or Mortality During Construction

Desert tortoises may be injured or killed by vehicles that strike individuals, bury occupied burrows, or trap desert tortoises in steep-sided excavations left as a result of work activities.

However, Caltrans will install desert tortoise exclusion fencing around each construction site and conduct a clearance survey to collect and move all desert tortoises found to suitable nearby habitat. Caltrans will employ only qualified biologists to conduct these surveys. For this reason, we anticipate that construction is unlikely to kill larger desert tortoises. Some potential always exists that surveyors may miss an individual during initial surveys or a desert tortoise may enter a work site through a temporary breach in the fence; in such instances, work activities could kill or injure it. Juvenile desert tortoises and eggs are difficult to detect during surveys; therefore, the potential exists that surveyors may miss them and they may remain in the work areas during construction. Because desert tortoise densities are generally lower adjacent to roads (Nicholson 1978, Boarman and Sazakai 1996, von Seckendorff Hoff and Marlow 2002), we assume few desert tortoises will occur in the action area (generally within ROW) and that even fewer are likely to avoid detection during surveys.

Construction noise has the potential to adversely affect the desert tortoise. The recovery plan notes that loud noises (and associated vibrations) may damage the hearing apparatus of desert tortoises (Service 1994). Such an injury could result in their being unable to communicate with other desert tortoises or unable to hear predators. The loss of the ability to communicate could affect reproductive efforts. The loss in the ability to hear predators could result in direct mortality. To avoid and minimize noise impacts, desert tortoises will be moved from project action areas, particularly areas where blasting will occur. In addition, desert tortoises within proximity of the blasting area will be relocated and burrows within the blast zone may be covered to reduce impacts from flying debris.

Capture and Removal of Desert Tortoises from the Project Sites

Caltrans will collect all desert tortoises observed within each project site during pre-project clearance surveys and move them into adjacent suitable habitat. We cannot predict how many desert tortoises would be removed during clearance surveys. However, as we discussed in the previous section, we anticipate few desert tortoises will occur in the action area due to its proximity to existing roadways, therefore, we expect that few would need to be captured and relocated.

Some potential exists that capturing desert tortoises may cause elevated levels of stress that may render these animals more susceptible to disease. Because Caltrans will use experienced biologists approved by the Service and approved handling techniques, collected desert tortoises are unlikely to suffer substantially elevated stress levels.

The translocation of any desert tortoises from the project area into surrounding habitat may disrupt the behavior and social structure of resident animals. However, because the action area considered in this biological opinion consists of the ROW along existing roadways and small isolated areas outside of the ROW where seismic testing or improvements to State Ports of Entry may be located, the action area will be linear and generally less than 100 feet wide at any given location. Those areas that may be affected by seismic work or improvements to State Points of Entry, outside the ROW, will be relatively small and inconsequential, and in close proximity to existing roadways, or other developed areas, where habitat is degraded. For this reason, projects are unlikely to affect

the entire home range of any desert tortoise. Therefore, desert tortoises are likely to be moved within their own home ranges where little threat exists that relocation will disrupt the behavior and social structure of other resident animals.

Relocated desert tortoises may attempt to travel back to the area from which they were collected. This effort could result in the desert tortoise moving into an active construction area where the likelihood of being injured or killed is greater. The relocated desert tortoise could also move around an exclusion fence and ultimately onto a roadway where it could be struck by motor vehicles or collected by passersby. Relocated adult desert tortoises may continue to disperse and never establish a territory resulting in no reproductive effort and the loss of offspring to maintain population viability. Because we anticipate most, if not all, desert tortoises would be moved a short distance within their home ranges, we do not expect them to try and return to the collection site or continue to disperse.

Predation

Human activities often attract predators of the desert tortoise such as the common raven and coyote. To avoid and minimize adverse effects from predators, employees at construction sites will remove all food related trash from the work site on a daily basis. This measure should greatly reduce the likelihood the predators will be attracted to work sites. Compliance with this measure will be monitored by the resident engineer and biologist(s) authorized to work on the project.

