Final Environmental Impact Report/ Environmental Impact Statement

*Volume I*

Prepared by the 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 U.S.C. 327.

JULY 2014
General Information about This Document

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiostreamer, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Kurt Heidelberg, Senior Environmental Planner, Environmental Studies "D" Branch Chief, Environmental Project Management, California Department of Transportation, District 8, 464 W. 4th Street, 6th Floor MS 820, San Bernardino, California 92401-1400; (909) 388-7028, 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.
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Construct a new interchange, grade separate, widen, and realign a 13.3-mile segment of State Route 58 (SR-58), 0.4 miles west of the Kern County/San Bernardino County Line (PM 0.0) to approximately 7.5 miles east of United States Route 395 (US-395) (PM 12.9) in the Mojave Desert region of western San Bernardino County.

FINAL ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT

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:

U.S. Bureau of Land Management (BLM)
Department of Defense, Edwards Air Force Base

Responsible Agencies:

California Regional Water Quality Control Board
California Department of Fish and Wildlife
County of San Bernardino
California Public Utilities Commission

7/1/14
Date of Approval

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Abstract: The proposed State Route 58 (SR-58) Kramer Junction Expressway Project would widen and realign an existing 13.3-mile segment of SR-58, 0.4 miles west of the Kern County/San Bernardino County line and a point that is approximately 7.5 miles east of US-395 in western San Bernardino County. The purpose of the proposed project is to: improve east-west mobility and reduce congestion and travel time; reduce potential traffic conflicts; and maintain uninterrupted and consistent facility design between economic and community centers. Environmental effects on biological resources, community cohesion/character, relocation impacts, hazardous materials/wastes, water quality, and aesthetics are anticipated.
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Summary

The proposed project is a joint project by the California Department of Transportation (Department) and the Federal Highway Administration (FHWA), and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Department is the lead agency under NEPA. The Department is the lead agency under CEQA. In addition, FHWA’s responsibility for 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 United States Code (USC) 327.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, quite often a “lower level” document is prepared for NEPA. One of the most common joint document types is an Environmental Impact Report/Environmental Assessment (EIR/EA).

After receiving comments from the public and reviewing agencies, this Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) has been prepared. The Department may prepare additional environmental and/or engineering studies to address comments. The Final EIR/EIS includes responses to comments received on the Draft EIR/EIS and has identified the Preferred Alternative. After the Final EIR/EIS is circulated, if the Department decides to approve the project, a Notice of Determination will be published for compliance with CEQA, and a Record of Decision will be published for compliance with NEPA.

Changes have been made to this Environmental Document since the public circulation of the Draft EIR/EIS. Public and agency comments received during the circulation of the Draft EIR/EIS and at the related Public Hearing, which was held on August 6, 2013, resulted in refinements that have been incorporated into this Final EIR/EIS. A vertical line along the left-hand margin indicates changes in the adjacent part of this Final EIR/EIS in relation to the corresponding part in the Draft EIR/EIS.

S.1 Overview of Project Area

Caltrans is proposing to realign and widen a 13.3-mile segment of State Route 58 (SR-58) from 0.4 miles west of the Kern County/San Bernardino County line Post Mile (PM) Route (R) 0.0 to a point that is approximately 7.5 miles (PM R12.9) east of United States Route 395 (US-395), from a two-lane conventional highway to a four-lane expressway; and construct a railroad grade separation and an interchange at the SR-58/US-395 Junction. Caltrans is the lead agency under NEPA. Caltrans is also the lead agency under CEQA.

This project would provide traffic relief for future demand and reduce maintenance costs. The total length of the proposed project is approximately 13.3 miles, including transition striping areas and the limits for the installation of construction signage. The proposed project is located within the
Mojave Desert region of San Bernardino County, California. Figures 1.1 and 1.2 show the project vicinity and location. The nearest incorporated cities are California City, Barstow, and Adelanto, which are 35 miles north, east, and south of the project area. The nearest unincorporated communities are Boron, to the west, and Hinkley, to the east.

The proposed project is included in the Southern California Association of Governments (SCAG) 2013 Federal Transportation Improvement Program (FTIP) as Project 34770, which was adopted by SCAG on August 19, 2012 and found to be conforming by FHWA in December 2012. This project is also included in the 2012 Regional Transportation Plan (RTP) which was found conforming by FHWA and the Federal Transit Agency (FTA) on June 4, 2012. This project is listed in the RTP under project ID 34770. Please see copies of the FTIP listing and the RTP listing in Appendix K of this document.

S.2 Purpose and Need

S.2.1 Project Purpose

The purpose of the proposed project is as follows:

- To improve east-west mobility and reduce congestion and travel time;
- To reduce potential traffic conflicts; and
- To maintain an uninterrupted and consistent facility between economic and community centers.

S.2.2 Project Need

S.2.2.1 Capacity and Transportation Demand

*Existing Capacity and Level of Service (LOS)*

Currently, the SR-58 segment within the project area operates at level of service (LOS) D during the AM peak hour and LOS E during the PM peak hour. The Kramer Junction intersection where SR-58 meets US-395 at a four-way, at-grade signalized intersection operates at LOS C during both the AM and PM peak hours.

By 2039, if no improvements are made to SR-58, the LOS on SR-58 through the project area is projected to deteriorate to LOS E and F in the AM and PM peak periods, respectively. Operational conditions would also deteriorate at the Kramer Junction intersection, with travelers projected to experience an LOS of D during the AM peak hour and an LOS of F during the PM peak hour in 2039. LOS is a qualitative measure that describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. LOS conditions are designated as “A,”

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1 Project described in Final 2013 FTIP as “0.4 miles west of Kern Co line to 7.5 mi east of Jct Rte 395 - Construct 4 lane expressway on new alignment, new interchange at US 395 and SR 58”.
indicating best free-flow conditions, through “F,” indicating congested conditions. (See Figure 1.3 Highway Levels of Service Definitions).

Regional Population/Traffic Forecasts

A regional population forecast is provided in the 2012–2035 SCAG Regional Transportation Plan (RTP) Programmatic Environmental Impact Report (PEIR). The PEIR provides a projection of regional population up to forecast year 2035. For San Bernardino County, the 2011 baseline population was 2,066,502. The 2035 regional population forecast estimates a planned population of 2,749,800. Based upon these forecasts, a nearly 33 percent increase in regional population is projected between 2011 and 2035. Regional traffic is predicted to increase with the projected growth in population.

Projected Capacity Needs

Average daily traffic (ADT) is forecast to more than double along SR-58, from 13,820 vehicles in 2010 to 30,940 vehicles in 2039. SR-58 remains the main east-west corridor for interregional travelers within the project vicinity, since no other viable alternatives for east-west interregional travel exist. The route concept report projects the LOS to deteriorate from “D/E” to E/F” if SR-58 is not improved. The improvements proposed under each of the build alternatives are expected to maintain the facility at a desirable LOS.

S.2.2.2 Roadway Deficiencies

Operational Deficiencies

Gap between Existing Four-Lane Expressways: At both the western and eastern project termini, SR-58 is a four-lane expressway. Between the project termini, SR-58 is a two-lane highway, creating a gap in the four-lane expressway system. A closure of this gap is needed to provide route continuity between the existing four-lane expressways at PM R143.5 to the west and PM R12.9 to the east. Problems associated with this gap include sudden decreases in roadway speed due to less available highway capacity, maneuvering difficulties for oversized trucks due to the sudden decrease in total roadway width, insufficient roadway width for acceleration/deceleration lanes for the numerous access points within the project area, and general non-compliance with the Interregional Road System (IRRS) standards for a four-lane expressway. Gap closure between segments of the SR-58 expressway would improve these operational deficiencies.

At-Grade Railroad Crossing: An at-grade railroad crossing is located on SR-58 approximately 2.5 miles west of the existing at-grade US-395 intersection. This at-grade railroad crossing is utilized by approximately 35 trains per day operated by BNSF. These trains carry rail cargo on the 66-mile route between Mojave and Barstow and also between western U.S. ports and economic centers to the east. The average train is 3,840 feet long, with 60 rail cars and takes

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3 U.S. DOT Crossing Inventory Information, Railroad Crossing No: 028209C.
approximately 67 seconds\(^4\) to cross SR-58 at the at-grade crossing 2.5 miles west of Kramer Junction. Substantial delays are known to occur multiple times per day because of sudden stops in highway traffic flow, which can last for extended periods of time. If this sudden stop in highway traffic flow were to occur in the future when higher traffic levels are projected, longer queues and traffic delays are expected.

**Signalized At-Grade US-395 Intersection:** In addition to the delays caused by the at-grade railroad crossing, traffic flow is further interrupted by the signalized intersection at SR-58 and US-395. By 2039, the SR-58 mainline is expected to be operating at LOS F conditions, and the SR-58/US-395 intersection is expected to experience long delays at LOS F conditions during the PM peak hours. Long queues extending beyond 30 vehicles (or over 700 feet) in the eastbound and northbound approaches are expected.

**Access Control:** There are four paved access points and numerous unpaved, informal access points within the proposed project limits. Traffic flow is impeded and congestion is exacerbated by vehicles that turn into or come from the various access points. Specifically, traffic is delayed as vehicles approach the access point and slow to a stop or slow for a left- or right-turn movement. Traffic is also delayed as vehicles come from the access point and then gradually build speed after entering the highway. The delay is further compounded by oversized trucks with wide turning radii and even slower acceleration/ deceleration speeds when entering and exiting the highway.

**Structural Section Limitations**

SR-58 is a major connection for goods movement between Interstate 5 (I-5) in Bakersfield and I-15 and 40 (I-40) in Barstow, and carries a high volume of interstate truck traffic that transports agricultural and commercial commodities. It is expected that SR-58 will continue to carry high truck volumes, as much as 62 percent in 2039 according to the September 2010 Traffic Study Report, because the route is designated for extra-legal and oversized loads (State Highway Extra Legal Load [SHELL]) under the Surface Transportation Assistance Act (STAA). Equivalent single-axle load (ESAL) estimates, which are used to determine the amount of damage that a particular pavement will be subjected to over the design life of the pavement, indicate that the current pavement structural section of SR-58 was not designed to accommodate the recent designation for STAA extra-legal and oversized loads, resulting in higher pavement maintenance costs.

**S.3 Proposed Action**

The proposed project would realign and widen SR-58 from a two-lane conventional highway to a four-lane expressway with full access control between PM 0.0 and PM 9.0. Please see Figures 2.1 through 2.3, which show the alignments of the alternatives. Figures 2.4 and 2.5 show typical cross-sections of the build alternatives. The alternatives are:

- Alternative 1—Northerly Alignment 4-Lane Divided Expressway

\(^4\) Trains cross SR-58 at 70 miles per hour at this crossing, and crossing gates are required to be lowered for 20 seconds before each train arrives at the crossing and 10 seconds after each crossing. With 3,840-foot average train length, a single crossing would require a vehicle traveling on SR-58 to wait 67 seconds.
Alternative 1 would involve the construction of a 4-lane divided expressway with full control of access between PM 0.0 and PM 9.0, an interchange at the SR-58/US-395 junction, and a railroad grade separation (the expressway would pass over the railroad) approximately 2.5 miles to the east of Kramer Junction. Four diamond ramps would connect SR-58 and US-395. Typical cross sections for SR-58 would consist of an approximately 400-foot right-of-way, 100-foot median, 12-foot lanes, 10-foot outside shoulders, and 5-foot inside shoulders. Stop signs are proposed at the off-ramps of the SR-58/US-395 interchange. US-395 is a two-lane conventional highway and would be widened to four lanes and a left-turn-lane at the SR-58/US-395 intersection.

- Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

  Alternative 1A would involve the construction of a four-lane divided expressway with full control of access between PM 0.0 and PM 9.0, an interchange at the SR-58/US-395 junction, and a railroad grade separation (the expressway would pass over the railroad) approximately 2.5 miles to the east of Kramer Junction. A spread diamond interchange on the north side of SR-58 and a cloverleaf interchange on the south side of SR-58 would connect SR-58 and US-395. Typical cross-sections for SR-58 would consist of an approximately 400-foot right of way, 100-foot median, 12-foot lanes, 10-foot outside shoulders, and 5-foot inside shoulders. A stop sign would be installed at the intersection of the westbound ramps at US-395 and a traffic signal would be installed at the intersection of the eastbound ramps at US-395. US-395 is a two-lane conventional highway and would be widened to four lanes and a left-turn-lane at the SR-58/US-395 intersection.

- Alternative 2—Along Existing Alignment 4-Lane Divided Expressway

  Alternative 2 would involve the construction of a four-lane divided expressway with full control of access between PM 0.0 and PM 9.0, an interchange at the SR-58/US-395 junction, and a railroad grade separation (the expressway would pass over the railroad) located 3.9 miles to the west of Kramer Junction. Four diamond ramps would connect SR-58 and US-395. Typical cross sections for SR-58 would consist of an approximately 400-foot right of way, 100-foot median, 12-foot lanes, 10-foot right shoulders, and 5-foot left shoulders. Stop signs are proposed at the off-ramps of the SR-58/US-395 interchange. US-395 is a two-lane conventional highway and would be widened to four lanes and a left-turn-lane at the SR-58/US-395 intersection.

- Alternative 3—Southerly Alignment 4-Lane Divided Expressway

  Alternative 3 would involve the construction of a 4-lane divided expressway with full control of access between PM 0.0 and PM 9.0, an interchange at the SR-58/US-395 junction, and a railroad grade separation (the expressway would pass over the railroad) located 2.6 miles to the west of Kramer Junction. Four diamond ramps would connect SR-58 and US-395. Typical cross sections for SR-58 would consist of an approximately 400-foot right of way, 100-foot median, 12-foot lanes, 10-foot outside shoulders, and 5-foot inside shoulders. Stop signs are proposed at the off ramps of the SR-58/US-395 interchange. US-395 is a two-lane conventional highway and would be widened to four lanes and a left-turn lane at the SR-58/US-395 intersection.
• Alternative 4—No-Build Alternative

This alternative does not provide the needed improvements that are necessary to mitigate current and future traffic demands. The existing congestion and travel delays would increase resulting in higher user cost, particularly for transporting farm products. The LOS for this segment of SR-58 is currently at “D”; it would continue to decline as traffic demand increases.

S.4 Identification of Preferred Alternative

After technical studies were completed, environmental impacts analyzed, the Draft EIR/EIS circulated for public and agency review, and public comments considered, the Project Development Team (PDT) identified Alternative 1A – Northerly Alignment Four Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange) as the Preferred Alternative on August 27, 2013. The PDT decision was structured and analytical, and clearly addressed the specific evaluation criteria developed to ensure that the Preferred Alternative would reasonably meet the purpose and need for the project. The decision to identify Alternative 1A as the Preferred Alternative considered all significant, reasonably foreseeable, adverse impacts that would remain after the incorporation of all mitigation measures, and is based on the following reasoning:

• Alternative 1A was preferred by the public, based on public comment.
• Alternative 1A would have the least community impacts, with the least business/residential displacements.
• Alternative 2 would cause permanent displacement of up to 14 uses including residences, businesses, gas stations, local facilities, and utility stations. This would cause substantial changes to community character and as well as negative impacts on employment.
• Alternative 3 would result in additional environmental impacts including impacts on plants, animals, and threatened/endangered species.

Of the comments received during circulation of the Draft EIR/EIS and at the Public Hearing, the majority of the commenters who expressed an opinion about the alternatives favored the implementation of Alternative 1A. A total of 18 letters were received from agencies and the public during circulation. Five letters stated a preference for Alternative 1A; two letters from community members favored Alternative 1 or 1A. Ten letters did not state any preference between the alternatives. The U.S. Edwards Air Force Base, as a Cooperating Agency, stated a preference for Alternative 1A or Alternative 1 and cautioned against the identification of Alternative 3 as the preferred alternative. This was stated during public circulation as well as in the Cooperative Agreement dated November 17, 2009.
S.4.1 Potential Environmental Consequences and Avoidance, Minimization, and/or Mitigation Measures

Table S-2 summarizes the potential impacts under CEQA and NEPA of the proposed alternatives and the proposed avoidance/minimization measures. Details for each environmental category are presented in Chapters 3 and 4 of this document.

S.4.2 Coordination with Public and Other Agencies

As part of the NEPA and CEQA process, a scoping meeting is required as part of the preparation of an EIR and EIS. In May 2007, a Notice of Intent (NOI) to prepare an EIS and a Notice of Preparation (NOP) of an EIR were advertised to the public and mailed to elected officials and local, state, and federal agencies having jurisdiction or discretionary approval within the project corridor. The NOI was published in the Federal Register on May 10, 2007, and the NOP was received and accepted by the State Clearinghouse on May 8, 2007. The public scoping meeting was held in June 2007.

Various agencies were invited to participate in the project as cooperating, participating, and/or responsible agencies, as applicable. Per responses to the invitation letters, interagency review roles were established, and a summary of consultation and coordination is provided in Chapter 5. All agencies on this list have been requested to comment on key components of the environmental document prior to public circulation. The Draft EIR/EIS solicited comments, and was circulated to interested, agencies, organizations, and the public on July 5, 2013. A public hearing was held on August 6, 2013.
### Table S-1: Permits and Approvals Needed

<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit/Approval</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>County of San Bernardino</td>
<td>Freeway agreement</td>
<td>• Pending final design/construction&lt;br&gt;• Needed for (1) local roads that will be closed, (2) construction of the new interchanges, and, as applicable (3) relinquishment of existing portions of SR-58 to the County.</td>
</tr>
<tr>
<td>County of San Bernardino</td>
<td>Temporary construction permits</td>
<td>• Pending final design/construction&lt;br&gt;• Required for construction affecting local road systems</td>
</tr>
<tr>
<td>BNSF</td>
<td>Encroachment permit</td>
<td>• Pending final design/construction&lt;br&gt;• Required for work performed within railroad right of way</td>
</tr>
<tr>
<td>Bureau of Land Management (BLM)</td>
<td>Land Use Application and Permit</td>
<td>• Under review by BLM&lt;br&gt;• Needed because of involvement of parcels owned by BLM&lt;br&gt;• Permit required for paleontological resources&lt;br&gt;• Needed because of involvement of land owned by BLM.</td>
</tr>
<tr>
<td>California Public Utilities Commission</td>
<td>Service contract and construction/maintenance agreements</td>
<td>• Application would occur during final design&lt;br&gt;• Needed for construction of grade separated structure over BNSF rail line</td>
</tr>
<tr>
<td>California State Water Resources Control Board</td>
<td>Coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity (Construction General Permit, 99-08-DWQ)</td>
<td>• Pending final design</td>
</tr>
<tr>
<td>California Regional Water Quality Control Board</td>
<td>Waste discharge permit</td>
<td>• Pending final design</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife</td>
<td>1600/1602 Permit</td>
<td>• Permit application will occur following approval of the final environmental document&lt;br&gt;• Pending final design&lt;br&gt;• Needed for activities within ephemeral dry washes.</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife</td>
<td>2081 Incidental Take Permit</td>
<td>• Permit coordination in progress&lt;br&gt;• Needed for Desert Tortoise/Loss of Desert Tortoise Habitat&lt;br&gt;• Needed for Mohave Ground Squirrel</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td>Section 7 consultation for threatened and endangered species</td>
<td>• Section 7 coordination in progress&lt;br&gt;• Needed for Desert Tortoise</td>
</tr>
<tr>
<td>U.S. Department of Defense, Edwards Air Force Base</td>
<td>AFFTC IMT 5926 (Dig Permit)</td>
<td>• Used during PS&amp;E by Utilities after identification and resolution of any conflicts</td>
</tr>
<tr>
<td>U.S. Department of Defense, Edwards Air Force Base</td>
<td>Real Estate Permit/Lease</td>
<td>• Used during PS&amp;E by Utilities after identification and resolution of any conflicts</td>
</tr>
</tbody>
</table>
Table S-2: Summary of Potential Impacts & Proposed Measures by Alternative

<table>
<thead>
<tr>
<th>Affected Resources</th>
<th>Alternative 1 Northerly Alignment 4-Lane Divided Expressway</th>
<th>Preferred Alternative: Alternative 1A Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)</th>
<th>Alternative 2 Existing Alignment 4-Lane Expressway with Median</th>
<th>Alternative 3 Southerly Alignment 4-Lane Divided Expressway</th>
<th>Alternative 4 No-Build Alternative</th>
<th>Avoidance, Minimization, and/or Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$191,065,000</td>
<td>$191,325,000</td>
<td>$374,139,000</td>
<td>$238,017,000</td>
<td>No impact, but Alternative 4 would not preclude costs in necessary maintenance.</td>
<td>N/A</td>
</tr>
<tr>
<td>Land Use: Existing &amp; Future Land Use</td>
<td>Acquisitions would be required; inconsistencies would result with existing land uses. Impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Acquisitions would be required; inconsistencies would result with existing land uses. Impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Acquisitions would be required; inconsistencies would result with existing land uses. Impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Acquisitions would be required; inconsistencies would result with existing land uses. Impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>No impact.</td>
<td>Amendments to the zoning and land use designations for parcels affected by the proposed project would be required.</td>
</tr>
<tr>
<td>Land Use: Consistency with State, Regional, and Local Plans</td>
<td>Alternative 1 would be consistent with applicable plans. Impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 1A would be consistent with applicable plans. Impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 2 would be consistent with applicable plans. Impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 3 would be consistent with applicable plans. Impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 4 would be inconsistent with portions of the County of San Bernardino General Plan.</td>
<td>None required</td>
</tr>
<tr>
<td>Growth</td>
<td>Project-related growth would not occur.</td>
<td>Project-related growth would not occur.</td>
<td>Project-related growth would not occur.</td>
<td>Project-related growth would not occur.</td>
<td>Project-related growth would not occur.</td>
<td>None required</td>
</tr>
<tr>
<td>Farmlands/Timberlands</td>
<td>No impact.</td>
<td>No impact.</td>
<td>No impact.</td>
<td>No impact.</td>
<td>No impact.</td>
<td>None required</td>
</tr>
<tr>
<td>Community Impacts</td>
<td>Displacement of four uses would occur under Alternative 1:</td>
<td>Displacement of one use would occur under Alternative 1A:</td>
<td>Displacement of up to 14 uses would occur under Alternative 2:</td>
<td>No displacement would occur under Alternative 3:</td>
<td>No displacement would occur under Alternative 3.</td>
<td>Business impacts associated with changes to traffic patterns at the junction may reduce number of customers stopping. Access to businesses on the existing SR-58 and to the northwest of the junction would be reduced. Impacts to the community would be minor adverse under NEPA and less than significant under CEQA following the implementation of mitigation measures.</td>
</tr>
</tbody>
</table>
|                    | • Antique shop                                              | • Antique car restoration shop                                                                 | • Pilot Travel Center and Subway Restaurant     | No impact.                                      | Alternative 3 would be consistent with portions of the County of San Bernardino General Plan. | CI-1: Caltrans will ensure that direct vehicle access to all businesses and residences from both northbound and southbound directions of US-395 is achieved following construction. CI-2: A Construction Management Plan and a Transportation Management Plan (see TR-1) will be prepared for the project and include coordination efforts that will inform the community about project activities, maintain access to and from the project area during construction, minimize construction-period traffic, and control glare, dust, and noise. Measures to minimize construction impacts in these sections also apply to minimizing permanent community cohesion/character impacts. CI-3: To address bypass impacts, Caltrans will coordinate with the community and County regarding the possibility of placing a Welcome sign at both ends of the proposed expressway with brief information encouraging visitors to visit services offered at Kramer Junction. CI-4: During Final Design and Construction, every effort will be made to further minimize the amount of right-of-way needed for the facility and to further minimize community and environmental impacts. ECON-1: Sufficient relocation resources will be made available to displaced businesses in accordance with the Uniform Relocation Assistance and Property Acquisition Act to 1970 as amended (42 USC Secs. 4601-4655). ECON-2: Businesses displaced by the project alternatives will be relocated in an area that is comparable to the existing location in terms of

Summary

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State Route 58 Kramer Junction Expressway Project

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| Affected Resources | Alternative 1 Northerly Alignment 4-Lane Divided Expressway | Preferred Alternative: Alternative 1A Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395) | Alternative 2 Existing Alignment 4-Lane Expressway with Median | Alternative 3 Southerly Alignment 4-Lane Divided Expressway | Alternative 4 No-Build Alternative | Avoidance, Minimization, and/or Mitigation Measures |
|--------------------|------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------|
| Traffic and Bicycle Facilities | A beneficial effect on traffic operations would occur. No impact to pedestrian and bicycle facilities would occur. Temporary construction impacts would be minimized with measure TR-1. | A beneficial effect on traffic operations would occur. No impact to pedestrian and bicycle facilities would occur. Temporary construction impacts would be minimized with measure TR-1. | A beneficial impact to traffic operations would occur. No impact to pedestrian and bicycle facilities would occur. Temporary construction impacts would be minimized with measure TR-1. | No impact would occur, including none of the beneficial impacts to traffic operations projected under the build alternatives. | TR-1: Caltrans will prepare a TMP to ensure that local and regional traffic moves efficiently during construction. The TMP and the construction plans will be provided to community agencies, such as the fire department, prior to project commencement. The information provided will include access and traffic management plans that describe any projected temporary street closures or expected traffic delays due to construction vehicles on the roadways. The following elements will be major components of the project TMP:  
- A public awareness campaign related to the scheduling of work;  
- A construction zone enforcement. |
| Utilities | Utility relocation would be required. Impacts would be minor adverse under NEPA and less than significant under CEQA following the implementation of mitigation measures. | Utility relocation would be required. Impacts would be minor adverse under NEPA and less than significant under CEQA following the implementation of mitigation measures. | Utility relocation would be required. Including the Southern California Edison facility to the southwest of Kramer Junction. Impacts would be minor adverse under NEPA and less than significant under CEQA following the implementation of mitigation measures. | No impact. | UT-1: Caltrans will coordinate all utility relocation work with the affected utility companies to ensure minimum disruption to customers in the service areas during construction. If Alternative 2 is selected as the preferred alternative, a coordination plan will be established with SCE. The coordination plan will include specific measures to minimize electrical service disruption that would occur with relocation of the existing SCE substation. This coordination plan will be in place and agreed upon by Caltrans and SCE before any relocation activities occur as a result of the proposed project. For details on measures ECON-1 through ECON-3, please see Section 3.5 in Chapter 3. |
| Environmental Justice | Impacts from SR-58 through-traffic bypassing Kramer Junction businesses have the potential to reduce economic activity at these businesses, which employ low-wage and minority workers. With incorporation of mitigation measures aimed at maintaining the commercial viability of Kramer Junction businesses, effects would not be disproportionately high and adverse on environmental justice populations. | Minority and low-wage workers, who may be member of low-income households, are employed at Kramer Junction businesses that would be displaced under Alternative 2. These effects have the potential to be disproportionately high and adverse on environmental justice populations. | Minorities and low-wage workers, who may be member of low-income households, are employed at Kramer Junction businesses that would be displaced under Alternative 2. These effects have the potential to be disproportionately high and adverse on environmental justice populations. | No impact. | For details on measures ECON-1 through ECON-3, please see Section 3.4 in Chapter 3. |
| Accessibility, Traffic, and Pedestrian Traffic and Bicycle Facilities | A beneficial effect on traffic operations would occur. Impacts would be minor adverse under NEPA and less than significant under CEQA. | A beneficial effect on traffic operations would occur. | A beneficial impact to traffic operations would occur. No impact to pedestrian and bicycle facilities would occur. Temporary construction impacts would be minimized with measure TR-1. | No impact would occur, including none of the beneficial impacts to traffic operations projected under the build alternatives. | TR-1: Caltrans will prepare a TMP to ensure that local and regional traffic moves efficiently during construction. The TMP and the construction plans will be provided to community agencies, such as the fire department, prior to project commencement. The information provided will include access and traffic management plans that describe any projected temporary street closures or expected traffic delays due to construction vehicles on the roadways. The following elements will be major components of the project TMP:  
- A public awareness campaign related to the scheduling of work;  
- A construction zone enforcement. |

Summary

State Route 58 Kramer Junction Expressway Project

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### Cultural Resources

<table>
<thead>
<tr>
<th>Affected Resources</th>
<th>Preferred Alternative: Alternative 1A Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)</th>
<th>Alternative 2 Existing Alignment 4-Lane Expressway with Median</th>
<th>Alternative 3 Southerly Alignment 4-Lane Divided Expressway</th>
<th>Alternative 4 No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viewers located close to the Alternative 1 alignment would experience impacts to their northern- and southern-facing views because a highway and interchange would be introduced where none currently exists. Impacts would be substantial adverse under NEPA and significant under CEQA. Implementation of mitigation measures would reduce impacts, but impacts would remain substantial adverse and significant.</td>
<td>Viewers located close to the Alternative 2 alignment would experience impacts to their northern- and southern-facing views because a highway and interchange would be introduced where none currently exists. Impacts would be substantial adverse under NEPA and significant under CEQA. Implementation of mitigation measures would reduce impacts, but impacts would remain substantial adverse and significant.</td>
<td>Viewers located close to the Alternative 3 alignment would experience impacts to their northern- and southern-facing views because a highway and interchange would be introduced where none currently exists. Impacts would be substantial adverse under NEPA and significant under CEQA. Implementation of mitigation measures would reduce impacts, but impacts would remain substantial adverse and significant.</td>
<td>No impact.</td>
<td></td>
</tr>
</tbody>
</table>

**Visual/Aesthetics**

<table>
<thead>
<tr>
<th>Affected Resources</th>
<th>Preferred Alternative: Alternative 1A Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)</th>
<th>Alternative 2 Existing Alignment 4-Lane Expressway with Median</th>
<th>Alternative 3 Southerly Alignment 4-Lane Divided Expressway</th>
<th>Alternative 4 No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viewers located close to the Alternative 1 alignment would experience impacts to their northern- and southern-facing views because a highway and interchange would be introduced where none currently exists. Impacts would be substantial adverse under NEPA and significant under CEQA. Implementation of mitigation measures would reduce impacts, but impacts would remain substantial adverse and significant.</td>
<td>Viewers located close to the Alternative 2 alignment would experience impacts to their northern- and southern-facing views because a highway and interchange would be introduced where none currently exists. Impacts would be substantial adverse under NEPA and significant under CEQA. Implementation of mitigation measures would reduce impacts, but impacts would remain substantial adverse and significant.</td>
<td>Viewers located close to the Alternative 3 alignment would experience impacts to their northern- and southern-facing views because a highway and interchange would be introduced where none currently exists. Impacts would be substantial adverse under NEPA and significant under CEQA. Implementation of mitigation measures would reduce impacts, but impacts would remain substantial adverse and significant.</td>
<td>No impact.</td>
<td></td>
</tr>
</tbody>
</table>

**Cultural Resources**

<table>
<thead>
<tr>
<th>Affected Resources</th>
<th>Preferred Alternative: Alternative 1A Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)</th>
<th>Alternative 2 Existing Alignment 4-Lane Expressway with Median</th>
<th>Alternative 3 Southerly Alignment 4-Lane Divided Expressway</th>
<th>Alternative 4 No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Alternative 1, no known historic properties would be affected. There are a total of 9 unevaluated archaeological sites within the Alternative 1 footprint that could be affected. With the implementation of mitigation measures, impacts would be minor under NEPA and less than significant under CEQA.</td>
<td>Under Alternative 2, no known historic properties or archaeological sites would be affected. For Alternative 2, Caltrans made a finding of No Adverse Effect with Standard Conditions with which the State Historic Preservation Officer concurred in June 2014 (see Appendix M).</td>
<td>Under Alternative 3, no known historic properties would be affected. There are a total of 10 unevaluated archaeological sites within the Alternative 3 footprint that could be affected. With the implementation of mitigation measures, impacts would be minor under NEPA and less than significant under CEQA.</td>
<td>No impact.</td>
<td></td>
</tr>
</tbody>
</table>

### Avoidance, Minimization, and/or Mitigation Measures

- Use of portable changeable message signs (PCMS).
- Advance information signing that will communicate the date, time, and duration of ramp closures;
- Plan road closures to minimize impacts on local circulation to the maximum extent feasible; and
- Preparation of temporary detour plans, if needed, during the plans, specifications, and estimates (PS&E) phase of the project.

(Note: No detours are anticipated at this time.)

For details on measures AES-1 through AES-9, please see Section 3.7 in Chapter 3.
<table>
<thead>
<tr>
<th>Affected Resources</th>
<th>Alternative 1</th>
<th>Alternative 1A</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Alternative 4</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrology and Floodplains</td>
<td>Northerly Alignment 4-Lane Divided Expressway</td>
<td>Existing Alignment 4-Lane Divided Expressway with Median</td>
<td>Alternative 2 would result in the addition of impervious surface in the area, but impacts would be minor adverse under NEPA and less than significant under CEQA. Temporary impacts to natural drainages would be minimized through implementation of measures HF-1 through HF-6.</td>
<td>Alternative 3 would result in the addition of impervious surface in the area, but impacts would be minor adverse under NEPA and less than significant under CEQA. Temporary impacts to natural drainages would be minimized through implementation of measures HF-1 through HF-6.</td>
<td>Alternative 3 would result in the addition of impervious surface in the area, but impacts would be minor adverse under NEPA and less than significant under CEQA. Temporary impacts to natural drainages would be minimized through implementation of measures HF-1 through HF-6.</td>
<td>No impact.</td>
</tr>
<tr>
<td>Water Quality and Stormwater Runoff</td>
<td>Northerly Alignment 4-Lane Divided Expressway</td>
<td>Northerly Alignment 4-Lane Divided Expressway with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)</td>
<td>Alternative 1 would result in the addition of impervious surface in the study area by 130 acres, potentially increasing stormwater runoff, but impacts would be minor adverse under NEPA and less than significant under CEQA. Best management practices would be implemented.</td>
<td>No impact.</td>
<td>Alternative 3 would increase the amount of impervious surface in the study area by 317 acres, potentially increasing stormwater runoff. In addition. Alternative 3 would affect 3.44 acres of waters under the jurisdiction of the California Department of Fish and Wildlife. Following the implementation of best management practices and measures related to wetlands, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>For details on measures HF-1 through HF-5, please see Section 3.9 in Chapter 3.</td>
</tr>
<tr>
<td>Hydrology and Floodplains</td>
<td>Alternative 1 would result in the addition of impervious surface in the area, but impacts would be minor adverse under NEPA and less than significant under CEQA. Temporary impacts to natural drainages would be minimized through implementation of measures HF-1 through HF-6.</td>
<td>Alternative 1A would result in the addition of impervious surface in the area, but impacts would be minor adverse under NEPA and less than significant under CEQA. Temporary impacts to natural drainages would be minimized through implementation of measures HF-1 through HF-6.</td>
<td>Alternative 2 would result in the addition of impervious surface in the area, but impacts would be minor adverse under NEPA and less than significant under CEQA. Temporary impacts to natural drainages would be minimized through implementation of measures HF-1 through HF-6.</td>
<td>Alternative 3 would result in the addition of impervious surface in the area, but impacts would be minor adverse under NEPA and less than significant under CEQA. Temporary impacts to natural drainages would be minimized through implementation of measures HF-1 through HF-6.</td>
<td>Alternative 4 would be No-Build Alternative</td>
<td>For details on measures HF-1 through HF-5, please see Section 3.9 in Chapter 3.</td>
</tr>
<tr>
<td>Water Quality and Stormwater Runoff</td>
<td>Alternative 1 would increase the amount of impervious surface in the study area by 130 acres, potentially increasing stormwater runoff, but impacts would be minor adverse under NEPA and less than significant under CEQA. Best management practices would be implemented.</td>
<td>Alternative 1A would increase the amount of impervious surface in the study area by 123 acres, potentially increasing stormwater runoff, but impacts would be minor adverse under NEPA and less than significant under CEQA. Best management practices would be implemented.</td>
<td>Alternative 2 would increase the amount of impervious surface in the study area by 317 acres, potentially increasing stormwater runoff. In addition. Alternative 2 would affect 3.44 acres of waters under the jurisdiction of the California Department of Fish and Wildlife. Following the implementation of best management practices and measures related to wetlands, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 3 would increase the amount of impervious surface in the study area by 356 acres, potentially increasing stormwater runoff. In addition. Alternative 3 would affect 4.7 acres of waters under the jurisdiction of the California Department of Fish and Wildlife. Following the implementation of best management practices and measures related to wetlands, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>No impact.</td>
<td>For details on measures WQ-1 through WQ-8, please see Section 3.10 in Chapter 3. See Measures BIO-2 through BIO-5 for wetlands.</td>
</tr>
<tr>
<td>Geology/Soils/Sediment/Topography</td>
<td>Ground shaking and fault rupture would be limited by constructing at No impacts.</td>
<td>Ground shaking and fault rupture would be limited by constructing at No impacts.</td>
<td>Ground shaking and fault rupture would be limited by constructing at No impacts.</td>
<td>Ground shaking and fault rupture would be limited by constructing at No impacts.</td>
<td>For details on measures GEO-1 and GEO-2, please see Section 3.11 in Chapter 3.</td>
<td></td>
</tr>
<tr>
<td>Affected Resources</td>
<td>Alternative 1 Northerly Alignment 4-Lane Divided Expressway</td>
<td>Preferred Alternative: Alternative 1A Northerly Alignment 4-Lane Divided Expressway with Spread Diamond and Cloverleaf Interchange at SR 58/US 395</td>
<td>Alternative 2 Existing Alignment 4-Lane Expressway with Median</td>
<td>Alternative 3 Southerly Alignment 4-Lane Expressway with Median</td>
<td>Alternative 4 No-Build Alternative</td>
<td>Avoidance, Minimization, and/or Mitigation Measures</td>
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<tr>
<td>the natural grade and in low cuts and embankments. A Stormwater Pollution Prevention Plan (SWPPP) would limit erosion. Impacts would be minor adverse under NEPA and less than significant under CEQA with implementation of GEO-1 and GEO-2.</td>
<td>the natural grade and in low cuts and embankments. A SWPPP would limit erosion. Impacts would be minor adverse under NEPA and less than significant under CEQA with implementation of GEO-1 and GEO-2.</td>
<td>the natural grade and in low cuts and embankments. A SWPPP would limit erosion. Impacts would be minor adverse under NEPA and less than significant under CEQA with implementation of GEO-1 and GEO-2.</td>
<td>the natural grade and in low cuts and embankments. A SWPPP would limit erosion. Impacts would be minor adverse under NEPA and less than significant under CEQA with implementation of GEO-1 and GEO-2.</td>
<td>No impact.</td>
<td>For details on measures PA-1 through PA-7, please see Section 3.12 in Chapter 3.</td>
<td></td>
</tr>
<tr>
<td>Paleontology</td>
<td>Alternative 1A has the potential to affect paleontological resources through deep excavation or other ground-disturbing activities. With the implementation of mitigation measures, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 2 has the potential to affect paleontological resources through deep excavation or other ground-disturbing activities. With the implementation of mitigation measures, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 3 has the potential to affect paleontological resources through deep excavation or other ground-disturbing activities. With the implementation of mitigation measures, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>No impact.</td>
<td>For details on measures HAZ-1 through HAZ-20, please see Section 3.13 in Chapter 3.</td>
<td></td>
</tr>
<tr>
<td>Hazardous Waste/Materials</td>
<td>Alternative 1 would create new hazards during project operation. With respect to construction, recognized environmental conditions related to three existing uses in addition to historical uses are present within the project footprint and have the potential to result in substantial adverse impacts if chemicals are released. Impacts are expected to be minor adverse under NEPA and less than significant under CEQA with the implementation of mitigation measures.</td>
<td>Alternative 1A would not create new hazards during project operation. With respect to construction, recognized environmental conditions related to one existing use at the airplane hangar in addition to historical uses are present within the project footprint and have the potential to result in substantial adverse impacts if chemicals are released. Impacts are expected to be minor adverse under NEPA and less than significant under CEQA with the implementation of mitigation measures.</td>
<td>Alternative 2 has the potential to affect paleontological resources through deep excavation or other ground-disturbing activities. With the implementation of mitigation measures, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>No impact.</td>
<td>For details on measures AQ-1 and AQ-2, please see Section 3.14 in Chapter 3.</td>
<td></td>
</tr>
<tr>
<td>Air Quality</td>
<td>Air Quality 1 is in conformity with regional emission standards and would not increase CO and PM concentrations to levels that would result in new air quality violations or worsen existing violations. Temporary construction-related emissions of pollutants would occur, but would be minor adverse under NEPA and less than significant under CEQA with the implementation of standard Caltrans measures.</td>
<td>Air Quality 1A is in conformity with regional emission standards and would not increase CO and PM concentrations to levels that would result in new air quality violations or worsen existing violations. Temporary construction-related emissions of pollutants would occur, but would be minor adverse under NEPA and less than significant under CEQA with the implementation of standard Caltrans measures.</td>
<td>Air Quality 2 is in conformity with regional emission standards and would not increase CO and PM concentrations to levels that would result in new air quality violations or worsen existing violations. Temporary construction-related emissions of pollutants would occur, but would be minor adverse under NEPA and less than significant under CEQA with the implementation of standard Caltrans measures.</td>
<td>Air Quality 3 is in conformity with regional emission standards and would not increase CO and PM concentrations to levels that would result in new air quality violations or worsen existing violations. Temporary construction-related emissions of pollutants would occur, but would be minor adverse under NEPA and less than significant under CEQA with the implementation of standard Caltrans measures.</td>
<td>No impact.</td>
<td></td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>Noise and Vibration 1 is not expected to result in substantial noise increases and may result in noise reductions when compared with existing conditions. Noise would approach or exceed the noise abatement criteria at one</td>
<td>Noise and Vibration 1A is not expected to result in substantial noise increases and may result in noise reductions when compared with existing conditions. Noise would approach or exceed the noise abatement criteria at two</td>
<td>Noise and Vibration 2 is not expected to result in substantial noise increases and may result in noise reductions when compared with existing conditions. Noise would not approach or exceed the noise abatement criteria at any</td>
<td>Noise and Vibration 3 is not expected to result in substantial noise increases and may result in noise reductions when compared with existing conditions. Noise would approach or exceed the noise abatement criteria at any</td>
<td>No impact.</td>
<td>NOI-1: To reduce noise levels from construction to the extent that it is technically feasible and avoid unnecessary annoyance from construction noise, the construction noise control measures listed below will be implemented. To the extent practicable, avoid using construction equipment or any other activity that...</td>
</tr>
</tbody>
</table>
## Summary

**State Route 58 Kramer Junction Expressway Project**

### Alternative 1
- **Northerly Alignment 4-Lane Divided Expressway**

- **Proposed Project Area:** 3.4 acres of CDFW jurisdictional waters.
- **Impact:** Minor adverse and less than significant under CEQA.
- **Measures:**
  - Modeled receivers, but given the lack of frequent occupation of outdoor areas at this location, noise abatement is not proposed.
  - Construction-related noise would be minimized with the implementation of standard Caltrans measures.

### Alternative 2
- **Existing Alignment 4-Lane Divided Expressway**

- **Proposed Project Area:** 4.7 acres of CDFW jurisdictional waters.
- **Impact:** Minor adverse and less than significant under CEQA.
- **Measures:**
  - Modeled receivers, Operational noise would be minor adverse under NEPA and less than significant under CEQA.
  - Construction-related noise would be minimized with the implementation of standard Caltrans measures.

### Alternative 3
- **Southerly Alignment 4-Lane Divided Expressway**

- **Proposed Project Area:** 3.4 acres of CDFW jurisdictional waters.
- **Impact:** Minor adverse and less than significant under CEQA.
- **Measures:**
  - Modeled receivers, Operational noise would be minor adverse under NEPA and less than significant under CEQA.

### Alternative 4
- **No-Build Alternative**

- **Proposed Project Area:** No impact.

### Energy

- **Proposed Project Area:** No impact.

### Natural Communities

- **Proposed Project Area:** No impact.

### Wetlands and Other Waters

- **Proposed Project Area:** No impact.