Effects on Critical Habitat

The roadways and State Ports of Entry that would be improved now exist. Improvements would occur within the ROW and in some other small areas outside of the ROW. Caltrans has proposed to reinitiate consultation if more than 5 acres located outside of the ultimate ROW containing the primary constituent elements of critical habitat of the desert tortoise are adversely affected on a long-term basis within each critical habitat unit considered in this biological opinion, in any calendar year. Five acres is an inconsequential amount of critical habitat that may be lost as a result of the proposed action in comparison with the amount of critical habitat that would still be available for desert tortoises within the affected critical habitat units. Additionally, because of the nature of the actions that would be implemented under the provisions of this consultation, the five acres will be scattered throughout the action area; under this scenario, the effects of the loss of these relatively small areas of critical habitat on any given critical habitat unit would be insignificant.

Furthermore, as we discussed in the Environmental Baseline - Status of Critical Habitat in the Action Area section of this biological opinion, the action area will generally occur in highly degraded areas of low habitat value to the desert tortoise because of disturbance associated with use and maintenance of the road. For example, with regard to “sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow” (the first primary constituent element), the areas adjacent to roads where work would occur would generally be linear in shape and small in size relative to the amount of habitat needed to conserve desert tortoises; additionally, the existing road may already prevent movement, dispersal,

and gene flow to a large degree. Thus, any effects to this primary constituent element would not be measurable when considered in light of the existing conditions and in comparison with the general sizes of the critical habitat units. (For example, the Pinto Mountain Critical Habitat Unit, at approximately 171,700 acres, is the smallest critical habitat unit in the action area. Even if the entire Caltrans right-of-way along SR 62 that intersected the Pinto Mountain Critical Habitat Unit was disturbed [i.e., approximately 200 feet wide by 50 miles], only approximately 0.7 percent of the critical habitat unit would be affected.)

The second through fifth primary constituent elements (sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators) relate to very specific biological and physical attributes of critical habitat. Again, as we discussed in the Environmental Baseline - Status of Critical Habitat in the Action Area section of this biological opinion, routine use and maintenance of roads generally degrade the quality of these primary constituent elements in the area adjacent to the roadway. Generally, the amount of degradation decreases with distance from the road and is less intense along less heavily used roads. As we discussed in the previous paragraph, the amount of the primary constituent elements that may be disturbed in the action area would constitute, at most, a very small fraction of the critical habitat within the action area.

The final primary constituent element, habitat protected from disturbance and human-caused mortality, is generally absent from areas adjacent to roads. As in the other primary constituent elements, the quality of the critical habitat in this regard increases as the distance from the roadway increases.

In summary, the conservation function of the critical habitat units will not be impaired in any measurable manner by the proposed action, primarily because the amount of disturbance would be relatively minor, compared to the sizes of the critical habitat units in the action area. Furthermore, large, intact blocks of critical habitat would not be affected by the proposed highway improvements and small projects because the vast majority of this work will occur in areas that are already substantially degraded due to the presence of existing highways and roads.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this programmatic biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any non-federal actions that are reasonably certain to occur in the action area. The vast majority of activities that may occur in the ROW would likely be linked to work on the highways and roads, so we expect that most actions in these areas will have some Federal nexus. Outside of the Caltrans ROW but still in the action area, much of the desert tortoise habitat is under the control of the Bureau or other federal agency, so actions in those areas would be subject to section 7 consultation and not part of the cumulative effects.

CONCLUSION

Desert Tortoise

After reviewing the current status of the desert tortoise, the environmental baseline for the action area, the effects of the proposed highway small projects and operational improvements, and the cumulative effects, it is the Service's biological opinion that the small projects and operational improvements, as proposed by Caltrans, are not likely to jeopardize the continued existence of the desert tortoise. We have reached this conclusion because:

1. Caltrans has proposed numerous measures to avoid or minimize mortality and injury of desert tortoises during construction;

2. The area to be directly affected constitutes a small portion of the range of the desert tortoise;

3. The habitat that would be adversely affected by the proposed action does not support high densities of desert tortoise due to the presence of existing roadways; and

4. We expect few desert tortoises to be injured or killed.

Critical Habitat

After reviewing the current status of the critical habitat of the desert tortoise, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the small projects and operational improvements, as proposed by Caltrans, are not likely to destroy or adversely modify critical habitat of the desert tortoise. We have reached this conclusion because:

1. The proposed actions would occur in areas where the primary constituent elements have been degraded, or are absent, due to the proximity of existing roadways;

2. The amount of critical habitat that would be affected within, and adjacent to the ROWs, is relatively small in comparison with the amount and quality of suitable habitat that would be available for desert tortoises within the remainder of the affected critical habitat units; and

3. Given the condition of the primary constituent elements in the ROW and the quantity of critical habitat that would be affected, the conservation functions of the critical habitat would not be impaired by the proposed actions.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to

harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service as an act which actually kills or injures wildlife. Such acts may include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The protective measures described in this biological opinion are non-discretionary and must be undertaken by the FHWA and Caltrans or made binding conditions of any grant or permit issued to contractors, as appropriate, for the exemption in section 7(o)(2) to apply. The FHWA and Caltrans have a continuing duty to regulate the activity covered by this incidental take statement. If the FHWA or Caltrans fails to assume and implement the protective measures and terms and conditions or fails to require contractors to adhere to the protective measures and terms and conditions of the incidental take statement through enforceable terms that are added to construction contracts, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the FHWA and Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(I)(3)].

Because of the limited size of the operational improvements and small projects, the location of most projects in previously disturbed areas, and the measures proposed by the FHWA and Caltrans to avoid or minimize the amount of incidental take, the Service anticipates that the proposed actions are likely to result in few injuries to or mortalities of desert tortoises; however, desert tortoises are mobile, not entirely predictable in their activity patterns, can dig new burrows in previously inspected areas over time, and desert tortoise hatchlings and their burrows are particularly difficult to detect because of their small size. Therefore, we anticipate that some incidental take may occur. We are unable to anticipate precisely the number of desert tortoises that may be killed or injured during small projects and operation improvement activities. Caltrans has proposed to reinitiate consultation if two (2) desert tortoises are injured or killed in any county within the action area in any calendar year or if seven (7) desert tortoises are injured or killed in the action area (regardless of county) in any calendar year. Consequently, we anticipate that the amount of take, in the form of injury or mortality, will not exceed these numbers each year.

Caltrans has also proposed to capture and relocate any desert tortoises found in the action area and in harm's way. All desert tortoises found within the areas proposed for highway improvement or maintenance may be captured and relocated. Based on the disturbed nature of the habitat within the action area and the low density of desert tortoises likely to be found adjacent to roadways (Nicholson 1978, Boarman and Sazakai 1996, von Seckendorff Hoff and Marlow 2002), we assume that few desert tortoises will be relocated. We consider the relocation of desert tortoises

out of harm's way to be an effective way to minimize adverse effect to this species, and any desert tortoises that are relocated will be done so to reduce the potential for injury or mortality. Animals that are relocated will not be counted toward the re-initiation threshold proposed by the Federal Highway Administration and Caltrans.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

Because the protective measures included in the "Description of the Proposed Action" section of this biological opinion were developed in full cooperation by the Service and Caltrans, we have not included any additional reasonable and prudent measures and terms and conditions.

REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), Caltrans must report the progress of the action and its impact on the desert tortoise to the Service as specified in this incidental take statement.

By March 1 of every year this biological opinion is in effect, each Caltrans District must submit an annual report to the Fish and Wildlife Service describing the projects conducted under the auspices of this biological opinion during the previous year. The annual report must include information on: the number of desert tortoises injured or killed during work conducted under the auspices of this biological opinion, the location and date those injuries or mortalities occurred, the number of desert tortoise moved out of harm's way, the locations and dates of the relocations, the amount of critical habitat lost or disturbed, and any other relevant information regarding the desert tortoise or its critical habitat. We request that Caltrans provide any recommendations that may increase the level of protection of desert tortoises while not interfering with their ability to implement their proposed actions. Reports may be sent by e-mail to the appropriate contact at the VFWO.

DISPOSITION OF DEAD OR INJURED DESERT TORTOISES

Caltrans must report dead or injured desert tortoises as described in protective measures 13 through 15.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend Caltrans inspect the site of each activity performed pursuant to this biological opinion for any infestations of the Sahara mustard (*Brassica tournefortii*), and that you notify us if Sahara mustard is found and whether eradication efforts were implemented.

2. We recommend Caltrans continue to construct fences and install underpasses within desert wildlife management areas to keep desert tortoises off of roads while allowing dispersal across roads.

The Service requests notification of the implementation of any conservation recommendations, so we may be kept informed of actions that minimize or avoid adverse effects to or benefit the desert tortoise and its habitat.

REINITIATION NOTICE

This concludes formal consultation on Caltrans' highway maintenance activities and small projects in Imperial, Inyo, Kern, Los Angeles, Riverside, and San Bernardino counties. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation.

If you have any questions regarding this consultation, please contact Carl Benz of the VFWO at (805) 644-1766, ext. 311, or John Taylor of the PSFWO at (760) 322-2070, ext. 218.

Sincerely,

Stephen P. Henry
Acting Field Supervisor
Ventura Fish and Wildlife Office

Jim A. Bartel
Field Supervisor
Carlsbad Fish and Wildlife Office

LITERATURE CITED

Aber, J.d., K.J. Nadelhoffer, P. Steudler, and J.M. Melillio. 1989. Nitrogen saturation in northern forest ecosystems. Bioscience 39:378-386.

Belnap, J. 1996. Soil surface disturbance in cold deserts: effects on nitrogenase activity in cyanonbacterial-lichen soil crusts. Biology and Fertility of Soils 23:362-367.

Boarman, W.I., and M. Sazaki. 1996. Highway mortality in desert tortoises and small vertebrates: success of barrier fences and culverts. Pages 169-173 In Proceedings of the 1978 Symposium: The Desert Tortoise Council.

Brooks, M.L. and T.C. Esque. 2002. Alien plants and fire in desert tortoise (Gopherus agassizii) habitat of the Mojave and Colorado deserts. Chelonian Conservation and Biology 4(2): 330-340.

Brooks, M.L. 2003. Effects of increased soil nitrogen on the dominance of alien annual plants in the Mojave Desert. Journal of Applied Ecology 40:344-353.

Pages 51-74 In Proceedings of the 1976 Symposium, The Desert Tortoise Council.

D'Antonio, C.M. and P.M. Vitousek. 1992. Biological invasion by exotic grasses, the grass/fire cycle, and global change. Annual Review of Ecology and Systematics 23: 63-87.

DeFalco, L.A., J.K. Detling, C.R. Tracy, and S.D. Warren. 2001. Physiological variation among native and exotic winter annual plants associated with microbiotic crusts in the Mojave Desert. Plant and Soil 234:10-14.

Esque, T.C., K.E. Nussear, K.K. Drake, A.D. Walde, K.H. Berry, R.C. Averill-Murray, A.P. Woodman, W.I. Boarman, P.A. Medica, J. Mack, J.S. Heaton. 2010. Effects of subsidized predators, resource variability, and human population density on desert tortoise populations in the Mojave Desert, USA. Endangered Species Research (12) 167-177.

Fort Irwin Research Coordination Meeting. 2008. Meeting notes. Dated October 29.

Ironwood Consulting. 2011. Biological resources technical report – Stateline Solar Farm project, San Bernardino, County, California.

Longshore, K.M., J.R. Jaeger, and J.M. Sappington. 2003. Desert tortoise (*Gopherus agassizii*) survival at two eastern Mojave Desert sites: death by short-term drought? Journal of Herpetology 37(1):169–177.

Nicholson, L. 1978. The effects of roads on desert tortoise populations. Pages 127-129 In Proceedings of the 1978 Symposium, The Desert Tortoise Council.

Nussear, K.E., T.C. Esque, R.D. Inman, L. Gass, K.A. Thomas, C.S.A. Wallace, J.B. Blainey, D.M. Miller, and R.H.Webb. 2009. Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona. U.S. Geological Survey Open-File Report 2009-1102.

Oftedal, O.T., S. Hillard, and D.J. Morafka. 2002. Selective spring foraging by juvenile desert tortoises (*Gopherus agassizii*) in the Mojave Desert: Evidence of an adaptive nutritional strategy. Chelonian Conservation and Biology 4:341-352.