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**For details on measures BIO 2 through BIO 5, please see Section 3.18 in Chapter 3.**

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**Avoidance, Minimization, and/or Mitigation Measures**

- **Operational Noise:**
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Construction Noise:**
  - Schedule the timing and duration of construction activities to minimize noise impacts at noise-sensitive locations.
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Road Construction:**
  - Use standard pavement breaking equipment.
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Preventive Measures:**
  - Use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
  - Use standard pavement breaking equipment.
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Operational Noise:**
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
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- **Preventive Measures:**
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  - Use standard pavement breaking equipment.
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Operational Noise:**
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Preventive Measures:**
  - Use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
  - Use standard pavement breaking equipment.
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Operational Noise:**
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Preventive Measures:**
  - Use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
  - Use standard pavement breaking equipment.
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

- **Operational Noise:**
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
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- **Preventive Measures:**
  - Use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.
  - Use standard pavement breaking equipment.
  - As practicable, use noise-attenuating "jackets" or portable noise screens to provide shielding for pavement breaking.
    - Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
    - Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.
<table>
<thead>
<tr>
<th>Affected Resources</th>
<th>Preferred Alternative: Alternative 1A Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)</th>
<th>Alternative 2 Existing Alignment 4-Lane Expressway with Median</th>
<th>Alternative 3 Southerly Alignment 4-Lane Divided Expressway</th>
<th>Alternative 4 No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>substantial adverse effect under NEPA and a significant impact under CEQA. Following mitigation, impacts would be minor adverse and less than significant.</td>
<td>substantial adverse effect under NEPA and a significant impact under CEQA. Following mitigation, impacts would be minor adverse and less than significant.</td>
<td>substantial adverse effect under NEPA and a significant impact under CEQA. Following mitigation, impacts would be minor adverse and less than significant.</td>
<td>substantial adverse effect under NEPA and a significant impact under CEQA. Following mitigation, impacts would be minor adverse and less than significant.</td>
</tr>
<tr>
<td>Plant Species</td>
<td>Alternative 1 would affect the following non-listed plant species: Barstow woolly sunflower: Loss of 77 individual plants and 275 acres of potential habitat. Desert cymopterus: Loss of 275 acres of potential habitat. Mojave spineflower: Loss of 41 populations and 275 acres of potential habitat. Crowned mulla: Loss of 107 populations and 663 acres of potential habitat. Joshua tree: Loss of 12 individual trees. Impacts to plant species would be substantial adverse under NEPA and significant under CEQA, but they would be reduced to minor adverse and less than significant following mitigation.</td>
<td>Alternative 1A would affect the following non-listed plant species: Barstow woolly sunflower: Loss of 77 individual plants and 275 acres of potential habitat. Desert cymopterus: Loss of 275 acres of potential habitat. Mojave spineflower: Loss of 41 populations and 275 acres of potential habitat. Crowned mulla: Loss of 107 populations and 663 acres of potential habitat. Joshua tree: Loss of 12 individual trees. Impacts to plant species would be substantial adverse under NEPA and significant under CEQA, but they would be reduced to minor adverse and less than significant following mitigation.</td>
<td>Alternative 2 would affect the following non-listed plant species: Barstow woolly sunflower: Loss of 276 acres of potential habitat. Desert cymopterus: Loss of 13 individuals and 276 acres of potential habitat. Mojave spineflower: Loss of three populations and 276 acres of potential habitat. Crowned mulla: Loss of five populations and 634 acres of potential habitat. Joshua tree: Loss of eight individual trees. Impacts to plant species would be substantial adverse under NEPA and significant under CEQA, but they would be reduced to minor adverse and less than significant following mitigation.</td>
<td>Alternative 3 would affect the following non-listed plant species: Barstow woolly sunflower: Loss of 50 individuals and 312 acres of potential habitat. Desert cymopterus: Loss of 21 individuals and 312 acres of potential habitat. Mojave spineflower: Loss of 11 populations and 312 acres of potential habitat. Crowned mulla: Loss of 91 populations and 689 acres of potential habitat. Joshua tree: Loss of six individual trees. Impacts to plant species would be substantial adverse under NEPA and significant under CEQA, but they would be reduced to minor adverse and less than significant following mitigation.</td>
</tr>
<tr>
<td>Animal Species</td>
<td>Alternative 1 would result in the loss of potential habitat for animal species in the following amounts: Burrowing owl: 676 acres Loggerhead shrike: 663 acres American Badger: 663 acres Impacts to species identified in the section would be substantial adverse under NEPA and significant under CEQA, but they would be reduced to minor adverse and less than significant following mitigation.</td>
<td>Alternative 1A would result in the loss of potential habitat for animal species in the following amounts: Burrowing owl: 676 acres Loggerhead shrike: 663 acres American Badger: 663 acres Impacts to species identified in the section would be substantial adverse under NEPA and significant under CEQA, but they would be reduced to minor adverse and less than significant following mitigation.</td>
<td>Alternative 2 would result in the loss of potential habitat for animal species in the following amounts: Burrowing owl: 647 acres Loggerhead shrike: 634 acres American Badger: 634 acres Impacts to species identified in the section would be substantial adverse under NEPA and significant under CEQA, but they would be reduced to minor adverse and less than significant following mitigation.</td>
<td>Alternative 3 would result in the loss of potential habitat for animal species in the following amounts: Burrowing owl: 702 acres Loggerhead shrike: 689 acres American Badger: 689 acres Impacts to species identified in the section would be substantial adverse under NEPA and significant under CEQA, but they would be reduced to minor adverse and less than significant following mitigation.</td>
</tr>
<tr>
<td>Threatened and Endangered Species</td>
<td>Alternative 1 would result in the loss of 417 acres of habitat suitable for the desert tortoise and Mohave ground squirrel (MGS). Following mitigation, impacts on these species would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 1A would result in the loss of 417 acres of habitat suitable for the desert tortoise and MGS. Following mitigation, impacts on these species would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 2 would result in the loss of 399 acres of habitat suitable for the desert tortoise and MGS. Following mitigation, impacts on these species would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>Alternative 3 would result in the loss of 431 acres of habitat suitable for the desert tortoise and MGS. Following mitigation, impacts on these species would be minor adverse under NEPA and less than significant under CEQA.</td>
</tr>
</tbody>
</table>
## Affected Resources

<table>
<thead>
<tr>
<th>Resources</th>
<th>Alternative 1 Northerly Alignment 4-Lane Divided Expressway</th>
<th>Preferred Alternative: Alternative 1A Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)</th>
<th>Alternative 2 Existing Alignment 4-Lane Expressway with Median</th>
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<th>Alternative 4 No-Build Alternative</th>
<th>Avoidance, Minimization, and/or Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive Species</td>
<td>There is a potential for the introduction of invasive species related to the construction of Alternative 1. With the implementation of mitigation measures, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>There is a potential for the introduction of invasive species related to the construction of Alternative 1A. With the implementation of mitigation measures, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>There is a potential for the introduction of invasive species related to the construction of Alternative 2. With the implementation of mitigation measures, impacts would be minor adverse under NEPA and less than significant under CEQA.</td>
<td>No impact.</td>
<td>For details on measures BIO-38 and BIO-39, please see Section 3.22 in Chapter 3.</td>
<td></td>
</tr>
<tr>
<td>Cumulative Impacts</td>
<td>Alternative 1, in combination with other projects in the resource study area, could result in substantial adverse cumulative visual effects. For all other resource areas, project-level impacts would be mitigated so that Alternative 1 would not contribute to any substantial adverse cumulative impacts.</td>
<td>Alternative 1A, in combination with other projects in the resource study area, could result in substantial adverse cumulative visual effects. For all other resource areas, project-level impacts would be mitigated so that Alternative 1A would not contribute to any substantial adverse cumulative impacts.</td>
<td>Alternative 2, in combination with other projects in the resource study area, could result in substantial adverse cumulative visual and land use effects. For all other resource areas, project-level impacts would be mitigated so that Alternative 2 would not contribute to any substantial adverse cumulative impacts.</td>
<td>Alternative 3 in combination with other projects in the resource study area, could result in substantial adverse cumulative visual effects. For all other resource areas, project-level impacts would be mitigated so that Alternative 3 would not contribute to any substantial adverse cumulative impacts.</td>
<td>No cumulatively considerable impacts would occur.</td>
<td>None required.</td>
</tr>
</tbody>
</table>
Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) is proposing to realign and widen a 13.3-mile segment of State Route 58 (SR-58) from 0.4 miles west of the Kern County/San Bernardino Line Post Mile (PM) Route (R) 0.0 and a point that is approximately 7.5 miles (PM R12.9) east of United States Route 395 (US-395), from a two-lane conventional highway to a four-lane expressway; and construct a railroad grade separation and an interchange at the SR-58/US-395 Junction. 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 project would provide traffic relief for future demand and reduce maintenance costs. The total length of the proposed project is approximately 13.3 miles, including transition striping areas and the limits for the installation of construction signage. The proposed project is located within the Mojave Desert region of San Bernardino County, California. Figures 1.1 and 1.2 show the project vicinity and location and Figure 1.3 shows government land within the project vicinity. The nearest incorporated cities are California City, Barstow, and Adelanto, which are 35 miles north, east, and south of the project area. The nearest unincorporated communities are Boron, to the west, and Hinkley, to the east.

The proposed project is included in the Southern California Association of Governments (SCAG) 2013 Federal Transportation Improvement Program (FTIP) as Project 34770, which was adopted by SCAG on August 19, 2012 and found to be conforming by the Federal Highway Administration (FHWA) in December 2012. This project is also included in the 2012 Regional Transportation Plan (RTP), which was found conforming by FHWA and the Federal Transit Agency (FTA) on June 4, 2012. This project is listed in the RTP as project number 34770. Please see copies of the FTIP listing and the RTP listing in Appendix K of this document.

1.2 Purpose and Need

1.2.1 Project Purpose

The purpose of the proposed project is as follows:

- To improve east-west mobility and reduce congestion and travel time;
- To reduce potential traffic conflicts; and
- To maintain an uninterrupted and consistent facility between economic and community centers.

To determine whether a proposed project is a reasonable expenditure of public funds, the project purpose must be consistent with regional transportation planning documents. The project purpose is consistent with the transportation goals and objectives identified in the SCAG 2012 RTP, the
SR-58 Route Concept Report (RCR), and the US-395 RCR and, therefore, is a reasonable expenditure of public funds.

1.2.2 Project Need

1.2.2.1 Capacity and Transportation Demand

Existing Capacity and Level of Service

Traffic flows when demand for a highway is less than the capacity of the highway; however, when demand approaches capacity, speeds are reduced and congestion increases. Determining the capacity of a facility involves quantitative evaluation of the capability of a freeway section to carry traffic; therefore, capacity is generally determined by the number of vehicles that can reasonably pass over a given section of roadway, which may have varying conditions, in a given period of time.

The ability of a highway to accommodate traffic is typically measured in terms of level of service (LOS). LOS is a qualitative measure that describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. LOS conditions are designated as “A,” indicating best free-flow conditions, through “F,” indicating congested conditions.

LOS measures the extent to which peak-hour traffic volumes equal or exceed the maximum desirable capacity of a roadway. Roadway capacity is generally determined by the number of vehicles that can reasonably pass over a section of roadway in a given period of time. The *Highway Capacity Manual*, prepared by the National Transportation Research Board, identifies travel speed, freedom to maneuver, and proximity to other vehicles as important factors in determining the LOS on a roadway. LOS definitions for two-lane highways and multi-lane highways are shown in Figure 1.3 Highway Levels of Service Definitions.

As discussed in the September 2010 Traffic Study Report, in accordance with Caltrans’ guidelines, the LOS analyses were conducted using the *Highway Capacity Manual 2000* (Transportation Research Board 2000) methodology to obtain the LOS and corresponding measures of effectiveness for the study intersections and representative highway segments in the project area. Applying the existing and projected traffic volume data, intersection analysis was conducted for 2010 (Existing Conditions), 2019 (Opening Year), and 2039 (Horizon Year) conditions using Synchro 7.0 (for signalized intersections) and Highway Capacity Software, HCS2000 (for unsignalized stop-controlled intersections, mainline, and ramp merge/diverge analysis) to estimate level of service, average control delay per vehicle (in seconds), and length of queuing for weekday peak hours.
Figure 1.1
Regional Vicinity Map
State Route 58 Kramer Junction Expressway Project
Chapter 1. Proposed Project

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Figure 1.2
Project Location Map
State Route 58 Kramer Junction Expressway Project

Source: NAIP Imagery (2005)
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA#: 34770
Project Number: 0800006816
Figure 1.3
State and Federal Lands in the Project Vicinity
State Route 58 Kramer Junction Expressway Project
Chapter 1. Proposed Project

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Chapter 1. Proposed Project

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

1. Proposed Project

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

Figure 1.4: Highway Levels of Service Definitions

The LOS criteria for signalized intersections, as specified in the Highway Capacity Manual (HCM 2000) are based on the average delay per vehicle (see Table 1-1). The LOS for criteria for unsignalized stop-controlled intersections, as specified in HCM 2000, are provided in Table 1-2.

Table 1-1. Level of Service Criteria for Signalized Intersections

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Control Delay per Vehicle (seconds/vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt;= 10</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 10 - 20</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 20 - 35</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 35 - 55</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 55 - 80</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 80</td>
</tr>
</tbody>
</table>

Table 1-2. Level of Service Criteria for Unsignalized Stop-Controlled Intersections

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Control Delay per Vehicle (seconds/vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0-10</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 10 - 15</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 15 - 25</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 25 - 35</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 35 - 50</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 50</td>
</tr>
</tbody>
</table>


The LOS criteria for mainline segments, as specified in the Highway Capacity Manual, are provided in Tables 1-3 and 1-4. LOS for two-lane mainline segments is measured using percent-time-spent-following (PTSF) and average travel speed. PTSF is the average percentage of total travel time that vehicles must travel in platoons behind slower vehicles due to an inability to pass on a two-lane highway.

Table 1-3. Level of Service Criteria for Two-Lane Mainline Segments

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Percent-Time-Spent-Following&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Average Travel Speed (miles per hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt;=35</td>
<td>60.0</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 35 – 50</td>
<td>60.0</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 50 – 65</td>
<td>59.4</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 65 – 80</td>
<td>56.7</td>
</tr>
<tr>
<td>E*</td>
<td>&gt; 80</td>
<td>55.0</td>
</tr>
</tbody>
</table>

<sup>a</sup>Percent-time-spent-following is the average percent of total travel time that vehicles must travel in platoons behind slower vehicles due to an inability to pass on a two-lane highway. LOS based on free-flow speed of 60 miles/hour (mi/h)

* LOS F applies whenever the flow-rate exceeds the segment capacity


As shown in Table 1-4, LOS criteria for mainline segments with two lanes or more in each direction is based on traffic density, which is measured by the number of passenger cars per mile per lane.

Table 1-4. Level of Service Criteria for Multilane Mainline Segments

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Density (pc/mi/ln)&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt;= 11</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 11 – 18</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 18 – 26</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 26 – 35</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 35 – 45</td>
</tr>
<tr>
<td>F</td>
<td>Demand exceeds capacity</td>
</tr>
</tbody>
</table>

<sup>a</sup>Pc/mi/ln = passenger cars per mile per lane

Areas where vehicles merge and diverge from the mainline, as in the case of on- and off-ramps, are also a consideration when assessing the efficiency of traffic operations. The LOS criteria for ramp merge/diverge segments, as specified in the *Highway Capacity Manual*, are provided in Table 1-5. Similar to LOS criteria for freeway mainline segments, merge and diverge area LOS is based on traffic density, which is measured in passenger cars per mile per lane.

**Table 1-5. Level of Service Criteria for Merge and Diverge Areas**

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Density (pc/mi/ln) (^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt;= 10</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 10 – 20</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 20 – 28</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 28 – 35</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 35</td>
</tr>
<tr>
<td>F</td>
<td>Demand exceeds capacity</td>
</tr>
</tbody>
</table>

\(^a\) Pc/mi/ln = passenger cars per mile per lane


LOS analysis was conducted for the 2010 (Existing Conditions), 2019 (Opening Year) and 2039 (Horizon Year) under the No-Build conditions, and the results are presented in Tables 1-6 and 1-7. Queue lengths (assuming 25-feet per vehicle) were also estimated and presented in Tables 1-8 through 1-10. As indicated in the tables below, by 2019 under the no build alternative unacceptable operating conditions would occur, particularly during the PM peak hour. By 2039, under the no build alternative conditions the mainline is expected to operate at LOS F conditions, and the SR-58/US-395 intersection is expected to experience long delays at LOS F conditions during the PM peak hour. Long queues extending beyond 30 vehicles (or over 700 feet) in the eastbound and northbound approaches are expected.

**Table 1-6. Existing (2010) and Future Two-Lane Mainline Level of Service Analysis Results under No-Build Conditions during Peak Hour**

<table>
<thead>
<tr>
<th>Peak Hour (AM/PM)</th>
<th>Time-spent-following (%)</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
</tr>
<tr>
<td>2010 Existing Conditions</td>
<td>80</td>
<td>87</td>
</tr>
<tr>
<td>2019 Opening Year</td>
<td>85</td>
<td>91</td>
</tr>
<tr>
<td>2039 Horizon Year</td>
<td>92</td>
<td>96</td>
</tr>
</tbody>
</table>

Table 1-7. Existing (2010) and Future Intersection Level of Service Analysis Results under No-Build Conditions during Peak Hour – SR-58 at US-395

<table>
<thead>
<tr>
<th></th>
<th>Peak Hour</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delay (sec/veh)</td>
<td>LOS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
</tr>
<tr>
<td>2010 Existing Conditions</td>
<td>27.6</td>
<td>31.3</td>
<td>C</td>
</tr>
<tr>
<td>2019 Opening Year</td>
<td>28.5</td>
<td>36.8</td>
<td>C</td>
</tr>
<tr>
<td>2039 Horizon Year</td>
<td>44.7</td>
<td>113.4</td>
<td>D</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Approach</th>
<th>Queue (number of vehicles)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weekday</td>
<td>Weekend</td>
<td>Weekday</td>
</tr>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
</tr>
<tr>
<td>Eastbound</td>
<td>7</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Westbound</td>
<td>6</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Northbound</td>
<td>9</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Southbound</td>
<td>4</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>


Table 1-9. Future 2019 No-Build Queue Lengths during Peak Hour - SR-58 at US-395

<table>
<thead>
<tr>
<th>Approach</th>
<th>Queue (number of vehicles)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weekday</td>
<td>Weekend</td>
<td>Weekday</td>
</tr>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
</tr>
<tr>
<td>Eastbound</td>
<td>8</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Westbound</td>
<td>7</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Northbound</td>
<td>12</td>
<td>#19</td>
<td>11</td>
</tr>
<tr>
<td>Southbound</td>
<td>4</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

# 95th percentile volume exceeds capacity, queue may be longer.

Table 1-10. Future 2039 Horizon Year No-Build Queue Lengths during Peak Hour- SR-58 at US-395

<table>
<thead>
<tr>
<th>Approach</th>
<th>Queue (number of vehicles)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weekday</td>
<td>Weekend</td>
<td>Weekday</td>
</tr>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
</tr>
<tr>
<td>Eastbound</td>
<td>15</td>
<td>#31</td>
<td>#21</td>
</tr>
<tr>
<td>Westbound</td>
<td>11</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Northbound</td>
<td>#29</td>
<td>#35</td>
<td>22</td>
</tr>
<tr>
<td>Southbound</td>
<td>7</td>
<td>13</td>
<td>8</td>
</tr>
</tbody>
</table>

# 95th percentile volume exceeds capacity, queue may be longer.
Regional Population/Traffic Forecasts

Regional Population

A regional population forecast is provided in the 2012-2035 SCAG RTP Programmatic Environmental Impact Report (PEIR) available on SCAG’s website. The PEIR provides a projection of regional population up to forecast year 2035.

- For San Bernardino County, the 2011 baseline population was calculated at 2,066,502.
- The 2035 regional population forecast estimates a planned population of 2,749,800.

Given these numbers, it is estimated that there will be a 33 percent increase in regional population between 2011 and 2035 (SCAG 2011). Regional traffic will increase with the projected growth in population.

Traffic Forecasts

Existing conditions (2010) and traffic projections for 2019 Opening Year and 2039 Horizon Year under No-Build conditions are provided in Tables 1-11, 1-12, and 1-13, respectively. During weekdays, it is estimated that existing ADT will increase from 13,820 to 17,880 by 2019, and to 30,940 by 2039. The AM peak-hour volume (PHV) is estimated to increase from 596 to 770 by 2019, and to 1,330 by 2039. PM PHV is estimated to increase from 893 to 1,150 by 2019, and to 1,995 by 2039. During weekdays, traffic projections are highest during the 2039 PM peak hour. For both weekday and weekend passenger car and commercial truck traffic, traffic projections are consistently the highest during the PM peak hour.

Table 1-11. SR-58 Existing Traffic (2010, Existing Conditions)

<table>
<thead>
<tr>
<th></th>
<th>Weekday</th>
<th>Weekend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EB</td>
<td>WB</td>
</tr>
<tr>
<td>Average Daily Traffic (ADT)</td>
<td>7,336</td>
<td>6,484</td>
</tr>
<tr>
<td>Directional Split</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>Peak Hour Volume, AM</td>
<td>298</td>
<td>298</td>
</tr>
<tr>
<td>Peak Hour Volume, PM</td>
<td>472</td>
<td>421</td>
</tr>
<tr>
<td>Truck ADT</td>
<td>4,525</td>
<td>3,889</td>
</tr>
<tr>
<td>Truck Percentage of Total ADT</td>
<td>62%</td>
<td>60%</td>
</tr>
<tr>
<td>Truck Peak Hour Volume, AM</td>
<td>195</td>
<td>164</td>
</tr>
<tr>
<td>Truck Peak Hour Volume, PM</td>
<td>277</td>
<td>236</td>
</tr>
</tbody>
</table>

Table 1-12. SR-58 Forecast Traffic (2019, Opening Year No-Build)

<table>
<thead>
<tr>
<th></th>
<th>Weekday</th>
<th></th>
<th></th>
<th></th>
<th>Weekday</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EB</td>
<td>WB</td>
<td>Total</td>
<td>EB</td>
<td>WB</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Average Daily Traffic (ADT)</td>
<td>9,490</td>
<td>8,390</td>
<td>17,880</td>
<td>8,537</td>
<td>7,570</td>
<td>16,107</td>
<td></td>
</tr>
<tr>
<td>Directional Split</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Peak Hour Volume, AM</td>
<td>390</td>
<td>380</td>
<td>770</td>
<td>448</td>
<td>387</td>
<td>835</td>
<td></td>
</tr>
<tr>
<td>Peak Hour Volume, PM</td>
<td>610</td>
<td>540</td>
<td>1,150</td>
<td>448</td>
<td>487</td>
<td>935</td>
<td></td>
</tr>
<tr>
<td>Truck ADT</td>
<td>5,850</td>
<td>5,030</td>
<td>10,880</td>
<td>4,781</td>
<td>3,558</td>
<td>8,339</td>
<td></td>
</tr>
<tr>
<td>Truck Percentage of Total ADT</td>
<td>62%</td>
<td>60%</td>
<td>61%</td>
<td>56%</td>
<td>47%</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>Truck Peak Hour Volume, AM</td>
<td>250</td>
<td>210</td>
<td>460</td>
<td>236</td>
<td>215</td>
<td>451</td>
<td></td>
</tr>
<tr>
<td>Truck Peak Hour Volume, PM</td>
<td>350</td>
<td>310</td>
<td>660</td>
<td>249</td>
<td>244</td>
<td>493</td>
<td></td>
</tr>
</tbody>
</table>


Table 1-13. SR-58 Forecast Traffic (2039, Horizon Year, No-Build)

<table>
<thead>
<tr>
<th></th>
<th>Weekday</th>
<th></th>
<th></th>
<th></th>
<th>Weekday</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EB</td>
<td>WB</td>
<td>Total</td>
<td>EB</td>
<td>WB</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Average Daily Traffic (ADT)</td>
<td>16,398</td>
<td>14,542</td>
<td>30,940</td>
<td>14,770</td>
<td>13,097</td>
<td>27,867</td>
<td></td>
</tr>
<tr>
<td>Directional Split</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Peak Hour Volume, AM</td>
<td>670</td>
<td>660</td>
<td>1,330</td>
<td>775</td>
<td>670</td>
<td>1,445</td>
<td></td>
</tr>
<tr>
<td>Peak Hour Volume, PM</td>
<td>1,055</td>
<td>940</td>
<td>1,995</td>
<td>775</td>
<td>843</td>
<td>1,618</td>
<td></td>
</tr>
<tr>
<td>Truck ADT</td>
<td>10,167</td>
<td>8,725</td>
<td>18,892</td>
<td>8,271</td>
<td>6,156</td>
<td>14,427</td>
<td></td>
</tr>
<tr>
<td>Truck Percentage of Total ADT</td>
<td>62%</td>
<td>60%</td>
<td>61%</td>
<td>56%</td>
<td>47%</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>Truck Peak Hour Volume, AM</td>
<td>440</td>
<td>370</td>
<td>810</td>
<td>409</td>
<td>372</td>
<td>781</td>
<td></td>
</tr>
<tr>
<td>Truck Peak Hour Volume, PM</td>
<td>620</td>
<td>530</td>
<td>1,150</td>
<td>431</td>
<td>422</td>
<td>853</td>
<td></td>
</tr>
</tbody>
</table>


Projected Capacity Needs

The existing highway has insufficient capacity to handle present and future travel demand. Travel on the existing two-lane facility is forecasted to more than double along SR-58 from 13,820 vehicles per day in 2010 to 30,940 vehicles per day in 2039 Horizon Year. SR-58 remains the main east-west corridor for interregional travelers within the project vicinity, since no other viable alternatives for east-west interregional travel exist. The route concept report projects the LOS to deteriorate from “D/E” to E/F” if SR-58 is not improved. The improvements proposed under each of the build alternatives are expected to maintain the facility at a desirable LOS. Baseline year (2010) traffic volumes, as well as a forecast of future years traffic volumes Opening Year 2019 and Horizon Year 2039 are provided below in Table 1-14.
Table 1-14. Existing and Forecasted Mainline Traffic Data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Daily Traffic (ADT)</td>
<td>13,820</td>
<td>17,880</td>
<td>17,880</td>
<td>30,940</td>
<td>30,940</td>
</tr>
<tr>
<td>Total Peak Hour Volume, AM</td>
<td>596</td>
<td>770</td>
<td>770</td>
<td>1,330</td>
<td>1,330</td>
</tr>
<tr>
<td>Total Peak Hour Volume, PM</td>
<td>893</td>
<td>1,150</td>
<td>1,150</td>
<td>1,995</td>
<td>1,995</td>
</tr>
<tr>
<td>LOS (AM/PM)</td>
<td>D/E</td>
<td>E/E</td>
<td>A/A</td>
<td>E/F</td>
<td>A/B</td>
</tr>
</tbody>
</table>


**What Is Needed to Accommodate Capacity and Transportation Demand**

**Alternative to Signalized At-Grade SR-58/US-395 Intersection**

As shown in Table 1-7, the SR-58/US-395 intersection operates at LOS C during the AM and PM peak hours. Congestion and associated delays would only increase based on the projected increases in traffic volumes. In addition, mainline LOS currently operates at LOS D during the AM peak hour and LOS E during the PM peak hour, with projections showing these conditions worsening in the future (see Table 1-6). Expanding the SR-58 facility to four lanes would address capacity issues, but it would not address delays in traffic associated with the existing at-grade intersection. The only way to maintain SR-58 mainline traffic flow without slowdown is to grade separate SR-58 and US-395.

**Community Access Points (Side Streets/Driveways/Entrance Points/Exit Points)**

The existing two-lane highway has a high number of access points along the 13.3-mile project alignment. Almost all of these crossings are unpaved driveways, but there are also four paved access points; with all of these crossings being at-grade along SR-58. Additionally, the current two-lane configuration does not include acceleration lanes that allow slow-speed vehicles to merge with full-speed vehicles or deceleration lanes that allow vehicles to reduce speeds as they exit the highway. The four-lane facility design proposed under all of the build alternatives would allow traffic emanating from these access points to merge with slower traffic where appropriate.

**1.2.2.2 Roadway Deficiencies**

**Operational Deficiencies**

Gap between Existing Four-Lane Expressways: The existing traffic conditions of SR-58, within the proposed project limit, do not meet the requirements of a designated High Emphasis, Focus route under the Interregional Road System (IRRS) and should consist of a minimum facility standard of a four-lane expressway as exists at the Kern/San Bernardino County Line and the east end of the proposed project - PM R12.9 / R22.7. Also to attain the 1999 Route Concept.
necessary improvements for SR-58 segments 1 (PM R0.0/5.4) and 2 (PM 5.4/12.9), these segments should be upgrade from a two-lane highway to a four-lane expressway.

At both the western and eastern project termini, SR-58 is a four-lane expressway. SR-58 within District 8 begins at the Kern/San Bernardino County line as a four-lane expressway transitioning to a two-lane conventional highway. At PM 12.9, SR-58 transitions to a four-lane expressway then back to a two-lane conventional highway before transitioning into a freeway at PM R31.0, ending at its junction with I-15. The four-lane segments at each end of the project limits consist of 12-foot lanes, 10-foot outside shoulders, 5-foot inside shoulders, and 100-foot median. Existing right-of-way at these segments of SR-58 is 230 feet at the west end and 480 feet at the east end.

Between the project termini, SR-58 is a two-lane highway, creating a gap in the four-lane expressway system. A closure of this gap is needed to provide route continuity between the existing four-lane expressways at PM R0.0 to the west and PM R12.9 to the east. Problems associated with this gap include sudden decreases in roadway speed due to less available highway capacity, maneuvering difficulties for oversized trucks due to the sudden decrease in total roadway width, insufficient roadway width for acceleration/deceleration lanes for the 67 access points within the project area, and general non-compliance with the IRRS legislative standards for a four-lane expressway (see discussion below). Gap closure between segments of the SR-58 expressway would improve these operational deficiencies.

At-Grade Railroad Crossing: An at-grade railroad crossing is located on SR-58 approximately 2.5 miles west of the existing at-grade US-395 intersection. This at-grade railroad crossing is utilized by approximately 35 trains per day\(^1\) operated by BNSF. These trains carry rail cargo on the 66-mile route between Mojave and Barstow and also between western U.S. ports and economic centers to the east. The average train is 3,840 feet long, with 60 rail cars, and takes 67 seconds\(^2\) to cross SR-58 at the at-grade crossing 2.5 miles west of Kramer Junction. Substantial delays are known to occur multiple times per day because of sudden stops in highway traffic flow, which can last for extended periods of time. If this sudden stop in highway traffic flow were to occur in the future when higher traffic levels are projected, longer queues and traffic delays are expected.

Signalized At-Grade US-395 Intersection: In addition to the delays caused by the at-grade railroad crossing, traffic flow is further interrupted by the signalized intersection at SR-58 and US-395. As indicated in Table 1-7 and Table 1-8, above, peak-hour LOS at the intersection of US-395 and SR-58 varies; by 2039, the SR-58 mainline is expected to operate at LOS F conditions, and the SR-58/US-395 intersection is expected to experience long delays at LOS F conditions during the PM peak hours. Long queues extending beyond 30 vehicles (or over 700 feet) in the eastbound and northbound approaches are expected during peak hours in 2039, as indicated in Table 1-10.

---
\(^1\) U.S. DOT Crossing Inventory Information, Railroad Crossing No: 028209C
\(^2\) Trains cross SR-58 at 70 miles per hour at this crossing, and crossing gates are required to be lowered for 20 seconds before each train arrives at the crossing and 10 seconds after each crossing. With 3,840-foot average train length, a single crossing would require a vehicle traveling on SR-58 to wait 67 seconds.
Access Control: There are four paved access points and numerous informal access points within the proposed project limits. Traffic flow is impeded and congestion is exacerbated by vehicles that turn into or come from the various access points. Specifically, traffic is delayed as vehicles approach the access point and slow to a stop or slow for a left- or right-turn movement. Traffic is also delayed as vehicles come from the access point and then gradually build speed after entering the highway. The delay is further compounded by oversized trucks with wide turning radii and even slower acceleration/deceleration speeds when entering and exiting the highway.

Access issues are most prevalent at the signalized at-grade US-395 intersection. Table 1-15, 1-16, and 1-17, below, provide turning movement volume data for the Kramer Junction, SR-58/US-395 intersection for the typical midweek weekday AM and PM peak hours for 2010 (Existing Conditions), 2019 (Opening Year), and 2039 (Horizon Year) under the No-Build conditions. The AM and PM peak hour volume shown is for 8:00 to 9:00 AM and for 4:00 to 5:00 PM, respectively. Turning movements are highest during the weekday PM peak hour, particularly right turns from EB SR-58 to southbound (SB) US-395. These turning movements currently come from 169 vehicles during the weekday PM peak hour but are expected to increase to 219 vehicles in 2019 (Opening Year) and 379 vehicles in the 2039 (Horizon Year). The frequency of these turning movements further impedes traffic flow and exacerbates congestion. Additional discussion regarding access control is included under Section 1.2.2.4, Legislation, Freeway and Expressway System, below.

**Table 1-15. SR-58/US-395 Existing (2010) Intersection Turning Movement Volumes - Weekday AM and PM Peak Hour**

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>Left</td>
<td>Right</td>
<td>Thru</td>
<td>Left</td>
<td>Right</td>
<td>Thru</td>
</tr>
<tr>
<td>Weekday AM Peak Hour Vehicles</td>
<td>18</td>
<td>94</td>
<td>193</td>
<td>19</td>
<td>28</td>
<td>159</td>
</tr>
<tr>
<td>Weekday PM Peak Hour Vehicles</td>
<td>11</td>
<td>169</td>
<td>294</td>
<td>29</td>
<td>14</td>
<td>232</td>
</tr>
</tbody>
</table>

NB = northbound, WB = westbound, SB=Southbound, EB = northbound

**Table 1-16. SR-58/US-395 2019 Opening Year (No-Build) Intersection Turning Movement Volumes - Weekday AM and PM Peak Hour**

<table>
<thead>
<tr>
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<td>Left</td>
<td>Right</td>
<td>Thru</td>
<td>Left</td>
<td>Right</td>
<td>Thru</td>
</tr>
<tr>
<td>Weekday AM Peak Hour Vehicles</td>
<td>24</td>
<td>122</td>
<td>250</td>
<td>25</td>
<td>36</td>
<td>206</td>
</tr>
<tr>
<td>Weekday PM Peak Hour Vehicles</td>
<td>15</td>
<td>219</td>
<td>381</td>
<td>37</td>
<td>19</td>
<td>300</td>
</tr>
</tbody>
</table>

NB = northbound, WB = westbound, SB=Southbound, EB = northbound
Table 1-17. SR-58/US-395 2039 Horizon Year (No-Build) Intersection Turning Movement Volumes - Weekday AM and PM Peak Hour

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Left</td>
<td>Right</td>
<td>Thru</td>
<td>Left</td>
<td>Right</td>
</tr>
<tr>
<td>41</td>
<td>211</td>
<td>432</td>
<td>44</td>
<td>62</td>
</tr>
<tr>
<td>Weekday PM Peak Hour Vehicles</td>
<td>25</td>
<td>379</td>
<td>659</td>
<td>64</td>
</tr>
</tbody>
</table>

NB = northbound, WB = westbound, SB = Southbound, EB = northbound

Acceleration/Deceleration Lanes: The current two-lane configuration does not include acceleration lanes for slow vehicles to use when entering the highway and merging with full-speed vehicles or deceleration lanes for full-speed vehicles to use when approaching exit points. This is particularly important at the at-grade US-395 intersection.

Structural Section Limitations


SR-58 carries a high volume of interstate truck traffic that transports agricultural and commercial commodities. It is expected that SR-58 will continue to carry high truck volumes, as much as 62 percent in 2039, according to the September 2010 Traffic Study Report, because the route is designated for extra-legal and oversized loads (State Highway Extra Legal Load [SHELL]) under the Surface Transportation Assistance Act (STAA).

Equivalent single-axle load (ESAL) is a measure of the number of 18,000-pound single axle trucks on a roadway that is used to estimate the amount of damage that a particular pavement will be subject to over the design life of the pavement. The use of ESALs allows for a consistent measure of the damage caused by trucks, which vary by type of axle loads. These calculations are made to determine the pavement’s structural design, thickness, and mix (Pavement Interactive 2012). ESALs specific to SR-58 for a 10-, 20-, and 40-year design life are provided in Table 1-19, below. The total projected ESALs during the pavement design life are converted into a traffic index (TI) that is used to determine minimum pavement thickness. The larger traffic indices correspond with thicker pavement structural sections. As indicated in Table 1-20, below, progressively larger traffic indices were calculated for a 10-, 20-, and 40-year design life, respectively.

The current pavement structural section of SR-58 was not designed to accommodate the recent designation for STAA extra-legal and oversized loads or the ESALs listed in Table 1-19, which
will result in increased pavement maintenance costs. Additional discussion regarding STAA trucks is provided in Section 1.2.2.4, Legislation, Surface Transportation Assistance Act of 1982.

Table 1-18. SR-58 Current Forecast Traffic Indices (TI) and Equivalent Single-Axle Load (ESAL) (TI based on 2019 levels)

<table>
<thead>
<tr>
<th>TI and ESAL Year</th>
<th>Inside Lane</th>
<th>Outside Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mainline</td>
<td>Shoulder</td>
</tr>
<tr>
<td>10-year TI</td>
<td>13.2</td>
<td>8.3</td>
</tr>
<tr>
<td>10-year ESAL</td>
<td>24,306,047</td>
<td>486,121</td>
</tr>
<tr>
<td>20-year TI</td>
<td>14.3</td>
<td>9.0</td>
</tr>
<tr>
<td>20-year ESAL</td>
<td>48,612,094</td>
<td>972,242</td>
</tr>
<tr>
<td>40-year TI</td>
<td>15.5</td>
<td>9.7</td>
</tr>
<tr>
<td>40-year ESAL</td>
<td>97,224,189</td>
<td>1,944,484</td>
</tr>
</tbody>
</table>


Table 1-19. US-395 Current and Forecast TI and ESAL (TI based on 2019 levels)

<table>
<thead>
<tr>
<th>TI and ESAL Year</th>
<th>Inside Lane</th>
<th>Outside Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mainline</td>
<td>Shoulder</td>
</tr>
<tr>
<td>10-year TI</td>
<td>12.2</td>
<td>7.7</td>
</tr>
<tr>
<td>10-year ESAL</td>
<td>13,011,358</td>
<td>260,227</td>
</tr>
<tr>
<td>20-year TI</td>
<td>13.3</td>
<td>8.3</td>
</tr>
<tr>
<td>20-year ESAL</td>
<td>26,022,715</td>
<td>520,454</td>
</tr>
<tr>
<td>40-year TI</td>
<td>14.4</td>
<td>9.0</td>
</tr>
<tr>
<td>40-year ESAL</td>
<td>52,045,430</td>
<td>1,040,909</td>
</tr>
</tbody>
</table>


**What Is Needed to Correct Roadway Deficiencies**

- Gap closure between segments of the expressway would improve operational deficiencies;
- Separation of rail and vehicular traffic would ensure an uninterrupted flow of highway traffic;
- Separation of the SR-58 intersection with US-395 would allow for uninterrupted traffic flow;
- Access controls that limit the number of entrance and exit points to SR-58 from driveways, side streets, and the US-395 highway crossing would help minimize vehicular conflicts;
- Acceleration and deceleration lanes that can be used as merge and diverge areas would minimize vehicular conflicts; and
- Installation of sufficient roadway pavement section would be needed to accommodate the increasing ESAL and STAA extra legal and oversize loads over the design life of the pavement.
• Widening of US-395 below the SR-58 crossing structures would be needed to accommodate the projected growth in queue lengths along US-395, and to allow vehicles to get on or off the SR-58 ramps.

1.2.2.3 Legislation

State Highway System (SHS)

According to Streets and Highways Code (SHC), Section 300 et seq., the intent of defining the SHS is to ensure that it serves the state’s heavily traveled rural and urban corridors. Such corridors connect the various communities and regions of the state and serve the state’s economy by connecting centers of commerce, industry, agriculture, mineral wealth, and recreation. SR-58 was designated as a part of the SHS under SHC, Section 358, and the stretch of SR-58 within the project limits is therefore considered a heavily traveled rural corridor that connects communities, regions, and economic centers; therefore, it is necessary to ensure that connections to communities, regions, and economic centers are maintained.

Intermodal Corridor of Economic Significance Act

The Intermodal Corridor of Economic Significance Act established the Intermodal Corridors of Economic Significance (ICES) system, as outlined in SHC Sections 2190–2191. The ICES system is composed of corridors that are essential to the California economy as well as national and international trade. Routes identified as part of the ICES system are important transportation arteries that connect or provide access to major sea or waterway ports, nationwide railway systems, airports, and interstate and intrastate highway systems, thereby serving as an intermodal corridor of economic importance. The stretch of SR-58 within the project limits, which is part of the ICES system, provides intermodal access to centers of commerce, as it would serve as a connecting link between airports, truck terminals, rail yards, and ports, as detailed in Section 1.2.2.5.

Interregional Road System

The IRRS is established in SHC Section 164.3. The IRRS is a system of roads or projects that provide interregional connections to all economic centers in the state (California Highways 2013). SR-58 between I-5 and I-15 is part of the IRRS. It is further classified as a High-Emphasis Focus Route, which requires a facility to be, at a minimum, a four-lane expressway (Caltrans 1999a) as exists at the Kern/San Bernardino County Line and at the east end of the proposed project - PM R12.9/R22.7. Also, to attain the 1999 Route Concept necessary improvements for SR-58 segments 1 (PM R0.0/5.4) and 2 (PM 5.4/12.9), these segments should be upgraded from a two-lane highway to a four-lane expressway. The proposed project involves a segment of SR-58 that is part of the IRRS but one of two segments that do not meet the IRRS requirement of a four-lane expressway. As part of the IRRS plan, it will be necessary to meet minimum standards and upgrade the existing two-lane highway to a four-lane expressway.
Chapter 1. Proposed Project

Freeway and Expressway System

The Freeway and Expressway System (FES) is established in SHC Sections 250–257. The FES is a statewide system of freeways and expressways and connections thereto, creating a comprehensive system of access-controlled freeways and expressways throughout the state (California Highways 2013). The stretch of SR-58 within the project limits is part of the FES and therefore subject to access-control requirements.

Surface Transportation Assistance Act of 1982

In 1982, the federal government passed the Surface Transportation Assistance Act (STAA), a comprehensive transportation funding and policy act to address concerns about the surface transportation infrastructure (highways and bridges). The act allows oversize trucks on designated routes. SR-58 is a designated STAA route, which must meet safety standards to accommodate the oversize STAA trucks. The proposed project involves a segment of SR-58 designated for use by STAA trucks. As a designated STAA route, there is a need to meet standards so that oversize STAA trucks can be accommodated.

What Is Needed by Legislation

- As part of the SHS, it is necessary to ensure that connections to communities, regions, and economic centers are maintained.
- As part of the ICES system, it is necessary to ensure continued and uninterrupted access to intermodal centers of commerce.
- As part of the IRRS, it is necessary to meet minimum standards and widen the existing two-lane highway to a four-lane expressway.
- As part of the FES, there is a need to implement access control.
- As a designated STAA route, there is a need to meet safety standards and accommodate the oversized STAA trucks.

1.2.2.4 Modal Interrelationships and System Linkages

Interface with Airport, Rail, Port, and Mass Transit Facilities

Several airports are located within an approximately 90-mile radius of the project site. These include the Southern California Logistics Airport, San Bernardino International Airport, Ontario International Airport, East Kern Airport, Palmdale Airport, and March Inland Cargo Port. All of the airports provide cargo services, with most also providing commuter air travel services. Table 1-21, below, provides data regarding cargo tonnage per airport and the approximate distance from the project area.

Additional airports within the immediate project area include Barstow Daggett, Apple Valley, Borax, El Mirage Field (Adelanto), and Gray Butte Field (see Table 1-22).
Table 1-20. Airport Distance and SCAG 2035 Cargo Tonnage

<table>
<thead>
<tr>
<th>Facility</th>
<th>Approximate Distance</th>
<th>Tonnage (Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern California Logistics Airport</td>
<td>38 miles southwest</td>
<td>1,290</td>
</tr>
<tr>
<td>San Bernardino International Airport</td>
<td>75 miles southwest</td>
<td>230</td>
</tr>
<tr>
<td>Ontario International Airport</td>
<td>80 miles southwest</td>
<td>1,959</td>
</tr>
<tr>
<td>East Kern Airport</td>
<td>48 miles west</td>
<td>Unknown*</td>
</tr>
<tr>
<td>Palmdale Airport</td>
<td>75 miles southwest</td>
<td>781</td>
</tr>
<tr>
<td>March Inland Port (Airport)</td>
<td>92 miles southwest</td>
<td>1,130</td>
</tr>
</tbody>
</table>

* East Kern Airport is not within the SCAG jurisdiction that provided the 2035 projections. Source: SCAG 2008 (RTP, p. 111).

Table 1-21. Smaller Airports near the Project Site

<table>
<thead>
<tr>
<th>Facility</th>
<th>Approximate Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barstow Daggett Airport - small county-owned public-use airport with two runways</td>
<td>40 miles east</td>
</tr>
<tr>
<td>Apple Valley Airport - small county-owned airport with two runways and used mostly for general aviation.</td>
<td>35 miles southeast</td>
</tr>
<tr>
<td>Borax Airport - Private heliport facility</td>
<td>4.5 miles north</td>
</tr>
<tr>
<td>El Mirage Field (Adelanto) – private airport primarily used for the development and testing of Unmanned Aerial Vehicles (UAV) for the United States military.</td>
<td>26 miles south</td>
</tr>
<tr>
<td>Gray Butte Field Airport - private airport</td>
<td>31 miles southeast</td>
</tr>
<tr>
<td>Source: Google Earth 2013.</td>
<td></td>
</tr>
</tbody>
</table>

As discussed previously, SR-58 is part of the ICES system of routes, which are important transportation arteries that provide access to major sea or waterway ports, nationwide railway systems, airports, and interstate and intrastate highway systems. SR-58 is also part of the IRRS, which requires a four-lane expressway for connections to economic centers. Given the airport cargo tonnage projections, there is a need to facilitate the movement of cargo via ground and rail transport throughout the region. Because of the project’s centralized location between the rail yards and the rail complex, there is a need to ensure uninterrupted transport of rail cargo in the region; therefore, avoidance of conflicts between highway traffic and rail traffic is beneficial in the transportation of regional cargo.

Rail cargo yards within approximately 100 miles of 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/Union Pacific Bakersfield Rail Yard (95 miles to the northwest); and the BNSF Victorville Rail Yard, Southern Pacific San Bernardino Rail Yard, BNSF San Bernardino Rail Yard, and Union Pacific Mira Loma Rail Yard, which are 34, 60, 63, and 68 miles to the south, respectively. Additionally, the planned Southern California Rail Complex at the Southern California Logistics Airport will provide on-site industrial facilities with direct linkages to rail, air, and ground cargo transport (Southern California Logistics Airport and Rail Authorities 2012).
The proposed project is located approximately 150 miles from the major ports in southern California (Port of Los Angeles, 130 miles; Port of Long Beach, 130 miles; Port of San Diego, 175 miles; Port Hueneme, 170 miles). As discussed above, SR-58 is part of the ICES system of routes, which are important transportation arteries that provide access to major sea or waterway ports, nationwide railway systems, airports, and interstate and intrastate highway systems. SR-58 is also part of the IRRS, which requires a four-lane expressway for connections to economic centers. Cargo from southern California ports is likely to pass through the project area as it moves eastward because there are few continuous east/west routes that provide an interregional connection in this area.

There are no existing or planned commuter rail projects in the vicinity of the proposed project (SCAG 2008a); therefore, the proposed project would not interface with mass transit facilities that provide commuter rail services.

### 1.2.2.5 Project as a Connecting Link

The proposed project would serve as a connecting link between the following facilities and/or systems:

- **Local Connections:** The Southern California Logistics Airport is located 33 miles south of the project area. The planned Southern California Rail Complex at the Southern California Logistics Airport will provide on-site industrial facilities with direct linkages to rail, air, and ground cargo transport. Cargo transported between this cargo center and economic centers to the east is likely to pass through Kramer Junction via rail transport or ground transport on SR-58.

- **Regional Connections, Truck Terminals, and Airports:** The airports located within 90 miles of the proposed project include the San Bernardino International Airport, Ontario International Airport, East Kern Airport, Palmdale Airport, and March Inland Cargo Port. These airports handle a substantial amount of cargo that requires rail or ground transport. Additionally, 10 major truck terminals and 80 trucking firms are located in San Bernardino County. Truck carriers entering or leaving southern California often pass through San Bernardino County and the project area. Trucks make up approximately 50 percent or greater of the highway traffic on this portion of SR-58 at all times of day, both weekdays and weekends.

- **Regional Connections, Rail, and Port:** Rail transport can be facilitated by reducing conflicts between railroad traffic and highway traffic. The railroad crossing within the project area traverses to the BNSF Barstow Rail Yard and the Union Pacific Yermo Rail Yard and points east. These rail yards also connect to the BNSF/Union Pacific Bakersfield Rail Yard and Port Hueneme to the northwest. The BNSF Barstow Rail Yard and the Union Pacific Yermo Rail Yard are also connected to the Victorville Rail Yard, Southern Pacific San Bernardino Rail Yard, BNSF San Bernardino Rail Yard, and Union Pacific Mira Loma Rail Yard to the south. These rail yards to the south are also linked to the Port of Los Angeles and Port of Long Beach.

- **Bikeways:** The *County of San Bernardino 2007 General Plan* provides a list of officially designated bikeways. There are no officially designated bikeways within the project limits, on any portion of SR-58 in San Bernardino County, or on any side street, freeway, or
highway that crosses SR-58 in San Bernardino County. The nearest officially designated bikeways are the Class I bikeways on Navajo Road, Ocotillo Way, and Yucca Loma Road in Apple Valley and the Class II bikeways on E Avenue, G Avenue, Olive Street, and Peach Avenue in Hesperia. These bikeways are located, at a minimum, 44 miles south of the project area (County of San Bernardino 2006).

1.3 Independent Utility and Logical Termini

Logical termini are defined as the rational end points for transportation improvement and review of environmental impacts. A problem of segmentation may arise if a transportation need extends throughout an entire corridor but environmental issues and transportation need are discussed for only a segment of the corridor.

A project with independent utility or independent significance functions as a standalone improvement, does not restrict consideration of other reasonably foreseeable transportation improvements in an adjoining section, and should not force immediate transportation improvements on the remainder of the facility (highway).

1.3.1 Logical Termini and Sufficiency in Length

Improvements would close the gap between the two existing four-lane expressway segments immediately west and east of project area. The logical termini for physical improvements for this project, is the location where the expressway changes to a highway (i.e., changes from four lanes to two lanes) and the location where the highway changes back to an expressway (i.e., changes from two lanes to four lanes). The physical improvements for the proposed project would extend from PM 143.5 to PM 12.9; this also accounts for signage during construction.

1.3.2 Independent Utility

The proposed project would close the gap between two existing four-lane expressway segments and provide an interchange at US-395. The proposed project, and its design features, would not force immediate transportation improvements elsewhere or on the remainder of the highway for the following reasons:

- the project closes a gap between two four-lane highway segments and does not create a need for additional lanes beyond the westerly or easterly project termini,
- the new interchange will be designed to accommodate all planned/programmed projects within the project area, and
- the design will not create the need for projects or improvements other than those previously proposed, planned, and/or programmed.


Chapter 2  
Project Alternatives

2.1 Project Description

This section describes the proposed action and the design alternatives that were developed to meet the identified need through accomplishing the defined purposes, while avoiding or minimizing environmental impacts. The alternatives are:

- Alternative 1—Northerly Alignment Four-Lane Divided Expressway
- Alternative 1A—Northerly Alignment Four-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)
- Alternative 2—Along Existing Alignment Four-Lane Divided Expressway
- Alternative 3—Southerly Alignment Four-Lane Divided Expressway
- Alternative 4—No-Build Alternative

The proposed project is located within the Mojave Desert region of San Bernardino County, California, on SR-58 from 0.4 miles west of the Kern/San Bernardino County line to approximately 7.5 miles east of US-395. The total length of the proposed project is approximately 13.3 miles, including transition striping areas and the limits for the installation of construction signage. SR-58, within the proposed project limits, is a two-lane conventional highway constructed on relatively flat terrain with sheet flow drainage runoff. The width of each lane and shoulder is approximately 12 feet and four feet wide, respectively. The pavement surface consists of asphalt concrete about one foot thick. The existing right-of-way width varies from 120 feet to 400 feet throughout the project limits. The purpose of the proposed project is to: improve east-west mobility and reduce congestion and travel time; reduce potential traffic conflicts; and maintain uninterrupted and consistent facility design between economic and community centers.

2.2 Project Alternatives

Four build alternatives (Alternatives 1, 1A, 2, and 3) and a No-Build Alternative (Alternative 4) are being considered (refer to Figure 2.1, Build Alternative 1; Figure 2.1a, Build Alternative 1A; Figure 2.2, Build Alternative 2; and Figure 2.3, Build Alternative 3). Each of the build alternatives would result in a four-lane divided expressway. Directionally, Alternative 1 and Alternative 1A are located north of the SR-58/US-395 intersection. Alternative 2 is along the existing SR-58 and Alternative 3 is south of the intersection. All four build alternatives would:

- Increase capacity from the current two-lane configuration to four lanes.
- Include reclassification from conventional highway to expressway.
- Replace the current signalized intersection of SR-58/US-395 with an interchange.
- Provide a grade separation of SR-58 over the existing BNSF railroad tracks.
Protocol for the selection of alternatives exists at both the state and federal level. An important element of these standards is a clear explanation of why and how the alternatives were chosen. Caltrans has adhered to the following protocol items in the completion of this document:

- All alternatives under consideration require a comparable level of analysis and discussion.
- All alternatives considered but rejected are discussed, including justification for rejection.
- All alternatives under consideration must have logical termini, which are defined as end points that are rational from a transportation and environmental standpoint.
- All alternatives must have independent utility or be fully functional without the completion of other projects.
- All alternatives must not restrict the completion of other transportation projects or the consideration of other alternatives.
- All alternatives not within the lead agency’s responsibility are included.
- The No-Build Alternative provides a baseline for consideration of other alternatives and may be preferred if other alternatives have significant impacts on the environment, do not serve the stated need and purpose, or are not economically feasible.

### 2.2.1 Common Design Features of the Build Alternatives

The following features are common to all four build alternatives:

- **Four-Lane Expressway:** Construction of a four-lane divided expressway from 0.4 miles west of the Kern County/San Bernardino county line to a point 13.3 miles east. The facility would have full access control between PM 0.0 and PM 9.0, with uncontrolled access along the eastern end of the alignment. Typical cross sections would consist of an approximately 400-foot right-of-way, 100-foot median with mostly a 4:1 or flatter fill slope, 12-foot-wide travel lanes, 10-foot outside shoulders, and 5-foot inside shoulders.

- **Expansion of US-395 at SR-58:** The US-395 segment surrounding SR-58 would be widened from two lanes to four lanes plus a left-turn lane. Lanes would be 12 feet wide with 8-foot outside shoulders having mostly a 4:1 or flatter side slope. US-395 just north and south of the interchange would be constructed on a proposed 100-foot right-of-way. The length of the expanded section would be approximately 0.3 miles and would taper to the existing two lanes to the north and south of the crossing structure.

- **SR-58 Crossing Structures above US-395:** The dual crossing structures (one for eastbound vehicles and the other for westbound vehicles) would grade-separate mainline SR-58 traffic from US-395. The crossing structures would each be 151 feet in length and would maintain a minimum vertical clearance of 20 feet for US-395 traffic. The bridges would stand 30 feet high above the ground.

- **Interchange Ramps at SR-58/US-395:** The interchange ramps from SR-58 would have a single merge/diverge lane that transitions to two 12-foot lanes at the connection to US-395.

- **SR-58 Crossing Structures above Railroad Line:** The dual crossing structures would grade-separate mainline SR-58 traffic from the BNSF railroad line. The eastbound crossing
structure would be 611 feet in length and the westbound structure would be 558 feet in length. The structures would leave a 30-foot horizontal clearance and 21.5-foot vertical clearance for trains. The location of the structure would vary by alternative depending on where the alignment would cross the railroad line.

- Traffic Control: A stop sign is proposed at the intersection of the westbound ramps of SR-58 at US-395 and a traffic signal is proposed at the intersection of the eastbound ramps of SR-58 at US-395.

- Lighting: Directional lighting is proposed to illuminate the SR-58/US-395 interchange as well as the connection of SR-58 with the entrance and exit ramps. Pole heights will be 30 to 35 feet in height. Lighting will be focused away from adjacent buildings and habitats.

- Pedestrian Access: With the exception of Alternative 2, pedestrian crossings at the existing SR-58/US-395 at-grade intersection would be unaffected, and pedestrians would be able to cross SR-58 and US-395. Under Alternative 2, an upgraded crosswalk would be provided.

- Wire Mesh Fence: A wire mesh fence with steel posts will be used at the right-of-way line.

- Right-of-Way: Purchase of right-of-way sufficient to allow construction of two additional lanes within the median if additional capacity is determined to be needed in the future.

- Culverts: In coordination with the California Department of Fish and Wildlife, two oversize culverts, one to the east and one to the west of US-395, would be installed underneath SR-58 in order to increase the north-south interactions of desert tortoises on either side of US-395. These culverts will be a minimum of six feet tall and 10 feet wide.

- Culvert Design: There are 46 proposed drainage systems and three existing systems. All new culverts would be soft bottomed and sized to accommodate medium-size mammals in the project area for wildlife movement. The proposed locations of the culverts are based on preliminary engineering. Hydrology studies will be performed in conjunction with final design, which will be used to confirm final locations and sizes of the culverts.

- Roadway Elevation: The roadway would be on fill, approximately three feet above original ground.

Advisory Design Features

The Caltrans Highway Design Manual allows for flexibility in applying highway design standards and approving design exceptions that take the context of the project location into consideration, which enables the designer to tailor the design, as appropriate, for the specific circumstances while maintaining safety. The purpose of the design exception process is to create a written record that documents the engineering decisions leading to the approval of each exception from a design standard. Fact sheets are developed to document and justify the reasoning behind the deviation from design standards. A Fact Sheet Exceptions to Advisory Design Standards will be required for each of the build alternatives for the side slope steeper than 4:1 at the SR-58/US-395 interchange.
Utility Relocations

Several utility types may require relocation so that they can continue to function, including overhead and underground electrical, underground gas, overhead and underground telephone, overhead cable telephone, water, septic tanks, petroleum pipeline, and underground fiber optic. Based on an initial utility search, the following agencies/companies maintain utilities within the project area:

1. Southern California Edison-Distribution/Transmission,
2. AT&T,
3. El Paso Mojave Pipeline Operating Company,
4. PG&E Gas Transmission Hinkley,
5. San Bernardino County Transmission,
6. Southern California Gas Company-Transmission,
7. Southern California Gas Company Distribution,
8. PG&E Transmission & Distribution Ridgecrest,
9. Southwest Gas, and

Underground utilities that cross the highway would be encased in accordance with Caltrans policy (Caltrans 1999b). The following utilities would require relocation: transmission towers, transmission “H” frames, wooden transformer poles, wooden poles, and fiber optics.

Relinquishment of Existing SR-58

The segment of the existing SR-58 between PM T0.44 and PM R 8.1 within the project limits would be relinquished to the County of San Bernardino. Cul-de-sacs would be constructed at approximately PM T1.3 and PM R7.9 along the relinquished segment. The area between the cul-de-sac locations would operate as a local roadway. Scope, cost, and schedule of the relinquishment information will be included in the Project Report.

Construction Information

The construction period would last approximately 28 months. Rock, sand, gravel, and other imported materials would be taken from sites within the vicinity of the project location. The build alternatives would require the following amounts of borrowed material from the area surrounding the project:

- Alternative 1: 2,919,932 cubic yards
- Alternative 1A: 2,946,177 cubic yards
- Alternative 2: 2,645,120 cubic yards
- Alternative 3: 2,341,510 cubic yards
Specific material sites have not yet been identified. Since material excavation in such large quantities may have impacts, information on the potential sites the contractor may use will be provided in the Final EIR/EIS. It is anticipated that any material sites would have already been covered for grading regarding their environmental impacts.

Full closures of the existing SR-58 facility would not be required during the construction period due to the distance of the build alternatives from the existing alignment. Where the alignments overlap, the new expressway would be constructed on the new alignment and then it would be connected with existing SR-58. Before the connection, median crossover would be constructed to redirect eastbound traffic into the westbound lanes (and vice versa) having both direction of traffic on a same roadbed. Detailed stage construction for the preferred alternative will be prepared during the design phase. During final design, refinements may be made in an effort to minimize the amount of land to be purchased for the facility; only land absolutely required would be converted to transportation uses.

2.2.2 Unique Features of Build Alternatives

The features described below are unique to each build alternative.

2.2.2.1 Build Alternative 1—Northerly Alignment Four-Lane Divided Expressway

Build Alternative 1 is located north of the existing SR-58 and begins 0.4 miles west of the Kern/San Bernardino County Line (PM R143.5) and ends 7.5 miles east of the SR-58/US-395 junction (PM R12.9) (refer to Figure 2.1). The crossing structure over the BNSF railroad line would be located 2.5 miles to the east of Kramer Junction. The following improvements would be proposed under this alternative:

- A proposed diamond interchange (Type L-2 Interchange) with US-395 would be located approximately one-third mile north of the existing US-395 and SR-58 junction, and a railroad grade separation (overhead).
- Standard road connections would be provided for two or three local roads, such as Canal Lane and Kramer Hills Road.

Right-of-Way Acquisition

Under Alternative 1, the following four properties identified by the Assessor Parcel Numbers (APNs) below contain uses that would potentially be displaced:

- APN 049219102: Existing residence. A partial acquisition of this parcel would be required.
- APN 049219103: Existing antique shop. A partial acquisition of this parcel would be required.
- APN 049219104: Existing airplane hangar, antique car restoration, truck polishing service, Astro Burger, auto repair, and residence. A partial acquisition of this parcel would be required.
Chapter 2. Project Alternatives

- APN 049219213: Existing well site. A partial acquisition of this parcel would be required.

Based on the right of way data sheet dated April 15, 2010, 133 parcels, including 13 government land parcels from the Bureau of Land Management (BLM) and one parcel from Edwards Air Force Base, are required for implementation of this alternative.

2.2.2.2 Build Alternative 1A—Northerly Alignment Four-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

Build Alternative 1A is located north of the existing SR-58 and begins 0.4 miles west of the Kern/San Bernardino County Line (PM R143.5) and ends 7.5 miles east of the SR-58/US-395 junction (PM R12.9) (refer to Figure 2.1). The crossing structure over the BNSF railroad line would be located 2.5 miles to the east of Kramer Junction. Alternative 1A differs from Alternative 1 on the type of interchange proposed at the SR-58/US-395 junction, which would consist of a modified Type L-8 interchange with a spread diamond on the north side of SR-58 and a cloverleaf on the south of SR-58 resulting in a reduced footprint.

**Right-of-Way Acquisition**

Under Alternative 1A, the following five parcels with the APNs identified below contain uses that would potentially be displaced:

- APN 049219102: Existing residence. A partial acquisition of this parcel would be required.
- APN 049219103: Existing antique shop. A partial acquisition of this parcel would be required.
- APN 049219104: Existing airplane hangar, antique car restoration, truck polishing service, Astro Burger, compressor, and residence. A partial acquisition of this parcel would be required.
- APN 049219212: Abandoned motel. A partial acquisition of this parcel would be required.
- APN 049219213: Existing water cistern. A partial acquisition of this parcel would be required.

Based on the right of way data sheet dated April 15, 2010, 131 parcels, including 13 government land parcels from the BLM and one parcel from Edwards Air Force Base, are required for implementation of this alternative. Impacts to parcels located on the southwest quadrant of the proposed SR-58/US-395 interchange due to the widening of US-395 would be minimized under this alternative.

**Reinforced Concrete Box Culverts**

A total of 13 reinforced concrete box culverts would be constructed as part of Alternative 1A, at least two of which would be oversized to allow for animal crossings below the SR-58 expressway at postmiles 1.5 and 12.1. Decisions on the locations of the 13 culverts will be determined during final design once the final hydrology studies have been completed.
2.2.2.3 **Build Alternative 2—Along Existing Alignment Four-Lane Divided Expressway**

- Alternative 2 is located along the existing SR-58 and begins 0.4 miles west of the Kern/San Bernardino County Line (PM R143.5) and ends 7.5 miles east of the SR-58/US-395 junction (PM R12.9) (refer to Figure 2.2). The crossing structure over the BNSF railroad line would be located 3.9 miles to the west of Kramer Junction. The following improvements would be proposed under this alternative:
  - A proposed diamond interchange (Type L-2 Interchange) with US-395 would be located approximately one-third mile north of the existing US-395 and SR-58 junction, and a railroad grade separation (overhead).
  - The existing SR-58 would be demolished in order to upgrade non-standard conditions and to provide for major drainage improvements.
  - At-grade intersections would be provided at local roads.
  - A realigned segment would be constructed to upgrade curves that approach the proposed railroad grade separation.
  - An upgraded crosswalk would be installed at the existing SR-58/US-395 intersection.

**Right-of-Way Acquisition**

Under Alternative 2, the following nine parcels with the APNs identified below contain uses that would potentially be displaced:

- APN 049219231: Existing Chevron Station. Full acquisition of this parcel would be required.
- APN 049219307: Existing motel (Motel Relax Inn) and tire service station. Full acquisition of this parcel would be required.
- APN 049219309: Existing Union 76 Station. A partial acquisition of this parcel would be required.
- APN 049219310: Existing mini mart, roadhouse restaurant, two vehicle maintenance/scrap facilities, Burger King, gift store, residence, and wastewater impoundment. A partial acquisition of this parcel would be required.
- APN 049219316: Existing Arco Station. A partial acquisition of this parcel would be required.
- APN 049219405: Existing Southern California Edison utility substation (southern portion). A partial acquisition of this parcel would be required.
- APN 049219410: Existing Southern California Edison utility substation (northern portion). A partial acquisition of this parcel would be required.
- APN 049219412: Existing Pilot Travel Center and Subway restaurant. A partial acquisition of this parcel would be required.
• APN 049823251: Existing residence and junk yard. A partial acquisition of this parcel would be required.

Based on the right of way data sheet dated April 15, 2010, 121 parcels, including 11 government land parcels from the BLM and one parcel from Edwards Air Force Base, are required for implementation of this alternative.

2.2.2.4 Build Alternative 3—Southerly Alignment Four-Lane Divided Expressway

Build Alternative 3 is located south of the existing SR-58 and begins 0.4 miles west of the Kern/San Bernardino County Line (PM R143.5) and ends 7.5 miles east of the SR-58/US-395 junction (PM R12.9) (refer to Figure 2.3). The crossing structure over the BNSF railroad line would be located 2.6 miles to the west of Kramer Junction. The following improvements would be proposed under this alternative:

• A proposed diamond interchange (Type L-2 Interchange) with US-395 would be located approximately one-third mile north of the existing US-395 and SR-58 junction, and a railroad grade separation (overhead).

• Four diamond ramps would connect SR-58 and US-395.

Right-of-Way Acquisition

Under Alternative 3, no residential or commercial displacements would occur. Based on the right of way data sheet dated April 15, 2010, 87 parcels, including 11 government land parcels from the BLM and one parcel from Edwards Air Force Base, are required for implementation of this alternative.

2.2.3 Transportation System Management (TSM) and Transportation Demand Management Alternatives

Transportation Systems Management (TSM)/Transportation Demand Management (TDM) measures are strategies to enhance the efficiency of the transportation system while lowering cost. TSM measures seek to increase the number of vehicle trips that can be carried without adding lanes. TDM focuses on regional strategies for reducing vehicle trips and miles traveled and increasing vehicle occupancy. The population of the community of Boron was 2,253 at the 2010 census, the population in the community of Hinkley was approximately 920 in 2010 and the City of Barstow population was approximately 22,639 in 2010. As identified in California Government Code §65080(b)(1), the policy element of transportation planning agencies is based on populations that exceed 200,000 persons for their regional transportation plans in regards to the development of measures of mobility and traffic congestion, including, but not limited to, daily vehicle hours of delay per capita and vehicle miles traveled per capita.

The populations within and nearest to the project area are not larger than 200,000 persons. As a result, the project does not meet the requirements of California Government Code §65080. TSM and TDM approaches were determined not to meet the project purpose and need. Therefore, a separate TSM/TDM alternative was not evaluated for the proposed project.
2.2.4 No-Build (No Action) Alternative

In accordance with NEPA and CEQA, this Draft EIR/EIS discusses the No-Build Alternative. This alternative describes environmental conditions that would exist in the event that none of the build alternatives are selected.

The No-Build Alternative (Alternative 4) is used to compare the relative impacts and benefits of the proposed project improvements. For the purpose of this analysis, the No-Build Alternative would not incorporate any new lanes to the existing SR-58 alignment. The No-Build Alternative would maintain the facility in its present condition. Under this alternative, the capacity of SR-58 would remain the same as current conditions as a conventional two-lane highway with an at-grade signalized intersection at US-395, an at-grade railroad crossing, and uncontrolled access from adjacent driveways and streets. SR-58 is currently operating at LOS C, and without improvements is forecast to operate at LOS F by the year 2039. Continuing local development and increasing traffic volumes will add to traffic delay and inconvenience. This alternative fails to address the problems identified within this segment of SR-58. The highway would not be improved to meet the purpose and needs discussed in Chapter 1.

No environmental impacts other than ongoing impacts associated with the existing alignment would occur with the No-Build Alternative. No safety or operational plans are being considered for this section of highway other than those proposed in this document.

The No-Build Alternative provides decision-makers with a baseline for evaluating and considering the relative magnitude of impacts from the build alternatives. The No-Build Alternative may be selected if other alternatives have substantial impacts on the environment, do not serve the stated purpose and need, or are not economically feasible. Selection of the No-Build Alternative would not preclude future maintenance work or future highway projects along this section of highway.

2.2.5 Comparison of Alternatives

The criteria used to evaluate the alternatives are: the ability of the alternative to address the project’s purpose and need identified in Chapter 1, Project Purpose; construction costs; and engineering feasibility. A comparison between the build alternatives and the No-Build Alternative is provided in Table 2-1. A comparison of environmental impacts associated with each of the build alternatives and No-Build Alternative is provided in Table S-1 in the Summary chapter.

2.2.5.1 Ability to Address the Project Purpose and Need

As shown in Table 2-1, each of the build alternatives would meet the project’s purpose and need. Each build alternative would improve the operation of SR-58. The existing SR-58 highway has insufficient capacity to handle present and future travel demand. Travel on the existing two-lane facility is forecasted to more than double from 13,820 vehicles per year in 2010 to 30,940 vehicles per year in 2039 Horizon Year. Since SR-58 remains the main east-west corridor for interregional travelers within the project vicinity, no other viable alternatives for travel exist. The route concept report projects the LOS along SR-58 to deteriorate from “D/E” to E/F” if the
highway is not improved as proposed. The improvements proposed under the each of the build alternatives are expected to maintain the facility at a desirable LOS of B in the 2039 Horizon Year.

The No-Build Alternative would not improve the operation of the existing highway. Under this alternative, the capacity of SR-58 would remain the same as current conditions as a conventional two-lane highway with an at-grade signalized intersection at US-395, an at-grade railroad crossing, and uncontrolled access from adjacent driveways and streets. SR-58 is currently operating at LOS C, and without improvements it is forecast to operate at LOS F by the year 2039.

In order to meet the requirements of the IRRS plan, it will be necessary to meet the minimum standards and upgrade the existing two-lane highway to a four-lane expressway. Each of the build alternatives would upgrade the highway to a four-lane expressway and achieve compliance with the IRRS. The No-Build Alternative would not upgrade the highway to a four-lane expressway and would not achieve compliance with the IRRS.

Each of the build alternatives would maintain and provide uninterrupted links between economic and community centers by providing a grade separation at the existing BNSF at-grade crossing, which would provide for the separation of trucks, passenger cars, and rail traffic and by removing the existing at-grade intersection at the US-395 and SR-58 intersection. Each of the improvements proposed under the build alternatives would provide uninterrupted flow of highway traffic and also would achieve legislative compliance with the California Streets and Highways Code by maintaining connections and access to communities, regions, and economic centers. The No-Build Alternative would not achieve legislative compliance with the California Streets and Highways Code because it would not remove the exiting at-grade BNSF crossing or the existing at-grade intersection at the US-395/SR-58 intersection. Based on the project’s traffic study, long traffic queues and delays are expected in the future.

Between the project termini, SR-58 is a two-lane highway, creating a gap in the four-lane expressway system. A closure of this gap is needed to provide route continuity between the existing four-lane expressways at PM 143.5 to the west and PM R12.9 to the east. Problems associated with this gap include sudden decreases in roadway speed due to less available highway capacity, maneuvering difficulties for oversized trucks due to the sudden decrease in total roadway width, insufficient roadway width for acceleration/deceleration lanes for the numerous access points within the project area, and general non-compliance with the IRRS legislative standards for a four-lane expressway. Gap closure between segments of the expressway would improve these operational deficiencies. Each of the build alternatives would result in the closure of this gap and would improve operational deficiencies. The No-Build Alternative would leave the highway in its current state and would not provide for route continuity.

### 2.2.5.2 Project Costs

Estimated total costs for each of the alternatives are listed in Table 2-1. The cost estimates are conceptual and are based on available information from the Project Report. The project costs range from zero for the No-Build Alternative to $374,139,000 for Alternative 2. The project
costs for Alternatives 1 and 1A are similar ($191,065,000 and $191,325,000, respectively) and have the lowest cost of all the build alternatives. Alternative 3 would cost $238,017,000. The No-Build Alternative would not preclude costs in necessary maintenance.

2.2.5.3 Feasibility

Alternative 2 would result in the highest construction costs and result in the most environmental impacts to properties, utilities, hazardous wastes, and unevaluated archaeological sites (see Table S-1). Alternative 2 would result in the most displacements of properties. Alternative 2 would affect the Southern California Edison facility located to the southwest of Kramer Junction. In addition, this alternative has the potential to affect the most number of unevaluated archaeological sites (total of 18) and the most number of known or suspected hazardous material sources.

Alternative 1, 1A, and 2 would have similar impacts to CDFW jurisdictional waters; directly affecting 3.4 acres, 3.4 acres, and 3.44 acres of CDFW jurisdictional waters, respectively. Alternative 3 would result in the greatest amount of impacts to CDFW jurisdictional waters; directly affecting 4.7 acres. Alternative 3 would also result in the greatest impact on non-listed plant species and animal species through the removal of potential habitat. Alternative 3 would have the greatest impact on threatened and endangered species since it would remove the most amount of habitat suitable for the desert tortoise and Mohave ground squirrel (431 acres). Alternatives 1 and 1A would each affect 417 acres of suitable habitat for the desert tortoise and Mohave ground squirrel, followed by Alternative 2 affecting the least amount (399 acres).

2.2.6 Consideration of Alternatives for Other Reasonably Foreseeable Transportation Improvements

No transportation projects have been proposed or are reasonably foreseeable within or immediately adjacent to the limits of the proposed project. It is reasonably foreseeable that maintenance activities will need to be performed within or immediately adjacent to the proposed project limits; however, no maintenance activities have been proposed at this time. Therefore, the proposed project would not restrict the consideration of alternatives for other reasonably foreseeable transportation improvements, including adjacent to the project limits.

2.2.7 Alternatives Considered but Eliminated from Further Discussion Prior to Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS)

A Value Analysis (VA) Study was conducted for the project in May 2002. The VA Study did not produce any other alternatives, but analyzed the cost and value of four alternative concepts under consideration by the Project Development Team (PDT). The team also looked for alternative project concepts and for generic design alternatives with the potential for enhancing the project’s performance and value. They generated three additional concepts, which were variations of the alternatives not differentiated enough to be considered new alternatives. Of the alternatives considered by the decision makers, the Northern Alignment and Southern Alignment ranked as the highest based on the performance rating criteria developed by the PDT. The Northern Alignment was recommended for further study and the PDT felt this concept was superior to the
other alternative concepts studied. The PDT felt the Southern Alignment should also be carried forward despite the objections of the Air Force. According to the Value Analysis Study, during the Implementation Meeting held on August 15, 2002, Alternatives 1, 1A, 2, and 3 were accepted by the decision makers for incorporation into the Draft Project Report. No alternatives were eliminated at this phase, but variations on these alternatives were not carried forward due to poor performance on the PDT-identified rating system, with the exception of Alternative 1A.

### 2.2.8 Identification of a Preferred Alternative

After technical studies were completed, environmental impacts analyzed, the Draft EIR/EIS circulated for public and agency review, and public comments considered, the Project Development Team (PDT) identified Alternative 1A – Northerly Alignment Four Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange) as the Preferred Alternative on August 27, 2013. The PDT decision was structured and analytical, and clearly addressed the specific evaluation criteria developed to ensure that the Preferred Alternative would reasonably meet the purpose and need for the project. The decision to identify Alternative 1A as the Preferred Alternative considered all significant, reasonably foreseeable, adverse impacts that would remain after the incorporation of all mitigation measures, and is based on the following reasoning:

- Alternative 1A was preferred by the public, based on public comment.
- Alternative 1A would have the least community impacts, with the least business/residential displacements.
- Alternative 2 would cause permanent displacement of up to 14 uses including residences, businesses, gas stations, local facilities, and utility stations. This would cause substantial changes to community character as well as negative impacts on employment.
- Alternative 3 would result in additional environmental impacts including impacts on wetlands and other waters, plants, animals, and threatened/endangered species.

Of the comments received during circulation of the Draft EIR/EIS and at the Public Hearing, the majority of the commenters who expressed an opinion about the alternatives favored the implementation of Alternative 1A. A total of 18 letters were received from agencies and the public during circulation. Five letters stated a preference for Alternative 1A; two letters from community members favored Alternatives 1 or 1A. Ten letters did not state any preference between the alternatives. The U.S. Edwards Air Force Base, as a Cooperating Agency, stated a preference for Alternative 1A or Alternative 1 and cautioned against the identification of Alternative 3 as the preferred alternative. This was stated during public circulation as well as in the Cooperative Agreement dated November 17, 2009.
Figure 2.1
Build Alternative 1 Index Map
State Route 58 Kramer Junction Expressway Project
Figure 2.1 Sheet 1
Build Alternative 1
State Route 58 Kramer Junction Expressway Project

Proposed Right-of-Way
Proposed Centerline
Proposed Improvements
Proposed Drainage
Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way: therefore, no proposed right-of-way is shown.

Source: NAIP Imagery (2005)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800008616
Figure 2.1 Sheet 2
Build Alternative 1

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SB5a 58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616

Alternative 1
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Railroad Overcrossing

Cut and Fill
- Proposed Drainage

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.1 Sheet 3
Build Alternative 1
State Route 58 Kramer Junction Expressway Project

Alternative 1
- Proposed Right-of-Way
- Cut and Fill
- Proposed Centerline
- Proposed Drainage
- Proposed Improvements
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way, therefore, no proposed right-of-way is shown.
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Figure 2.1 Sheet 5
Build Alternative 1
State Route 58 Kramer Junction Expressway Project

Alternative 1
- Proposed Right-of-Way
- Cut and Fill
- Proposed Centerline
- Proposed Drainage
- Proposed Improvements
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.1 Sheet 6
Build Alternative 1
State Route 58 Kramer Junction Expressway Project

Alternative 1

- Proposed Right-of-Way
- Cut and Fill
- Proposed Centerline
- Proposed Drainage
- Proposed Improvements
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.1 Sheet 7
Build Alternative 1

State Route 58 Kramer Junction Expressway Project

Proposed Right-of-Way
Proposed Centerline
Proposed Improvements
Proposed Drainage
Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.1 Sheet 8
Build Alternative 1
State Route 58 Kramer Junction Expressway Project

Alternative 1
- Proposed Right-of-Way
- Cut and Fill
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.1 Sheet 9
Build Alternative 1

State Route 58 Kramer Junction Expressway Project

06-Ker-58 PM R143.5/R143.9
06-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800006616

Alternative 1
- Proposed Right-of-Way
- Cut and Fill
- Proposed Centerline
- Proposed Improvements
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SB5 58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616

Figure 2.1 Sheet 10
Build Alternative 1
State Route 58 Kramer Junction Expressway Project

Alternative 1
- Proposed Right-of-Way
- Cut and Fill
- Proposed Centerline
- Proposed Drainage
- Proposed Improvements
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Chapter 2. Project Alternatives

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Figure 2.1a Sheet 1
Build Alternative 1A
State Route 58 Kramer Junction Expressway Project

Alternative 1A
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage
- Railroad Overcrossing
Figure 2.1a Sheet 2
Build Alternative 1A
State Route 58 Kramer Junction Expressway Project

Source: NAIP Imagery (2005)

06-Ker-58 PM R143.5/R143.9
06-SBa-58 PM R0.0/R12.9
EA-08-34770
Project Number 080000616

Alternative 1A
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage
- Railroad Overcrossing

Project Number 080000616

Figure 2.1a Sheet 2
Build Alternative 1A
State Route 58 Kramer Junction Expressway Project
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Chapter 2. Project Alternatives

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Figure 2.1a Sheet 7
Build Alternative 1A
State Route 58 Kramer Junction Expressway Project

Source: NAIP Imagery (2005)
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 080000616

Alternative 1A
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage
- Railroad Overcrossing
Figure 2.1a Sheet 9
Build Alternative 1A

State Route 58 Kramer Junction Expressway Project
06-KR-58 PM R143.5/R143.9
06-SB-59 PM R0.0/R12.9
EA 08-34770
Project Number 080000616

Alternative 1A
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage
- Railroad Overcrossing
Chapter 2. Project Alternatives

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Figure 2.2
Build Alternative 2 Index Map
State Route 58 Kramer Junction Expressway Project
Figure 2.2 Sheet 1
Build Alternative 2
State Route 58 Kramer Junction Expressway Project

Source: NAIP Imagery (2005)

Project Number 0800000616

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Drainage
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Alternative 2

- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.2 Sheet 3
Build Alternative 2
State Route 58 Kramer Junction Expressway Project

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 080000616

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Drainage
- Railroad Overcrossing
- Proposed Improvements

Figure 2.2 Sheet 4
Build Alternative 2
State Route 58 Kramer Junction Expressway Project

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way. Therefore, no proposed right-of-way is shown.
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Figure 2.2 Sheet 6
Build Alternative 2

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.2 Sheet 7
Build Alternative 2

State Route 58 Kramer Junction Expressway Project

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way. Therefore, no proposed right-of-way is shown.

Source: NAIP Imagery (2005)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SBlx-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

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Date: 5/15/2013 19316

Source: NAIP Imagery (2005)
Chapter 2. Project Alternatives

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Figure 2.2 Sheet 8
Build Alternative 2
State Route 58 Kramer Junction Expressway Project

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Drainage
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.

Source: NAIP Imagery (2005)
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-Sbd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Figure 2.2 Sheet 8
Build Alternative 2
State Route 58 Kramer Junction Expressway Project

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Drainage
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.

Source: NAIP Imagery (2005)
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-Sbd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616
Figure 2.2 Sheet 9
Build Alternative 2
State Route 58 Kramer Junction Expressway Project

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Drainage
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.2 Sheet 10
Build Alternative 2
State Route 58 Kramer Junction Expressway Project

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SBD-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Source: NAIP Imagery (2005)

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way. Therefore, no proposed right-of-way is shown.
Figure 2.3
Build Alternative 3 Index Map
State Route 58 Kramer Junction Expressway Project

Source: NAIP Imagery (2005)
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SBd-58 PM R0.0/R12.9
EA 06-34770
Project Number 0800000616
Figure 2.3 Sheet 1
Build Alternative 3
State Route 58 Kramer Junction Expressway Project

Alternative 3
- Proposed Right-of-Way
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department of transportation; therefore, no proposed right-of-way is shown.

Source: NAIP Imagery (2005)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-Sbd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Date: 5/15/2013 19316

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Alternative 3

- Proposed Right-of-Way
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SBd-58 PM R0.0/R12.9
EA-06-34770
Project Number 0800000616

Alternative 3
Proposed Right-of-Way
Proposed Centerline
Railroad Overcrossing
Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Alternative 3

- Proposed Right-of-Way
- Proposed Drainage
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 2.3 Sheet 5
Build Alternative 3

State Route 58 Kramer Junction Expressway Project

Alternative 3
- Proposed Right-of-Way
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
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Figure 2.3 Sheet 6
Build Alternative 3

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Alternative 3
- Proposed Right-of-Way
- Proposed Drainage
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way. Therefore, no proposed right-of-way is shown.
Figure 2.3 Sheet 8
Build Alternative 3
State Route 58 Kramer Junction Expressway Project

Source: NAIP Imagery (2005)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Alternative 3
- Proposed Right-of-Way
- Proposed Drainage
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Chapter 2. Project Alternatives

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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State Route 58 Kramer Junction Expressway Project

06-Ker-58 PM R143.5/R143.9
06-Sbd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Figure 2.3 Sheet 9
Build Alternative 3

State Route 58 Kramer Junction Expressway Project

Source: NAIP Imagery (2005)

Alternative 3

- Proposed Right-of-Way
- Proposed Drainage
- Proposed Centerline
- Railroad Overcrossing
- Proposed Improvements

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way, therefore, no proposed right-of-way is shown.
Alternative 3

- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvement
- Proposed Drainage
- Railroad Overcrossing

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
NOTES:
1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
Figure 2.5

Typical Cross-Section

State Route 58 Kramer Junction Expressway Project
# Table 2-1. Project Alternatives Comparison

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Design Features</strong></td>
<td>Construction of a four-lane divided expressway with full access control between PM 0.0 and PM 9.0 and uncontrolled access along the eastern portion of the alignment; located north of the existing SR-58 and begins 0.4 miles west of the Kern/San Bernardino County Line (PM R143.5) and ends 7.5 miles east of the SR-58/US-395 junction (PM R12.9).</td>
<td>Construction of a diamond interchange (Type L-2) with US-395 to be located approximately one-third mile northerly of the existing US-395 and SR-58 junction, and a railroad grade separation (overhead).</td>
<td>Construction of a diamond interchange (Type L-2) with US-395 to be located approximately one-third mile northerly of the existing US-395 and SR-58 junction, and a railroad grade separation (overhead).</td>
<td>Conventional two-lane highway with an at-grade signalized intersection at US-395, an at-grade railroad crossing, and uncontrolled access from adjacent driveways and streets.</td>
</tr>
<tr>
<td><strong>Typical cross sections for SR-58</strong> would consist of 400-foot right-of-way, 100-foot median, 12-foot lanes, 10-foot right shoulders, and five-foot left shoulders.</td>
<td></td>
<td></td>
<td></td>
<td>The width of each lane and shoulder is approximately 12 feet and 4 feet wide, respectively. The pavement surface consists of asphalt concrete about 1-foot thick. The existing right of way width varies from 120 feet to 400 feet throughout the project limits with some segments of this facility constructed on 60-foot prescribed rights.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Standard road connections would be provided for two or three local roads, such as Canal Lane and Kramer Hills Road.</td>
<td>Standard road connections would be provided for two or three local roads, such as Canal Lane and Kramer Hills Road.</td>
<td>The existing SR-58 would be demolished in order to upgrade non-standard conditions and to provide for major drainage improvements.</td>
<td>Standard road connections would be provided for two or three local roads, such as Canal Lane and Kramer Hills Road.</td>
<td>The facility would continue to be a two-lane, open access conventional highway.</td>
</tr>
<tr>
<td>US-395 is a two-lane conventional highway that would be widened to four lanes and a left-turn lane at the SR-58/US-395 intersection.</td>
<td>US-395 would have one left-turn lane, one through lane, and one right-turn lane in the northbound approach, while the southbound approach has one left-turn, one through, and one shared through/right-turn lane.</td>
<td>US-395 would have one left-turn lane, one through lane, and one right-turn lane in the northbound approach, while the southbound approach has one left-turn, one through, and one shared through/right-turn lane.</td>
<td>US-395 would have one left-turn lane, one through lane, and one right-turn lane in the northbound approach, while the southbound approach has one left-turn, one through, and one shared through/right-turn lane.</td>
<td>US-395 would have one left-turn lane, one through lane, and one right-turn lane in the northbound approach, while the southbound approach has one left-turn, one through, and one shared through/right-turn lane.</td>
</tr>
<tr>
<td>A Fact Sheet Exceptions to Advisory Design Standards will be required for these alternatives for the side slope steeper than 4:1 at the SR-58/US-395 interchange.</td>
<td>No Fact Sheet Exceptions to Advisory Design Standards would be required.</td>
<td>No Fact Sheet Exceptions to Advisory Design Standards would be required.</td>
<td>No Fact Sheet Exceptions to Advisory Design Standards would be required.</td>
<td>No Fact Sheet Exceptions to Advisory Design Standards would be required.</td>
</tr>
<tr>
<td>At-grade intersections would be provided at local roads.</td>
<td>At-grade intersections would be provided at local roads.</td>
<td>At-grade intersections would be provided at local roads.</td>
<td>At-grade intersections would be provided at local roads.</td>
<td>At-grade intersections would be provided at local roads.</td>
</tr>
<tr>
<td>A realigned segment would be constructed to upgrade curves that approach the proposed railroad grade separation.</td>
<td>A realigned segment would be constructed to upgrade curves that approach the proposed railroad grade separation.</td>
<td>A realigned segment would be constructed to upgrade curves that approach the proposed railroad grade separation.</td>
<td>A realigned segment would be constructed to upgrade curves that approach the proposed railroad grade separation.</td>
<td>A realigned segment would be constructed to upgrade curves that approach the proposed railroad grade separation.</td>
</tr>
<tr>
<td>In coordination with the California Department of Fish and Wildlife, two oversize culverts east and west of US-395 would be installed in order to increase interactions of desert tortoises on either side of US-395. These culverts will be a minimum of six feet tall and 10 feet wide.</td>
<td>No culverts would be installed.</td>
<td>No culverts would be installed.</td>
<td>No culverts would be installed.</td>
<td>No culverts would be installed.</td>
</tr>
<tr>
<td>There are 46 proposed drainage systems and three existing systems. All new culverts would be soft bottomed and sized to accommodate medium-size mammals in the project area for wildlife movement.</td>
<td>Three existing systems to remain.</td>
<td>Three existing systems to remain.</td>
<td>Three existing systems to remain.</td>
<td>Three existing systems to remain.</td>
</tr>
</tbody>
</table>

**Ability to Address Project Purpose and Need**

- LOS B is predicted in Horizon Year 2039. LOS B is considered as an "acceptable" level of service.
- LOS F is predicted in Horizon Year 2039. LOS F is considered as an “unacceptable” level of service.

The build alternatives would meet minimum facility standards of a four-lane expressway as required by the Freeway and Expressway System statutes. SR-58 highway would remain as a two lane highway and would not meet the standards as required by the Freeway and Expressway System.
## Chapter 2. Project Alternatives

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>In order to meet the requirements of the IRRS plan, it will be necessary to meet the minimum standards and upgrade the existing two-lane highway to a four-lane expressway. The build alternatives would upgrade the highway to a four-lane expressway and achieve compliance with the IRRS.</td>
<td>Alternative 4 would not upgrade the highway to a four-lane expressway and would not achieve compliance with the IRRS.</td>
<td>Alternative 4 would not provide uninterrupted and consistent facility design between economic and community centers by providing a grade separation at the existing BNSF at-grade crossing, which would provide for the separation of trucks, passenger cars, and rail traffic and by removing the existing at-grade intersection at the US-395/SR-58 intersection. These improvements would ensure uninterrupted flow of highway traffic.</td>
<td>Alternative 4 would not provide uninterrupted and consistent facility design between economic and community centers because it would not remove the existing at-grade BNSF crossing, or the existing at-grade intersection at the US-395/SR-58 intersection. Long traffic queues and delays are expected in the future.</td>
<td>Alternative 4 would not achieve legislative compliance with the California Streets and Highways Code because it would not remove the exiting at-grade BNSF crossing, or the existing at-grade intersection at the US-395/SR-58 intersection. Long traffic queues and delays are expected in the future.</td>
</tr>
<tr>
<td>The build alternatives would achieve legislative compliance with the California Streets and Highways Code by maintaining connections and access to communities, regions, and economic centers.</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Utility Relocations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Several utility types may require relocation so that they can continue to function, including overhead and underground electrical, underground gas, overhead and underground telephone, overhead cable telephone, water, septic tanks, petroleum pipeline, and underground fiber optic.</td>
<td>No effect.</td>
<td>Based on an initial utility search, the following agencies/companies maintain utilities within the project area: Southern California Edison-Distribution/Transmission; AT&amp;T; El Paso Mojave Pipeline Operating Company; PG&amp;E Gas Transmission Hinkley; San</td>
<td>No effect.</td>
<td></td>
</tr>
</tbody>
</table>
### Chapter 2. Project Alternatives

#### Preferred Alternative:

**Alternative 1A—Northerly Alignment Four-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)**

- **Preferred Alternative:** Alternative 1A—Northerly Alignment Four-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

#### Alternative 2—Along Existing Alignment Four-Lane Divided Expressway

- **Alternative 2—Along Existing Alignment Four-Lane Divided Expressway**

#### Alternative 3—Southerly Alignment Four-Lane Divided Expressway Agency

- **Alternative 3—Southerly Alignment Four-Lane Divided Expressway Agency**

#### Alternative 4—No-Build Alternative

- **Alternative 4—No-Build Alternative**

Bernardino County Transmission; Southern California Gas Company Transmission; Southern California Gas Company Distribution; PG&E Transmission & Distribution Ridgecrest, Southwest Gas, and Verizon.