Sharifi, M., A.C. Gibson, and P.W. Rundel. 1997. Surface dust impacts on gas exchange in Mojave Desert shrubs. Journal of Applied Ecology 34: 837-846.

Tracy, C.R., R. Averill-Murray, W.I. Boarman, D. Delehanty, J. Heaton, E. McCoy, D. Morafka, K. Nussear, B. Hagerty, and P. Medica. 2004. Desert Tortoise Recovery Plan Assessment. Prepared for the U.S. Fish and Wildlife Service. Reno, Nevada.

U.S. Bureau of Land Management, County of San Bernardino, City of Barstow. 2005. Final environmental impact report and statement for the West Mojave Plan; a habitat conservation plan and California Desert Conservation Area Plan amendment. California Desert District, Moreno Valley, California.

_____. 1994. Desert tortoise (Mojave population) recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon.

_____. 2006. Programmatic Endangered Species Consultation for California Department of Transportation's Small Projects and Highway Operational Improvement Activities in Imperial, Los Angeles, Riverside, Kern, Inyo, and San Bernardino Counties, California (1-6-05-P-3595).

_____. 2008. Environmental assessment to implement a desert tortoise recovery plan task: reduce common raven predation on the desert tortoise. Ventura Fish and Wildlife Office, Ventura, California.

_____. 2010. Desert Tortoise Field Manual. Published on the web at the Ventura Fish and Wildlife Office website : http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/.

_____. 2010a. Mojave population of the desert tortoise (*Gopherus agassizii*) 5-year review: summary and evaluation. Desert Tortoise Recovery Office, Reno, Nevada.

_____. 2010b. Range-wide monitoring of the Mojave population of the desert tortoise: 2010 annual report. Desert Tortoise Recovery Office. Reno, Nevada.

_____. 2010c. Range-wide monitoring of the Mojave population of the desert tortoise: 2008 and 2009 annual report. Desert Tortoise Recovery Office. Reno, Nevada.

_____. 2010d. Biological opinion for the Lucerne Valley Chevron Solar Project, San Bernardino County, California (8-8-10-F-6). Memorandum to Field Manager, Barstow Field Office, Bureau of Land Management, Barstow, California. Dated June 10. From Field Supervisor, Ventura Fish and Wildlife Office, Ventura, California.

_____. 2011a. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 222pp.

_____. 2012a. Re-initiation of consultation for the Calico Solar Project, San Bernardino, California (FWS File #8-8-10-F-34) (CACA-049537, (3031) P, CA-680.33). Dated June 12. Memorandum to Deputy State Director, Bureau of Land Management, Sacramento, California. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

_____. 2012b. Biological opinion for the proposed addition of maneuver training lands at Fort Irwin, California (8-8-11-F-38R). Letter to Chief of Staff, Headquarters, National Training Center and Fort Irwin, Fort Irwin, California. Dated April 27. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

von Seckendorff Hoff, K. and R. W. Marlow. 2002. Impacts of vehicle road traffic on desert tortoise populations with consideration of conservation of tortoise habitat in southern Nevada. Chelonian Conservation and Biology 4(2): 449-456.

Xian, G, C, Homer, and J. Fry. 2009. Updating the 2001 National Land Cover Database land cover classification to 2006 by using Landsat imagery change detection methods. Remote Sensing of Environment 113(6):1133-1147.

APPENDIX 1

Report on Proposed Action to be Covered by the
Programmatic Biological Opinion (8-8-13-F-0279) on
California Department of Transportation's Small Projects and
Operational Improvement Activities in Desert Tortoise Habitat in
Imperial, Riverside, Inyo, Eastern Kern, Los Angeles,
and San Bernardino Counties, California

Name of Project:

Type of Activity:

Location of Activity: Roadway: Begin Milepost: End Milepost:
General Locality:

Map Attached: Yes/No

Timing of project: Start Date: End Date:

Brief description of project:

Conservation measures to be implemented:

Determination (provide rationale for your determination):

No Effect:

May Affect, Not Likely to Adversely Affect:

May Affect, Likely to Adversely Affect