Underground utilities that cross the highway would be encased in accordance with Caltrans policy. The following utilities would require relocation: transmission towers, transmission “H” frames, wooden transformer poles, wooden poles, and fiber optics.

Underground utilities that cross the highway would be encased in accordance with Caltrans policy. The following utilities would require relocation: transmission towers, transmission “H” frames, wooden transformer poles, wooden poles, and fiber optics.

Underground utilities that cross the highway would be encased in accordance with Caltrans policy. The following utilities would require relocation: 13 large transmission towers; 10 transmission “H” frames; three array poles; five wooden poles with attached three-line of transmission; distribution, and communication; 10 switch poles; 10 riser poles; five steel poles; eight small transmission towers; 20 racks with attached transformers; 10 utility vaults; and 10 circuit breakers.

Underground utilities that cross the highway would be encased in accordance with Caltrans policy. The following utilities would require relocation: 10 steel towers, 10 transmission “H” frames, three array poles, and six miles of pipeline.

**No effect.**

### Right-of-Way Acquisitions

<table>
<thead>
<tr>
<th>Uses on the following parcels would potentially be displaced:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- APN 049219102</td>
</tr>
<tr>
<td>- APN 049219103</td>
</tr>
<tr>
<td>- APN 049219104</td>
</tr>
<tr>
<td>- APN 049219213</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Uses on the following five parcels would potentially be displaced:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- APN 049219102</td>
</tr>
<tr>
<td>- APN 049219103</td>
</tr>
<tr>
<td>- APN 049219104</td>
</tr>
<tr>
<td>- APN 049219212</td>
</tr>
<tr>
<td>- APN 049219213</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Uses on the following nine parcels would potentially be displaced:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- APN 049219231</td>
</tr>
<tr>
<td>- APN 049219307</td>
</tr>
<tr>
<td>- APN 049219309</td>
</tr>
<tr>
<td>- APN 049219310</td>
</tr>
<tr>
<td>- APN 049219316</td>
</tr>
<tr>
<td>- APN 049219405</td>
</tr>
<tr>
<td>- APN 049219410</td>
</tr>
<tr>
<td>- APN 049219412</td>
</tr>
<tr>
<td>- APN 049823251</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Under Alternative 3, no residential or commercial displacements would occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
</tr>
</tbody>
</table>

Based on the right of way data sheet dated April 15, 2010.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2010, 133 parcels, including 13 government land parcels from the BLM and one parcel from Edwards Air Force Base, are required for implementation of this alternative.</td>
<td>2010, 131 parcels, including 13 government land parcels from the BLM and one parcel from Edwards Air Force Base, are required for implementation of this alternative. Impacts to parcels located on the southwest quadrant of the proposed SR-58/US-395 interchange due to the widening of US-395 would be minimized.</td>
<td>121 parcels, including 11 government land parcels from the BLM and one parcel from Edwards Air Force Base, are required for implementation of this alternative.</td>
<td>2010, 87 parcels, including 11 government land parcels from the BLM and one parcel from Edwards Air Force Base, are required for implementation of this alternative.</td>
<td></td>
</tr>
</tbody>
</table>
2.3 Permits and Approvals Needed

Table 2- provides a list of permits, reviews, and approvals that would be required for project construction.

Table 2-2. Permits and Approvals Needed

<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit/Approval</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>County of San Bernardino</td>
<td>Freeway agreement</td>
<td>Pending final design/construction. Needed for (1) local roads that will be closed, (2) construction of the new interchanges, and, as applicable (3) relinquishment of the existing SR-58 to the County.</td>
</tr>
<tr>
<td>County of San Bernardino</td>
<td>Temporary construction permits</td>
<td>Pending final design/construction. Required for construction affecting local road systems.</td>
</tr>
<tr>
<td>BNSF</td>
<td>Encroachment permit</td>
<td>Pending final design/construction. Required for work performed within railroad right-of-way.</td>
</tr>
<tr>
<td>Bureau of Land Management (BLM)</td>
<td>Land Use Application and Permit</td>
<td>Under review by BLM. Needed because of involvement of parcels owned by BLM.</td>
</tr>
<tr>
<td>California Public Utilities Commission</td>
<td>Service contract and construction/maintenance agreements</td>
<td>Application would occur during final design. Needed for construction of grade separated structure over BNSF rail line.</td>
</tr>
<tr>
<td>California State Water Resources Control Board</td>
<td>Coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity (Construction General Permit, 99-08-DWQ)</td>
<td>Pending final design.</td>
</tr>
<tr>
<td>California Regional Water Quality Control Board</td>
<td>Waste discharge permit/401</td>
<td>Pending final design.</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife</td>
<td>1600/1602 Permit</td>
<td>Permit application will occur following approval of the final environmental document. Pending final design. Needed for activities within ephemeral dry washes.</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife</td>
<td>2081 Incidental Take Permit</td>
<td>Permit coordination in progress. Needed for Desert Tortoise/Loss Desert Tortoise Habitat. Needed for Mohave Ground Squirrel.</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td>Section 7 consultation for threatened and endangered species</td>
<td>Section 7 coordination in progress. Needed for Desert Tortoise.</td>
</tr>
<tr>
<td>U.S. Department of Defense, Edwards Air Force Base</td>
<td>AFFTC IMT 5926 (Dig Permit)</td>
<td>Used during PS&amp;E by Utilities after identification and resolution of any conflicts</td>
</tr>
<tr>
<td>U.S. Department of Defense, Edwards Air Force Base</td>
<td>Real Estate Permit/Lease</td>
<td>Used during PS&amp;E by Utilities after identification and resolution of any conflicts</td>
</tr>
</tbody>
</table>
3.1 Land Use

The following sections describe the existing and future land use in the project study area; the consistency of the project with state, regional, and local plans and programs; and the parks and recreational facilities in the study area.

3.1.1 Existing and Future Land Use

3.1.1.1 Affected Environment

The February 2013 Community Impact Assessment (CIA) (Caltrans 2013a), County of San Bernardino General Plan and Zoning Code, and the General Plan and Zoning Code of Kern County were used in the preparation of this section of the document.

The project would be located in an unincorporated area in the western portion of the County of San Bernardino. The study area centers on Kramer Junction in the Mojave Desert of southeastern California, where SR-58 meets US-395 (as shown in Figure 3.1.1). Kramer Junction comprises a small unincorporated area of the County of San Bernardino. The nearest community is the unincorporated area of Boron, which is located six miles west of Kramer Junction on SR-58.

Other nearby communities include the unincorporated communities of Hinkley (22 miles east on SR-58), Red Mountain (25 miles north on US-395), Johannesburg (27 miles north on US-395), and Adelanto (30 miles south on US-395); and the cities of Apple Valley (50 miles south on US-395), Barstow (34 miles east on SR-58), Ridgecrest (48 miles north on US-395), and Victorville (38 miles south on US-395).

Existing Land Use (Baseline)

The existing SR-58 facility and the alternative alignments under consideration pass through land under the jurisdictions of the County of San Bernardino, Edwards Air Force Base (U.S. Air Force/Department of Defense), and the U.S. Bureau of Land Management (BLM).

Around Kramer Junction, which is the focal point of the project, land is primarily dedicated to commercial activities geared toward travelers, utility/maintenance uses, and a small number of single-family residences (see Figures 3.1.1 and 3.1.2). As listed in Table 3.1-1, the immediate vicinity of Kramer Junction consists primarily of commercial uses that include gas stations, eateries, antique and pottery stores, and other highway-dependent commercial uses. In addition, several utility/maintenance facilities are located in the vicinity of Kramer Junction, which include a highway maintenance station, wastewater impoundment basins, and an electric utility substation.

Existing land uses located at Kramer Junction are listed below in Table 3.1-1, all of which are located in areas under the jurisdiction of the County of San Bernardino. Other existing land uses in the study area located outside Kramer Junction are listed below in Table 3.1-2.
Table 3.1-1: Existing Land Uses at Kramer Junction

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


Table 3.1-2: Existing Land Uses within Study Area Not Located at Kramer Junction

<table>
<thead>
<tr>
<th>Name</th>
<th>Jurisdiction</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranch</td>
<td>County of San Bernardino</td>
<td>Commercial</td>
</tr>
<tr>
<td>Fremont Peak meter station/Kramer meter station</td>
<td>County of San Bernardino</td>
<td>Utility</td>
</tr>
<tr>
<td>Exposed section of Mojave Pipeline #307</td>
<td>County of San Bernardino</td>
<td>Utility</td>
</tr>
<tr>
<td>Water tower</td>
<td>County of San Bernardino</td>
<td>Utility</td>
</tr>
<tr>
<td>Private airstrip and hangar (Boron Airstrip)</td>
<td>County of San Bernardino</td>
<td>Transportation</td>
</tr>
<tr>
<td>Burlington Northern Santa Fe railroad tracks.</td>
<td>Federal Railroad Administration</td>
<td>Transportation</td>
</tr>
<tr>
<td>Residential, commercial, education, and recreation land uses within Boron</td>
<td>Kern County</td>
<td>Low-Density Residential, Commercial, Education, Recreation</td>
</tr>
</tbody>
</table>


Aside from the commercial and utility uses that predominate at Kramer Junction, most of the land in the study area is under the jurisdiction of the County of San Bernardino, or owned by the federal government. Most of this land is vacant and undeveloped. Large swaths of land to the southeast and northeast of the study area are under the jurisdiction of BLM. The Department of Defense (U.S. Air Force) has jurisdiction over a large area southwest of the study area, known as Edwards Air Force Test Center. Neither the lands owned by BLM nor the Department of Defense are subject to the control of the County of San Bernardino Board of Supervisors or the Development Code (County of San Bernardino 2007b, 2007c).
The portion of the study area that crosses the San Bernardino-Kern county line into Boron is low-density residential, with a few properties having amenities for raising horses for riding (see Table 3.1-2).

With respect to zoning in the study 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. The RC zoning designation allows for open space and recreational activities as well as single-family homes and compatible uses on large parcels (see Figure 3.1.3).

The unincorporated community of Boron has zoning designations for the following uses occurring within the study area as specified in the Kern County Zoning Code: Residential (R-1, R-2, and R-3), Estates (E), Mobile Homes (MP and MH), Industrial (M-1, M-2, M-3), Commercial (C-1, C-2, and CH), and Limited Agriculture (A-1). For zoning in the project study area, please refer to Figure 3.1.3.

**Planned Land Uses in the Project Vicinity**

Table 3.1-3 shows recently completed and proposed land uses in the area surrounding the project study area. Figure 3.1.3 shows the respective locations of these recently completed and planned land uses relative to the proposed build alternatives.

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Name</th>
<th>Jurisdiction</th>
<th>Project Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Boulevard Associates, LLC Solar Plant</td>
<td>County of San Bernardino</td>
<td>Conditional Use Permit to establish a 20-megawatt photovoltaic solar energy facility on a 191-acre portion of a 313.8-acre parcel.</td>
<td>Conditionally approved in December 2010, with an expiration date of November 2013. No construction has been undertaken.</td>
</tr>
<tr>
<td>2</td>
<td>Office space for tire service business</td>
<td>County of San Bernardino</td>
<td>Minor User Permit to convert a 432-square-foot storage space to office space for a mobile tire service and two 10x20-foot storage containers at an existing 12-unit motel on a 1.54-acre lot.</td>
<td>Conditionally approved in May 2010, with an expiration date of June 2013. No construction has been undertaken.</td>
</tr>
<tr>
<td>3</td>
<td>AT&amp;T Cellular Tower</td>
<td>County of San Bernardino</td>
<td>Revision to an approved AT&amp;T cell site to install a new 6-kilowatt hydrogen fuel cell and cabinet.</td>
<td>Conditionally approved in 2011, with an expiration date of 2014. No construction has been undertaken.</td>
</tr>
<tr>
<td>4</td>
<td>Pilot Travel Addition</td>
<td>County of San Bernardino</td>
<td>Revision to the approved truck travel center to add 1,800 square feet to the existing building on a 4.03-acre lot.</td>
<td>A draft of the final conditions is currently being processed. No construction has been undertaken.</td>
</tr>
<tr>
<td>5</td>
<td>Lightsource Renewables, LLC Solar Plant</td>
<td>County of San Bernardino</td>
<td>Conditional Use Permit to establish a 40-megawatt photovoltaic facility on a 350-acre portion of a 401.6-acre parcel.</td>
<td>Conditionally approved in 2011; the approval expired in February 2014. No construction has been undertaken.</td>
</tr>
</tbody>
</table>
### Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
#### Section 3.1. Human Environment—Land Use

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Name</th>
<th>Jurisdiction</th>
<th>Project Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>US-395 Upgrade</td>
<td>Caltrans</td>
<td>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 4-lane expressway along the Northern Alignment. The purpose of the project is to realign and widen the existing highway. The proposed project runs between I-15 in County of San Bernardino and SR-14 in Kern County. Alternatives under consideration include various alignments with a 4- to 6-lane freeway or a 4-lane expressway.</td>
<td>The project is currently in the planning and preliminary engineering phases. No timeline for project completion has been set.</td>
</tr>
<tr>
<td>7</td>
<td>Kern River Gas Transmission Expansion Project</td>
<td>Federal Energy Regulatory Commission</td>
<td>Project included the construction of 1,152-km (715.8 mi) of 1.07 m (42-in) gas pipeline extending from Wyoming, Utah, Nevada, and California. The last 131.64 km (81.8 mi) of pipe was installed between Dagget, CA and Mojave, CA. The natural gas pipeline occurs within the project study area.</td>
<td>Construction of the project was completed in 2011.</td>
</tr>
<tr>
<td>8</td>
<td>High Desert Power Project</td>
<td>California Energy Commission</td>
<td>Southern California Edison and other partners planned and constructed a 51.5-km (32-mi) natural gas pipeline that was routed through the project area west of US-395 across to Kramer Hills, continuing north along US-395 to approximately 0.40 km (0.25 mi) south of SR-58 1.6 km (1.0 mi) east of Kramer Junction.</td>
<td>Construction of the project began in 2010.</td>
</tr>
<tr>
<td>-</td>
<td>PG&amp;E Hinkley Groundwater Cleanup Strategy for Historical Chromium Discharges</td>
<td>California Water Quality Control Board</td>
<td>The aim of the project is to restore groundwater quality to background levels of hexavalent chromium, a byproduct which was released from the PG&amp;E Hinkley Compressor Station between 1952 and 1964. Potential cleanup approaches include plume containment via groundwater extraction or clean water injection, plume-wide in-ground treatment of groundwater, and plume-wide above-ground treatment of groundwater.</td>
<td>A Final EIR was certified by the Water Quality Control Board on July 17, 2013 as Resolution No. R6V-2013-0060.</td>
</tr>
</tbody>
</table>
### Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

#### Section 3.1. Human Environment—Land Use

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Name</th>
<th>Jurisdiction</th>
<th>Project Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Digital 395</td>
<td>National Telecomm-unication and Information Administration and California Public Utilities Commission</td>
<td>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 (NDOT) 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.</td>
<td>A Finding of No Significant Impact was issued on the Environmental Assessment prepared for the project in May 2012. Construction is in progress, and is expected to be completed in the summer of 2013.</td>
</tr>
<tr>
<td>11</td>
<td>Recyclable Collection at 12033 Gardiner Street, Boron</td>
<td>Kern County</td>
<td>The applicant is seeking to operate a recyclable collection and storage business, approximately 1.5 miles southwest of the western limit of the project.</td>
<td>The project is in the conditional use permit process.</td>
</tr>
<tr>
<td>12</td>
<td>Metro PCS Cellular Tower, Boron</td>
<td>Kern County</td>
<td>The applicant is seeking to construct a cellular telephone service tower, 1.7 miles northwest of the western limit of the project.</td>
<td>The project is in the conditional use permit process.</td>
</tr>
<tr>
<td>13</td>
<td>SR-58 Hinkley Expressway Project</td>
<td>Caltrans</td>
<td>The proposed State Route 58 Hinkley Expressway Project would widen and realign an existing 8.9-mile segment of SR-58, near the community of Hinkley in western San Bernardino County. The purpose of this project is to (1) maintain route continuity by upgrading the facility to a controlled access four-lane expressway; (2) relieve congestion; (3) upgrade the pavement and roadway cross-section, grade separate, meet current standards to better accommodate high volumes of truck traffic carrying goods on this route; and (4) improve safety and operations within the project limits.</td>
<td>A Final EIR/EIS was circulated in July 2013. A Record of Decision was signed September 12, 2013.</td>
</tr>
</tbody>
</table>

Source: County of San Bernardino Land Use Services, Kern County Planning and Community Development, 2012.
Figure 3.1.1
Existing Land Use
State Route 58 Kramer Junction Expressway Project

See Figure 3.1.2

Legend
CIA Study Area
Proposed Alternatives
Agriculture
Transportation, Communications, and Utilities
Parking
Industrial
Military Installations
Government/Institution
Commercial and Services
Office
Religious
Mining
Residential
Residential/Agriculture
Mobile Home
Multi-Family Residential
Other Residential
Undeveloped
Vacant
Other

Source: ESRI USA Imagery (2010), SCAG (2008)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SB5-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800008616
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Figure 3.1.2
Existing Land Use
State Route 58 Kramer Junction Expressway Project
Zoning and Planned Land Uses in the Kramer Junction Vicinity

State Route 58 Kramer Junction Expressway Project
06-Kar-58 PM R143.5/R143.9
08-SB5-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

The County of San Bernardino Zoning Code, although it designates all land within its boundaries, does not have jurisdiction over lands owned by the Bureau of Land Management and Edwards Air Force Base.

**Legend**
- Bureau of Land Management (BLM)
- Los Angeles County Zoning
- San Bernardino County Zoning
  - Residential
    - Rural Living
    - Single Residential
    - Multiple Residential
    - Special Development-Residential
  - Commercial
    - Rural Commercial
    - General Commercial
    - Neighborhood Commercial
  - Other
    - Agriculture
    - Floodway
    - Resource Conservation
- Kern County Zoning
  - Agricultural
  - Limited Agriculture
  - Residential
    - Estate Residential
    - Low Density Residential
    - Medium Density Residential
    - High Density Residential
    - Mobilehome Park
  - Commercial
    - Commercial Office
    - General Commercial
    - Neighborhood Commercial
    - Industrial/Manufacturing
      - Light Manufacturing
      - Medium Industrial
      - Heavy Industrial
  - Other
    - Floodplain Primary
    - Platted Lands

**Planned Land Uses**
1. Boulevard Associates, LLC Solar Plant
2. Office space for tire service business
3. AT&T Cellular Tower
4. Pilot Travel Addition
5. Lightsource Renewables, LLC Solar Plant
6. US 395 Upgrade
7. Kern River Gas Transmission Expansion Project
8. High Desert Power Project
10. Digital 395
11. Recyclable Collection at 12033 Gardiner Street, Boron
12. Metro PCS Cellular Tower, Boron
13. SR-58 Hinkley Expressway Project

Source: ESRI USA Imagery (2010); SCAG (2008); Kern County (2008)

Figure 3.1.3
3.1.1.2 Environmental Consequences (Existing and Future Land Use)

**Alternative 1—Northerly Alignment 4-Lane Divided Expressway**

The implementation of Alternative 1 would require the acquisition and relocation of the antique shop, the antique car restoration service, the airplane hangar and storage facility, and one residence, thereby changing all of these land uses from their present uses to that of a transportation facility (as shown in Figure 3.1.4). Displaced land uses under Alternative 1 represent a minority of the uses at Kramer Junction, but relative to the 18 existing uses at the junction, the displacement of four uses constitutes a substantial adverse land use change at Kramer Junction. For more information about displacement occurring as a result of project implementation, see Section 3.4.2.

Aside from the uses that would be displaced at Kramer Junction and land-serving existing transportation uses, all of the land that would be used under this alternative is land that is currently undeveloped (within districts zoned RC and RL). Land use change would occur under Alternative 1, but given the proximity of the proposed alignment to the existing SR-58 alignment and the fact that most of the land is undeveloped, the changes in land use would not constitute a substantial adverse effect.

With the exception of the Digital 395 fiber optic cable line project (which would need to be relocated under Alternative 1), the implementation of Alternative 1 would not interfere with any of the planned projects listed in Table 3.1-3. For more information about the Digital 395 fiber optic cables, see Section 3.5.

Under Alternative 1, land use impacts resulting from changes in existing land use and conflicts with planned uses would be substantial adverse.

**Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)**

The implementation of Alternative 1A would require the acquisition and relocation of the airplane hangar and storage facility, thereby changing this land use from its present use to that of a transportation facility (as shown in Figure 3.1.5). Since only one of the land uses at Kramer Junction would be displaced under Alternative 1A and the rest of the land uses would not be permanently disrupted, changes in land use at Kramer Junction would be minimal.

Aside from the uses that would be displaced at Kramer Junction and land-serving existing transportation uses, all of the land that would be used under this alternative is land that is currently undeveloped (within districts zoned as RC and RL). Land use change would occur under Alternative 1A, but given the proximity of the proposed alignment to the existing SR-58 alignment and the fact that most of the land is undeveloped, the changes in land use would constitute a minor adverse effect.
Alternative 2—Existing Alignment 4-Lane Expressway with Median

The implementation of Alternative 2 would require the acquisition and relocation of as many as 15 different uses on eight parcels, including a residence, four gas stations and associated retail stores, a Burger King fast food restaurant, a diner-style restaurant, a gift shop, wastewater impoundment basins, and a Southern California Edison utility substation. This alternative would extensively change land uses at Kramer Junction, converting the aforementioned existing uses to that of a transportation facility (as shown in Figure 3.1.6). While implementation of mitigation measures ECON-1 and ECON-2 (see Section 3.4.2 Relocations) would ensure that such relocations would occur in accordance with applicable laws, the majority of existing uses in the area would be relocated, resulting in a substantial adverse land use effect at Kramer Junction.

Aside from the substantial change to land uses at Kramer Junction identified above, the remainder of the proposed alignment under Alternative 2 would continue to resemble the existing SR-58 alignment. While much of the land that would be used under this alternative is undeveloped (zoned for RC and RL), a large portion of the proposed alignment would overlap with the existing SR-58, and therefore require less acquisition of undisturbed land than the other build alternatives. Land use change would occur under Alternative 2, but given the proximity of the proposed alignment to the existing SR-58 alignment, the changes in land use would not be substantial except for the changes in land uses at Kramer Junction identified above.

Under Alternative 2, the proposed alignment would conflict with three planned projects at Kramer Junction.

- The conversion of a 432-square-foot storage space at the Express Tire Shop located on the same property as the Relax Inn motel.
- A 1,800-square-foot expansion of the Pilot Travel Center.
- The installation of a new six-kilowatt hydrogen fuel cell and cabinet on an approved AT&T cell site.

Given that relocation of the uses on these parcels would occur under Alternative 2, the three projects listed above would not move forward at their current locations. The change in existing land uses and conflicts with planned uses at Kramer Junction under Alternative 2 would result in a substantial adverse land use effect.

Alternative 3—Southerly Alignment 4-Lane Divided Expressway

Alternative 3 would not require any relocation and would avoid all properties at Kramer Junction (as shown in Figure 3.1.7). No impacts on existing land uses at the junction would occur under Alternative 3.
Figure 3.1.4
Existing Land Use - Kramer Junction
State Route 58 Kramer Junction Expressway Project
Figure 3.1.5
Existing Land Use - Kramer Junction
State Route 58 Kramer Junction Expressway Project

Source: i-cubed imagery (2010); SCAG(2008); Caltrans

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616
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Figure 3.1.6
Existing Land Use - Kramer Junction
State Route 58 Kramer Junction Expressway Project
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Figure 3.1.7
Existing Land Use - Kramer Junction
State Route 58 Kramer Junction Expressway Project

Legend
- Existing Highway
- Burlington Northern-Santa Fe Railroad
- Alternative 3

Land Use Key
- Agriculture
- Transportation, Communications, and Utilities
- Industrial
- Military Installations
- Commercial and Services
- Other Residential
- Multi-Family Residential

Source: i-cubed imagery (2010); SCAG(2008); Caltrans

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616
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Nearly all of the land that would be used under this alternative is land that is zoned for RC or RL but is currently undeveloped. Land use changes would occur under Alternative 3, but given the proximity of the proposed alignment to the existing SR-58 alignment, the changes in land use would not be substantial.

The construction and operation of Alternative 3 would conflict with the planned Lightsource Renewables 40-megawatt solar power generation facility. The 350-acre facility would occupy a 406-acre site to the west of the Kramer Junction on APN 049222122. The project was conditionally approved in April 2011, an approval that expired in February 2014. Alternative 3 would bisect the parcel and therefore preclude the development of the project.

Since Alternative 3 would change only vacant land to transportation uses, land use impacts would be minor adverse, and less than the impacts that would occur under Alternatives 1, 1A, and 2.

**Alternative 4—No-Build Alternative**

Alternative 4 would not displace any existing land uses or change land uses, nor would it interfere with any planned development in the study area because no currently approved project would occur in the existing transportation right-of-way. No effect on existing or planned land uses at the junction would occur under Alternative 4.

**3.1.3 Avoidance, Minimization, and/or Mitigation Measures**

The inconsistencies of Alternatives 1, 1A, and 3 with land use designations, such as RC and RL zones, would be addressed through minor amendments to the zoning and land use designations for parcels affected by these alternatives. Approval of permanent easements and conditional use permits (CUPs) that would be required would be adopted by the appropriate agencies.

Avoidance of the substantial adverse land use impacts that would occur at Kramer Junction under Alternatives 1 and 2 due to the displacement of existing uses is not possible with implementation of the alignment as currently proposed. However, compliance with the provisions of the Uniform Relocation Act (see Section 4.4, Relocations) would mitigate the displacement effects on Kramer Junction businesses and land uses.

**3.1.2 Consistency with State, Regional, and Local Plans and Programs**

**3.1.2.1 Affected Environment**

The project would be located in an unincorporated area of western San Bernardino County. Accordingly, future development in the area is regulated by the goals, policies, and guidelines in the County of San Bernardino General Plan. The 2012 SCAG Regional Transportation Plan (RTP) and California Transportation Plan (CTP) also have implications for land use in the project area. These and other plans relevant to the project area are described in the following paragraphs.
California Transportation Plan 2025

Adopted in 2006, the California Transportation Plan 2025 aims to guide long-term strategic decisions and investments in the state’s transportation system. The plan identifies the entire length of SR-58 as a “Major International Trade Highway Route” in its map of the priority regions and corridors in California.

California Interregional Transportation Improvement Program

Other Caltrans documents have identified the importance of the Kramer Junction area in particular, including the 2012 Interregional Transportation Improvement Program (ITIP) (Caltrans 2011a), which characterizes the project area along SR-58 as “arguably the gold standard definition of interregional need” given its importance to goods movement between the southern San Joaquin Valley and the rest of the country. The ITIP also identifies the San Bernardino segment of SR-58 as a US-395 focus route, which makes it one of California’s ten most critical interregional corridors and gives it the state’s highest priority for upgrades.

The State of California’s Global Gateways Development Program (2002) developed by Caltrans, together with the Business, Transportation, and Housing Agency, also identifies SR-58 as a “key international trade corridor” and thus a high-priority route for grade separation improvements.

Southern California Association of Governments 2012 Regional Transportation Plan (RTP)

SCAG is the metropolitan planning organization for six counties in Southern California: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The RTP is a long-term (minimum of 20 years) vision document that outlines transportation goals, objectives, and policies for the SCAG region. The 2012 RTP, called Destination 2035, was adopted in April 2012. The proposed project at Kramer Junction is listed in the 2012 RTP.

Southern California Association of Governments 2011 Federal Transportation Improvement Program

SCAG’s 2013 Federal Transportation Improvement Program (FTIP) lists transportation projects proposed over a six-year period, from fiscal year 2012–2013 to 2017–2018. The FTIP is required to include all transportation projects that use federal funding as well as all regionally significant transportation projects for which federal approvals (by the Federal Highway Administration [FHWA] or the Federal Transit Administration [FTA]) are needed regardless of funding source. The proposed project is individually listed in the County of San Bernardino State Highway Projects portion of SCAG’s 2013 FTIP (Project Number 34770), which was found to be conforming by FHWA. Thus, the proposed project is consistent with the SCAG 2013 FTIP.

Subsequent to the Federal Land Policy and Management Act of 1976, the Desert Conservation Area Plan (BLM 2006) was developed by the BLM in response to direction by Congress: “The use of all California desert resources can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations, and to provide present and future use and enjoyment, particularly outdoor recreation uses, including the use, where appropriate, of off-road recreational vehicles.”

The California Desert Conservation Area Plan has been amended since adoption in 1980 (most recently in March 2006), including the 8.6-million-acre West Mojave Plan, which encompasses most of California's western Mojave Desert, including the project area. The West Mojave Plan is a habitat conservation plan and federal land use plan amendment that (1) presents a comprehensive strategy to conserve and protect the desert tortoise, the Mohave ground squirrel, and nearly 100 other sensitive plants and animals and the natural communities of which they are a part, and (2) provides a streamlined program for complying with the requirements of the California and federal Endangered Species Acts.

The West Mojave Plan has land use designations for the project vicinity, which include BLM open space and the following similar resource conservation areas: BLM Areas of Critical Environmental Concern, Mojave Ground Squirrel Conservation Areas, and the Fremont-Kramer Tortoise Desert Wildlife Management Area. However, despite the designated resource conservation areas, 258 acres of BLM land in the vicinity of SR-58 and 1,466 acres of new right-of-way at Kramer Junction are designated for “allowable ground disturbance” by BLM specifically for SR-58 improvements (see West Mojave Plan).

County of San Bernardino General Plan

In the state of California, a general plan is the blueprint that guides the “physical development of the county or city and any land outside its boundaries that bears relation to its planning” (California Government Code Section 65300). A general plan sets forth an overall vision for the jurisdiction and defines goals and establishes policies to achieve that vision.

The County of San Bernardino General Plan (adopted 2007) defines goals and establishes policies to achieve the overall vision of the county. The general plan identifies the community’s land use, transportation, environmental, economic, and social goals and policies as they relate to land use and development. As such, the general plan forms the basis for local government decision-making, including decisions on proposed development. The general plan includes eight elements: Land Use, Circulation and Infrastructure, Housing, Open Space, Conservation, Safety, Noise, and Economic Development Elements. The Land Use, Circulation and Infrastructure, Conservation, and Safety Elements contain goals and policies that are relevant to the proposed project and are described in further detail below. The general plan lists SR-58 as one of the designated evacuation routes in the Desert Region.
The general plan is divided into three planning regions. The study area falls within the Desert Region, which makes up the vast majority (93 percent) of the County of San Bernardino.

**Land Use Element**

Consistent with California Government Code Section 65302(a), the Land Use Element must address each of the following issues: distribution of housing, business, and industry; and distribution of open space, including agricultural land. The Land Use Element goals and policies relevant to the proposed project area are listed below.

**Goals (Desert Region)**

- **D/LU 1:** Maintain land use patterns in the Desert Region that enhance the rural environment and preserve the quality of life of the residents of the region.
- **D/LU 2:** Establish locational criteria for future development within the region to ensure compatibility between uses and with the character and vision that is desired for the region.
- **D/LU 3:** Ensure that commercial and industrial development within the region is compatible with the rural desert character and meets the needs of local residents.

**Policies (Desert Region)**

- **D/LU 1.1:** Encourage low-density development by retaining Rural Living (RL) zoning in Community Plan areas that are outside of city spheres of influence and removed from more urbanized community core areas.
- **D/LU 1.4:** Continue the conversion of the Special Development Land Use Zoning District (SD) in remote, outlying desert areas to the appropriate land use designation [e.g., Rural Commercial (CR), Highway Commercial (CH), etc.].
- **D/LU 2.1:** Provide transitional uses and buffer incompatible uses such as residential and commercial uses and environmentally sensitive areas.
- **D/LU 3.2:** Avoid strip commercial development along major roadways within the region that would detract from the rural character by encouraging the development or expansion of commercial uses within cores areas. Commercial uses shall be compatible with adjacent land uses and respect the existing positive characteristics of the region and its natural environment.

**Land Use Zoning Designations (Districts)**

According to the Land Use Element, most of the land in the study area is designated for Rural Living (RL) or Resource Conservation (RC), or zoned for management under the BLM. A few parcels are zoned for Single Residential (RS, RS-14M), Regional Industrial (IR), Commercial (CG and CN), Agricultural (AG), and Special Development (SD-RES) (County of San Bernardino 2006). Allowed uses in each of these zoning districts are described below.

- **Agricultural (AG)**—provides sites for commercial agricultural operations, agriculture support services, rural residential uses, and similar and compatible uses. Open space and recreation uses may occur on non-farmed lands within this land use zoning district.
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- **Resource Conservation** (RC)—provides sites for open space and recreational activities, single-family homes on very large parcels, and similar and compatible uses.
- **Rural Living** (RL)—provides sites for rural residential uses, incidental agricultural uses, and similar and compatible uses.
- **Single Residential** (RS)—provides sites for single-family residential uses, incidental agricultural and recreational uses, and similar and compatible uses.
- **Neighborhood Commercial** (CN)—provides sites for retail trade and personal services, repair services, lodging services, professional services, recreation and entertainment services, and similar and compatible uses.
- **Rural Commercial** (CR)—provides sites for retail trade and personal services, repair services, lodging services, recreation and entertainment services, transportation services, and similar and compatible uses. Agriculture and residential uses allowed also but are secondary in importance.
- **General Commercial** (CG)—provides sites for retail trade and personal services, lodging services, office and professional services, recreation and entertainment services, wholesaling and warehousing, contract/construction services, transportation services, open lot services, and similar and compatible uses.
- **Regional Industrial** (IR)—provides sites for heavy industrial uses that have the potential to generate severe negative impacts, incidental commercial uses, agricultural support services, salvage operations, and similar and compatible uses.

The study area 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. In addition to these areas, large swaths of land to the southeast and northeast of the study area are under the jurisdiction of BLM. The Department of Defense (U.S. Air Force) also has jurisdiction over a large area southwest of the study area, known as Edwards Air Force Test Center. Neither the lands owned by BLM nor the Department of Defense are subject to the control of the County of San Bernardino Board of Supervisors or the Development Code (County of San Bernardino 2007b, 2007c).

*Circulation and Infrastructure Element*

State planning law requires that a general plan include a circulation element and mandates that it be directly correlated to the land use element. The Circulation and Infrastructure Element sets forth strategies to support the creation of a circulation and infrastructure system consistent with the overall vision specified for the county. The Circulation and Infrastructure Element goals and policies relevant to the project are listed below.

*Goals (Countywide)*

- **CI 4:** The County will coordinate land use and transportation planning to ensure adequate transportation facilities to support planned land uses and ease congestion.
Goals (Desert Region)

- **D/CI 1:** Ensure a safe and effective transportation system that provides adequate traffic movement while preserving the rural desert character of the region.
- **D/CI 2:** Ensure that infrastructure improvements are compatible with the natural environment of the region.
- **D/CI 4:** Ensure that public services are delivered and maintained at acceptable levels, even in the more rural areas of the desert.

Policies

- **D/CI 1.2:** Design roads to follow natural contours, avoid grid pattern streets, minimize cuts and fills and disturbance of natural resources and trees wherever possible.
- **D/CI 1.4:** Preserve the rural character by discouraging required urban-scale improvements such as curbs, gutters and street lighting where the public health, safety and welfare are not endangered.
- **CI 2.1:** Work with adjacent jurisdictions to minimize inconsistencies in existing and ultimate right-of-way and roadway capacity across jurisdictional boundaries.
- **CI 2.3:** Where appropriate, jointly fund studies and improvements to the transportation system with cities and other public agencies and developers.
- **CI 2.4:** Work with the California Department of Transportation (Caltrans) and the San Bernardino Associated Governments (SANBAG) on appropriate fair-share mitigation for impacts of development on state highways.
- **CI 2.5:** Work with Caltrans on mitigating the impacts of state highway projects on local communities.

Safety Element

The general plan lists SR-58 as one of the designated evacuation routes in the desert region (County of San Bernardino 2007a). The general plan states the county’s intention to ensure that the county’s “emergency evacuation routes will quickly and efficiently evacuate all residents in the event of wildland fires and other natural disasters and will ensure adequate access of emergency vehicles to all communities” (County of San Bernardino 2007a).

Goals

- **S9:** The County’s emergency evacuation routes will quickly and efficiently evacuate all residents in the event of wildland fires and other natural disasters, and will ensure adequate access of emergency vehicles to all communities.

Policies

- **V/S 1.1:** Designate the following roads and highways as evacuation routes in the Desert Region: Interstates 15 and 40, U.S. 95 and 395 and State Highways 18, 58, 62, 127, 138, 178 and 247.
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3.1.2.2 Environmental Consequences

California Transportation Plan 2025

Build Alternatives 1, 1A, 2, and 3

Given that the California Transportation Plan 2025 identifies the entire length of SR-58 as a “Major International Trade Highway Route” in its map of the priority regions and corridors for transportation improvements, all of the build alternatives (Alternatives 1, 1A, 2, and 3) are consistent with the plan.

Alternative 4—No-Build Alternative

No improvements to SR-58 would be made under Alternative 4; consequently, this alternative would be inconsistent with the California Transportation Plan 2025.

California Interregional Transportation Improvement Program Build Alternatives

Build Alternatives 1, 1A, 2, and 3

Since the 2012 ITIP (Caltrans 2011a) characterizes the project area along SR-58 as epitomizing interregional need and identifies the San Bernardino segment of SR-58 as a US-395 focus route, all of the build alternatives (Alternatives 1, 1A, 2, and 3) would be consistent with the program.

The build alternatives are also consistent with the State of California’s Global Gateways Development Program in that they would improve SR-58 through grade separation, thereby increasing the ability of the roadway to facilitate trade.

Alternative 4—No-Build Alternative

No improvements to SR-58 would be made under Alternative 4; consequently, this alternative would be inconsistent with the California ITIP and Global Gateways Development Program.

Southern California Association of Governments 2012 Regional Transportation Plan

Build Alternatives 1, 1A, 2, and 3

The proposed project is listed in the SCAG 2012 RTP; therefore, all of the build alternatives (Alternatives 1, 1A, 2, and 3) would be consistent with regional transportation goals.

Alternative 4—No-Build Alternative

No project improvements would occur under Alternative 4. Because the project is a part of the SCAG 2012 RTP, a failure to implement the project would be inconsistent with regional transportation planning goals.
Southern California Association of Governments 2013 Federal Transportation Improvement Program

Build Alternatives 1, 1A, 2, and 3

The proposed project is listed in the SCAG 2013 FTIP as a project planned for implementation in the six-year period from fiscal year 2012–2013 to 2017–2018; therefore, all of the build alternatives (Alternatives 1, 1A, 2, and 3) would be consistent with program.

Alternative 4—No-Build Alternative

No project improvements would occur under Alternative 4. Because the project is a part of the SCAG 2012 FTIP, a failure to implement the project would be inconsistent with regional transportation planning goals.


Build Alternatives 1, 1A, 2, and 3

Although the eastern portion (approximately 7.5 miles) of all four build alternatives (Alternatives 1, 1A, 2, and 3) is located within Areas of Critical Environmental Concern as designated by the West Mojave Plan and the Desert Tortoise Recovery Plan, 258 acres of BLM land in the vicinity of SR-58 are designated for “allowable ground disturbance” by BLM specifically for the development of SR-58 improvements. For more information about the effects of the proposed project on natural habitats and species in the area, refer to Sections 3.17 through 3.22.

With the allowance for ground disturbance adjacent to the existing SR-58 for transportation projects, all of the build alternatives would be consistent with both the West Mojave Plan and the Desert Tortoise Recovery Plan.

Alternative 4—No-Build Alternative

No project improvements would occur under Alternative 4. Because this alternative would not disturb protected habitat, it would be consistent with the West Mojave Plan and the Desert Tortoise Recovery Plan.

County of San Bernardino General Plan

Build Alternatives 1, 1A, 2, and 3

Land Use Element

Implementation of any of the build alternatives (Alternatives 1, 1A, 2, and 3) would not change the land uses surrounding the project area beyond what is required for the project improvements (consistent with D/LU 1, D/LU 3, and current zoning district designations). None of the build
alternatives would introduce commercial and industrial development that would affect the rural desert character (consistent with D/LU 3).

**Circulation and Infrastructure Element**

Each of the build alternatives would help alleviate congestion and improve safety when compared with the No-Build Alternative and existing conditions (consistent with CI 4, D/CI 1, and D/CI 4). Operation of any of the build alternatives would be no less compatible with the natural environment than existing conditions (consistent with D/CI 2).

**Safety Element**

Implementation of any of the build alternatives would expand the capacity and efficiency of travel along SR-58 during both emergency and non-emergency situations, which is consistent with SR-58 being designated as a potential evacuation route.

**Alternative 4—No-Build Alternative**

**Land Use Element**

Under Alternative 4, no project improvements would occur and therefore, Alternative 4 would not result in changes in land use or new facilities that would be inconsistent with the Land Use Element.

**Circulation and Infrastructure Element**

Under Alternative 4, no project improvements would occur and traffic conditions at Kramer Junction would continue to deteriorate with increasing traffic volumes, as described in the September 2010 Traffic Study Report. The increasing congestion would be inconsistent with the goals and policies of the Circulation and Infrastructure Element.

**Safety Element**

Alternative 4 would fail to expand SR-58 capacity, and, with the increasing traffic volumes projected in the September 2010 Traffic Study Report, greater congestion would impair the ability of evacuees to flee danger in the event of an emergency. Therefore, Alternative 4 would be inconsistent with the Safety Element.

**3.1.2.3 Avoidance, Minimization, and/or Mitigation Measures**

The build alternatives are consistent with the plans discussed above, and no avoidance minimization, or mitigation measures are required.

**3.1.3 Parks and Recreation**

The only recreational facilities in the project study area are located in the Boron and Desert Lake communities, approximately six miles to the west of Kramer Junction. There is one park (Boron
Park) in the study area, which is located 1.4 miles southwest of the western terminus of the proposed project. The two schools in the area, Boron Elementary School and Boron Junior-Senior High School, each have recreational facilities on their campuses, and are located 3.4 and 1.3 miles west of the western terminus of the project, respectively.

There are no parks or other recreational facilities located elsewhere in the study area. Land uses at Kramer Junction are geared primarily toward travelers on SR-58 and US-395, and include restaurants, gas and auto service stations, and retail shops. Land located to the east and west of Kramer Junction is primarily vacant and undeveloped and is not specifically designated for recreational purposes.

3.1.3.1 Affected Environment

**Build Alternatives 1, 1A, 2, and 3**

All parks and recreational facilities in the study area are within Boron, and are located greater than one mile from the westernmost limit of the project. No effect on Boron Park or the recreational facilities at Boron Elementary School and Boron Junior-Senior High School would occur as a result of construction or operation of the proposed build alternatives (Alternatives 1, 1A, 2, and 3).

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, there would be no temporary or permanent disruption to Boron Park, Boron Elementary School, or Boron Junior-Senior High School. No effect to recreational resources would occur.

3.1.3.2 Avoidance, Minimization, and Mitigation Measures

No avoidance, minimization, or mitigation measures are required.
3.2 Growth

3.2.1 Regulatory Setting

3.2.1.1 Federal Regulations

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require an evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences that 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, or population density, which are all elements of growth.

3.2.1.2 State Regulations

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…”

3.2.2 Affected Environment

Information in this section came from the February 2013 Community Impact Assessment (CIA) (Caltrans 2013a) prepared for the proposed project. Additional information can be found in Section 3.4, Community Impacts.

The CIA compared demographic data pertaining to the project study area with data for San Bernardino County and surrounding areas. The population and housing study area encompasses the area where potential impacts from project construction and operation are reasonably foreseeable. The study area for population and housing is based on U.S. Census Bureau geographic data and includes those census blocks\(^1\) from the 2010 U.S. Census of Population and Housing (2010 Census) that have all or a portion of their areas falling within a half-mile of the project and all of the census blocks located within the Census designated place (CDP)\(^2\) of Boron. The population and housing study area includes a total of 370 census blocks, only 105 of which are populated. Most of the populated census blocks (94 of the 105 blocks) in the area are within the Boron CDP. According to the U.S. Census Bureau, the population of the study area in 2010 was 2,305.

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\(^1\) Census blocks are the smallest geographic area for which the U.S. Census Bureau collects and tabulates decennial census data. Block groups, which comprise contiguous clusters of census blocks, are the next level above census blocks in the geographic hierarchy, followed by census tracts, which are statistical subdivisions of counties or equivalent entities (U.S. Census Bureau 1994).

\(^2\) The U.S. Census Bureau (2005) defines CDPs as “closely settled, named, unincorporated communities that generally contain a mixture of residential, commercial, and retail areas similar to those found in incorporated places of similar sizes.”
Figure 3.2.1 shows the study area and Figure 3.2.2 shows the location of the project relative to Census Tract 116, the tract used for population projections. The boundaries of the study area were delineated to include the residential population and the businesses that attract customers in the Kramer Junction area.

### 3.2.2.1 Population and Housing

#### Population Projections

The proposed project would extend a distance of approximately 13.3 miles, beginning four-tenths mile east of the eastern boundary of Kern County. It would then continue eastward into a sparsely populated portion of San Bernardino County. According to the Southern California Association of Governments (SCAG) 2008 Regional Transportation Plan (RTP), the population of San Bernardino County is expected to grow to approximately 3,133,801 by 2035, a 44 percent increase compared with the 2010 population (Table 3.2.1). In addition, the unincorporated portions of the county, areas within which the proposed project would be located, are projected to grow by approximately 41 percent by 2035.

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2035</th>
<th>Percent Increase (2010 to 2035)</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Bernadino County</td>
<td>2,182,049</td>
<td>2,385,748</td>
<td>2,582,765</td>
<td>3,133,801</td>
<td>44%</td>
</tr>
<tr>
<td>Unincorporated San</td>
<td>346,523</td>
<td>380,393</td>
<td>408,654</td>
<td>487,697</td>
<td>41%</td>
</tr>
<tr>
<td>Bernardino County</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Census Tract 116</td>
<td>6,226</td>
<td>6,455</td>
<td>6,627</td>
<td>7,209</td>
<td>16%</td>
</tr>
</tbody>
</table>

Source: SCAG 2008 RTP population projections.

Long-term population growth in Census Tract 116 is expected to occur at a rate of approximately 16 percent between 2010 and 2035 (Table 3.2.1). Figure 3.2.2 shows the location of Census Tract 116 in relation to the proposed project. The tract-level growth rate is lower than the overall growth rates predicted for the unincorporated areas of San Bernardino County and San Bernardino County overall, which are 41 and 44 percent, respectively. Figure 3.2.3 shows SCAG projections for population growth in the unincorporated part of the County, the County overall, and Census Tract 116.

Although San Bernardino County has emerged as a center of job growth as a result of the out-migration of firms and people from the Southland’s coastal counties, unincorporated areas in the Desert Region (one of the three regions defined in the County of San Bernardino General Plan) are expected to remain primarily residential in character, with relatively small increases in the number of new jobs. According to the draft environmental impact report for the County of San Bernardino General Plan, the Desert Region will add approximately 8,207 housing units by 2020 (County of San Bernardino 2006).
Figure 3.2.1
Study Area
State Route 58 Kramer Junction Expressway Project
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Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project
Figure 3.2.2
Census Tract 116
State Route 58 Kramer Junction Expressway Project

Legend
- Census Tract 116
- Study Area
- Proposed Alternatives

Source: Bing Imagery
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

Section 3.2. Human Environment—Growth

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Land Use

Land uses surrounding the proposed project are found in sparsely populated rural areas. The land is either used by utilities or owned by the Department of Defense or the Bureau of Land Management. Kramer Junction, at the intersection of SR-58 and US-395, is surrounded by traveler-serving commercial land uses that cater to the regional population. This area is projected to grow at a rate similar to Census Tract 116, which is expected to grow approximately 16 percent by 2035. Census Tract 116 and the study area are each anticipated to grow at a slower rate compared to the County. This is because of the lack of amenities that would support development in the area. The majority of the land surrounding the proposed project is undeveloped, and there appears to be little demand for housing or commercial land uses in the immediate vicinity.

3.2.3 Environmental Consequences

Because growth-related effects represent the permanent impacts of a project, there is no discussion of temporary impacts in this section.

3.2.3.1 First-Cut Screening

The analysis of growth-related indirect impacts follows the first-cut screening guidelines provided in Caltrans’ Guidance for Preparers of Growth-Related Indirect Impact Analyses (May 2006). The first-cut screening analysis focuses on addressing the following four questions:

- How, if at all, does the project change accessibility?
• How, if at all, do project type, project location, and growth-pressure influence growth?

• Is project-related growth “reasonably foreseeable,” as defined by NEPA? Under NEPA, indirect impacts need only be evaluated if they are “reasonably foreseeable,” as opposed to remote and speculative.

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

The analysis of growth-related effects relied on information from the County of San Bernardino General Plan and SCAG’s 2008 and 2012 RTPs. In addition, geographic information system (GIS) data from regional databases and environmental resource data collected specifically for the proposed project were used to identify resources of concern in the study area as well as constraints and opportunities that may affect the location and rate of growth in the area.

**Build Alternatives 1, 1A, 2, and 3**

All of the build alternatives (Alternatives 1, 1A, 2, and 3) would affect growth in a similar manner and are therefore addressed together. The build alternatives’ potential to influence growth is determined by using the first-cut screening analysis approach.

• How, if at all, does the project change accessibility?

Generally, a roadway project does not change accessibility unless it extends into an area that previously could not be easily reached or precludes use of the roadway by a group that previously used it. The proposed build alternatives would do neither and therefore would not result in changes to accessibility. The project would not change the termini of SR-58 and extend into areas that were previously inaccessible. Furthermore, the project would continue to allow current users to access the highway. Although the build alternatives would alter SR-58, the facility would maintain its overall direction through the defined limits of the project, thereby neither increasing nor decreasing accessibility. The project would add capacity to SR-58, which increases the ability of existing users to reach their destinations in a timely manner, and represents a form of accessibility that would increase as a result of project implementation.

• How, if at all, do project type, project location, and growth pressure influence growth?

The build alternatives are not expected to appreciably affect local growth beyond levels identified in the County of San Bernardino General Plan and SCAG’s 2012 RTP. Growth in the project area is expected to occur with or without the project but at substantially lower rates than those projected for the County as a whole. This is because of the lack of amenities that would support development in the project area. Business development in the study area can be found at Kramer Junction. These businesses serve regional travelers on SR-58 and US-395.

The proposed project is intended to reduce operational deficiencies along SR-58. Through the construction of additional lanes and grade separation for the intersection of SR-58 and US-395, the proposed project would improve regional traffic movement along SR-58, a major east/west travel corridor that runs between Barstow and Bakersfield. The proposed project, which is listed in the adopted SCAG 2012 RTP and the 2013 FTIP, is consistent with projected growth patterns in the project area as well as the region.
Implementation of the build alternatives would not substantially increase growth pressure in the study area. Options for east/west travel through the Desert Region of Kern and San Bernardino Counties are limited. SR-58, a major transportation corridor, would continue to serve the area after implementation of the proposed project. Because the project would not change the termini of SR-58 and provide access to previously inaccessible areas or change land uses surrounding the project area to allow for greater density, new vehicular traffic trips would not be generated. The project would accommodate existing traffic and any growth stemming from development in the surrounding desert communities. Implementation of any of the build alternatives would have the effect of increasing the speed at which vehicles travel through Kramer Junction, thereby reducing the visibility of businesses at Kramer Junction from SR-58, which would reduce the attractiveness of the area for business investment and development.

- Is project-related growth reasonably foreseeable, as defined by NEPA? Under NEPA, indirect impacts need only be evaluated if they are reasonable foreseeable, as opposed to remote and speculative.

Accelerated project-related growth, beyond that of planned growth patterns for the region, would not be a reasonably foreseeable indirect impact. Because of the purpose of the project (i.e., to serve regional transportation demands) and the current patterns of development in the project area (i.e., small-scale traveler-serving businesses such as gas stations, motels, restaurants), there is limited potential for growth. Any reasonably foreseeable growth related to the build alternatives at Kramer Junction would be constrained by land ownership in the area, with BLM land to the east, Edwards Air Force Base land to the southwest, and the solar plant to the northwest. Given these limitations, developable land is not abundant. Furthermore, due to the potential for bypass impacts discussed in Section 3.4 and the existence of several traveler-serving businesses already operating at Kramer Junction, the incentive for new commercial development at this location is low. While there may be opportunities for a small amount of development to occur, substantial growth in the vicinity of the project is not reasonably foreseeable.

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

Substantial project-related growth is not anticipated. While there may be changes to existing businesses at Kramer Junction as a result of displacement or site access issues, no substantial long-term increases in commercial or residential density at Kramer Junction or elsewhere in the study area would result from construction or operation of the build alternatives. Furthermore, because the proposed project would not result in substantial growth, no substantial growth-related impacts related to biological resources, traffic, air quality, water quality, or other resources of concern would occur.

**No-Build Alternative**

Alternative 4 would not modify local roadways. The only change anticipated as a result of Alternative 4 would be the deterioration of traffic conditions on SR-58 over time. This change would not result in growth in the study area.
3.2.4 Avoidance, Minimization, and/or Mitigation Measures

Because none of the build alternatives would result in substantial growth impacts, avoidance, minimization, and/or mitigation measures are not required.
3.3 Farmlands/Timberlands

The project study area contains no timberland (as defined by Public Resources Code [PRC] Section 4526), forestland (as defined in PRC Section 12220[g]), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]). The proposed project would not affect timberland or forestry resources; therefore, this section only analyzes impacts on farmlands.

3.3.1 Regulatory Setting

3.3.1.1 Federal Regulations

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

3.3.1.2 State Regulations

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

Additional Regulatory Information

According to CEQA Guidelines Section 15206, cancellation of Williamson Act contracts for parcels exceeding 100 acres is considered to be “of statewide, regional, or areawide significance,” and thus subject to additional noticing and review requirements under CEQA. The Williamson Act of 1965 is the state’s principal policy for the preservation of agricultural and open space land. The program encourages landowners to work with local governments to protect important farmland and open space. Landowners can enroll parcels for a minimum of ten years. This program helps local governments to restrict land to agricultural and compatible open space use. In doing so, land is assessed for property taxes at a rate consistent with its actual use, rather than the potential value of the land. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth.

Williamson Act lands are classified as prime or nonprime, which are defined in the Regulatory Setting section above. These lands can also be considered as Open Space of Statewide Significance. For farmland definitions, refer to Caltrans’ Standard Environmental Reference (SER) at www.dot.ca.gov/ser.
A project that would convert prime agricultural land to nonagricultural use or impair the agricultural productivity could have a significant effect on the environment. No set acreage threshold of prime farmland conversion has been determined by case law or regulatory framework that would constitute a significant impact.

### 3.3.1.3 Local Regulations

**County of San Bernardino General Plan Conservation Element**

The Conservation Element of the County of San Bernardino County General Plan provides direction regarding the conservation, development, and utilization of the County’s natural resources, including soils that have the potential to be used for agriculture (e.g., prime farmland). The Conservation Element’s goals and policies relevant to the proposed project are listed below.

**Goals (Soils/Agriculture/Minerals)**

- **CO 6.** The County will balance the productivity and conservation of soil resources.

**Policies (Soils/Agriculture)**

- **CO 6.1.** Protect prime agricultural lands from the adverse effects of urban encroachment, particularly increased erosion and sedimentation, trespass, and non-agricultural land development.
- **CO 6.2.** The County will allow the development of areas of prime agricultural lands that support commercially valuable agriculture to urban intensity when it can be demonstrated that there is no long-term viability of the agricultural uses because of encroaching urbanization, creating incompatible land uses in proximity to each other.

**Goals (Desert Region)**

- **D/CO 4.** Protect agricultural lands from the effects of non-agricultural development.

**Policies (Desert Region)**

- **D/CO 4.2.** The conversion of agricultural land to non-agricultural uses shall be discouraged unless the proposed use can be demonstrated to be preferable in terms of economic development, resource availability, and resource conservation.

**Kern County General Plan Land Use, Open Space, and Conservation Element**

The western end of the project area is just west of the Kern-San Bernardino county line. Kern County’s Land Use, Open Space, and Conservation Element lists the local goals and policies for agricultural areas and resources. Those applicable to the project are located in the Resource section of the element and detailed below.


**Resource**

**Goals**

Goal 1. To contain new development within an area large enough to meet generous projections of foreseeable need but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the county.

Goal 2. Protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 3. Ensure that the development of resource areas minimizes effects on neighboring resource lands.

Goal 5. Conserve prime agricultural lands from premature conversion.

**Policies**

Policy 3. The county will support programs and policies that provide tax and economic incentives to ensure the long-term retention of agriculture, timber, and other resource lands.

Policy 5. Areas of low-intensity agriculture use should be of an economically viable size in order to participate in the State Williamson Act Program/Farmland Security Zone Contract.

### 3.3.2 Affected Environment


The DOC Farmland Mapping and Monitoring Program (FMMP) provides data and maps of the agricultural land throughout California. The agricultural lands are classified into the following categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance (DOC 2010a).

- **Prime Farmland** is rural land with the best combination of physical and soil characteristics for the production of crops. The land must have been used for irrigated agricultural production at some time during the last four years prior to the mapping date.

- **Unique Farmland** is farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
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- **Farmland of Statewide Importance** is farmland similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

- **Farmland of Local Importance** is land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. San Bernardino County defines Farmland of Local Importance as “[f]armlands that include areas of soils that meet all the characteristics of Prime, Statewide, or Unique Farmland and that are not irrigated.”\(^1\) The definition also includes farmlands that are not covered by the above categories but are of high economic importance to the community.

- **Grazing Land** is land on which the existing vegetation is suited to the grazing of livestock.

- **Urban and Built-up Land** is land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

- **Other Land** is land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

- **Water** is perennial water bodies with an extent of at least 40 acres.

According to the DOC’s Farmland Mapping and Monitoring Program, there are no farmlands or vacant lands that are mapped as Prime Farmlands, Unique Farmlands, Farmlands of Statewide Importance, or Farmlands of Local Importance within the study area. In addition, no areas within the study area are under Williamson Act contract.

Within the study area, two tracts of land located north and south of Jerome Street (also known as Cote Street) in Boron are zoned A-1 by Kern County for limited agricultural uses, although neither is used for agricultural purposes. No land within the San Bernardino County portion of the study area is zoned for agricultural production. One property (Assessor Parcel Number [APN] 049225148) adjacent to the project area has been identified as a ranch and appears to have facilities for raising chickens and horseback riding; however, there are no crops in cultivation at this site.

The San Bernardino County portion of the project area has not been surveyed or mapped by the DOC’s Division of Land Resource Protection (DOC 2010a). The Kern County portion of the project area has been classified by DOC as Rural Residential Land, Urban and Built-Up Land, Non-Agricultural and Native Vegetation, or Vacant or Disturbed Land.

As reflected in the County of San Bernardino General Plan, undeveloped vacant land located within the study area is designated as Rural Living (RL), Resource Conservation (RC), Special Development (SD), or Rural Commercial (CR) (County of San Bernardino 2007a). All of these

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land use designations allow for limited agricultural uses that are secondary to the main use of the property. Although agriculture is allowed in these zones, it must be incidental to other uses and not the main use of the land.

The Kern County zoning designations within the study area are Estate (E), Residential (R-1, R-3, and RS), Commercial (C-1 and C-2), Mobile Home (MH), Light Industrial (M1), and Limited Agricultural (A-1). Although zones A-1, R-1, RS, and E allow agricultural uses, only zones M1 and A-1 allow such uses for commercial purposes. The only agriculturally related use in Boron is raising horses for riding.

According to CEQA Guidelines, Section 15206, the cancellation of Williamson Act contracts for parcels exceeding 100 acres is considered to be an action “of statewide, regional, or area-wide significance,” and thus subject to additional noticing and review requirements under CEQA. A project that would convert prime agricultural land to non-agricultural use or impair agricultural productivity would most likely have an effect on the environment.

### 3.3.3 Environmental Consequences

**Build Alternatives 1, 1A, 2, and 3**

According to the DOC’s Farmland Mapping and Monitoring Program, there are no farmlands or vacant lands that are mapped as Prime Farmlands, Unique Farmlands, Farmlands of Statewide Importance, or Farmlands of Local Importance within the study area. In addition, there are no areas within the study area under Williamson Act contract.

None of the build alternatives would result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), to nonagricultural use, nor would they conflict with existing zoning for agricultural use or conflict with a Williamson Act contract. In addition, there would be no temporary impacts to Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Farmland of Local Importance or land under Williamson Act contract. The build alternatives would not involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to nonagricultural use. No adverse effects would occur.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, no permanent or temporary effects to farmlands/timberlands would occur.

### 3.3.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are proposed because no adverse effects are anticipated.
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3.4 Community Impacts

3.4.1 Community Character and Cohesion

3.4.1.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, 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 (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions regarding 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.

3.4.1.2 Affected Environment

Information from this section of the document came from the February 2013 Community Impact Assessment (Caltrans 2013a) prepared for the proposed project and data from the Bureau of the Census.

The proposed project is located within the Mojave Desert region of San Bernardino County (County), California. The nearest incorporated cities are California City, Barstow, and Adelanto, which are approximately 35 miles north, east, and south of the project area, respectively. The nearest unincorporated communities are Boron, located six miles to the west, and Hinkley, located 20 miles to the east. Aside from the incorporated cities in the area, small unincorporated residential communities can be found scattered throughout the region.

For the purposes of this section, the project study area is the area within a half-mile in all directions of the project’s limits of disturbance as well as all of the area within the boundaries of the unincorporated community of Boron, which neighbors the western end of the project. Construction of the project would occur entirely within the County of San Bernardino, but Boron, which is located within Kern County, was included to investigate potential effects on the nearest sizable residential community. The study area is shown in Figure 3.4.1.
The study area for population and housing is based on Census geographic boundaries and varies slightly from the study area described above. The population and housing study area includes the 111 census blocks\(^1\) from the 2010 U.S. Census of Population and Housing (2010 Census) that have all or a portion of their areas falling within a half-mile of the project and all 259 of the census blocks located within the Census Designated Place (CDP)\(^2\) of Boron. The population and housing study area includes a total of 370 census blocks, only 105 of which are populated. Most of the populated census blocks (94 of the 105 blocks) in the area are within the Boron CDP. Figures 3.4.2a through 3.4.2c show the census blocks that make up the population and housing study area.

The study area is largely undeveloped, vacant land adjacent to the existing SR-58, with primarily commercial development occurring at Kramer Junction and residential and commercial development occurring within Boron. Small, isolated residences and other uses exist elsewhere in the study area, but the main areas of commercial activity and residential settlement are at Kramer Junction and in Boron, respectively.

**Cohesion**

Cohesion, an important characteristic of a community, is the degree to which residents have a “sense of belonging” to their neighborhood, a level of commitment of the residents to the community, or a strong attachment to neighbors, groups, and institutions, usually as a result of continued association over time. Cohesion also refers to the degree of interaction among the individuals, groups, and institutions that make up a community. Cohesive communities are associated with specific social characteristics, which may include long average lengths of residency (stability index), frequent personal contact, social interaction, high levels of community activity, location and type of community facilities, and ethnic homogeneity. These characteristics hold true for the study area.

There are two communities in the study area: Kramer Junction and Boron. Kramer Junction is primarily a commercial area with a small number of residents (approximately 10, according to an informal survey conducted on January 18, 2013). It 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 located in the vicinity of Kramer Junction, but the community in the area is primarily a business community rather than a residential community. Occasionally, events such as an annual antique car show are held at Kramer Junction, but these types of gatherings appear to be infrequent. A dirt runway located adjacent to the junction provides an airstrip for small aircrafts.

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\(^1\) Census blocks are the smallest geographic area for which the U.S. Census Bureau collects and tabulates decennial census data. Block groups, which comprise contiguous clusters of census blocks, are the next level above census blocks in the geographic hierarchy, followed by census tracts, which are statistical subdivisions of counties or equivalent entities (U.S. Census Bureau 1994).

\(^2\) The U.S. Census Bureau (2005) defines CDPs as “closely settled, named, unincorporated communities that generally contain a mixture of residential, commercial, and retail areas similar to those found in incorporated places of similar sizes.”
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Figure 3.4.2b
Census Blocks in the Project Study Area
State Route 58 Kramer Junction Expressway Project
Figure 3.4.2c
Census Blocks in the Project Study Area
State Route 58 Kramer Junction Expressway Project

Legend
- Study Area
- Census Blocks
- Proposed Alternatives

0 1,500 3,000 Feet

State Route 58 Kramer Junction Expressway Project
06-Kar-58 PM R143.5/R143.9
06-SBa 58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616
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In contrast to Kramer Junction, the desert community of Boron (which includes Desert Lake) is primarily residential, with community-serving commercial development, as well as two public schools, a park, various churches, and two museums, among other things. The development of the Boron area occurred following the discovery of a large borate deposit in 1925. The borate mine that was developed as a result of this discovery is now California’s largest open-pit mine and possibly the world’s largest borate mine. Owned by Rio Tinto Minerals, it is responsible for 800 employees in the area (Center for Land Use Interpretation n.d.). Other employers in the area are the Air Force and commercial businesses and restaurants in Boron, at Kramer Junction, and surrounding communities. The Boron Chamber of Commerce, with 63 members listed on its website, is active in the area, putting on community events such as the annual Twenty Mule Team Days celebration. The area also has a Veterans of Foreign Wars group (Post 6313).

Aircraft enthusiasts have access to facilities at the Boron Airport, which is located at the western section of SR-58, east of the County line and west of the railroad crossing (where the SR-58 bends). This airstrip is privately owned and operated. It has three 45- to 50-foot-wide unpaved runways, approximately 1,900 to 2,400 feet in length.

Although six miles separate Kramer Junction and Boron, these areas are interrelated due to their proximity relative to other developed areas. Anecdotal evidence collected as part of a survey of Kramer Junction businesses conducted on January 18, 2013 suggests that a high proportion of individuals employed at Kramer Junction live in Boron (ICF 2013). According to commute data collected by the Census Bureau as part of the American Community Survey, over 60 percent of the commuting population travels 10 minutes or more to work (see Table 3.4-1).

Table 3.4-1. Commute Travel Times for Boron Residents (2011)

<table>
<thead>
<tr>
<th>Commute Travel Time for Boron Residents</th>
<th>Number of Residents</th>
<th>Percentage of Commuters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 minutes</td>
<td>121</td>
<td>20.2%</td>
</tr>
<tr>
<td>5 to 9 minutes</td>
<td>112</td>
<td>18.7%</td>
</tr>
<tr>
<td>10 to 14 minutes</td>
<td>102</td>
<td>17.0%</td>
</tr>
<tr>
<td>15 to 19 minutes</td>
<td>52</td>
<td>8.7%</td>
</tr>
<tr>
<td>20 to 24 minutes</td>
<td>53</td>
<td>8.8%</td>
</tr>
<tr>
<td>25 to 29 minutes</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>30 to 34 minutes</td>
<td>26</td>
<td>4.3%</td>
</tr>
<tr>
<td>35 to 39 minutes</td>
<td>48</td>
<td>8.0%</td>
</tr>
<tr>
<td>40 to 44 minutes</td>
<td>34</td>
<td>5.7%</td>
</tr>
<tr>
<td>45 to 59 minutes</td>
<td>22</td>
<td>3.7%</td>
</tr>
<tr>
<td>60 to 89 minutes</td>
<td>22</td>
<td>3.7%</td>
</tr>
<tr>
<td>90 or more minutes</td>
<td>7</td>
<td>1.2%</td>
</tr>
<tr>
<td>Total Commuting Population</td>
<td>599</td>
<td>100%</td>
</tr>
</tbody>
</table>

Due to the overwhelming use of the automobile as the primary means of transportation to work (79 percent of commuters in Boron, according to the 2007-2011 ACS), it can be assumed that a sizable number of individuals leave Boron for work, a portion of whom travel to Kramer Junction. Also, based on the short duration of commutes (more than 55 percent of the working population commutes less than 15 minutes), it can be determined that a sizable percentage of the population both live and work in Boron, which is likely to increase the amount of interaction between residents, thereby facilitating community cohesion in the study area.

**Community Character**

The community has a rural character, owing to its relative isolation from larger urban areas. Kramer Junction is primarily a temporary resting point for travelers and those in the trucking industry, but does have occasional community events, as described in the Cohesion section above. Only a small number of residents live at Kramer Junction, but the junction does have a community based primarily on long-tenured business owners interacting with one another over the course of five years or greater. Owing to its importance as the intersection of two major regional transportation corridors, the reach of Kramer Junction’s community is far beyond its small footprint, as evidenced by the disparate geographical range of attendees of public information meetings for the project. Individuals from Kramer Junction and Boron have typically been outnumbered at meetings in 2002 and 2007 by those from other areas, such as Bakersfield, Barstow, Escondido, Lancaster, Palmdale, Los Angeles, and several other locations.

Boron, by contrast, with its much larger residential population, has a rural residential character. Local businesses are not located immediately adjacent to the Boron Avenue interchange of SR-58, and therefore, they serve primarily local residents. They do not cater to the traveling public to the same extent as businesses at Kramer Junction.

**Regional and Local Population Characteristics**

The total population in the County of San Bernardino, as reported in the 2010 Census, was 2,035,210 persons. Of the total population, the largest group was persons of Hispanic or Latino origin of any race at 49 percent, while non-Hispanic Whites made up the next largest group at 33 percent. The remaining 18 percent of the population, in order by descending proportion, was Black, Asian, multi-racial, Native American, Native Hawaiian/Pacific Islander, and other races (refer to Table 3.4-2). Of those residing within County of San Bernardino, 29 percent of the population was under 18 years of age in 2010, while 9 percent were 65 years of age and over.

As noted in Table 3.4-2, the Boron CDP had 2,253 persons in 2010, with the largest group being non-Hispanic White persons, at 68 percent. Hispanic persons of any race were the next largest group, at 18 percent of the total population. The remaining 14 percent of the population, in order by descending proportion, was Black, multi-racial, Asian, Native American, and Native Hawaiian/Pacific Islander, or some other ethnic group. A greater proportion of the population of Boron is older than 65 and a lesser proportion of the population is under 18 when compared with the County of San Bernardino overall, as is shown in Table 3.4-3.
Table 3.4-2. Existing Regional and Local Population Characteristics—Race/Ethnicity (2010)

<table>
<thead>
<tr>
<th>Area</th>
<th>Total</th>
<th>White</th>
<th>%</th>
<th>Black</th>
<th>%</th>
<th>Native American</th>
<th>%</th>
<th>Asian</th>
<th>%</th>
<th>Native Hawaiian/Pacific Islander</th>
<th>%</th>
<th>Other Race</th>
<th>%</th>
<th>Two or More Races</th>
<th>%</th>
<th>Hispanic or Latino (of any race)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>County of San Bernardino</td>
<td>2,035,210</td>
<td>677,598</td>
<td>33.3</td>
<td>170,700</td>
<td>8.4</td>
<td>8,523</td>
<td>0.4</td>
<td>123,978</td>
<td>6.1</td>
<td>5,845</td>
<td>0.3</td>
<td>4,055</td>
<td>0.2</td>
<td>4,3366</td>
<td>2.1</td>
<td>1,001,145</td>
<td>49.2</td>
</tr>
<tr>
<td>Study Area*</td>
<td>2,305</td>
<td>1,577</td>
<td>68.4</td>
<td>160</td>
<td>6.9</td>
<td>40</td>
<td>1.7</td>
<td>44</td>
<td>1.9</td>
<td>4</td>
<td>0.2</td>
<td>4</td>
<td>0.2</td>
<td>70</td>
<td>3.0</td>
<td>413</td>
<td>17.9</td>
</tr>
<tr>
<td>Boron</td>
<td>2,253</td>
<td>1,532</td>
<td>68.0</td>
<td>158</td>
<td>7.0</td>
<td>40</td>
<td>1.8</td>
<td>44</td>
<td>2.0</td>
<td>4</td>
<td>0.2</td>
<td>1</td>
<td>0.0</td>
<td>68</td>
<td>3.0</td>
<td>406</td>
<td>18.0</td>
</tr>
<tr>
<td>Census Tract 116</td>
<td>7,444</td>
<td>5,185</td>
<td>69.7</td>
<td>354</td>
<td>4.8</td>
<td>52</td>
<td>0.7</td>
<td>227</td>
<td>3.0</td>
<td>16</td>
<td>0.2</td>
<td>10</td>
<td>0.1</td>
<td>161</td>
<td>2.2</td>
<td>1,439</td>
<td>19.3</td>
</tr>
</tbody>
</table>

* The study area comprises the community of Boron in Kern County and 111 census blocks in the County of San Bernardino that have a portion of their areas within one-half mile of the proposed project (Figures 3.4.2a through 3.4.2c). Source: U.S. Census Bureau, Census of Population and Housing, Summary File 1, Table P9 (2010b).

Table 3.4-3. Existing Regional and Local Housing Characteristics—Age (2010)

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Population</th>
<th>Under 18</th>
<th>Percentage</th>
<th>65 and Over</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>County of San Bernardino</td>
<td>2,035,210</td>
<td>594,588</td>
<td>29.2</td>
<td>181,348</td>
<td>8.9</td>
</tr>
<tr>
<td>Study Area*</td>
<td>2,305</td>
<td>635</td>
<td>27.5</td>
<td>297</td>
<td>12.9</td>
</tr>
<tr>
<td>Boron</td>
<td>2,253</td>
<td>621</td>
<td>27.6</td>
<td>296</td>
<td>13.1</td>
</tr>
<tr>
<td>Census Tract 116</td>
<td>7,444</td>
<td>1,710</td>
<td>23.0</td>
<td>1,533</td>
<td>20.6</td>
</tr>
</tbody>
</table>

* The study area comprises the community of Boron in Kern County and 111 census blocks in the County of San Bernardino that have a portion of their areas within one-half mile of the proposed project (Figures 3.4.2a and 3.4.2b).
Housing

According to the 2010 Census, the total number of housing units in the County of San Bernardino was 601,369. Of the total housing units, 87 percent were occupied. Of the total occupied housing units, 63 percent were owner-occupied, and 37 percent were rented. County of San Bernardino employment centers are concentrated in the more urbanized valley region located in the southwestern portion of the County.

There is little housing at Kramer Junction, with four units housing approximately 10 residents. According to an informal survey of Kramer Junction business owners conducted on January 18, 2013, most individuals commute from the surrounding communities, including Boron, Hesperia, Helendale, Adelanto, Mojave, Lancaster, California City, and Barstow. A small minority of employees and business owners, however, live at Kramer Junction in residences either behind or attached to commercial businesses.

The Boron CDP had a total of 1,208 housing units in 2010. Of this total, 74 percent of the housing units were occupied. Owner-occupied housing units represented 57 percent of the total occupied housing stock, and 43 percent were renter-occupied. Boron and the study area both exhibit lower occupancy rates and a greater percentage of renter-occupied housing than the County at large. Tables 3.4-4 and 3.4-5 identify occupancy and housing tenure within Boron and the surrounding region.

Table 3.4-4. Existing Regional and Local Housing Characteristics—Occupancy (2010)

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Units</th>
<th>Occupied Units</th>
<th>Percentage of Occupied Units</th>
<th>Vacant Units</th>
<th>Percentage of Vacant Units</th>
<th>Persons Per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Bernardino County</td>
<td>699,637</td>
<td>611,618</td>
<td>87.4</td>
<td>88,019</td>
<td>12.6</td>
<td>3.26</td>
</tr>
<tr>
<td>Study Area</td>
<td>1,236</td>
<td>912</td>
<td>73.8</td>
<td>324</td>
<td>26.2</td>
<td>2.58</td>
</tr>
<tr>
<td>Boron</td>
<td>1,208</td>
<td>892</td>
<td>73.8</td>
<td>316</td>
<td>26.2</td>
<td>2.53</td>
</tr>
<tr>
<td>Census Tract 116</td>
<td>3,691</td>
<td>2,934</td>
<td>79.5</td>
<td>757</td>
<td>20.5</td>
<td>2.54</td>
</tr>
</tbody>
</table>

* The study area comprises the community of Boron in Kern County and 111 census blocks in the County of San Bernardino that have a portion of their areas within one-half mile of the proposed project (Figures 3.4.2a through 3.4.2c).
Source: U.S. Census Bureau, Census of Population and Housing, Summary File 1, Tables H3 and H12 (2010b).

Table 3.4-5. Existing Regional and Local Housing Characteristics—Tenure (2010)

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Units</th>
<th>Occupied Units</th>
<th>Owner Occupied Units</th>
<th>Percentage of Owner Occupied Units</th>
<th>Renter-Occupied Units</th>
<th>Percentage of Renter Occupied Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Bernardino County</td>
<td>699,637</td>
<td>611,618</td>
<td>383,573</td>
<td>62.7</td>
<td>228,045</td>
<td>37.3</td>
</tr>
<tr>
<td>Study Area *</td>
<td>1,236</td>
<td>912</td>
<td>513</td>
<td>56.3</td>
<td>399</td>
<td>43.8</td>
</tr>
<tr>
<td>Boron</td>
<td>1,208</td>
<td>892</td>
<td>505</td>
<td>56.6</td>
<td>387</td>
<td>43.4</td>
</tr>
<tr>
<td>Census Tract 116</td>
<td>3,691</td>
<td>2,934</td>
<td>2,133</td>
<td>72.7</td>
<td>801</td>
<td>27.3</td>
</tr>
</tbody>
</table>

* The study area comprises the community of Boron in Kern County and 111 census blocks in the County of San Bernardino that have a portion of their areas within one-half mile of the proposed project (Figures 3.4.2a through 3.4.2c).
Source: U.S. Census Bureau, Census of Population and Housing, Summary File 1, Table H4 (2010b).
Local Circulation and Access

Aside from Twenty Mule Road and the roads to the west of the western limit of the project within Boron, the only paved roads in the study area are SR-58 and US-395. Both highways are important through routes for local traffic, regional travelers, and commercial truck shipping. A few dirt roads parallel SR-58 and lead into the open desert. SR-58 is a major freight access corridor for the Central Valley, and Kramer Junction is a major intersection along the corridor that serves as a stop for east-west travel between the Central Valley and the rest of the United States, and for north-south travel between the Eastern Sierras and the Inland Empire.

Visitors to Kramer Junction are generally travelers en route to destinations in the eastern Sierra Mountains, Central Valley, and the communities of Victorville and Hesperia, as well as some communities in the San Bernardino metropolitan area. The portions of SR-58 within the study area consist of a two-lane undivided highway without passing lanes, and US-395 consists of a two-lane highway with no passing lanes and double yellow or broken yellow centerline striping.

Kramer Junction is a signalized intersection with pedestrian crosswalks on three sides of the intersection. According to the September 2010 Traffic Study Report prepared for the proposed project, existing intersection traffic conditions operate at a level of service (LOS) of C for both AM and PM peak periods on weekdays and weekends, which is acceptable under Caltrans standards. Applying an annualized linear growth, future peak period LOS is expected to range from C to F by 2039.

The September 2010 Traffic Study Report found that ADT on SR-58 is approximately 13,800 vehicles per day on weekdays, 61 percent of which is truck traffic. Weekend ADT is just under 12,500 vehicles, 52 percent of which is truck traffic. By 2035, these traffic levels are expected to more than double.

Economic Conditions

3.4.1.3 Regional Economy

According to the County of San Bernardino’s Comprehensive Annual Financial Report (2011), total economic output in the Inland Empire (the San Bernardino-Riverside-Ontario metropolitan area) dropped by 2.8 percent in 2009 from the previous year related to the economic downturn and its effects on the local construction, manufacturing, and mining sectors. The report also notes the negative effects of the economy on the San Bernardino real estate market, stating that there was a 66 percent decrease in median home resale prices between late 2006 and early 2011. Between 2008 and 2009, employment in construction and housing-related industries declined by 19 percent, logistics employment fell by nine percent, and professional, scientific, and technical services employment dropped six percent (The Community Foundation 2011). Overall, the economy of the County of San Bernardino and the Inland Empire region has struggled through the recent economic downturn.
3.4.1.4 Employment and Income

While it does not have the employment density of the valley region of the County of San Bernardino, the study area has jobs to support its residents and residents from other desert communities in the area. According to a survey of Kramer Junction businesses conducted on January 18, 2013, nearly 110 individuals are directly employed by Kramer Junction businesses (ICF 2013). In addition, approximately 800 individuals are employed by Rio Tinto at the borate mine northwest of Boron. Other large-scale employers include Edwards Air Force Base, which employs approximately 13,000 employees (Center for Land Use Interpretation n.d.). Small businesses in Boron also employ a large number of study area residents.

Regionally, employment has not fared favorably in the recent economic downturn. The Bureau of Labor Statistics (BLS) reported a 10.9 percent unemployment rate in January 2013 for the Riverside-San Bernardino-Ontario Metropolitan Statistical Area (MSA) in which the project is located. By comparison, the national unemployment rate was 7.9 percent in January 2013 (Bureau of Labor Statistics). Figure 3.4.3 shows the unemployment trends for the Riverside-San Bernardino-Ontario MSA, which rose steadily between 2007 and 2010 before leveling off in 2010 and declining slightly through 2011 and 2012.

Unemployment data from the State of California Employment Development Department (EDD) indicate that County of San Bernardino has experienced comparable levels of unemployment to the region as a whole, with a 10.8 percent unemployment rate for December 2012 (EDD, not seasonally-adjusted). Smaller cities near the project site like Adelanto and Barstow, however, have experienced greater levels of unemployment, with the EDD data showing unemployment rates of 16.7 percent and 13.5 percent, respectively (EDD).

![Figure 3.4.3. Riverside-San Bernardino-Ontario MSA Unemployment Trends](source: Bureau of Labor Statistics, 2012.)
To determine the income and poverty characteristics for the study area, data were obtained from the U.S. Census Bureau American Community Survey. Since no income or poverty statistics were available at the census block level and 2010 decennial Census data for the block group level have not been released, data from the surrounding county, census tract, and neighboring community (Boron) were used as proxies for understanding the income and poverty characteristics of the project area.

Table 3.4-6 indicates that, of the three geographies identified, median income is highest in the County of San Bernardino at $55,845 annually, compared with annual median household incomes of $55,158 and $37,411 for Census Tract 116 and Boron CDP, respectively.

Table 3.4-6 also shows the percentage of the population falling below the poverty threshold set by the U.S. Census Bureau (which differs from the federal poverty line set by the U.S. Department of Health and Human Services). Just under a quarter of the population in Boron is below the poverty threshold, while just over 15 percent each of the populations of the County of San Bernardino and Census Tract 116 are in poverty. It should be noted that American Community Survey data may have large margins of error due to relatively small sample sizes.

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Population</th>
<th>Median Household Income ($)</th>
<th>Below Poverty Threshold</th>
<th>Percentage Below Poverty Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>County of San Bernardino</td>
<td>1,976,870</td>
<td>55,845</td>
<td>291,020</td>
<td>14.8</td>
</tr>
<tr>
<td>Boron</td>
<td>2,064</td>
<td>37,411</td>
<td>479</td>
<td>23.2</td>
</tr>
<tr>
<td>Census Tract 116</td>
<td>5,403</td>
<td>55,158</td>
<td>829</td>
<td>15.3</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, American Community Survey, 2010 5-year estimates, Tables S1701 and B19013, 2010a).

The number of modest dwellings in the study area provides additional evidence that there are low-income residents in the area. These dwellings are typically small and situated on small lots. Except for SR-58 and Twenty Mule Team Road, roads in the study area are generally unpaved and lack uniform signage, street lighting, or other infrastructure.

Further, according to housing data gathered from the 2010 decennial Census and shown in Table 3.4-5, Boron and the overall study area show a higher rate of renters (44 percent) compared with the census tract overall (27.3 percent) and the County of San Bernardino (37.3 percent). The high percentage of residents in the study area who rent suggests that the area has low-income residents, some of whom rent as a result of not being able to afford to buy housing.

Data from the California Department of Education also provide evidence of the income and poverty characteristics of the study area community by identifying the number of students in local schools that receive free or reduced-price meals. For students to qualify and receive free or reduced-price meals, their family income must fall within certain poverty guidelines. Eligibility for this program is defined by U.S. Department of Health and Human Services (DHHS) poverty guidelines. For the 2010-2011 academic year, a family of four would need to make less than

The definition of low-income is based on Department of Health and Human Services poverty guidelines. For 2010, this was $22,050 for a family of four.
$22,050 to be eligible. As shown in Table 3.4-7, data from the California Department of Education indicate that a large percentage of students at the two schools in the vicinity of the proposed project were enrolled to receive free or reduced-price meals during the 2010–2011 school year, giving further indication that a substantial number of households in the study area are likely to have incomes below the poverty level.

<table>
<thead>
<tr>
<th>School</th>
<th>Percent Receiving Free or Reduced-Price Meals*</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Boron Elementary</td>
<td>64.6</td>
</tr>
<tr>
<td>Boron Junior-Senior High</td>
<td>53.0</td>
</tr>
</tbody>
</table>

* Data from 2010-2011 Academic Year, California Department of Education
Source: California Department of Education DataQuest, 2012.

### 3.4.1.5 Business Activity

Business activity in the study area includes auto-oriented businesses at Kramer Junction and local community-serving businesses in Boron.

Businesses at Kramer Junction include automobile-oriented services, retail shops, and restaurants. Many of these businesses are franchises of large chains and not unlike those found along transportation corridors elsewhere in unincorporated County of San Bernardino, but others are distinctive small, independent businesses. Businesses at Kramer Junction are dependent on passersby stopping for gas, food, or shopping, an occurrence that is made more likely by the relatively low speeds at which vehicles proceed through the junction.

Boron, located six miles to the west of Kramer Junction and immediately west of the western project limit, has primarily community-serving businesses (with the exception of the borate mine) in contrast to the region-serving businesses at Kramer Junction. While some of Boron’s businesses advertise along SR-58 to regional travelers, businesses do not cater exclusively to travelers, as evidenced by the fact that there are no gas stations or highway-adjacent businesses in Boron.

The American Community Survey found that approximately 945,000 persons were employed in the civilian labor force in County of San Bernardino (2010, one-year estimate, Table DP03). In addition, according to data compiled by the U.S. Census Bureau in the 2007 Economic Census, most businesses in the County fell into the following categories: wholesale and retail trade, manufacturing, health care and social assistance, accommodation and food service, professional and technical services, real estate, and other service industries (see Table 3.4-8).
Table 3.4-8. County of San Bernardino Economic Statistics, 2007

<table>
<thead>
<tr>
<th>Business Type</th>
<th>Number of Businesses</th>
<th>Sales or Receipts ($1,000)</th>
<th>Annual Payroll ($1,000)</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>2,057</td>
<td>18,907,342</td>
<td>2,540,174</td>
<td>65,702</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>2,284</td>
<td>27,579,924</td>
<td>1,434,712</td>
<td>33,335</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>5,018</td>
<td>21,717,402</td>
<td>2,018,766</td>
<td>84,312</td>
</tr>
<tr>
<td>Information</td>
<td>426</td>
<td>N/A</td>
<td>561,120</td>
<td>10,529</td>
</tr>
<tr>
<td>Real Estate, Rental, and Leasing</td>
<td>1,771</td>
<td>2,310,066</td>
<td>354,475</td>
<td>9,935</td>
</tr>
<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>2,496</td>
<td>2,167,530</td>
<td>767,417</td>
<td>17,607</td>
</tr>
<tr>
<td>Administrative and Support and Waste Management and Remediation Services</td>
<td>1,668</td>
<td>2,881,670</td>
<td>1,357,257</td>
<td>60,012</td>
</tr>
<tr>
<td>Educational Service</td>
<td>2,43</td>
<td>259,989</td>
<td>96,715</td>
<td>3,495</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>3,446</td>
<td>8,350,585</td>
<td>3,149,632</td>
<td>71,731</td>
</tr>
<tr>
<td>Arts, Entertainment, and Recreation</td>
<td>345</td>
<td>1,212,560</td>
<td>210,005</td>
<td>10,630</td>
</tr>
<tr>
<td>Accommodation and Food Service</td>
<td>3,112</td>
<td>2,754,662</td>
<td>745,959</td>
<td>54,839</td>
</tr>
<tr>
<td>Other Services (except Public Administration)</td>
<td>2,336</td>
<td>1,592,295</td>
<td>467,000</td>
<td>16,862</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2007 Economic Census, Table 00A1.

3.4.1.6 Fiscal Conditions

As detailed in the County of San Bernardino’s 2010–2011 Comprehensive Annual Financial Report, overall tax revenues in the County were approximately $664 million, representing nearly a quarter of total revenues (County of San Bernardino Auditor-Controller/Treasurer/Tax Collector 2011). This revenue level represents a decline of 3 percent from the previous fiscal year (County of San Bernardino Auditor-Controller/Treasurer/Tax Collector 2011). The report also related the effects of the widespread housing and economic downturn on the County’s coffers, explaining that the assessed property values for the 2011–2012 fiscal year fell for the third consecutive year, resulting in a reduction of more than $20 billion in assessed valuation.

Properties in the project area generate both property and sales tax revenue for the County of San Bernardino. Table 3.4-9 shows the property taxes for parcels that could potentially be displaced by the proposed project (please refer to the Relocations section below for more information). The amount of sales tax revenue generated by each business at Kramer Junction is unknown, but is likely to be small relative to the revenues generated throughout the County of San Bernardino.
### Table 3.4-9. Assessed Total Value and Property Tax Amounts of Properties Potentially Displaced by Project Alternatives (2011)

<table>
<thead>
<tr>
<th>APN</th>
<th>Land Use</th>
<th>Assessed Total Value ($)</th>
<th>Property Tax Amount ($)</th>
<th>Alternative that Would Displace</th>
</tr>
</thead>
<tbody>
<tr>
<td>049219102</td>
<td>Single Family Residence</td>
<td>5,980</td>
<td>156</td>
<td>Alt. 1</td>
</tr>
<tr>
<td>049219103</td>
<td>Antique Shop</td>
<td>144,314</td>
<td>1,604</td>
<td>Alt. 1</td>
</tr>
<tr>
<td>049219104</td>
<td>Airplane Hangars</td>
<td>273,568</td>
<td>3,056</td>
<td>Alt. 1 and 1A</td>
</tr>
<tr>
<td></td>
<td>Car Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>049219231</td>
<td>Gas Station (Bob’s Chevron)</td>
<td>161,789</td>
<td>1,760</td>
<td>Alt. 2</td>
</tr>
<tr>
<td>049219307</td>
<td>Motel</td>
<td>358,238</td>
<td>3,813</td>
<td>Alt. 2</td>
</tr>
<tr>
<td></td>
<td>Tire Service Station</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>049219309</td>
<td>Gas Station (76)</td>
<td>111,668</td>
<td>1,257</td>
<td>Alt. 2</td>
</tr>
<tr>
<td>049219310</td>
<td>Convenience Store</td>
<td>316,727</td>
<td>3,380</td>
<td>Alt. 2</td>
</tr>
<tr>
<td></td>
<td>Fast Food Restaurant (Burger King)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gift Shop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Single Family Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water Impoundment Ponds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>049219405</td>
<td>Utility Substation</td>
<td>Exempt</td>
<td>0</td>
<td>Alt. 2</td>
</tr>
<tr>
<td>049219410</td>
<td>Utility Substation</td>
<td>Exempt</td>
<td>0</td>
<td>Alt. 2</td>
</tr>
<tr>
<td>049219412</td>
<td>Truck Service and Gas Station</td>
<td>2,064,026</td>
<td>21,766</td>
<td>Alt. 2</td>
</tr>
<tr>
<td></td>
<td>Pilot Travel Center</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fast Food Restaurant (Subway)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>049219316</td>
<td>Gas Station (Arco and AM/PM)</td>
<td>1,086,428</td>
<td>24,147</td>
<td>Alt. 2</td>
</tr>
</tbody>
</table>


### 3.4.1.7 Environmental Consequences

#### Permanent Impacts

**Alternative 1—Northerly Alignment 4-Lane Divided Expressway**

**Cohesion**

As discussed above, the community in the study area is relatively cohesive with residents with enough tenure to support various churches, schools, a Chamber of Commerce, and a Veterans of Foreign Wars post, all within the community of Boron. Kramer Junction and Boron, although located six miles apart, exhibit an interdependent relationship, with many Boron residents working at the junction.

Implementation of Alternative 1 would neither physically divide the community of Boron nor would it displace or otherwise affect civic or community facilities. At Kramer Junction, the implementation of Alternative 1 would displace the antique shop and antique car restoration shop, both of which are owned and operated by Boron residents and are responsible for putting on the annual car show. Alternative 1 would also bisect the runway located to the immediate west of Kramer Junction, preventing aircraft enthusiasts from flying from this location. The displacement would affect a long-standing inhabitant of the community, but with the implementation of measures ECON-1 through ECON-3, effects would be minor adverse.
Community Character

Implementation of Alternative 1 would involve construction and operation of an expanded SR-58 facility, including crossing structures over U.S. 395 at Kramer Junction and over the railroad line east of Kramer Junction. Both structures would add urbanizing elements to an otherwise rural desert setting, altering the views of travelers and the area’s businesses and residents. Also, widening U.S. 395 would further divide the community, making this key thoroughfare more difficult to cross for pedestrians. Traffic speeds are likely to increase with widening, adding to the perceived barrier. Community character would be affected by the new expressway's physical division of areas on either side of the existing SR-58/U.S. 395 intersection. The proposed expressway would present a barrier and make it more difficult to move across the community for motorists and pedestrians.

Implementation of Alternative 1 would also result in the displacement of an antique shop and antique car restoration shop as well as an airplane hangar/storage facility, all of which have the same owner. Each of these businesses adds to the distinctiveness of Kramer Junction, and their relocation would change the overall character of the area. Between the addition of the urbanizing overpasses in an otherwise rural setting and the removal of distinctive businesses at Kramer Junction, implementation of Alternative 1 would result in a substantial adverse effect on community character. For more information on the visual impacts of the project and mitigation measures, refer to Section 3.7. Measures CI-3 and CI-4 would also reduce community character effects associated with Alternative 1.

Regional and Local Population Characteristics

Due to the nature of the project as the expansion of an existing transportation facility, implementation of Alternative 1 would not influence regional demographics. No intensification of land uses or removal of entire residential communities would occur as a result of Alternative 1. SR-58 is currently a major east-west goods movement corridor between Barstow and Bakersfield and would continue to function as such with the implementation of Alternative 1. No adverse effects on regional population characteristics would occur as result of construction and operation of Alternative 1.

On the local level, the implementation of Alternative 1 would result in less vehicle conflict at Kramer Junction, as through traffic along SR-58 would be above-grade at the junction, and therefore would not be required to slow or stop to pass through as is currently the case. The increased efficiency of traffic operations that would occur as a result of the implementation of Alternative 1 would change the character of Kramer Junction, which currently relies on slower vehicle movement to attract the travelers who stop and patronize the shops and restaurants. The businesses on the south side of Kramer Junction that would not be displaced under Alternative 1 would likely see less business from those traveling on SR-58. For more information on the effects of the project related to businesses in the area, please refer to Economic Conditions subsection.

In addition to the effects associated with the improved efficiency offered through the implementation of Alternative 1, the physical placement of the overpass and ramp structures would affect Kramer Junction through displacement of existing businesses and through the aesthetic appearance of the area, both of which contribute to community character. Alternative 1,
as detailed in Section 3.4.2, Relocations, would require the acquisition and relocation of one residence, the antique shop, the antique car restoration shop, and the airplane hangar and storage facility. The antique shop and antique car restoration shop in particular contribute to the distinctiveness of the junction, as businesses such as this are rarely found alongside major highways in the Mojave Desert.

The physical placement of the Alternative 1 ramps and overpass at Kramer Junction would also change the appearance of the junction, introducing a large overpass bridge structure through what is currently an at-grade intersection. Views for travelers and business patrons would change as a result, affecting the overall look and feel of the junction.

Beyond the effects in the Kramer Junction area, the construction and operation of Alternative 1 would not affect the rural desert character of the study area. Boron, due to its lack of proximity to the improvements that would be made under Alternative 1, would experience minor adverse effects to its local population.

Local Circulation and Access

Given that the purpose of the project is to improve the operational efficiency of vehicle circulation at Kramer Junction, Alternative 1 would result in operational improvements that allow for through traffic along SR-58 and US-395 to continue without slowing to the extent that it is required to under existing conditions at the junction. Queue lengths for other movements would also be reduced with the removal of the at-grade SR-58/US-395 intersection. Overall levels of service would improve from E or worse with the existing alignment in 2019 and 2039 to B or better under the build alternatives in both 2019 and 2039, as detailed in the September 2010 Traffic Study Report.

Under Alternative 1, one residence, the airplane hangar and storage facility, the antique store, and the antique car restoration shop at Kramer Junction would be displaced. Aside from these changes, there would be reduced access to parcel 049219104 for northbound vehicles traveling on US-395 due to the planned installation of a median. Northbound US-395 travelers would be required to travel north to the westbound on-ramp left-turn lane in order to turn around and head southbound on US-395 in order to access the residences, Astro Burger, and Reyes Truck Polishing Service located at this site.

The Arco and AM/PM, the Relax Inn, and the tire service shop, which are located along the existing SR-58, would no longer be located along a major transportation corridor and would therefore not be as accessible to potential customers as they are presently. Customers would be required to turn onto the existing SR-58 alignment, which would be converted to a local road under the jurisdiction of the County of San Bernardino. The Chevron and Pilot Travel Center would continue to be accessible from both US-395 and the existing SR-58. Due to the orientation of the Pilot Travel Center site, trucks would only be able to access the truck parking area from the existing SR-58 roadway.

No pedestrian facilities would be provided as part of Alternative 1, and there would be no pedestrian access across SR-58. Pedestrians would continue to be able to cross the existing at-
grade SR-58/US-395 intersection, and crossing the existing SR-58 would be easier due to lower east-west traffic volumes.

For information on emergency service access during project construction and operation, see Section 3.5.

With implementation of measure CI-1, impacts related to access and circulation would be minor adverse.

Economic Conditions

Regional Economy

The implementation of Alternative 1 would increase the efficiency of the movement of people and goods along SR-58, which is expected to provide regional economic benefits. Implementation of Alternative 1 would eliminate a bottleneck currently faced by passenger vehicles and trucks carrying goods through the study area. Beneficial impacts to the regional economy would occur under Alternative 1.

Employment and Income

According to the Kramer Junction employment survey conducted in January 2013, Alternative 1 would result in the direct displacement of six jobs. Given that those employed by Alternative 1 live primarily in the community of Boron, the loss of these jobs, even temporarily while finding suitable sites for relocations, would reduce the amount of income that these employees have to spend at Boron-area businesses.

In addition, Alternative 1 would allow SR-58 travelers to bypass Kramer Junction entirely without slowing or stopping as they currently do with the at-grade intersection of SR-58 and US-395. An increase in the efficiency of vehicular traffic on SR-58 through Kramer Junction has the potential to reduce the health of these businesses by reducing the number of motorists/truckers/regional travelers who choose to stop at Kramer Junction, thereby indirectly affecting employment at Kramer Junction and residents elsewhere in the study area. Bypass impacts on overall unemployment rates and income in the study area would be substantial adverse. Following implementation of measures ECON-1 through ECON-3, CI-3, and CI-4, income and employment effects under Alternative 1 would be minor adverse.

Business Activity

Business activity in the Kramer Junction area relies heavily on travelers of SR-58 and US-395 stopping to refuel and get services on their vehicles, to shop at retail establishments, and to eat at restaurants. The implementation of Alternative 1 would affect business activity in two primary ways: through the direct displacement of businesses and through the indirect effects of increased operational efficiency of SR-58 on those businesses not displaced under the alternative.

Alternative 1 would result in the displacement of two businesses, an antique shop and an antique car restoration shop, as well as an ancillary airplane hangar and storage facility associated with these businesses. While only two of the 13 businesses in the area would be displaced under this alternative, these establishments are two of the most distinctive shops in the area that make the area
an attractive stopping point for travelers. With the implementation of measures ECON-1 and ECON-2, these effects would be less severe.

In addition to the direct displacement of these businesses, Alternative 1 would affect the businesses by both allowing SR-58 through traffic move through the junction without slowing or stopping and moving the alignment of SR-58 north of its current location, which would make the businesses located south of Kramer Junction less accessible or visible to travelers. Combined, the impact of implementing Alternative 1 would be substantial on business activity at Kramer Junction. Efforts to ameliorate these effects would focus on making Kramer Junction businesses more visible and accessible to SR-58 travelers, as recommended by measure ECON-3.

With implementation of measures ECON-1 through ECON-3, effects under Alternative 1 would be minor adverse.

**Fiscal Conditions**

While the County of San Bernardino has seen declining revenues from taxes related to regional and national economic conditions, the effect of the project on the fiscal health of the County of San Bernardino would be negligible. The project has the potential to displace residents and businesses from the Kramer Junction area, but the amount of property and sales tax generated from the project is minimal in relation to revenues of the County as a whole. Also, if the businesses and residents are relocated in the neighboring area, there would be little change for the County of San Bernardino provided that relocation occurs within the County’s boundaries. The project would be funded with state and federal monies, so no local revenues would be expended.

Under Alternative 1, the County of San Bernardino would lose approximately $4,800 annually in property tax revenues due to the displacement of existing uses as well as the loss of sales tax revenues generated at these businesses (DataQuick Information Systems 2011). Due to the large size of the County of San Bernardino, the overall effect of Alternative 1 on county fiscal conditions would be negligible. No adverse effect would occur.

**Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)**

**Cohesion**

Effects to cohesion under Alternative 1A would be identical to those effects occurring under Alternative 1, with the exception that Alternative 1A would result in only one displacement at Kramer Junction. In addition, Alternative 1A would bisect the runway located to the immediate west of Kramer Junction, preventing aircraft enthusiasts from flying from this location. With the implementation of measures ECON-1 through ECON-3, effects related to community cohesion would be minor adverse.

**Community Character**

Implementation of Alternative 1A would involve construction and operation of an expanded SR-58 facility, including crossing structures over U.S. 395 at Kramer Junction and over the railroad line east of Kramer Junction. Both structures would add urbanizing elements into an otherwise
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.4. Human Environment—Community Impacts

rural desert setting, altering the views of travelers and the area’s businesses and residents. Also, widening U.S. 395 would further divide the community, making this key thoroughfare more difficult to cross for pedestrians. Traffic speeds are likely to increase with widening, adding to the perceived barrier. Community character would be affected by the new expressway’s physical division of the areas on either side of the existing SR-58/U.S. 395 intersection. The proposed expressway would present a barrier and make it more difficult to move across the community for motorists and pedestrians.

Implementation of Alternative 1A would also result in the displacement of an airplane hangar/storage facility, which is not a strong contributor to the overall character of Kramer Junction. The addition of the urbanizing overpasses in an otherwise rural setting under Alternative 1A would result in a substantial adverse effect on community character. For more information on the visual impacts of the project and mitigation measures, refer to Section 3.7. Measures CI-3 and CI-4 would also reduce community character effects associated with Alternative 1A.

Regional and Local Population Characteristics

For the reasons stated under Alternative 1, Alternative 1A would have no effects on regional population characteristics.

Effects under Alternative 1A would be identical to those that would occur under Alternative 1, with the exception that Alternative 1A would require the acquisition and relocation of fewer properties. Effects to local population characteristics would be minor adverse.

Local Circulation and Access

Beneficial impacts to circulation would occur with operation of Alternative 1A, as explained under Alternative 1 above.

With respect to access under Alternative 1A, only the airplane hangar and storage facility would be displaced. Access to the residences, antique store, antique car restoration shop, Astro Burger, and Reyes Truck Polishing Service on the west side of the highway from northbound US-395 vehicles would be reduced due to the lack of a northbound left-turn lane, the addition of which would improve access to these businesses.

The Arco and AM/PM, the Relax Inn, and the tire service shop, which are located along the existing SR-58, would no longer be located along a major transportation corridor and would therefore not be as accessible to potential customers as it is presently. Customers would be required to turn onto the existing SR-58 alignment, which would be converted to a local road under the jurisdiction of the County of San Bernardino. The Chevron and Pilot Travel Center would continue to be accessible from both US-395 and the existing SR-58. Due to the orientation of the Pilot Travel Center site, trucks would only be able to access the truck parking area from the existing SR-58 roadway.

No pedestrian facilities would be provided as part of Alternative 1A, and there would be no pedestrian access across SR-58. Pedestrians would continue to be able to cross the existing at-
grade SR-58/US-395 intersection, and crossing the existing SR-58 would be easier due to lower east-west traffic volumes.

For information on emergency service access during project construction and operation, see Section 3.5.

With implementation of measure CI-1, impacts related to access would be minor adverse.

**Economic Conditions**

**Regional Economy**

Beneficial economic effects to the region would occur under Alternative 1A, as discussed under Alternative 1.

**Employment and Income**

Alternative 1A would not directly displace any existing jobs but would have similar indirect effects on the size of the workforce that each of the businesses at Kramer Junction is capable of employing, as discussed under Alternative 1. Employment and income effects under Alternative 1A would be minor adverse.

**Business Activity**

Effects on business activity associated with the implementation of Alternative 1A would be identical to those discussed under Alternative 1, with the exception that only the airplane hangar and storage facility (which serves a supporting role for the antique shop and antique car restoration shop businesses) would be displaced under Alternative 1A.

Alternative 1A would result in the displacement of an airplane hangar and automobile salvage yard. With comparable relocation sites available for displaced businesses, this alternative would have little to no direct displacement effects. In addition to relocations, Alternative 1A would move the alignment of SR-58 north of its current location, which could make the businesses located south of the current Kramer Junction less accessible or visible to travelers. The increase in the efficiency of vehicular traffic on SR-58 through Kramer Junction that would occur under Alternative 1A has the potential to reduce the health of these businesses by reducing the number of motorists/truckers/regional travelers who choose to stop at Kramer Junction, thereby indirectly affecting employment at Kramer Junction and residents elsewhere in the study area. Bypass impacts to business activity would be substantial but would be made less severe with the implementation of measures ECON-1 through ECON-3, CI-3, and CI-4; effects to business activity under Alternative 1A would be minor adverse.

**Fiscal Conditions**

Under Alternative 1A, the County of San Bernardino would lose a portion of the $3,056 in annual property taxes charged to APN 49219104 (DataQuick Information Systems 2011). Due to the large size of the County of San Bernardino, the overall effect of Alternative 1A on county fiscal conditions would be negligible. No adverse effect would occur.
Alternative 2—Existing Alignment 4-Lane Expressway with Median

Cohesion

Similar to the cohesion discussion under Alternative 1, the implementation of Alternative 2 would neither physically divide the community of Boron nor would it displace or otherwise affect civic or community facilities. However, due to the displacement of 10 businesses (and approximately 100 jobs) at Kramer Junction and the close relationship between Boron to Kramer Junction, effects on Boron residents would occur. If displaced workers are unable to find work in the immediate area, Boron has the potential to experience population loss. For an area with such a small population, the implications of population loss on churches, schools, and local businesses could be substantial.

Due to the reasonably foreseeable indirect effects of displacement on community cohesion that would occur under Alternative 2, impacts would be substantial adverse. While the severity of effects would be reduced with implementation of measures ECON-1 through ECON-3, the extensive nature of displacement would be unavoidable.

Community Character

Implementation of Alternative 2 would involve construction and operation of an expanded SR-58 facility, including crossing structures over U.S. 395 at Kramer Junction and over the railroad line west of Kramer Junction. Both structures would add urbanizing elements into an otherwise rural desert setting, altering the views of travelers and the area’s businesses and residents. Also, widening U.S. 395 would further divide the community, making this key thoroughfare more difficult to cross for pedestrians. Traffic speeds are likely to increase with widening, adding to the perceived barrier. Community character would be affected by the new expressway's physical division of the areas on either side of the existing SR-58/U.S. 395 intersection. The proposed expressway would present a barrier and make it more difficult to move across the community for motorists and pedestrians.

In addition, implementation of Alternative 2 would result in the displacement of more than two-thirds of the businesses at Kramer Junction. Between the addition of the urbanizing overpasses in an otherwise rural setting and the removal of the majority of businesses at Kramer Junction, implementation of Alternative 2 would result in a substantial adverse effect on community character. For more information on the visual impacts of the project and mitigation measures, refer to Section 3.7. Measures CI-3 and CI-4 would also reduce community character effects associated with Alternative 2.

Regional and Local Population Characteristics

For the reasons stated under Alternative 1, Alternative 2 would have no effects on regional population characteristics.

As discussed under Section 3.4.2, Relocations, implementation of Alternative 2 would require the relocation of as many as 15 uses on eight parcels. Those uses, which include three gas stations, the Pilot truck center and Subway restaurant complex (which has an additional gas station), a convenience store, the Roadhouse Restaurant, the Burger King, the Relax Inn motel, a tire business, a gift shop, and one residence, represent the majority of the development at Kramer Junction.
Junction. The businesses contribute to the distinctive character of the junction as a roadside rest stop. The removal of the businesses under Alternative 2 would irrevocably change the character of the area.

Apart from the greater number of uses requiring relocation under Alternative 2, effects would be similar to those discussed under Alternative 1. The remaining businesses, including all those located on the north side of Kramer Junction, would likely face reduced patronage from SR-58 through traffic. Views would be changed through the increased height of the overpass structure and ramps at what is currently an at-grade intersection. Alternative 2 would encroach upon the Boron Airstrip property, but it would not affect operation of the airstrip because the alignment would not come close enough to require alteration of the runways.

Given the extensive nature of displacement that would occur under Alternative 2, effects on the local population would be substantial adverse.

**Local Circulation and Access**

Beneficial impacts to circulation would occur with operation of Alternative 2, as explained under Alternative 1 above.

Alternative 2 would relocate the majority of uses in the Kramer Junction area, including nearly all of those located to the south of the existing Kramer Junction location. The pottery store (Baja’s) on the northwest corner of Kramer junction, which relies on vehicles parking off site at other businesses that would be displaced under Alternative 2, would need parking in order to continue operation. The Chevron station, if it would not be displaced under Alternative 2, would no longer be accessible from SR-58, and would therefore require a re-orientation of the site toward US-395. No other changes to access are expected.

Crosswalk facilities at the existing SR-58/US-395 intersection would be provided under Alternative 2, although there would be no pedestrian access under the SR-58 crossing structures.

For information on emergency service access during project construction and operation, see Section 3.5.

Effects on local circulation and access would be minor adverse under Alternative 2.

**Economic Conditions**

**Regional Economy**

Beneficial economic impacts to the region would occur under Alternative 2, as discussed under Alternative 1.

**Employment and Income**

According to figures from the Kramer Junction employment survey, the implementation of Alternative 2 would result in the direct displacement of 100 jobs, creating a substantial impact on employment in the study area. In addition to those directly displaced by Alternative 2, those residents employed at businesses at Kramer Junction would have less money to spend at other
businesses in the study area (such as businesses in Boron), thereby reducing overall income in the study area, an area which already has a large low-income population.

Employment and income effects occurring under Alternative 2 would be substantial adverse.

**Business Activity**

Alternative 2 would result in the displacement of as many as 10 businesses, which represents more than two-thirds of the businesses at Kramer Junction, and a substantial effect on business activity in the study area. Indirect effects on non-displaced businesses relating to their decreased visibility and accessibility from SR-58 would occur under Alternative 2. Impacts to business activity would be substantial adverse. Measures **ECON-1 through ECON-3, CI-3, and CI-4** would reduce the severity of effects, but due to the extensive displacement that would occur, substantial adverse effects would be unavoidable.

**Fiscal Conditions**

Under Alternative 2, the County of San Bernardino would lose out on approximately $56,123 annually in property tax revenues due to the displacement of existing uses as well as the loss of sales tax revenues generated at these businesses (DataQuick Information Systems 2011). Due to the large size of the County of San Bernardino, the effect of Alternative 2 on overall County fiscal conditions would be negligible. No substantial adverse effect would occur.

**Alternative 3—Southerly Alignment 4-Lane Divided Expressway**

**Cohesion**

Under Alternative 3, effects to community cohesion would be identical to those that would occur under Alternative 1, with the exception that no displacement and relocation would be required under Alternative 3. Effects would be minor adverse.

**Community Character**

Implementation of Alternative 3 would involve construction and operation of an expanded SR-58 facility, including crossing structures over U.S. 395 at Kramer Junction and over the railroad line west of Kramer Junction. Both structures would add urbanizing elements into an otherwise rural desert setting, altering the views of travelers and the area’s businesses and residents. Also, widening U.S. 395 would further divide the community, making this key thoroughfare more difficult to cross for pedestrians. Traffic speeds are likely to increase with widening, adding to the perceived barrier. Community character would be affected by the new expressway’s physical division of the areas on either side of the existing SR-58/U.S. 395 intersection. The proposed expressway would present a barrier and make it more difficult to move across the community for motorists and pedestrians.

Although no displacement would occur under Alternative 3, the addition of the urbanizing overpasses in an otherwise rural setting would result in a substantial adverse effect on community character. For more information on the visual impacts of the project, refer to Section 3.7. Measures **CI-3 and CI-4** would also reduce community character effects associated with Alternative 3.
Regional and Local Population Characteristics

For the reasons stated under Alternative 1, Alternative 3 would have no effects on regional population characteristics.

Impacts under Alternative 3 would be similar to those discussed under Alternative 1, with the exception that Alternative 3 would not involve any relocation based on its proposed location to the south of existing Kramer Junction development. Effects on local population characteristics would be minor adverse under Alternative 3.

Local Circulation and Access

Beneficial impacts to circulation would occur with operation of Alternative 3, as explained under Alternative 1 above.

Under Alternative 3, no uses at Kramer Junction would be displaced. The Arco and AM/PM, the Relax Inn, and the tire service shop, which are located along the existing SR-58, would no longer be located along a major transportation corridor and would therefore not be as accessible to potential customers as they presently are. Customers would be required to turn onto the existing SR-58 alignment, which would be converted to a local road under the jurisdiction of the County of San Bernardino. The Chevron and Pilot Travel Center would continue to be accessible from both US-395 and the existing SR-58. Due to the orientation of the Pilot Travel Center site, trucks would only be able to access the truck parking area from the existing SR-58 roadway.

No pedestrian facilities would be provided as part of Alternative 3, and there would be no pedestrian access across SR-58. Pedestrians would continue to be able to cross the existing at-grade SR-58/US-395 intersection, and crossing the existing SR-58 would be easier due to lower east-west traffic volumes.

For information on emergency service access during project construction and operation, refer to Section 3.5.

Effects to access would be minor adverse under Alternative 3.

Economic Conditions

Regional Economy

Beneficial economic impacts to the region would occur under Alternative 3, as discussed under Alternative 1.

Employment and Income

Effects occurring as a result of the implementation of Alternative 3 would be similar to those effects occurring under Alternative 1A. Under Alternative 3, there would be no direct displacement of jobs, but indirect effects to employment and income of the area would likely occur due to the improved operational efficiency of SR-58, which would likely reduce the number of SR-58 travelers visiting Kramer Junction businesses. With the implementation of
measure **ECON-3**, effects to employment and income would be minor adverse under Alternative 3.

**Business Activity**

Alternative 3 would have similar effects on business activity to those under Alternative 1, with the exception that no businesses would be displaced and the alignment of SR-58 through Kramer Junction would be located to the south of its current location. The increase in the efficiency of vehicular traffic on SR-58 through Kramer Junction that would occur under Alternative 3 has the potential to reduce the health of these businesses by reducing the number of motorists/truckers/regional travelers who choose to stop at Kramer Junction, thereby indirectly affecting employment at Kramer Junction and residents elsewhere in the study area. Bypass impacts to businesses would occur, but they would be less severe than those under the other build alternatives due to the fact that Alternative 3 would not require displacement of existing businesses. With the implementation of measures **ECON-3, CI-3, and CI-4**, effects to employment and income would be minor adverse under Alternative 3.

**Fiscal Conditions**

Under Alternative 3, the County of San Bernardino would not lose property tax revenues since no existing uses would be displaced (DataQuick Information Systems 2011). No adverse effects would occur.

**Alternative 4—No-Build Alternative**

**Cohesion**

No project improvements would be implemented under Alternative 4. Therefore, no adverse effects on community cohesion would occur.

**Community Character**

No project improvements would occur under Alternative 4. Therefore, no adverse effects on community character would occur.

**Regional and Local Population Characteristics**

Under the No-Build Alternative, no project improvements would be made and SR-58 and Kramer Junction would continue to operate as they do currently, exerting no new influences on regional population characteristics.

Under the No-Build Alternative, no project improvements would be made and SR-58 and Kramer Junction would operate as they do currently.

**Local Circulation and Access**

Under Alternative 4, no improvements would be made and traffic conditions would continue to deteriorate. No changes to access would occur under the No-Build Alternative. No effect would occur.
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.4. Human Environment—Community Impacts

**Economic Conditions**

*Regional Economy*

No project improvements would be made under Alternative 4, and there would be no short-term effect on the regional economy. Increasing traffic at Kramer Junction would reduce the long-term efficiency of SR-58 as a goods movement corridor.

*Employment and Income*

No project improvements would be implemented under Alternative 4, and there would be no effect on employment and income in the study area.

*Business Activity*

No project improvements would be implemented under Alternative 4, and there would be no effect on business activity.

*Fiscal Conditions*

No project improvements would be implemented under Alternative 4, and therefore, there would be no effect on County of San Bernardino fiscal conditions.

**Temporary/Construction Impacts**

*Build Alternatives 1, 1A, 2, and 3*

None of the proposed build alternatives (Alternatives 1, 1A, 2, and 3) would result in substantial temporary impacts to community cohesion/character.

Construction activities would result in temporary, localized, site-specific disruptions to the population in the proposed project area, primarily related to construction-related traffic changes from trucks and equipment in the area; partial and/or complete street and lane closures, with some requiring detours; increased noise and vibration; light and glare; and changes in air emissions. Activities such as building demolition and grading of acquired lands would occur adjacent to some residences. Measure CI-2 would be implemented prior to and during the construction period.

*Alternative 4—No-Build Alternative*

Alternative 4 would not result in any construction activities that would produce temporary construction impacts.

**3.4.1.8 Avoidance, Minimization, and/or Mitigation Measures**

A TMP, as discussed in measure TRAF-1 in Section 3.6, would be prepared for the proposed project, which would ensure that construction period traffic impacts that could affect community character and cohesion are minimized. Implementation of the avoidance and/or mitigation measures identified below, which are implemented for all Caltrans projects, would ensure that adverse impacts under NEPA related to the community would not occur.
CI-1: Caltrans will ensure that direct vehicle access to all businesses and residences from both northbound and southbound directions of US-395 is achieved following construction.

CI-2: A Construction Management Plan and a Transportation Management Plan will be prepared for the project and include coordination efforts that will inform the community about project activities, maintain access to and from the project area during construction, minimize construction-period traffic, and control glare, dust, and noise. Measures to minimize construction impacts in these sections also apply to minimizing permanent community cohesion/character impacts.

CI-3: To address bypass impacts, Caltrans will coordinate with the community and County regarding the possibility of placing a Welcome sign at both ends of the proposed expressway with brief information encouraging visitors to visit services offered at Kramer Junction.

CI-4: During Final Design and Construction, every effort will be made to further minimize the amount of right-of-way needed for the facility and to further minimize community and environmental impacts.

ECON-1: Sufficient relocation resources will be made available to displaced businesses in accordance with the Uniform Relocation Assistance and Property Acquisition Act to 1970 as amended (42 USC Secs. 4601-4655).

ECON-2: Businesses displaced by the project alternatives will be relocated in an area that is comparable to the existing location in terms of accessibility and traffic volume.

ECON-3: Signage provisions will be made available to businesses whose temporary or permanent visibility and vehicular access changes as a result of the project.

ECON-4: For APN# 049219104, the permanent replacement site or a reconfiguration on the current site will accommodate the hangars and runway.

3.4.2 Relocations and Real Property Acquisition

3.4.2.1 Regulatory Setting

Federal Regulations

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 RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix D for a summary of the RAP.

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 C for a copy of the Department’s Title VI Policy Statement.
3.4.2.2 Affected Environment

Unless otherwise noted, the information from this section came from the *Community Impact Assessment* (Caltrans 2013a), *Draft Relocation Impact Statement (DRIS)* (Caltrans 2013c), and *Final Relocation Impact Statement (FRIS)* (Caltrans 2013g) prepared for the proposed project.

The displacement area has been defined to include those areas that are located within one-half mile of the project build alternatives (Alternatives 1, 1A, 2, and 3); specifically, the area from one-half mile north of the northernmost alignment to one-half mile south of the southernmost alignment and from one-half mile west of the western project limit to one-half mile east of the eastern project limit (see Figure 3.4.4a through 3.4.4d). The one half-mile radius for the displacement area was selected to conservatively assess the distance within which any project-related displacements would occur.

The replacement area for displacees is defined as the area within a 15-mile radius of the project alternatives, which include parts of the High Desert communities of California City, Lancaster, North Edwards, Hesperia, and Barstow, which share some of the same rural characteristics with the displacement area but are generally more heavily developed.
Figure 3.4.4a
Potential Parcel Impacts
State Route 58 Kramer Junction Expressway Project

Alternative 1 - Partial Acquisition
1 - Hangars
2 - Antique Car Restoration
3 - Antique Shop
4 - Residence

Existing Buildings
1 - Hangars 04921902
2 - Antique Car 049219103
Restoration 049219104
3 - Antique Shop 049219213
4 - Residence

State Route 58 Kramer Junction Expressway Project
EA 06-34770
Project Number 0600000616
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.4. Human Environment—Community Impacts

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Section 3.4: Human Environment—Community Impacts

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Figure 3.4.4c
Potential Parcel Impacts

State Route 58 Kramer Junction Expressway Project

Existing Buildings
1 - Chevron
2 - Union 76 Station
3 - Mini Mart/Roadhouse Restaurant
4 - Motel Relax Inn
5 - Pilot Station/Subway
6 - Tire Service Station
7 - Vehicle Maintenance/Scrap Facility
8 - Burger King
9 - Gift Store
10 - Residence
11 - Vehicle Maintenance/Scrap Facility
12 - Southern Edison Utility Substation
13 - Waste Water Impoundments

Alternative 2 - Partial Acquisition
049219309
049219310
049219316
049219405
049219410
04923251

Alternative 2 - Full Acquisition
049219231
049219307
Community Impacts

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Figure 3.4.4d
Potential Parcel Impacts
State Route 58 Kramer Junction Expressway Project

Existing Buildings
1. Chevron
2. Union 76 Station
3. Mini Mart/Roadhouse Restaurant
4. Motel Relax Inn
5. Pilot Station/Subway
6. Tire Service Station
7. Vehicle Maintenance/Scrap Facility
8. Burger King
9. Gift Store
10. Residence
11. Vehicle Maintenance/Scrap Facility
12. Southern Edison Utility Substation
13. Waste Water Impoundments

State Route 58 Kramer Junction Expressway Project
06-Knr-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.4. Human Environment—Community Impacts

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3.4.2.3 Environmental Consequences

Permanent Impacts

Alternative 1—Northerly Alignment 4-Lane Divided Expressway

Alternative 1 would require the acquisition of 133 parcels, including 13 parcels under the jurisdiction of BLM and one parcel under the jurisdiction of Edwards Air Force Base.

Under Alternative 1, up to four units on three parcels would potentially be displaced. The three parcels impacted include Assessor’s Parcel Numbers (APN) 049219102, 049219103, and 049219104 (refer to Figure 3.4.4a).

A residence is located on APN 049219102. An antique shop is located on APN 049219103. Several uses are located on APN 049219104, including airplane hangars and an antique car restoration business, both of which would be displaced under Alternative 1. In addition, Alternative 1 would bisect the dirt runway immediately west of the airplane hangars. Table 3.4-10 identifies the APNs and types of uses potentially affected by right-of-way acquisition that would occur as a result of Alternative 1. For impacts related to the displacement of businesses, please refer to Section 3.4.1. Implementation of Alternative 1 would not result in a substantial amount of displacement, and relocation within the study area is possible. Relocation effects under Alternative 1 would be minor adverse with implementation of measures ECON-1, ECON-2, and ECON-4.

Table 3.4-10. Alternative 1—Displacements and Relocations

<table>
<thead>
<tr>
<th>APN</th>
<th>Types of uses</th>
<th>Assumption</th>
<th>Relocation Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>049219102</td>
<td>Residence</td>
<td>Partial acquisition</td>
<td>Yes</td>
</tr>
<tr>
<td>049219103</td>
<td>Antique shop</td>
<td>Partial acquisition</td>
<td>Yes</td>
</tr>
<tr>
<td>049219104</td>
<td>Airplane hangars</td>
<td>Partial acquisition</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Antique car restoration</td>
<td>Partial acquisition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Truck polishing service</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Astro Burger</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Auto repair</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Residence</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td>049219213</td>
<td>Well site</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
</tbody>
</table>


Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

Alternative 1A would require the acquisition of 131 parcels, including 13 parcels under the jurisdiction of BLM and one parcel under the jurisdiction of Edwards Air Force Base.

The alignment under Alternative 1A is identical to the alignment under Alternative 1 with the exception that Alternative 1A would involve a spread diamond at the north side and a cloverleaf ramp in the southeast quadrant of the interchange. The airplane hangar/antique storage area
would be acquired and relocated under this alternative (refer to Figure 3.4-11). In addition, Alternative 1A would bisect the dirt runway immediately west of the airplane hangars. A privately owned water cistern would also need to be relocated. For impacts related to the displacement of businesses, please refer to Section 3.4.1 (refer to Figure 3.4.4b). Implementation of Alternative 1A would not result in a substantial amount of displacement, and relocation within the study area would be possible. Effects would be minor adverse with the implementation of ECON-4.

Table 3.4-11. Alternative–1A Displacements and Relocations

<table>
<thead>
<tr>
<th>APN</th>
<th>Types of uses</th>
<th>Assumption</th>
<th>Relocation Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>049219102</td>
<td>Residence</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td>049219103</td>
<td>Antique shop</td>
<td>Partial acquisition</td>
<td>No</td>
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<tr>
<td>049219104</td>
<td>Airplane hangars</td>
<td>Partial acquisition</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Antique car restoration</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Truck polishing service</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Astro Burger</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Compressor</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Residence</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td>049219212</td>
<td>Abandoned Motel</td>
<td>Partial acquisition</td>
<td>No</td>
</tr>
<tr>
<td>049219213</td>
<td>Water cistern</td>
<td>Partial acquisition</td>
<td>Yes</td>
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</tbody>
</table>

Source: Final Relocation Impact Statement, September 2013.

**Alternative 2—Existing Alignment 4-Lane Expressway with Median**

Alternative 2 would require the acquisition of 121 parcels, including 11 parcels under the jurisdiction of BLM and one parcel under the jurisdiction of Edwards Air Force Base.

As shown in Table 3.4-12, implementation of Alternative 2 would require the relocation of as many as 15 units on eight parcels. Given that Kramer Junction is located 6 miles from the nearest residential area in Boron and that the area lacks pedestrian infrastructure, the businesses that would be displaced by Alternative 2 are heavily reliant on the high volume of traffic flowing along SR-58 and US-395. Relocations would have a substantial effect on the character of Kramer Junction, removing the majority of businesses in the area, including all of the businesses to the south of the junction (refer to Figure 3.4.4c).

Relocation in the immediate area for most of the displaced uses would be ideal, if it is determined feasible. All relocation sites should offer similar attributes in terms of site accessibility and zone changes may be required for parcels in the immediate Kramer Junction vicinity. As explained in Section 3.4.1, Alternative 2 could displace as many as 100 jobs.

Displacement of the Southern California Edison substation would not necessarily require relocation immediately adjacent to businesses at Kramer Junction, but would likely need to be within a reasonable distance of the solar power generation facility to the northwest of Kramer Junction. Relocation of the single-family residence could be accommodated in Boron, since over a quarter of the housing units in Boron were vacant at the time that 2010 decennial Census was conducted, as shown above in Table 3.4-4.
Relocation effects under Alternative 2 would be substantial adverse.

### Table 3.4-12. Alternative 2–Displacements and Relocations

<table>
<thead>
<tr>
<th>APN</th>
<th>Types of uses</th>
<th>Assumption</th>
<th>Relocation Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>049219231</td>
<td>Bob’s Chevron</td>
<td>Full acquisition</td>
<td>Yes</td>
</tr>
<tr>
<td>049219307</td>
<td>Motel Relax Inn</td>
<td>Full acquisition</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Tire service station</td>
<td>Full acquisition</td>
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**Alternative 3—Southerly Alignment 4-Lane Divided Expressway**

Alternative 2 would require the acquisition of 87 parcels, including 11 parcels under the jurisdiction of BLM and one parcel under the jurisdiction of Edwards Air Force Base.

Under Alternative 3, no relocations would be required. No relocation effects would occur. Please refer to Figure 3.4.4d. No permanent effects would occur.

**Alternative 4—No-Build Alternative**

Under Alternative 4, no project improvements would be implemented, and no acquisitions or relocations would be required. No permanent effects would occur.

**Temporary Impacts**

**Build Alternatives 1, 1A, 2, and 3**

No temporary relocation would occur under the build alternatives. Relocations would occur prior to construction. No temporary relocation effects would occur as a result of implementation of any of the build alternatives.

Implementation of a Construction Management Plan (measure CI-2) that informs the community about project construction activities and maintains access to and from the project area during
construction is expected to satisfactorily avoid or minimize the substantial adverse impacts on access to and from local businesses.

**Alternative 4—No-Build Alternative**

Construction activities would not occur under Alternative 4; therefore, no adverse effects would occur.

### 3.4.2.4 Avoidance, Minimization, and/or Mitigation Measures

Implementation of measures **ECON-1** and **ECON-2** would be implemented under Alternatives 1 and 1A to avoid substantial adverse effects. Relocation effects would be unavoidable under Alternative 2. No relocation effects would occur under Alternatives 3 and 4. Implementation of Measure **CI-2** would satisfactorily avoid or minimize substantial adverse impacts on access to and from local businesses during construction.

### 3.4.3 Environmental Justice

#### 3.4.3.1 Regulatory Setting

**Federal Regulations**

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 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 2010, this was $22,050 for a family of four.\(^4\)

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 evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix C of this document.

#### 3.4.3.2 Affected Environment

Unless otherwise noted, the information from this section of the document came from the **Community Impact Assessment** (Caltrans 2013a) prepared for the proposed project and data from the Census Bureau.

As demonstrated in the Community Character section above, the Kramer Junction area does not have a large number of residents. The study area is defined as the 111 census blocks that fall partially or fully within a half-mile of the project alignment in the County of San Bernardino as

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\(^4\) The Department of Health and Human Services poverty guidelines for 2013 for a family of four is $23,550. Since the most recent Census data available for the study area are from 2010, DHHS guidelines from that year have been used. Conclusions of the analysis would not change by using the most recent poverty guidelines.
well as the Boron CDP within Kern County (composed of 259 census blocks), combining for a total of 370 census blocks. Within the County of San Bernardino portion of the study area, the most prevalent ethnicity is non-Hispanic White, representing 87 percent of the 52 persons inhabiting the area. Hispanic/Latino (of any race) is the only other ethnicity represented, making up the remaining 13 percent of the population. The CDP of Boron, also part of the study area, exhibits similar demographic traits, with non-Hispanic White individuals representing nearly 70 percent of its 2,253 residents. Persons who are Hispanic/Latino and African-American/Black make up 18 percent and seven percent of Boron’s population, respectively. Both the populations of the study area and Boron differ from the overall County of San Bernardino population in that just under half of the County is Hispanic/Latino, and White individuals make up a third of the population.

It is important to note that census figures are collected on the basis of a person’s residential location and does not necessarily reflect the entirety of the population that may be in an area at any given time. Although the census data do not indicate a concentration of minority individuals in the study area, site visits in January 2013 suggest that many of those employed at Kramer Junction are minority individuals, most of whom are Hispanic/Latino. Although no comprehensive demographic data on employees could be ascertained, observation of the area revealed a relatively large number of minority workers at Kramer Junction.

The 2010 median household income of the study area from the decennial Census is not known at this time since data at the census block level have not yet been released. As shown in Table 3.4-6, median household income in the study area is much higher in the study area than the DHHS-defined poverty level for a family of four (which is $22,050). Census Tract 116 has an annual median household income of greater than $55,000 and Boron’s median household income is greater than $37,000. Although the median household income level in the study area is higher than the poverty level, median household income is not always a good indicator of poverty, as fully half of the households in the area fall below the median household income. It is likely that a substantial number of households in the study area fall below the poverty level.

Other data suggest that the area has economically disadvantaged residents. ACS data indicate that in Boron, almost one-quarter of the population falls below the poverty threshold as defined by the U.S. Census Bureau. This figure is substantially higher than the poverty levels in both the census tract in which the study area is located and County of San Bernardino overall. The low-income status of the area is substantiated by the number of students in Boron who received free or reduced-price meals, with 65 percent of students at West Boron Elementary and 53 percent of students at Boron Junior-Senior High receiving subsidized meals. According to the 2010 census, one-third of the households in the study area had one or more persons less than 18 years of age (Table P20). In addition to indicators of high levels of poverty in nearby areas, the study area has a high percentage of renters, with renter-occupied housing making up three-fifths of the occupied units. The high percentage of renters is suggestive of households with lower incomes, at least some of whom rent as a result of the inability to afford to buy property.

The study area does not contain a disproportionately high minority residential population compared to the County, but it does have minority workers. The study area does, however, exhibit characteristics of an economically disadvantaged place. Therefore, an environmental justice analysis was conducted.
3.4.3.3 Environmental Consequences

Per Executive Order 12898, the term *minority* includes persons who identify themselves as Black/African-American, Asian, Native Hawaiian/Pacific Islander, American Indian & Alaska Native, or of Hispanic/Latino origin. The term *low-income* includes persons whose household income is at or below the Health and Human Services (HHS) poverty guidelines. The discussion of environmental justice that follows has been prepared in accordance with the applicable guidance for addressing environmental justice, including U.S. Department of Transportation Order 5610.2 (April 15, 1997), FHWA Order 6640.23 (December 2, 1998), the FHWA Western Resource Center Interim Guidance (March 2, 1999), the FHWA California Division Environmental Justice Environmental Documents Checklist, and Caltrans’ Desk Guide—Environmental Justice in Transportation Planning and Investments (2003a).

The determination of whether or not the effects of the proposed project are disproportionately high and adverse depends on whether (1) the effects of the project are predominately borne by a minority or low-income population or (2) the effects of the project are appreciably more severe or greater in magnitude to minority or low-income populations compared to the effects on nonminority or non-low-income populations (see FHWA Western Resource Center Interim Guidance –Addressing Environmental Justice in the EA/EIS [1999]). The project area does not contain a disproportionally high minority population compared to the County of San Bernardino. The study area does, however, exhibit characteristics of an economically disadvantaged place.

Businesses at Kramer Junction would be affected by the project, based on the number that the project could displace (as discussed in the Relocations section above) and whether relocation in a comparable location would occur. If franchises and businesses that are owned by minority individuals are displaced, are made less accessible, or are otherwise negatively affected by the project, this could constitute a substantial effect of the project with respect to environmental justice. Impacts to businesses could also affect low-income and minority workers at these establishments.

Since Census data is collected by place of residence and the Kramer Junction area has few residents, it is assumed that the demographics of the employee population at Kramer Junction are similar to those of the neighboring residential population, which include low-income individuals and households. Given the service orientation of the businesses at Kramer Junction, it is likely that a large proportion of the jobs are low-wage. Displacement of employers and failure to relocate them within a reasonable distance from their current locations is likely to impose a disproportionate hardship on those employees with the lowest incomes.

Based on the demographics of the study area and neighboring areas, the project would not disproportionately affect minority residents. Relative to the ethnic breakdown of the County of San Bernardino, non-Hispanic White individuals are the majority in the project area. However, the area does not appear to be wealthy, given that a substantial proportion of the study area population is low-income, as evidenced by the high poverty rates in Boron. Displacement of businesses and loss of accessibility to businesses that remain after construction could have a substantial impact on the community. Many of the employees at these businesses, as well as the business owners, live in the community of Boron. Given that Boron is a small community,
without a large inventory of employers in the immediate vicinity, the loss of businesses increases the vulnerability of non-displaced businesses and residents to financial difficulties.

**Permanent Impacts**

**Alternative 1—Northerly Alignment 4-Lane Divided Expressway**

As discussed in Section 3.4.2, Relocations, one unoccupied residence, an antique shop, an antique car restoration shop, and an airplane hangar/storage facility would be displaced under Alternative 1. Businesses not displaced under Alternative 1 would not be as visible as they currently are due to the construction of an overpass above US-395. This has the potential to make the remaining businesses at Kramer Junction less viable, which would affect low-wage workers employed at these locations. However, due to the location of Kramer Junction more than 20 miles from the nearest SR-58-adjacent commercial development, the area would continue to be an important stopping point for vehicles traveling along SR-58.

Due to the small number of employees that would be displaced under Alternative 1 and the continued importance of non-displaced businesses to travelers on SR-58 as among the few highway-adjacent commercial developments in the vicinity, the implementation of Alternative 1 would not result in disproportionate effects on environmental justice populations, and effects on businesses would be minimized with the implementation of measure ECON-3.

**Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)**

Alternative 1A would have the same effects as Alternative 1, with the exception that Alternative 1A would only displace the airplane hangar/storage facility. Disproportionate effects on environmental justice populations would not occur under Alternative 1A, and effects on businesses would be minimized with the implementation of measure ECON-3.

**Alternative 2—Existing Alignment 4-Lane Expressway with Median**

Alternative 2 would displace as many as 10 businesses at Kramer Junction, which represents more than two-thirds of the businesses at Kramer Junction. Given the service orientation of displaced businesses and the likelihood that a high percentage of the approximately 100 jobs that would be displaced are held by low-wage workers who may be members of low-income households, Alternative 2 would have a substantial effect on the study area’s low-income population.

Since nearly all of the automobile services at Kramer Junction would be displaced under Alternative 2, this has important implications for the non-displaced businesses. Without the option to stop for gas and auto services, fewer SR-58 travelers would exit at the junction, which makes it less likely that remaining businesses (which do not provide auto services) would be able to generate the same number of customers. The displacement that would occur under Alternative 2 has the potential to negatively affect the long-term viability of non-displaced businesses at Kramer Junction.
Given the large number of businesses that would be displaced under Alternative 2 and the low-wage nature of the job types at the displaced businesses, the implementation of Alternative 2 has the potential to result in a disproportionately high and adverse effect on those low-wage workers who may be members of low-income households. Measures ECON-1 through ECON-3 would reduce the effects of Alternative 2 on environmental justice populations, but these effects would remain potentially disproportionately high and adverse following mitigation.

**Alternative 3—Southerly Alignment 4-Lane Divided Expressway**

No displacement would occur under Alternative 3. Kramer Junction businesses would not be as visible under Alternative 3 as they currently are due to the construction of an overpass above US-395, which would affect low-wage workers at these locations. However, due to the location of Kramer Junction more than 20 miles from the nearest SR-58-adjacent commercial development, the junction would continue to be an important stopping place for vehicles traveling along SR-58. With the implementation of measure ECON-3, impacts to Kramer Junction businesses would not be substantial, and no disproportionate effects to environmental justice populations would occur.

**Alternative 4—No-Build Alternative**

No project improvements would be made under Alternative 4, and therefore no disproportionate effects on environmental justice populations would occur.

**Temporary Impacts**

**Build Alternatives 1, 1A, 2, and 3**

All four build alternatives (Alternatives 1, 1A, 2, and 3) would include construction activities that would result in temporary, localized, site-specific disruptions to the population in the proposed project area, primarily related to construction-related traffic changes from trucks and equipment in the area; partial and/or lane closures, with some requiring detours; increased noise and vibration; light and glare; and changes in air emissions. Activities such as building demolition and grading of acquired lands would occur adjacent to some residences.

Because the project construction activities would be temporary, short-term in duration, and generally limited to daytime hours, no disproportionate effects are anticipated.

**Alternative 4—No-Build Alternative**

Under Alternative 4, no project improvements would be implemented. Therefore, no temporary disproportionate effects to environmental justice populations would occur.

**3.4.3.4 Avoidance, Minimization, and/or Mitigation Measures**

Potentially adverse consequences for minority and low-income populations stem from displacement of businesses, which employ low-wage and minority individuals. Effects on businesses during and after construction of the proposed project would affect the number of employees these businesses could retain.
Under Alternatives 1 and 1A, if displacements cannot be avoided or minimized, relocation of businesses to an area in the immediate vicinity of Kramer Junction would address likely effects on businesses that are reliant on vehicular traffic. Adoption and implementation of measures ECON-1 through ECON-3 would minimize impacts on Kramer Junction businesses during construction and operation of the project. No displacements would occur under Alternative 3.

Under Alternative 2, the extensive nature of displacement that would occur would not be avoidable and would represent a substantial disproportionate effect on low-income workers.

Based on the above discussion and analysis, as well as implementation of measures ECON-1 through ECON-3, Alternatives 1, 1A, and 3 will not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice. Alternative 2 would result in environmental justice impacts.
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3.5 Utilities/Emergency Services

3.5.1 Affected Environment

Information from this section of the document came from the February 2013 Community Impact Assessment (Caltrans 2013a) prepared for the proposed project.

3.5.1.1 Utilities

Water Service

Water service for businesses and the few residential properties at Kramer Junction is provided by private ownership wells. In the unincorporated area of Boron, adjacent to the western terminus of the project area, water service is provided by the Boron Community Services District and the Southern California Water Company.

Wastewater Service

Most residential properties in the study area and surrounding High Desert area are on private sewage treatment systems (septic). In the unincorporated area of Boron, adjacent to the western terminus of the project area, wastewater service is provided by the Boron Community Services District and the Southern California Water Company.

Wastewater impoundments are located in the southeastern portion of the project area, east of US-395. These are for the businesses in the southeastern quadrant of Kramer Junction.

Natural Gas Service

The majority of the natural gas used in California comes from out-of-state natural gas basins. In 2008, California customers received 46 percent of their natural gas supply from basins located in the Southwest, 19 percent from Canada, 22 percent from the Rocky Mountains, and 13 percent from basins located within California. Natural gas from out-of-state production basins is delivered to California consumers via the interstate natural gas pipeline system. (CPUC 2013).

Pacific Gas & Electric (PG&E) and the Southern California Gas Company provide natural gas service to the study area, as well as the surrounding High Desert area. PG&E serves the northern portion of Kramer Junction, as well as the eastern and western portions of the study area, including the Community of Boron. The southern portion of the study area (south of SR-58) along US-395 is served by the Southern California Gas Company.

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 PG&E and the Mojave Pipeline Operating Company.
**Crude Oil**

A 30-inch crude oil pipeline is located south of existing SR-58. Additional utility search information will be obtained during final design to determine the service area and ownership of this pipeline.

**Solid Waste**

San Bernardino County’s Solid Waste Management Division (SWMD) is responsible for the operation and management of the County’s solid waste disposal system, which consists of five regional landfills and nine transfer stations (San Bernardino County 2013). Also, SWMD administers the County’s solid waste handling franchise program and the refuse collection permit program, which authorizes and regulates trash collection by private haulers in the unincorporated area. 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). Construction refuse/debris from the proposed project could be hauled to the nearest landfills, the Barstow and Victorville landfill sites, both located approximately 32 miles from Kramer Junction.

**Electrical Service**

Southern California Edison (SCE) provides electricity to the project study area. SCE is the nation’s second largest electric utility, based on the number of customers. It serves 4.2 million customers in central and southern California, including the project area. The utility’s 50,000-square-mile service territory has a population of more than 11 million (City of Barstow 2009). 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 study 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 study area.

Just recently, the California Broadband Cooperative began constructing its Digital 395 project. The Digital 395 Middle Mile project is a new 583-mile fiber network that will mainly follow US-395, a major transportation corridor between Southern and Northern California, which passes
through Nevada. The project’s service area encompasses 36 communities, six Indian reservations, two military bases, 26,000 households, and 2,500 businesses. In addition, 35 public safety entities, 47 K-12 schools, 13 libraries, two community colleges, two universities, 15 healthcare facilities, and 104 government offices will also be served, as well as the Sierra Nevada Aquatic Research Lab, the White Mountain Research Station, and the California Institute of Technology Owens Valley Radio Observatory. Unused, high-capacity fiber will be available to the region’s last-mile providers to expand or enhance service to households and businesses, as well as to government agencies or carriers seeking local or long haul transport.

There are four segments of the Digital 395 project that are located within the proposed project’s study area. Segment 103 starts at the intersection of Cuddlebeck Road and US-395 in the north and ends at Kramer Junction in the south. Segment 105 starts at Kramer Junction in the west and ends at the intersection of SR-58 and Kramer Road in the east. Segment 106 starts at the intersection of SR-58 and Kramer Road in the west and ends at the intersection of SR-58 and Helendale Road. These segments were all recently completed. The fourth segment is Segment 104, which starts at Kramer Junction in the west and ends at the Kern/San Bernardino County Line in the west. As of the time of this analysis, Section 104 has not been completed, but completion is expected within the first half of 2013.

3.5.1.2 Emergency Services

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, located at 300 East Mountain View in the city of Barstow, approximately 35 miles east of the project site (refer to Table 3.5-1). This office has jurisdiction within the project study 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 study 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 2013). 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. Due to the large area that the deputies cover, they regularly assist and are assisted by the CHP, Barstow Police Department, and 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 located within the Barstow Station jurisdiction (San Bernardino County Sheriff’s Department 2013).
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.5. Human Environment—Utilities/Emergency Services

**Kern County Sheriff’s Department**

The Kern County Sheriff Department’s Boron Substation, located at 26949 Cote Street in Boron, is the closest law enforcement office from the project site. The substation provides law enforcement services to the community of Boron and surrounding rural areas in the vicinity within Kern County. The Kern County Sheriff’s Department responds to emergencies in the Kramer Junction area under an Assisted Other Department (AOD) agreement as needed as backup for County of San Bernardino Sheriff’s Department.

**San Bernardino County Fire Department**

The San Bernardino County Fire Department’s (SBCFD’s) North Desert Division is responsible for fire protection within the study 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 assigned fire station for the project site is the North Desert Division – Hinkley Station 56, located at 37284 Flower in the community of Hinkley (Table 3.5-1). Station 125 is staffed on an on-call basis with paid-call firefighters who live in the local community. Apparatus consists of one Type 1 structure engine, one Type 4 brush patrol with four-wheel drive, one water tender providing additional water for rural areas, and a squad containing specialized support equipment. The Hinkley station protects the Hinkley community, provides assistance to the city of Barstow, and responds to the I-15 corridor north and south of Barstow as well as the vast unincorporated areas west to the San Bernardino County line near Boron (San Bernardino County Fire Department 2013).

Kern County Fire Department’s Station 17, located at 26965 Cote Street in Boron, is the closest fire station to the project site. 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 AOD agreement as needed as backup for County of San Bernardino Fire Department.

**Hospitals**

Barstow Community Hospital is located at 555 South 7th Avenue in the city of Barstow and is the closest hospital to the project study area. The hospital has 56 licensed beds, 34 active physicians, and 250 hospital employees (Barstow Community Hospital 2009). St. Mary Medical Center, Desert Valley Community Hospital, and Ridgecrest Community Hospital would also be able to serve the study area. Their addresses and distances from the project site are listed in Table 3.5-1 and shown in Figure 3.5.1.
### Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

#### Section 3.5. Human Environment—Utilities/Emergency Services

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Figure 3.5.1a
Locations of Community Facilities and Emergency Service Providers
State Route 58 Kramer Junction Expressway Project

See Figure 3.5-1a

Legend
- Proposed Alternatives
- Emergency Service
- Hospital

Emergency Service
- 2 - San Bernardino County Fire Department Station 56

Hospital
- 7 - St. Mary Medical Center
- 8 - Desert Valley Community Hospital
- 9 - Ridgecrest Community Hospital

Source: ESRI USA Imagery (2010)
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
06-SB5-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Figure 3.5.1b

Miles
0 2.5 5 10
Figure 3.5.1b

Locations of Community Facilities and Emergency Service Providers
State Route 58 Kramer Junction Expressway Project

Legend
- Proposed Alternatives
- Emergency Service

Emergency Service
1 - Kern County Fire Department – Station 17
3 - Kern County Sheriff’s Department – Boron Substation

Source: ESRI USA Imagery (2010)

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Section 3.5. Human Environment—Utilities/Emergency Services

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Legend
- Proposed Alternatives
- Emergency Service
- Hospital

Emergency Service
- 4 - California Highway Patrol
- 5 - San Bernardino County Sheriff – Coroner Department, Barstow Sheriff's Office

Hospital
- 6 - Barstow Community Hospital

Figure 3.5.1c
Locations of Community Facilities and Emergency Service Providers
State Route 58 Kramer Junction Expressway Project

Source: ESRI USA Imagery (2010)
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3.5.2 Environmental Consequences

3.5.2.1 Permanent Impacts

**Build Alternatives 1, 1A, 2, and 3**

Under Alternatives 1 and 1A, several utility types would require relocation, including transmission towers, “H” frames, wooden transformer poles, wooden poles, and underground fiber optic cables. In addition, a privately owned water cistern would need to be relocated in order to accommodate the proposed alignment of the westbound off-ramp. However, once project construction is complete and the project is operational, there would be no change to the utility service in the area.

Under Alternative 2, several utility types would require relocation, including 13 large transmission towers, 10 “H” frames, three array poles, five wooden poles with attached three-line (of transmission, distribution, and communication), 10 switch poles, 10 riser poles, five steel poles, eight small transmission towers, 20 racks with attached transformers, 10 utility vaults, 10 circuit breakers, and underground fiber optic cables. In addition, the existing SCE substation located in the southwest quadrant of Kramer Junction (west of US-395, south of the Travel Pilot Center) would require relocation. This alternative may require SCE to rearrange their power distribution network facilities in the region, depending on where the existing substation is relocated, which would be a permanent impact. As described in measure UT-1 below, Caltrans will continue to coordinate with SCE and other utility and service providers after the Project Approval/Environmental Document (PA/ED) phase regarding development plans and the possibility of relocation of existing facilities.

Under Alternative 3, several utility types would require relocation, including 10 steel towers, 10 “H” frame transmission towers, three array poles, and six miles of pipeline. However, once project construction is complete and the project is operational, there would be no change to utility service in the area.

For a detailed discussion of utility relocation impacts during construction, please see Section 3.5.2.2, Temporary Impacts.

With implementation of Alternatives 1, 1A, 2, and 3, traffic congestion would be reduced, and grade separating SR-58 from US-395 and the railroad crossings would improve traffic flow along SR-58 in the project area. Emergency service providers could benefit from improved traffic flow and decreased congestion because it would help them maintain adequate response times. Therefore, there would be a beneficial effect for emergency service providers with implementation of any of these alternatives.

**Alternative 4—No-Build Alternative**

The No-Build Alternative would not provide additional lanes or include other improvements to the existing SR-58 alignment. The No-Build Alternative would maintain the facility in its present...
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Section 3.5. Human Environment—Utilities/Emergency Services

3.5. Human Environment

3.5.5 Utilities/Emergency Services

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condition. Under this alternative, the capacity of SR-58 would remain the same as current
conditions as a conventional two-lane highway with an at-grade signalized intersection at
US-395, an at-grade railroad crossing, and uncontrolled access from adjacent driveways and
streets. SR-58 is currently operating at LOS C, and without improvements is forecast to operate
at LOS F by the year 2039. Continuing local development and increasing traffic volumes will
add to traffic delay and inconvenience. This alternative fails to address the problems identified
within this segment of SR-58. The highway would not be improved to meet the proposed
project’s purpose and need (see Chapter 1).

3.5.2.2 Temporary Impacts

Several utility types may require relocation so that they can continue to function, including
overhead and underground electrical, underground gas, overhead and underground telephone,
overhead cable telephone, water, septic tanks, a petroleum pipeline, and underground fiber optic
cables. Based on an initial utility search, the following agencies/companies maintain utilities
within the project area: (1) Southern California Edison-Distribution/Transmission, (2) AT&T,
(3) El Paso Mojave Pipeline Operating Company, (4) PG&E Gas Transmission Hinkley, (5) San
Bernardino County Transmission, (6) Southern California Gas Company-Transmission,
(7) Southern California Gas Company Distribution, (8) PG&E Transmission and Distribution
Ridgecrest, (9) Southwest Gas, and (10) Verizon. Underground utilities that cross the highway
would be encased in accordance with Caltrans’ policy.\(^1\)

All water wells would be relocated outside of the proposed Caltrans right-of-way, and existing
water wells within the Caltrans right-of-way would be destroyed.

Alternatives 1 and 1A

The following utilities would require relocation under Alternatives 1 and 1A: transmission
towers, “H” frames, wooden transformer poles, wooden poles, and fiber optic cables.

The affected utilities would be relocated in accordance with state laws and regulations and
County policies. There would be ongoing coordination between Caltrans, the County, affected
agencies, and utility companies in order to minimize potential disruption of utility service;
therefore, no substantial adverse effects to public services would occur. With coordination and
adherence to regulations and policies, it is not anticipated that any residential utility services
would be substantially affected.

Construction activities associated with the build alternatives would result in temporary,
localized, site-specific disruptions to emergency services in the project area, primarily related to
construction-related traffic changes from trucks and equipment, and partial and/or complete
street and lane closures, some requiring detours. In addition, non–fire-related medical
emergencies could temporarily increase with the presence of construction workers and heavy
machinery during construction of the project. A Construction Management Plan and Traffic
Management Plan (TMP) will be prepared for the project and will include measures to minimize

\(^1\) Department Project Development Procedures Manual. Appendix LL. Available at:
construction-period traffic and access/circulation impacts and to coordinate detour routes with County sheriff and fire departments.

Because project construction activities would be temporary and would be implemented in a manner that minimizes the effects on utilities and emergency services, no substantial adverse effects are expected to occur under Alternatives 1 and 1A.

**Alternative 2—Existing Alignment Four-Lane Expressway with Median**

The following utilities would require relocation under Alternative 2: 13 large transmission towers; 10 transmission “H” frames; three array poles; five wooden poles with attached three-line (of transmission, distribution, and communication); 10 switch poles; 10 riser poles; five steel poles; eight small transmission towers; 20 racks with attached transformers; 10 utility vaults; 10 circuit breakers, and underground fiber optic cables.

Impacts related to the relocation of most utilities and measures to coordinate with emergency service providers to maintain access for emergency response would be minor adverse. Implementation of Alternative 2 would require relocation of the SCE power transmission substation. Since the substation is a crucial facility in SCE’s regional power transmission network, relocation of this substation would have to be carefully managed and coordinated with SCE to minimize service disruptions.

**Alternative 3—Southerly Alignment Four-Lane Divided Expressway**

The following utilities would require relocation under Alternative 3: ten steel towers, ten transmission “H” frames, three array poles, and six miles of pipeline.

Impacts would be minor adverse, and measures would be implemented to minimize effects on utility service and emergency service providers during construction.

**Alternative 4—No-Build Alternative**

Because this alternative would not involve any construction activities, this alternative would not have any adverse impacts on utilities or community facilities and services.

3.5.3 **Avoidance, Minimization, and/or Mitigation Measures**

In order to prevent unreasonable traffic delays and impacts to emergency access and utilities, the following Caltrans’ standard practices would be implemented.

- **UT-1**: For each build alternative, Caltrans will coordinate all utility relocation work with the affected utility companies to ensure minimum disruption to customers in the service areas during construction. If Alternative 2 is selected as the preferred alternative, a coordination plan will be established with SCE. The coordination plan will include specific measures to minimize electrical service disruption that would occur with relocation of the existing SCE substation. This coordination plan will be in place and agreed upon by Caltrans and SCE before any relocation activities occur as a result of the proposed project.
• **TR-1:** For each build alternative, Caltrans will prepare a TMP to ensure that local and regional traffic moves efficiently during construction. The TMP and the construction plans will be provided to community agencies, such as the fire department, prior to project commencement. The information provided will include access and traffic management plans that describe any projected temporary street closures or expected traffic delays due to construction vehicles on the roadways.

The following elements will be major components of the project TMP:

a. A public awareness campaign related to the scheduling of work;
b. A construction zone enforcement enhancement program (COZEEP);
c. Use of portable changeable message signs (PCMS);
d. Advance information signing that will communicate the date, time, and duration of ramp closures;
e. Plan road closures to minimize impacts on local circulation to the maximum extent feasible; and
f. Preparation of temporary detour plans, if needed, during the plans, specifications, and estimates (PS&E) phase of the project. (Note: No detours are anticipated at this time.)
3.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

3.6.1 Regulatory Setting

3.6.1.1 Federal Regulations

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

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR 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.

3.6.1.2 State Regulations

**Intermodal Corridor of Economic Significance Act**

The Intermodal Corridor of Economic Significance Act establishes the Intermodal Corridor of Economic Significance (ICES) system, as outlined in the California Streets and Highways Code (SHC), Sections 2190–2191. The ICES system is composed of transportation corridors that are essential to the economy of California because of their connection to national and international trade. Routes identified as part of the ICES system provide access to major sea or waterway ports, nationwide railway systems, airports, and interstate and intrastate highway systems, thereby serving as intermodal corridors of economic significance. SR-58 between Bakersfield and Barstow is part of the ICES system. Therefore, the SR-58 Kramer Junction Expressway Project would affect a segment of highway that is part of the ICES system and essential for intermodal access to centers of commerce.

3.6.1.3 Local Regulations

**County of San Bernardino General Plan Circulation and Infrastructure Element**

State planning law requires all general plans to include a circulation element that correlates directly to the land use element. The County of San Bernardino General Plan Circulation and Infrastructure Element sets forth strategies that support the creation of a circulation and infrastructure system consistent with the overall vision specified for the county. The goals and policies of the Circulation and Infrastructure Element relevant to the project are listed below.
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.6. Human Environment—Traffic and Transportation/Pedestrian and Bicycle Facilities

Goals (Countywide)

- CI 4: The county will coordinate land use and transportation planning to ensure adequate transportation facilities to support planned land uses and ease congestion.

Goals (Desert Region)

- D/CI 1: Ensure a safe and effective transportation system that provides adequate traffic movement while preserving the rural desert character of the region.
- D/CI 2: Ensure that infrastructure improvements are compatible with the natural environment of the region.
- D/CI 4: Ensure that public services are delivered and maintained at acceptable levels, even in the more rural areas of the desert.

Policies

- D/CI 1.2: Design roads to follow natural contours, avoid grid-pattern streets, and minimize cuts and fills and disturbance of natural resources and trees wherever possible.
- D/CI 1.4: Preserve the rural character by discouraging required urban-scale improvements such as curbs, gutters, and street lighting where the public health, safety, and welfare are not endangered.
- CI 2.1: Work with adjacent jurisdictions to minimize inconsistencies in existing and ultimate right-of-way and roadway capacity across jurisdictional boundaries.
- CI 2.3: Where appropriate, jointly fund studies and improvements to the transportation system with cities and other public agencies and developers.
- CI 2.4: Work with the California Department of Transportation (Caltrans) and the San Bernardino Associated Governments (SANBAG) on appropriate fair-share mitigation for impacts of development on state highways.
- CI 2.5: Work with Caltrans on mitigating the impacts of state highway projects on local communities.

3.6.2 Affected Environment

Unless otherwise noted, the information in this section was derived from the Traffic Study Report prepared for the proposed project and the County of San Bernardino General Plan (San Bernardino County 2007a). References used in the traffic study report are not carried over into this section.

SR-58 is a major freight corridor for the state’s Central Valley. Located in the high desert region of northern San Bernardino County, the intersection of SR-58 at US-395, also known as Kramer Junction, is approximately 100 miles east of Bakersfield, and approximately 30 miles west of Barstow. Kramer Junction is a major intersection that serves as a stop for east/west motorists traveling between the Central Valley and the rest of the United States and for north/south motorists traveling between the eastern Sierra Mountains and the Inland Empire. The combination of SR-58 and US-395 provides a quick path between the Central Valley and the
communities of Victorville and Hesperia as well as some communities in the metropolitan San Bernardino area. The Burlington Northern Santa Fe (BNSF) railway runs north of and mostly parallel to the highway through the project limits. At-grade crossings are located along US-395 approximately 170 feet north of Kramer Junction and along SR-58 approximately two and a half miles west of Kramer Junction.

The project limits start approximately 0.4 miles west of the Kern/San Bernardino county line; approximately 5.3 miles west of the SR-58/US-395 intersection. Within the Kern County portion, SR-58 is a divided highway with two lanes in each direction. Within the project limits, SR-58 is an undivided two-lane highway (one lane in each direct) with a two-foot-wide rumpled median. The speed limit for the two-lane segments is 55 miles per hour, and passing is not allowed within the first segment of the proposed project. Lane and shoulder width measurements were taken within representative segments of the highway. The lanes are 11 to 12 feet wide, and the paved shoulders vary from four to nine feet wide.

The intersection of SR-58 and US-395 (Kramer Junction) is signalized and includes pedestrian crosswalks on three of the four legs. A crosswalk is not available on the west leg of SR-58, which runs east/west. SR-58 is currently configured with one left-turn lane, one through lane, and one shared through/right-turn lane in each direction. US-395 is currently configured with one left-turn lane, one through lane, and one right-turn lane northbound and one left-turn lane, one through lane, and one shared through/right-turn lane southbound. The two-lane sections of SR-58 and US-395 are undivided. Double yellow centerline striping and raised reflective pavement markers separate the lanes. Northbound and southbound approach lanes measure from 11 to 12 feet wide, and the shoulders measure from one and two-tenths to 12 feet wide. Eastbound and westbound approach lanes measure from 11.5 to 29 feet wide. Approximately 170 feet north of the intersection is a BSNF railway crossing. Although “No Parking Anytime” signs are posted along the shoulders of both SR-58 and US-395, trucks were observed parked along the shoulders. This intersection is surrounded by commercial uses such as restaurants, a Pilot truck stop, gas stations, and other retail businesses. The closest residential community is located in Boron, which is in Kern County, approximately six miles west of the intersection.

**Study Scope and Methodology**

The scope of analysis, including base assumptions and technical methodologies, and study area for the traffic study were identified through consultation with the Caltrans Division of Operations and the Caltrans Division of Design and in accordance with the *Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002). The scope includes the results of traffic data and level of service (LOS) analysis. The traffic study evaluated the proposed alternatives and considered three interchange configurations (Type L-2, L-7, and L-9) for each build alternative. The results of the L-8 Modified Analysis were provided November 2013 (Caltrans 2013). The following traffic scenarios were evaluated.

- **Existing (2010) Conditions** – The analysis of existing traffic conditions is intended to provide a baseline for the study. The existing conditions analysis includes an assessment of streets, traffic volumes, and operating conditions.

- **Future without Project (2019)** – This is the no-build condition in 2019. An analysis of future traffic conditions without the proposed project and with general regional traffic growth projected to 2019 was conducted.
• **Project Build Opening Year (2019)** – An analysis of future traffic conditions with the proposed project implemented in 2019 was conducted using interchange configurations Type L-2, L-7, modified L-8, and L-9.

• **Future without Project (2039)** – This is the no-build condition in 2039. An analysis of future traffic conditions without the proposed project and with general regional traffic growth projected to 2039 was conducted.

• **Future plus Project (2039)** – An analysis of future traffic conditions with the proposed project implemented and with general regional traffic growth projected to 2039 was conducted using interchange configurations Type L-2, L-7, modified L-8, and L-9.

**Interchange Configurations**

Presently, the SR-58/US-395 interchange is an at-grade signalized intersection. Caltrans is considering construction of a Type L-2, Type L-7, modified Type L-8, or Type L-9 interchange as part of the project to improve existing conditions. Type L-2 is a spread diamond interchange. A Type L-2 interchange is used when a cross street must pass over or under an expressway or major highway. Type L-7 is a two-quadrant cloverleaf interchange. With the Type L-7 interchange, two loop on-ramps are constructed on the same side of the cross street. The modified Type L-8 would involve a spread diamond configuration on the north side of the interchange and a cloverleaf on the south side of the interchange. A Type L-9 interchange is a partial cloverleaf interchange that provides loop on-ramps in addition to four diamond-type ramps and is suitable for large-volume turning movements. All of the build alternatives, with the exception of Alternative 1A, propose a Type L-2, or diamond, interchange. Alternative 1A proposes the modified Type L-8 configuration.

### 3.6.2.2 Existing Traffic

**Highway Levels of Service**

An intersection analysis of 2010, 2019, and 2039 conditions was conducted by applying existing and projected traffic volume data. Synchro 7.0 was used for signalized intersections, and Highway Capacity Software (HCS2000) was used for unsignalized stop-controlled intersections, mainlines, and ramp merge/diverge analysis. The analysis estimated LOS, average control delay per vehicle (in seconds), and length of queuing during weekday peak hours. A detailed discussion of LOS standards and existing LOS is provided in Section 1.2.2.1, Capacity, Transportation Demand, and Safety. Table 3.6-1, below, summarizes LOS under existing (2010), 2019 (build opening year), and 2039 (horizon year) conditions.

**Table 3.6-1: Existing and Forecast Mainline Traffic Data**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LOS</td>
<td>D/E</td>
<td>E/E</td>
<td>A/A</td>
<td>E/F</td>
<td>A/B</td>
</tr>
</tbody>
</table>

LOS=level of service

Traffic Data

Previous weekday and weekend traffic counts conducted at Kramer Junction from Tuesday, May 5, 2009, through Thursday, May 7, 2009, and on Saturday, May 9, 2009, were used in this study. These traffic counts included average daily traffic (ADT) volumes, intersection turning movement volumes, and truck traffic classifications. Existing and future conditions analysis was conducted for weekday AM and PM peak hours (i.e., the hours that typically have the highest peaks and represent the worst-case condition).

The 2009 count data and forecast projection estimates were used to determine traffic volumes under existing (2010), 2019 (build opening year), and 2039 (horizon year) conditions on SR-58. Both the build and no-build scenarios were considered, as were ADT, peak-hour, and truck volumes; equivalent single-axle loads (ESAL); and traffic indices and estimates.

Mainline Traffic Volumes

Future 2019 and 2039 traffic volumes were projected using the 2016, 2040, and 2060 future forecast data provided by Caltrans, District 8, Office of Forecasting. Annualized linear growth rates from Caltrans forecasts of 2.6 percent per year for the period from 2009 to 2016 and 4.1 percent per year from 2016 to 2040 were applied to estimate the traffic volumes. Table 3.6-2 provides current and estimated future traffic data for the SR-58 mainline.

Table 3.6-2. SR-58 Estimated Mainline Traffic Data

<table>
<thead>
<tr>
<th></th>
<th>Weekday</th>
<th></th>
<th>Weekday</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EB</td>
<td>WB</td>
<td>Total</td>
<td>EB</td>
</tr>
<tr>
<td><strong>Existing (2010)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADT</td>
<td>7,336</td>
<td>6,484</td>
<td>13,820</td>
<td>7,038</td>
</tr>
<tr>
<td>Directional Split (DS)</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
<td>57%</td>
</tr>
<tr>
<td>Peak-Hour Volume (PHV), AM</td>
<td>298</td>
<td>298</td>
<td>596</td>
<td>369</td>
</tr>
<tr>
<td>PHV, PM</td>
<td>472</td>
<td>421</td>
<td>893</td>
<td>369</td>
</tr>
<tr>
<td>Truck ADT</td>
<td>4,525</td>
<td>3,889</td>
<td>8,414</td>
<td>3,919</td>
</tr>
<tr>
<td>Truck Percentage of Total ADT</td>
<td>62%</td>
<td>60%</td>
<td>61%</td>
<td>56%</td>
</tr>
<tr>
<td>Truck PHV, AM</td>
<td>195</td>
<td>164</td>
<td>359</td>
<td>195</td>
</tr>
<tr>
<td>Truck PHV, PM</td>
<td>277</td>
<td>236</td>
<td>513</td>
<td>205</td>
</tr>
<tr>
<td><strong>Projected (2019) Opening Year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADT</td>
<td>9,490</td>
<td>8,390</td>
<td>17,880</td>
<td>8,537</td>
</tr>
<tr>
<td>DS</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
<td>53%</td>
</tr>
<tr>
<td>PHV, AM</td>
<td>390</td>
<td>380</td>
<td>770</td>
<td>448</td>
</tr>
<tr>
<td>PHV, PM</td>
<td>610</td>
<td>540</td>
<td>1,150</td>
<td>448</td>
</tr>
<tr>
<td>Truck ADT</td>
<td>5,850</td>
<td>5,030</td>
<td>10,880</td>
<td>4,781</td>
</tr>
<tr>
<td>Truck Percentage of Total ADT</td>
<td>62%</td>
<td>60%</td>
<td>61%</td>
<td>56%</td>
</tr>
<tr>
<td>Truck PHV, AM</td>
<td>250</td>
<td>210</td>
<td>460</td>
<td>236</td>
</tr>
<tr>
<td>Truck PHV, PM</td>
<td>350</td>
<td>310</td>
<td>660</td>
<td>249</td>
</tr>
<tr>
<td><strong>Projected (2039) Horizon Year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADT</td>
<td>16,369</td>
<td>14,542</td>
<td>30,940</td>
<td>14,770</td>
</tr>
<tr>
<td>DS</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
<td>53%</td>
</tr>
<tr>
<td>PHV, AM</td>
<td>670</td>
<td>660</td>
<td>1,330</td>
<td>775</td>
</tr>
<tr>
<td>PHV, PM</td>
<td>1,055</td>
<td>940</td>
<td>1,995</td>
<td>775</td>
</tr>
<tr>
<td>Truck ADT</td>
<td>10,167</td>
<td>8,725</td>
<td>18,892</td>
<td>8,271</td>
</tr>
<tr>
<td>Truck Percentage of Total ADT</td>
<td>62%</td>
<td>60%</td>
<td>61%</td>
<td>56%</td>
</tr>
</tbody>
</table>
Table 3.6-3 provides existing (2010), future without-project (2019), and future without-project turning movement (2039) data for the SR-58/US-395 intersection (Kramer Junction) during typical midweek AM and PM peak hours. The AM and PM peak-hour volumes shown are for 8 AM to 9 AM and for 4 PM to 5 PM, respectively.

Table 3.6-3: SR-58/US-395 Intersection Weekday AM and PM Peak-Hour Volumes

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Left</td>
<td>Right</td>
<td>Thru</td>
<td>Left</td>
</tr>
<tr>
<td>Existing (2010)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM</td>
<td>18</td>
<td>94</td>
<td>193</td>
<td>19</td>
</tr>
<tr>
<td>Weekday PM</td>
<td>11</td>
<td>169</td>
<td>294</td>
<td>29</td>
</tr>
<tr>
<td>Projected (2019) Opening Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM</td>
<td>24</td>
<td>122</td>
<td>250</td>
<td>25</td>
</tr>
<tr>
<td>Weekday PM</td>
<td>15</td>
<td>219</td>
<td>381</td>
<td>37</td>
</tr>
<tr>
<td>Projected (2039) Horizon Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM</td>
<td>41</td>
<td>211</td>
<td>432</td>
<td>44</td>
</tr>
<tr>
<td>Weekday PM</td>
<td>25</td>
<td>379</td>
<td>659</td>
<td>64</td>
</tr>
</tbody>
</table>

NB = northbound, SB = southbound, EB = eastbound, WB = westbound.

Access issues are most prevalent at the signalized at-grade intersection of SR-58 and US-395. Turning movements are highest during the weekday PM peak hour, particularly right turns from eastbound SR-58 to southbound US-395. These turning movements currently come from 169 vehicles during the weekday PM peak hour, but that number is expected to increase to 219 in 2019 (opening year) and 379 in the 2039 (horizon year). The frequency of these turning movements further impedes traffic flow and exacerbates congestion. Additional discussion regarding access control is included under Section 1.2.2.4, Legislation, Freeway, and Expressway System.

### 3.6.3 Environmental Consequences

#### 3.6.3.1 Permanent Impacts

**Build Alternatives 1, 1A, 2, and 3**

**Future (2019 and 2039) Build Conditions Analysis Results**

An LOS analysis was conducted for future 2019 (opening year) and 2039 (horizon year) build conditions by applying the approach and methodology described previously. The analysis for the build alternatives (Alternatives 1, 1A, 2, and 3) considered all four interchange configurations (L-2, L-7, modified L-8, and L-9) and their associated intersections. Specifically, the SR-58...
mainline’s highest volume locations, which are just west of US-395; the SR-58 interchange on-and off-ramps; and the ramp intersections at US-395 were analyzed. Tables 3.6-4 and 3.6-5 present the SR-58 mainline and ramp analysis results for future 2019 (opening year) and 2039 (horizon year) build conditions along the existing US-395 alignment. As indicated, with a new interchange, the mainline and ramps would operate at LOS B or better, even in 2039. This is a substantial improvement over the no-build projections of LOS F.

### Table 3.6-4: SR-58 Mainline Analysis Results, Future 2019 and 2039 Build Conditions (Existing US-395 Alignment)

<table>
<thead>
<tr>
<th>Facility</th>
<th>2019 Build Conditions (AM/PM)</th>
<th>2039 Build Conditions (AM/PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Density (pc/mi/ln)</td>
<td>LOS</td>
</tr>
<tr>
<td>SR-58 Mainline</td>
<td>Freeway</td>
<td>5.1/7.7 A/A</td>
</tr>
<tr>
<td>pc/mi/ln = passenger cars per mile per lane.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Table 3.6-5: SR-58 Ramp Analysis Results, Future 2019 and 2039 Build Conditions (Existing US-395 Alignment)

<table>
<thead>
<tr>
<th>Facility</th>
<th>2019 Build Conditions (AM/PM)</th>
<th>2039 Build Conditions (AM/PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Density (pc/mi/ln)</td>
<td>LOS</td>
</tr>
<tr>
<td>L-2 (Diamond)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EB Off-ramp</td>
<td>Diverge</td>
<td>5.9/9.0 A/A</td>
</tr>
<tr>
<td>EB On-ramp</td>
<td>Merge</td>
<td>6.7/9.0 A/A</td>
</tr>
<tr>
<td>WB Off-ramp</td>
<td>Diverge</td>
<td>3.6/5.0 A/A</td>
</tr>
<tr>
<td>WB On-ramp</td>
<td>Merge</td>
<td>9.5/12.4 A/B</td>
</tr>
<tr>
<td>L-7 (Two-Quad Clover)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EB Off-ramp</td>
<td>Diverge</td>
<td>5.9/9.0 A/A</td>
</tr>
<tr>
<td>EB Loop On-ramp</td>
<td>Merge</td>
<td>6.7/9.0 A/A</td>
</tr>
<tr>
<td>WB Off-ramp</td>
<td>Diverge</td>
<td>3.6/5.0 A/A</td>
</tr>
<tr>
<td>WB Loop On-ramp</td>
<td>Merge</td>
<td>9.5/12.4 A/B</td>
</tr>
<tr>
<td>L-9 (Partial Clover)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EB Off-ramp</td>
<td>Diverge</td>
<td>5.9/9.0 A/A</td>
</tr>
<tr>
<td>EB Loop On-ramp</td>
<td>Merge</td>
<td>6.4/8.9 A/A</td>
</tr>
<tr>
<td>EB On-ramp</td>
<td>Merge</td>
<td>6.5/8.6 A/A</td>
</tr>
<tr>
<td>WB Off-ramp</td>
<td>Diverge</td>
<td>3.6/5.0 A/A</td>
</tr>
<tr>
<td>WB Loop On-ramp</td>
<td>Merge</td>
<td>9.3/12.2 A/B</td>
</tr>
<tr>
<td>WB On-ramp</td>
<td>Merge</td>
<td>7.7/10.0 A/A</td>
</tr>
</tbody>
</table>


All four of the interchange configurations considered include new ramp intersections. For future 2019 and 2039 conditions, a signal warrant analysis was conducted to determine if any of the intersections would meet the warrants for signalized operations. Table 3.6-6 summarizes the signal warrant analysis conducted for the three interchange configurations. As indicated, in 2019, one signal (south intersection of the L-2 diamond interchange configuration) would meet one warrant (warrant number 2 [four-hour volume]). Also, the south intersection of the modified L-8 interchange would meet warrants for signalization in 2019.
In 2039, both the north and south intersections of the L-2 diamond interchange configuration and the modified L-8 interchange would meet two warrants (warrant numbers 2 and 3 [peak-hour volume]). The south intersections of both the L-7 (two-quadrant cloverleaf) and L-9 (partial cloverleaf) configurations would meet the same two warrants; the north intersections would not meet any warrants.

Table 3.6-6: SR-58/US-395 Ramp Intersection Signal Warrant Analysis Results, Future 2019 and 2039 Build Conditions (Existing US-395 Alignment)

<table>
<thead>
<tr>
<th>Facility</th>
<th>2019 Build Conditions</th>
<th>2039 Build Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Signal Warrant Met (Warrant #)</td>
<td></td>
</tr>
<tr>
<td>L-2 (Diamond)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>No</td>
<td>Yes (2,3)</td>
</tr>
<tr>
<td>South I/S (signal)</td>
<td>Yes (2)</td>
<td>Yes (2,3)</td>
</tr>
<tr>
<td>L-7 (Two-Quad Clover)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>South I/S</td>
<td>Yes (2)</td>
<td>Yes (2,3)</td>
</tr>
<tr>
<td>Modified L-8 (Diamond and Clover)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>No</td>
<td>Yes (2)</td>
</tr>
<tr>
<td>South I/S</td>
<td>Yes (2)</td>
<td>Yes (2)</td>
</tr>
<tr>
<td>L-9 (Partial Clover)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>South I/S</td>
<td>No</td>
<td>Yes (2,3)</td>
</tr>
</tbody>
</table>

I/S = intersection.

A future-conditions intersection analysis was conducted using the results of the signal warrant analysis. For those intersections that met warrants, signalized intersection analysis was conducted using Synchro 7.0 software. For those that did not meet any warrant, the intersections were analyzed as two-way, stop-controlled intersections using Highway Capacity Software. Table 3.6-7 summarizes the results of the intersection analysis. As indicated, all intersections would operate at LOS B or better during both the AM and PM peak hours.

Table 3.6-7: SR-58/US-395 Ramp Intersection Analysis Results, Future 2019 and 2039 Build Conditions (Existing US-395 Alignment)

<table>
<thead>
<tr>
<th>Facility</th>
<th>2019 Build Conditions (AM/PM)</th>
<th>2039 Build Conditions (AM/PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delay (sec/veh)</td>
<td>LOS</td>
</tr>
<tr>
<td>L-2 (Diamond)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>11.0/14.9</td>
<td>B/B</td>
</tr>
<tr>
<td>South I/S (signal)</td>
<td>9.7/10.9</td>
<td>A/B</td>
</tr>
<tr>
<td>L-7 (Two-Quad Clover)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>10.0/11.1</td>
<td>A/B</td>
</tr>
<tr>
<td>South I/S</td>
<td>9.8/11.1</td>
<td>A/B</td>
</tr>
<tr>
<td>Modified L-8 (Diamond and Clover)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>10.8/14.7</td>
<td>B/B</td>
</tr>
<tr>
<td>South I/S (signal)</td>
<td>11.9/12.6</td>
<td>B/B</td>
</tr>
</tbody>
</table>
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

Section 3.6. Human Environment—Traffic and Transportation/Pedestrian and Bicycle Facilities

### Traffic and Transportation/Pedestrian and Bicycle Facilities

<table>
<thead>
<tr>
<th>Facility</th>
<th>2019 Build Conditions (AM/PM)</th>
<th>2039 Build Conditions (AM/PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delay (sec/veh)</td>
<td>LOS</td>
</tr>
<tr>
<td>L-9 (Partial Clover)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>9.9/10.7</td>
<td>A/B</td>
</tr>
<tr>
<td>South I/S</td>
<td>9.7/11.1</td>
<td>A/B</td>
</tr>
</tbody>
</table>

Sec/veh = seconds per vehicle

signal = analyzed as signalized intersection; all others analyzed as unsignalized, two-way, stop-controlled intersections.


### Future (2019 and 2039) Build Conditions with US-395 Realignment

A new SR-58 interchange would be constructed at the existing US-395 facility. However, with proposed future widening (i.e., from two to five lanes) and easterly realignment of US-395, another SR-58 interchange would be constructed at the location of the realignment. The interchange at the existing US-395 alignment would be kept and maintained to provide access to adjacent local properties. The same approach and methodology described earlier were applied to an LOS analysis for future 2019 (opening year) and 2039 (horizon year) build conditions with the realignment. The build analysis for the US-395 realignment included all three interchange configurations (L-2, L-7, and L-9) and their associated intersections.

With the interchange for the realigned US-395 in place as well as the interchange over the existing US-395 alignment, it is anticipated that the interchange for the new alignment would have a lower volume of traffic at all approaches than the volume identified in the previous analysis that was conducted for the existing alignment. It is anticipated that no more than five percent of the projected volume would occur at the interchange for the existing alignment; more than 95 percent would occur at the new interchange over the new alignment.

As shown in Tables 3.6-8 through 3.6-10, the mainline, ramps, and intersections at both the SR-58 interchange at the existing US-395 alignment and the SR-58 interchange at the easterly US-395 realignment would operate at LOS B or better during the AM and PM peak hours in 2039 (horizon year).

### Table 3.6-8: SR-58 Mainline Analysis Results, Future 2019 and 2039 Build Conditions (US-395 Realignment)

<table>
<thead>
<tr>
<th>Facility</th>
<th>2019 Build Conditions (AM/PM)</th>
<th>2039 Build Conditions (AM/PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Density (pc/mi/ln)</td>
<td>LOS</td>
</tr>
<tr>
<td>SR-58</td>
<td>Freeway</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.1/7.7</td>
<td>A/A</td>
</tr>
</tbody>
</table>

Pc/mi/ln = passenger cars per mile per lane and is a measure of traffic density

Table 3.6-9: SR-58 Ramps Analysis Results, Future 2019 and 2039 Build Conditions (US-395 Realignment)

<table>
<thead>
<tr>
<th>Facility</th>
<th>2019 Build Conditions (AM/PM)</th>
<th>Density (pc/mi/ln)</th>
<th>LOS</th>
<th>2039 Build Conditions (AM/PM)</th>
<th>Density (pc/mi/ln)</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-2 (Diamond)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EB Off-ramp</td>
<td>Diverge</td>
<td>5.6/8.6</td>
<td>A/A</td>
<td>EB On-ramp</td>
<td>6.5/8.6</td>
<td>A/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB Off-ramp</td>
<td>Diverge</td>
<td>3.6/5.0</td>
<td>A/A</td>
<td>WB On-ramp</td>
<td>9.1/11.9</td>
<td>A/B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-7 (Two-Quad Clover)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EB-Off-ramp</td>
<td>Diverge</td>
<td>5.6/8.6</td>
<td>A/A</td>
<td>EB-Off-ramp</td>
<td>6.5/8.6</td>
<td>A/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB Off-ramp</td>
<td>Diverge</td>
<td>3.6/5.0</td>
<td>A/A</td>
<td>WB On-ramp</td>
<td>9.1/11.9</td>
<td>A/B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-9 (Partial Clover)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EB Off-ramp</td>
<td>Diverge</td>
<td>5.6/8.6</td>
<td>A/A</td>
<td>EB On-ramp</td>
<td>6.4/8.3</td>
<td>A/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB Off-ramp</td>
<td>Diverge</td>
<td>3.6/5.0</td>
<td>A/A</td>
<td>WB On-ramp</td>
<td>8.9/11.7</td>
<td>A/B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB Loop On-ramp</td>
<td>Merge</td>
<td>9.1/11.9</td>
<td>A/B</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
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</tr>
</tbody>
</table>

Pc/mi/ln = passenger cars per mile per lane and is a measure of traffic density

Table 3.6-10: SR-58/US-395 Ramp Intersection Analysis Results, Future 2019 and 2039 Build Conditions (US-395 Realignment)

<table>
<thead>
<tr>
<th>Facility</th>
<th>2019 Build Conditions (AM/PM)</th>
<th>Delay (sec/veh)</th>
<th>LOS</th>
<th>2039 Build Conditions (AM/PM)</th>
<th>Delay (sec/veh)</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-2 (Diamond)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>11.0/14.9</td>
<td>B/B</td>
<td></td>
<td>North I/S (signal)</td>
<td>9.9/13.7</td>
<td>A/B</td>
</tr>
<tr>
<td>South I/S (signal)</td>
<td>9.5/10.7</td>
<td>A/B</td>
<td></td>
<td>South I/S (signal)</td>
<td>10.6/11.6</td>
<td>B/B</td>
</tr>
<tr>
<td>L-7 (Two-Quad Clover)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>10.0/11.1</td>
<td>B/B</td>
<td></td>
<td>North I/S</td>
<td>11.4/14.1</td>
<td>B/B</td>
</tr>
<tr>
<td>South I/S</td>
<td>9.8/11.1</td>
<td>A/B</td>
<td></td>
<td>South I/S (signal)</td>
<td>7.0/8.6</td>
<td>A/A</td>
</tr>
<tr>
<td>L-9 (Partial Clover)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I/S</td>
<td>9.9/10.7</td>
<td>A/B</td>
<td></td>
<td>North I/S</td>
<td>11.1/13.0</td>
<td>B/B</td>
</tr>
<tr>
<td>South I/S</td>
<td>9.7/11.1</td>
<td>A/B</td>
<td></td>
<td>South I/S (signal)</td>
<td>7.1/8.6</td>
<td>A/A</td>
</tr>
</tbody>
</table>

signal = analyzed as signalized intersection; all others analyzed as unsignalized two-way, stop-controlled intersections.

Under 2019 and 2039 build conditions, the SR-58 mainline is expected to operate at LOS B or better (under all three interchange configurations). All merge/diverge ramp facilities are also expected to operate at LOS B or better.
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.6. Human Environment—Traffic and Transportation/Pedestrian and Bicycle Facilities

The results of the traffic analysis for future 2019 and 2039 build conditions indicate that the SR-58/US-395 intersection would operate at LOS B or better. The results of the analyses for the three interchange configurations indicate that the mainline and ramps at the proposed SR-58 expressway as well as the new SR-58/US-395 interchange would operate at LOS B or better through 2039, either with the existing US-395 alignment or the new easterly alignment. Given that all three interchange designs would result in an acceptable LOS and performance, it is recommended that Caltrans consider the Type L-2 diamond interchange configuration because a smaller right-of-way would be required and the cost of construction would be less.

The Type L-2 interchange would be adaptable to the current SR-58/US-395 interchange. To avoid excessive queuing on northbound US-395, however, the north leg of the Type L-2 interchange would require two left-turn lanes on northbound US-395 and two receiving lanes on the westbound on-ramp. Safety benefits would be derived by maximizing sight distances and minimizing the grades.

ADA
Under all of the proposed build alternatives, pedestrian facilities would be designed to comply with ADA requirements and follow the design requirements outlined in Design Information Bulletin (DIB) 82-02. In addition, curb ramps would be provided at the Kramer Junction intersection.

Low-mobility groups have not been identified and, therefore, are not expected to be affected by the proposed project.

Non-Motorized and Pedestrian Features
There are no designated bicycle facilities in the project area. Pedestrian facilities include the sidewalks along SR-58 and US-395 in the immediate vicinity of Kramer Junction as well as the crosswalks at the Kramer Junction intersection. In general, bicycle and pedestrian activities in the project area are limited because of the rural character of the area and sparse development along SR-58.

Given that there are no bicycle facilities in the project area and no bicycle facilities are proposed as part of the project, there would be no effect on bicycle facilities or access. Alternative 1 would require reconstruction of the sidewalks as well as new pedestrian crossings at the Kramer Junction intersection. Upon completion of construction, sidewalks and pedestrian access would be restored, in compliance with ADA requirements.

Alternative 4—No-Build Alternative
Under the No-Build Alternative, no improvements would be made to SR-58 or the Kramer Junction intersection. The results of the analyses conducted indicate that, under existing conditions (2010), the SR-58 highway segment within the study area operates at LOS D during the AM peak hour and at LOS E during the PM peak hour (see Tables 1-7) and the Kramer Junction intersection operates at LOS C during the AM and PM peak hours (see Tables 1-8). Queue lengths range from four vehicles at the southbound intersection approach during the weekday and weekend AM peak hour to 13 vehicle at the northbound intersection approach during the weekday PM peak hour.
Table 3.6-1 summarizes LOS under existing (2010), 2019 (build opening year), and 2039 (horizon year) conditions. As shown in Table 1-7, under future 2019 no-build conditions, the SR-58 highway segment would operate at LOS E during the AM and PM peak hours, and Kramer Junction would operate at LOS C in the AM peak hour and LOS D during the PM peak hour (see Table 1-8). Maximum queue lengths would exceed 20 vehicles under 2039 no-build conditions (see Table 1-12), the SR-58 highway segment and Kramer Junction would operate at LOS E during the AM peak hour and LOS F during the PM peak hour. Maximum queue lengths would exceed 35 vehicles. Continuing local development and increasing traffic volumes will add to traffic delay and inconvenience. This alternative fails to address the problems identified within this segment of SR-58.

3.6.3.2 Temporary Impacts

**Build Alternatives 1, 1A, 2, and 3**

For all build alternatives (Alternatives 1, 1A, 2, and 3), SR-58, which is a two-lane highway within the limits of the proposed project, is expected to remain open to traffic during the construction period. Detailed construction plans will be prepared during the design phase.

The intersection at Kramer Junction is used primarily by regional travelers, residents, and emergency service providers who travel on SR-58 and US-395. SR-58 is a state-recognized international trade corridor and a focus route (Caltrans 2013a). It is also the center of both local and cross-jurisdictional travel when emergency aid is requested. In addition, SR-58 is a commercial bus corridor that allows travel between Barstow and Bakersfield and points beyond. As such, at least one lane in each direction must remain open at all times during construction.

Although there are no emergency service facilities in the project study area, project construction may result in temporary traffic delays that could increase response times for emergency responders. Adoption of mitigation measure **TR-1** (see Section 3.6.4 below), which is standard for all Caltrans projects, would ensure that potential project effects on emergency services would not be substantial adverse effects under NEPA. This measure requires, for all build alternatives, preparation of a traffic management plan (TMP). The TMP will facilitate coordination with law enforcement, the California Highway Patrol (CHP), fire protection services, emergency service providers, and the public during the design phase and prior to construction. Key elements of a TMP include public awareness, motorist information strategies, and alternate route strategies, which are intended to minimize traffic delay and maintain access to key facilities throughout construction.

Upon completion of construction, each of the build alternatives would result in improved traffic circulation, a safer interchange, and improved access.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, grade separation, highway realignment, and/or the construction of a new Kramer Junction interchange would not occur. In addition, temporary impacts due to construction would not occur.
3.6.4 Avoidance, Minimization, and/or Mitigation Measures

- **TR-1:** Caltrans will prepare a TMP to ensure that local and regional traffic moves efficiently during construction. The TMP and the construction plans will be provided to community agencies, such as the fire department, prior to project commencement. The information provided will include access and traffic management plans that describe any projected temporary street closures or expected traffic delays due to construction vehicles on the roadways.

The following elements will be major components of the project TMP:

a. A public awareness campaign related to the scheduling of work;

b. A construction zone enforcement enhancement program (COZEEP);

c. Use of portable changeable message signs (PCMS);

d. Advance information signing that will communicate the date, time, and duration of ramp closures;

e. Plan road closures to minimize impacts on local circulation to the maximum extent feasible; and

f. Preparation of temporary detour plans, if needed, during the plans, specifications, and estimates (PS&E) phase of the project. (Note: No detours are anticipated at this time.)
3.7 Visual/Aesthetics

3.7.1 Regulatory Setting

3.7.1.1 Federal and State Regulations

The National Environmental Policy Act (NEPA) of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the State to take all action necessary to provide the people of the State “with…enjoyment of aesthetic, natural, scenic and historic environmental qualities” (Public Resources Code [PRC] Section 21001[b]).

3.7.2 Affected Environment

Unless otherwise noted, the information from this section was synthesized from the November 2007 Visual Impact Assessment (VIA) prepared for the proposed project (Caltrans 2007a). References used in the VIA are not carried over into this section.

The project area consists of a 13.3-mile segment of SR-58 located in the Mojave Desert portion of San Bernardino County. The proposed realignment would occur east and west of Kramer Junction—which is the intersection of SR-58 and US-395—commencing just east of the San Bernardino County line (at KP 0.48/PM 0.30), and ending seven and one-half miles east of Kramer Junction (at KP 21.2/PM 13.2). Boron is the town nearest to the project area. It is a small unincorporated community of approximately 2,000 residents, and it is located approximately six miles west of Kramer Junction, in Kern County. Approximately 16 miles to the east of Kramer Junction is the unincorporated town of Hinkley. It is located more than eight miles and is not visible from the eastern end of the proposed project. Hawes Auxiliary Army Airfield is located south of the eastern end of the SR-58 segment.

Kramer Junction is developed with a small number of highway-oriented commercial uses, including gas stations and gas station–related convenience stores and restaurants. One motel (Relax Inn Motel), an antiques store, the Mojave Desert Cactus Shop, and a small number of residential buildings occur adjoining the intersection of SR-58 and US-395. These include three homes located north of the BNSF railroad crossing, and one home located south of SR-58 and west of US-395. These residences are at least 100 to 150 feet from the highway. Abandoned modest residences and commercial buildings are found farther east along SR-58. The BNSF railroad tracks run parallel to SR-58 just north of these uses at Kramer Junction, but this loosely
parallel alignment does not continue to the western and eastern ends of the project area. Farther north, the Kramer Junction Solar Electric Generating System power plant occurs along the west side of US-395. To the northeast there is a Chevron gas station, and to the northwest there is a pottery business. West of the pottery business is vacant land. Farther northeast of Kramer Junction are residential uses, including a home, an abandoned residential motel, and vacant land.

At the southeast corner of Kramer Junction there is a 76 gas station, with the Roadside Restaurant and the Way Station mini-mart adjoining it. The Relax Inn motel is east of the mini-mart. Farther east there are vacant lands and an Arco AM/PM gas station. A Burger King restaurant, Gifts Outlet, Mojave Desert Cactus Shop, and a residence are south of the Roadside Restaurant.

At the southwest corner of Kramer Junction is the Pilot Travel Center, a truck stop consisting of a truck scale and Subway restaurant. South of these commercial uses at Kramer Junction is Caltrans’ Beecher’s Corner Highway Maintenance Station and a large electrical substation. Edwards Air Force Base borders these uses on the south.

Most of the development at Kramer Junction dates from the mid-twentieth century, or the more recent past, and is of commonplace design typical of much of the small-scale, highway-oriented development found across the Mojave Desert in San Bernardino County. Tall power transmission towers, as well as other electrical transmission lines on more typical wooden poles, are visually prominent features at Kramer Junction. The power towers run in a north/south direction along the west side of US-395. A smaller concentration of electrical lines on wooden poles can be found along the east side of US-395; these generally follow a north/south alignment.

A short distance away from Kramer Junction (within one-third mile) in each direction is open land. Much of the open land south and southwest of Kramer Junction falls within the 470-square-mile Edwards Air Force Base installation. Also located in the far south, and within the viewshed, there are settling ponds and vacant land. Approximately four to six miles north of Kramer Junction along US-395 are the Boron Air Force Station and the former Boron Air Force Station/Radar Facility.

The community of Boron, located approximately six miles to the west of Kramer Junction, includes small clusters of small businesses, custom-built single-family homes on large lots, and community facilities.

The Harper Valley and an undefined watershed occur to the east of the project alignment. The Mojave River, the nearest substantial watercourse, runs north and northwesterly from the Mojave River Forks Dam at the San Bernardino Mountains, across the Mojave Desert to the area southeast of Hinkley, then turns east and northeasterly to the Mojave River Wash near Barstow. The Mojave River is not visible from the project area.

Although the segment of SR-58 within the project limits is not currently an officially designated Scenic Highway, the portion of SR-58 from SR-14 in Kern County to the I-15 junction in Barstow (including the project limits) is identified by the county as an “Eligible State Scenic Route” in the list of Eligible State Scenic Routes in San Bernardino County.
Outside Kramer Junction and Boron, the landscape consists of open land typical of the High Desert region and Mojave desert scrub vegetation. Close-up and mid-frame views are of flat-to-gently rolling land featuring sandy soil dotted with Mojave creosote bush scrub, desert saltbush scrub, rabbit bush scrub, and ruderal vegetation. There is a single Joshua tree on the south side of SR-58, east of the Arco gas station. Because Joshua trees are a noteworthy and visually striking local native plant species, this tree is considered a visual resource, as are the views of the local foothill/mountain ridgelines.

Views across the project viewshed are framed on the north and south by mountains. These include Mount General, Lynx Cat Mountain, Black Mountain, and distant mountain ridgelines north of existing SR-58. The southern panoramic views are comprised of the Kramer Hills, Iron Mountain, Silver Mountain, Stoddard Mountain, and the ridgeline of the Shadow Mountains.

### 3.7.3 Evaluation of Key Views

This analysis utilizes the methodology provided in the FHWA publication *Visual Impact Assessment for Highway Projects* (1988). It provides an analytical framework for identifying and assessing qualitative changes to the visual environment that could be introduced as part of a transportation project. The process includes the following steps:

- Defining the project setting and viewshed.
- Identifying the key view for visual assessment.
- Assessing existing visual resources and viewer response.
- Depicting the visual appearance of the project alternatives.
- Assessing the changes to visual resources while predicting viewer response to those changes.
- Assessing the visual impacts of project alternatives.
- Proposing methods to mitigate adverse visual impacts.

The FHWA guidelines provide an evaluative framework that defines the visual setting in terms of *landscape units* and/or *key views*. A *landscape unit* is a specific portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character. A landscape unit often corresponds to a place or district that is commonly known among local viewers. The landscape unit approach is useful when a highway project traverses visually distinct settings that can be readily defined geographically.

A *key view* is a point from which a select view is analyzed from the perspective of potential viewer groups. The key view approach is used in this analysis because of the largely homogenous character of the *viewshed* along the project corridor.

A *viewshed* comprises all the surface areas visible from an observer’s viewpoint. The limits of a viewshed are defined as the visual limits of the views from the proposed project and build alternatives; it also includes the locations of viewers likely to experience the changes brought about by the proposed project.
This analysis focuses on changes in visual character (e.g., descriptive, non-evaluative characteristics such as land use, topography, scale, form, and color) and visual quality (e.g., a subjective assessment of the aesthetics of a view based on the vividness, intactness, and unity of the view) and assesses them with respect to anticipated viewer response.

### 3.7.3.1 Key Views and Viewer Groups

Because it is not feasible to analyze all the views in which the proposed project can be seen, it is necessary to select a number of key viewpoints that would most clearly display the project’s potential visual effects. Key views also represent the primary viewer groups that would potentially be affected by the proposed project. This analysis identified 15 viewpoints (key observation points or KOPs) that were considered most sensitive to viewers, as well as the most common public views that can be acquired along the project alignment (see Figures 3.1.1 through 3.7.15). Consistent with FHWA visual analysis methodology, these 15 KOPs were analyzed in the 2007 Visual Impact Assessment.

Viewers include persons who reside and work in/or travel through the area along SR-58 and US-395—truck drivers, commuters, persons driving for pleasure, and residents—as well as employees and patrons of local businesses. With the exception of school playfields, there are no recreation areas or parks within the project corridor viewshed, and despite the status of the project portion of SR-58 being an “Eligible State Scenic Route,” there are no officially designated bikeways within the project limits (County of San Bernardino 2007a). Bicyclists—a sensitive viewing group that selects destinations based on visual quality—are therefore not presumed to be present to any numerically important degree.

The visual quality of each KOP is rated as the average of three criteria: vividness, intactness, and unity, as shown in the table following each view on a scale of one to seven. Seven is a very high rating for visual quality and indicates a high degree of vividness, intactness, or unity; five indicates a moderately high level of visual quality; while two and one are equivalent to low and very low visual quality, respectively. Vividness ratings are based on the presence or absence of natural landscape with desert sand and vegetation, and the degree to which views of far-off mountain ridgelines—the key visual resource in this setting—can be readily acquired. Intactness ratings are based on the presence or absence of human-made (anthropogenic) structures in this otherwise largely natural setting. Unity ratings are based on the overall compositional harmony of the landscape and anthropogenic structures present in it.

The criteria of vividness, intactness, and unity have equal weight in assessing visual quality of a landscape, as provided in the equation for the rating of visual quality:

\[
\text{Visual Quality} = \text{Vividness} + \text{Intactness} + \text{Unity}
\]

The following qualitative rating scale was applied to views at each key observation point to objectively evaluate existing visual quality:

1. Very Low
2. Low
3. Moderately Low
4. Moderate
5. Moderately High
6. High
7. Very High

A discussion of what is seen in the views at each of the 15 KOPs, and the visual quality rating of each, follows. Please note that the photographs and simulated views are found under separate cover as part of the 2007 Visual Impact Assessment. The KOPs correspond to the 2007 VIA Viewpoints as follows:

- KOP1 = VIA Viewpoint 1
- KOP 2 = VIA Viewpoint 2
- KOP 3 = VIA Viewpoint 3
- KOP 4 = VIA Viewpoint 4
- KOP 5 = VIA Viewpoint 5
- KOP 6 = VIA Viewpoint 6
- KOP 7 = VIA Viewpoint 7
- KOP 8 = VIA Viewpoint 8
- KOP 9 = VIA Viewpoint 9
- KOP 10 = VIA Viewpoint 10
- KOP 11 = VIA Viewpoint 11
- KOP 12 = VIA Viewpoint 12
- KOP 13 = VIA Viewpoint 13
- KOP 14 = VIA Viewpoint 14
- KOP 15 = VIA Viewpoint 15
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Viewpoint 1: Southbound Traveler’s View of Proposed Interchange Location for Northern Alignment

Figure 3.7.1
VIEWPOINT 1
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.7. Human Environment—Visual/Aesthetics

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Viewpoint 2: Westbound Traveler’s View of Proposed Interchange Location for Northern Alignment

Figure 3.7.2
VIEWPOINT 2
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Viewpoint 3: Northbound Traveler’s View of Proposed Interchange Location for Northern Alignment

Figure 3.7.3
VIEWPOINT 3
Section 3.7. Human Environment—Visual/Aesthetics

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Viewpoint 4: Eastbound Traveler’s View of Proposed Interchange Location for Northern Alignment

Figure 3.7.4
VIEWPOINT 4
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.7. Human Environment—Visual/Aesthetics

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Viewpoint 5: Westbound Traveler’s View of Proposed Railroad Grade Separation for Northern Alignment

Figure 3.7.5
VIEWPOINT 5
Section 3.7. Human Environment—Visual/Aesthetics

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Viewpoint 6: Southbound Traveler’s View of Proposed Interchange Location for Existing SR-58 Alignment

Figure 3.7.6
VIEWPOINT 6
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Viewpoint 7: Westbound Traveler’s View of Proposed Interchange Location for Existing SR-58 Alignment

Figure 3.7.7
VIEWPOINT 7
Viewpoint 8: Northbound Traveler’s View of Proposed Interchange Location for Existing SR-58 Alignment

Figure 3.7.8
VIEWPOINT 8
Viewpoint 9: Eastbound Traveler's View of Proposed Interchange Location for Existing SR-58 Alignment

Figure 3.7.9
VIEWPOINT 9
Viewpoint 10: Westbound Traveler’s View of Proposed Railroad Grade Separation for Existing SR-58 Alignment

Figure 3.7.10
VIEWPOINT 10
Viewpoint 11: Southbound Traveler’s View of Proposed Interchange Location for Southern Alignment

Figure 3.7.11
VIEWPOINT 11
[this page left blank intentionally]
Viewpoint 12: Westbound Traveler’s View of Proposed Interchange Location for Southern Alignment

Figure 3.7.12
VIEWPOINT 12
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Viewpoint 13: Northbound Traveler’s View of Proposed Interchange Location for Southern Alignment

Figure 3.7.13
VIEWPOINT 13
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Viewpoint 14: Eastbound Traveler's View of Proposed Interchange Location for Southern Alignment

Figure 3.7.14
VIEWPOINT 14
Section 3.7: Human Environment—Visual/Aesthetics

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Viewpoint 15: Westbound Traveler’s View from Existing SR-58 of Proposed Railroad Grade Separation for Southern Alignment
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.7. Human Environment—Visual/Aesthetics

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project
KOP 1—US-395, View South at Location of the Northerly Alignment

As shown in Figure 3.7.1, KOP 1 documents the view seen by southbound travelers on US-395 at the location of the interchange where the northerly alignment would cross it under Alternative 1 and Alternative 1A. The roadway is dominant in the view, and the number and height of the power transmission lines on the west side of the road break up the view to a large degree. The horizontal line elements seen in the roadway configuration, and the largely flat topography, are contrasted by the vertical line elements of the electrical power towers and transmission poles, as well as the curvilinear line elements present in the foothill ridgelines that terminate the view on the south. There are numerous signs, service structures, tanks, and other features of a utilitarian nature that serve to diminish overall unity of the view.

Although gray is the dominant color in the view, there are gradations of gray coloration, ranging from the strong dark gray color of the asphalt paving, the medium gray/blue color of the far-off mountains, to the light gray/tan color of the bare soil. Typical green/gray-colored desert scrub growth is present and provides a strong element of contrasting texture.

Vividness

Ridgeline views of distant hills are an important local visual resource and provide a strong contrast to the subdued horizontal landforms in the foreground and mid-frame portions of the view. The presence of groundcover elements in the foreground and mid-frame; the mountain ridgelines, which form a strong backdrop element in the view; the gradation in color; and the contrast in texture between existing soil and the areas of vegetation all serve to lend the view a moderate degree of vividness. Vividness is thus rated moderate (4.0).

Intactness

There are a number of anthropogenic elements in the view. Many of these, including the electrical transmission lines, storage tanks, utilitarian structures, and numerous signs, detract from the intactness of the visual components of the view. Existing intactness is therefore rated moderately low (3.0).

Unity

Although the consistent foreground to mid-frame to background color produces a view with high color unity, and the open, flat topography and the road combine visually to link the landscape elements, the presence of numerous anthropogenic elements of low aesthetic value—signage, power transmission towers, utilitarian structures—reduces visual unity in the view. Existing unity is thus rated moderately low (3.0).

KOP 2—View West Towards the US-395 Interchange, Northerly Alignment

As shown in Figure 3.7.2, KOP 2 documents the view seen from the undeveloped lands north of the existing SR-58 where the proposed northerly alignment would occur, and looks west towards the US-395 interchange as proposed under Alternatives 1 and 1A. Desert scrub
vegetation is a prominent visual element in the foreground and mid-frame, lending a coarse texture and gray/green coloration in the view. Electrical transmission power towers on tall steel trusses and other shorter power lines provide a strong contrasting vertical element. Utilitarian buildings and service structures, and the open sky, form the backdrop to the view. The vividness in the view is conveyed by the relatively flat terrain, and generally vacant landscape, with its gray/green desert scrub vegetation. However, there are some obtrusive anthropogenic backdrop elements of a utilitarian nature (service structures, tanks, etc.) that serve to diminish overall unity of the view.

**Vividness**

The largely undeveloped open space in the foreground and mid-frame views, and the wide open sky, provide a moderately high degree of vividness, distinct from the clutter of anthropogenic backdrop elements. The presence of vegetation in the foreground and mid-frame portions of the view, the slight topographic variation, the gradation in color, the open sky, and the contrast in texture between bare soil and the areas of vegetation all serve to lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0).

**Intactness**

There are some obtrusive anthropogenic elements in the backdrop portion of the view. These, including the electrical transmission lines, storage tanks, and other utilitarian structures, detract from the overall intactness of the visual components of the view witnessed in the far-off portions of the view. Existing intactness is therefore rated moderately low (3.0).

**Unity**

Although the anthropogenic elements in the foreground and mid-frame detract from the overall compositional harmony of the view, consistent foreground to mid-frame color produces a view with moderate color unity. Combined with the open terrain and the expansive sky, these create moderate visual unity. Existing unity is thus rated as moderate (4.0).

**KOP 3—US-395, View North at Location of the Northerly Alignment**

As shown in Figure 3.7.3, KOP 3 documents the view seen by northbound travelers on US-395 at the location of the interchange where the northerly alignment would cross it under Alternatives 1 and 1A. The roadway and the sky are dominant in the view, and the view terminates at the horizon across a slightly undulating terrain. Low foothills and mountains frame the backdrop view at the left and right. A small number of the power transmission lines on the west side of the road break up the view to a moderate degree. The horizontal line elements seen in the roadway configuration, and the flat-to-rolling terrain, are only slightly contrasted by the vertical line elements of the electrical power towers and transmission poles. The curvilinear line elements present in the foothills and mountain ridgelines provide another slight contrasting feature. In mid-frame, there are some obtrusive anthropogenic elements of a utilitarian nature (signs, service structures, tanks, etc.) that serve to diminish overall unity of the view.
As is the case at KOP 1, gray is the dominant color in the view; however, there are gradations of gray coloration, ranging from the strong dark gray color of the asphalt paving, the medium gray/blue color of the far-off mountains, to the light gray/tan color of the bare soil. Typical green/gray-colored desert scrub vegetation is present and provides a minor element of contrasting texture in the view.

**Vividness**

The slightly undulating topography, the largely undeveloped open space captured in the far-off views, and the wide expansive sky provide a moderately high degree of vividness, distinct from the clutter of anthropogenic elements in the foreground and mid-frame portions of the view. The presence of vegetation in the mid-frame and far-off portions of the view; the slight topographic variation; the gradation in color; the expansive sky; and the contrast in texture between bare soil and the areas of vegetation all serve to lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0).

**Intactness**

There are some obtrusive anthropogenic elements in the foreground portion of the view. These, including the electrical transmission lines, storage tanks, utilitarian structures, and numerous signs, detract from the overall intactness of the visual components of the view witnessed in the far-off portions of the view. Existing intactness is therefore rated moderate (4.0).

**Unity**

Although the anthropogenic elements in the foreground and mid-frame detract from the overall compositional harmony of the view, consistent foreground to mid-frame background color produces a view with high color unity. Combined with the open, slightly undulating topography and the expansive sky, these create moderate visual unity. The road visually links the landscape elements, serving to further enhance visual unity in the view. Existing unity is thus rated as moderate (4.0).

**KOP 4—View East Towards the US-395 Interchange, Northerly Alignment**

As shown in Figure 3.7.4, KOP 4 documents the view seen from the undeveloped lands north of the existing SR-58 where the proposed northerly alignment would occur, and looks east towards the US-395 interchange as proposed under Alternatives 1 and 1A. Desert scrub vegetation is a prominent visual element in the foreground and mid-frame, lending a coarse texture and gray/green coloration in the view. Electrical transmission power towers on tall steel trusses and other shorter power lines provide a strong contrasting vertical element. Utilitarian buildings and service structures, and the open sky, form the backdrop to the view. The vividness in the view is conveyed by the relatively flat terrain, and generally vacant landscape, with its gray/green desert scrub vegetation. However, there are some obtrusive anthropogenic backdrop elements of a utilitarian nature (service structures, tanks, etc.) that serve to diminish overall unity of the view but are off in the distance and somewhat peripheral to the viewer.
Vividness

The largely undeveloped open space in the foreground and mid-frame views, and the wide open sky provide a moderately high degree of vividness, distinct from the clutter of anthropogenic backdrop elements. The presence of vegetation in the foreground and mid-frame portions of the view, the slight topographic variation, the gradation in color, the open sky, and the contrast in texture between bare soil and the areas of vegetation all serve to lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0).

Intactness

There are some obtrusive anthropogenic elements in the backdrop portion of the view. These, including the electrical transmission lines, storage tanks, and other utilitarian structures, detract from the overall intactness of the visual components of the view witnessed in the far-off portions of the view. Existing intactness is therefore rated moderate (4.0).

Unity

Although the anthropogenic elements in the foreground and mid-frame detract from the overall compositional harmony of the view, consistent foreground to mid-frame color produces a view with moderate color unity. Combined with the open terrain and the expansive sky, these create moderate visual unity. Existing unity is thus rated as moderate (4.0).

**KOP 5—Westbound Motorists’ View of Railroad Crossing, Northerly Alignment**

As shown in Figure 3.7.5, KOP 5 documents the view seen by westbound travelers on SR-58 just west of the location where Alternative 1 would diverge from the existing SR-58 alignment. At present, the vantage shows open land with desert scrub vegetation; no structures are present in the foreground portion of the view. In the view, there are also dirt roads that lead to the BNSF railroad. Although absent in the foreground, low buildings, power lines, and power towers are visible in the far-off distance, as is a portion of the existing SR-58 roadway, along with its vehicles (mid-frame on the left). The desert sand, scrub vegetation, and the expansive sky are dominant in the view, and the view terminates at the horizon across a slightly undulating terrain. The curvilinear line elements present in the foothills and buttes are a far-off contrasting feature of minor importance.

Gray and gray/green are the dominant colors in the view, ranging from the medium gray/blue color of the far-off foothills and buttes to the light gray/tan color of the bare soil. Typical green/gray-colored desert scrub vegetation is present and provides a minor element of contrasting texture in the view.

Vividness

The slightly undulating topography, the largely undeveloped open space, and the wide expansive sky provide a moderately high degree of vividness. The presence of vegetation and the contrast in texture between bare soil and the areas of vegetation also lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0).
**Intactness**

There are only minor anthropogenic elements in the foreground and mid-frame portions of the view. These, including the presence of SR-58 and the far-off buildings and power transmission elements, detract only slightly from the overall intactness of the visual components of the view. Existing intactness is therefore rated moderately high (5.0).

**Unity**

Although the anthropogenic elements in mid-frame and far-off portions of the view detract from overall compositional harmony of the view, consistent foreground-to-mid-frame background color produces a view with high color unity. Combined with the open, slightly undulating topography and the expansive sky, these create moderate visual unity. The road visually links the landscape elements, serving to further enhance visual unity in the view. Existing unity is thus rated as moderate (4.0).

**KOP 6—US-395, View South at Location of the Existing Alignment**

As shown in Figure 3.7.6, KOP 6 documents the view seen by southbound travelers on US-395 at the location of the interchange where the existing alignment would cross it under Alternative 2. The roadway is dominant in the view, and the number and height of the power transmission lines on the west side of the road break up the view to a large degree. The horizontal line elements seen in the roadway configuration in the foreground portion of the view are contrasted by the vertical line elements of the electrical power towers and transmission poles, as well as the curvilinear line elements present in the foothill ridgelines that terminate the view in the south and the slightly undulating terrain in the mid-frame portion of the view. There are numerous signs, service structures, tanks, and other features of a utilitarian nature that serve to diminish overall unity of the view.

Although gray is the dominant color in the view, there are gradations of gray coloration, ranging from the strong dark gray color of the asphalt paving, to the medium gray/blue color of the far-off mountains, to the light gray/tan color of the bare soil. Typical green/gray-colored desert scrub growth is present and provides a strong element of contrasting texture.

**Vividness**

Ridgeline views of distant hills are an important local visual resource and provide a strong contrast to the more subdued horizontal and slightly rolling landforms in the foreground and mid-frame portions of the view. The presence of groundcover elements in the foreground and mid-frame; the mountain ridgelines, which form a strong backdrop element in the view; the gradation in color; and the contrast in texture between existing soil and the areas of vegetation all serve to lend the view a moderate degree of vividness. Vividness is thus rated moderate (4.0).

**Intactness**

There are a number of anthropogenic elements in the view. Many of these, including the electrical transmission lines, storage tanks, utilitarian structures, and numerous signs, detract from the intactness of the visual components of the view. Existing intactness is therefore rated moderately low (3.0).
Unity

Although the consistent foreground to mid-frame to background color produces a view with high color unity, and the open, flat to slightly rolling topography and road combine visually to link the landscape elements, the presence of numerous anthropogenic elements of low aesthetic value—signage, power transmission towers, utilitarian structures—reduce visual unity in the view. Existing unity is thus rated moderately low (3.0).

KOP 7—View West Towards the US-395 Interchange, Existing Alignment

As shown in Figure 3.7.7, KOP 7 documents the view seen from the undeveloped lands north of the existing SR-58 where the proposed northerly alignment would occur, and looks west towards the US-395 interchange as proposed under Alternative 2. Disturbed ground and desert scrub vegetation is a prominent visual element in the foreground and mid-frame, lending a coarse texture and gray/green coloration in the view. Electrical transmission power towers on tall steel trusses and other shorter power lines provide a strong contrasting vertical element. Utilitarian buildings and service structures, and the expansive open sky, form the backdrop to the view. The vividness in the view is conveyed by the relatively flat terrain and generally vacant landscape, with its gray/green desert scrub vegetation. However, there are some obtrusive anthropogenic backdrop elements of a utilitarian nature (service structures, tanks, etc.) that serve to diminish overall unity of the view.

Vividness

The largely undeveloped open space in the foreground and mid-frame views, and the wide open sky, provide a moderately high degree of vividness, distinct from the clutter of anthropogenic backdrop elements. The presence of vegetation in the foreground and mid-frame portions of the view, the slight topographic variation, the gradation in color, the open sky, and the contrast in texture between bare soil and the areas of vegetation all serve to lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0).

Intactness

There are some obtrusive anthropogenic elements in the backdrop portion of the view. These, including the electrical transmission lines, storage tanks, and other utilitarian structures, detract from the overall intactness of the visual components of the view. Existing intactness is therefore rated moderate (4.0).

Unity

Although consistent foreground to mid-frame color produces a view with moderate color unity, anthropogenic elements in the foreground and mid-frame detract from the overall compositional harmony of the view. Combined with the open terrain and the expansive sky, these create views that possess only moderate visual unity. Existing unity is thus rated as moderately low (3.0).
**KOP 8—US-395, View North at Location of the Existing SR-58 Alignment**

As shown in Figure 3.7.8, KOP 8 documents the view seen by northbound travelers on US-395 south of Kramer Junction at the location of the interchange where the existing alignment would cross it under Alternative 2. The roadway and its wide open shoulders are dominant in the view. The SCE substation, with its chain-link fencing and utilitarian design elements, is also prominent in the mid-frame portion of the view (on the left), and the height of the power transmission lines on the west side of the road add strong vertical line elements that break up the view to a moderate degree. A small stand of evergreen trees adds another contrasting vertical line element on the right. Horizontal line elements seen in the roadway configuration, and the flat-to-slightly rolling topography, are contrasted by the expansive open sky, as well as scattered glimpses of distant buttes and foothills that terminate the view on the north. There are some signs, service structures, commercial buildings, and other features of a utilitarian nature that serve to diminish overall unity of the view.

The gray color of the road pavement and tan/gray color of the bare soil are dominant in the view, contrasted by the evergreen color of the trees and the expansive blue color of the sky. The trees provide an element of contrasting texture.

**Vividness**

The view is not highly vivid as the various competing visual components do not combine in ways that are striking or memorable. The natural elements (vegetation) are limited and anthropogenic features of utilitarian and disparate design are more dominant in the foreground and mid-frame portions of the view. However, distant hills and buttes form a strong backdrop to the view, and combined with the expansive open sky, convey a moderate degree of vividness. Vividness is thus rated as moderately high (5.0).

**Intactness**

There are a number of anthropogenic elements in the view. Many of these, including the electrical transmission lines, utilitarian structures, and signs, detract from the intactness of the visual components of the view. Existing intactness is therefore rated low (3.0).

**Unity**

The view possesses only a moderate level of color unity. In addition, the presence of numerous anthropogenic elements of low aesthetic value—signage, power transmission towers, and utilitarian structures—reduces visual unity in the view. Combined with the open, flat topography, the road serves to visually link the disparate landscape elements. Existing unity is thus rated low (3.0).

**KOP 9—SR-58, View East Towards Kramer Junction, Existing SR-58 Alignment**

As shown in Figure 3.7.9, KOP 9 documents the view seen by eastbound travelers on SR-58 along the route of the existing alignment as it approaches Kramer Junction under Alternative 2. The roadway and its wide open bare earth/gravel shoulders are dominant in the view. The
disparate commercial buildings at Kramer Junction, pole signage, and power generation facilities—with their chain-link fencing high power towers and other utilitarian design elements—are also prominent in the mid-frame portion of the view (on both the right and left), adding strong vertical line elements that break up the view to a moderate degree. Horizontal line elements seen in the roadway configuration, and the flat-to-slightly rolling topography, are contrasted by the expansive open sky, as well as scattered glimpses of distant buttes and foothills that terminate the view on the east. The signs, service structures, commercial buildings, and other features are of a utilitarian nature that serve to diminish overall unity of the view. However, the presence of desert scrub vegetation in the foreground on both sides of the highway adds a moderate element of vividness to the view.

The gray color of the road pavement, tan/gray color of the bare soil, and the gray/green color of the scrub vegetation and are dominant in the view, contrasted by the expansive blue color of the sky. The scrub vegetation also provides an element of contrasting texture.

**Vividness**

The view is not highly vivid as the various competing visual components do not combine in ways that are striking or memorable. The desert scrub vegetation is limited to the foreground and is uniform in coloration and texture, and the anthropogenic features of utilitarian and disparate design are more dominant in the mid-frame portions of the view. Vividness is thus rated moderate (4.0).

**Intactness**

There are a number of anthropogenic elements in the view. Many of these, including the electrical transmission lines, utilitarian structures, and signs, detract from the intactness of the visual components of the view. Existing intactness is therefore rated low (3.0).

**Unity**

The view possesses only a moderate level of color unity. In addition, the presence of anthropogenic elements of low aesthetic value in the mid-frame portion of the view—signage, power transmission towers, and utilitarian structures—reduces visual unity in the view. Although the open, flat topography, when combined with the road, serves to visually link the landscape elements, due to the presence of desert scrub vegetation in the foreground unity is rated moderate (4.0).

**KOP 10—Eastbound Motorists’ View of Railroad Crossing, Existing Alignment**

As shown in Figure 3.7.10, KOP 10 documents the view seen by eastbound travelers on SR-58 just west of the location under Alternative 2 where SR-58 makes a sweeping left turn and approaches the BNSF railroad crossing. At present, the vantage shows open land with desert scrub vegetation; no structures are present in the foreground portion of the view. The desert sand, scrub vegetation, and expansive sky are dominant in both the foreground and mid-frame portions of the view, and the view terminates at the horizon across a slightly undulating terrain. Clusters of mature trees in the mid-frame portion of the view and the curvilinear line elements present in
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the far-off foothills and buttes provide a contrasting feature of minor importance. In the distance, railroad crossing arms, signs, and lights are visible, along with power lines on poles and a small number of buildings. The view is intact and is typical of the rural desert landscape in the project area.

Gray and gray/green are the dominant colors in the view, ranging from the medium gray/blue color of the far-off foothills and buttes to the light gray/tan color of the bare soil. Typical green/gray-colored desert scrub vegetation is present and provides a minor element of contrasting texture in the view.

**Vividness**

The largely undeveloped open space, the presence of buttes and foothills as far-off elements, and the wide expansive sky provide a moderately high degree of vividness. The presence of vegetation and the contrast in texture between bare soil and the areas of vegetation also lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0).

**Intactness**

There are only minor anthropogenic elements in the mid-frame portions of the view. These, including the presence of SR-58 and the far-off buildings and power transmission elements, detract only slightly from the overall intactness of the visual components of the view. Existing intactness is therefore rated moderate (4.0).

**Unity**

Although the anthropogenic elements in mid-frame and far-off portions of the view detract from overall compositional harmony of the view, consistent foreground-to-mid-frame background color produces a view with high color unity. Combined with the open landscape and the expansive sky, these create moderate visual unity. The road visually links the landscape elements, serving to further enhance visual unity in the view. Existing unity is thus rated as moderate (4.0).

**KOP 11—US-395, View South at Location of the Southerly Alignment**

As shown in Figure 3.7.11, KOP 11 documents the view seen by southbound travelers on US-395 south of Kramer Junction looking south towards the location of the interchange where the southerly alignment would cross it under Alternative 3. The roadway and its wide open shoulders are dominant in the view. The southern portion of the SCE substation, with its chain-link fencing and utilitarian design elements, is also prominent in the foreground portion of the view (on the right), and the numerous electrical power transmission towers on the west side of the road and telephone poles on the east side of the road add strong vertical line elements that break up the view to a moderate degree. There is also desert scrub vegetation in the view at mid-frame. Horizontal line elements seen in the roadway configuration, and the flat-to-slightly rolling topography, are contrasted by the strong curvilinear form of the far-off Kramer Hills that terminate the view on the south. There are some signs, service structures, and other features of a utilitarian nature that serve to diminish overall unity of the view.
The gray color of the road pavement and tan/gray color of the bare soil are dominant in the view, contrasted by the blue/gray color of the foothills, gray/green color of the scrub vegetation, and the blue color of the sky. The scrub vegetation provides an element of contrasting texture.

**Vividness**

Ridgeline views of distant mountains are an important local visual resource and provide a strong contrast to the subdued horizontal landforms in the foreground and mid-frame portions of the view. The presence of groundcover elements in the mid-frame; the foothill ridgelines, which form a strong backdrop element in the view; the gradation in color; and the contrast in texture between existing soil and the areas of vegetation all serve to lend the view a moderate degree of vividness typical of the regional desert landscape. Vividness is thus rated moderately high (5.0), despite the various competing anthropogenic visual components present in the foreground portion of the view.

**Intactness**

There are various anthropogenic elements in the view. Many of these, including the electrical transmission lines, telephone poles, utilitarian structures, and signs, detract from the intactness of the visual components of the view. However, the landscape elements and the foothills—as a strong backdrop feature—add a measure of cohesion to the view. Existing intactness is therefore rated as moderate (4.0).

**Unity**

The view possesses moderate color unity due to the gradations of gray found in the vegetation, paving, and mountain ridgelines. Although a number of anthropogenic elements of low aesthetic value—signage, power transmission towers, utilitarian structures—are present in the foreground and reduce visual unity in the view, the road, vegetation, and strong mountain backdrop serve to visually link the disparate landscape elements. Existing unity is thus rated moderate (4.0).

**KOP 12—View West Towards the US-395 Interchange, Southerly Alignment**

As shown in Figure 3.7.12, KOP 12 documents the view seen from the undeveloped lands south of the existing SR-58 where the proposed southerly alignment would occur, and looks west towards the US-395 interchange as proposed under Alternative 3. Desert scrub vegetation is a prominent visual element in the foreground and mid-frame, lending a coarse texture and gray/green coloration in the view. This vegetation includes some Joshua trees—important secondary visual resources. Electrical transmission power towers on tall steel trusses and other shorter power lines provide a strong contrasting vertical element. Utilitarian buildings and service structures and the open sky form the backdrop to the view. The vividness in the view is conveyed by the relatively flat terrain, and generally vacant landscape, with its gray/green desert scrub vegetation. However, there are some obtrusive anthropogenic backdrop elements of a utilitarian nature (service structures, power lines, etc.) that serve to diminish overall unity of the view.
**Vividness**

The largely undeveloped open space in the foreground and mid-frame views, and the wide open sky provide a moderately high degree of vividness, distinct from the clutter of anthropogenic backdrop elements. The presence of vegetation in the foreground and mid-frame portions of the view (including Joshua trees), the slight topographic variation, the gradation in color, the open sky, and the contrast in texture between bare soil and areas of vegetation all serve to lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0).

**Intactness**

Although there are some obtrusive anthropogenic elements in the backdrop portion of the view, including the electrical transmission lines, storage tanks, and other utilitarian structures, they do not materially detract from the overall intactness of the visual components of the view. Existing intactness is therefore rated moderate (4.0).

**Unity**

Although the anthropogenic elements in the mid-frame detract from the overall compositional harmony of the view, consistent foreground to mid-frame color produces a view with moderate color unity. Combined with the open terrain and the expansive sky, these create moderate visual unity. Existing unity is thus rated as moderate (4.0).

**KOP 13—US-395, View North at Location of the Southerly Alignment**

As shown in Figure 3.7.13, KOP 13 documents the view seen by northbound travelers on US-395 south of Kramer Junction at the location of the interchange where the southerly alignment would cross under Alternative 3. The roadway and its wide open shoulders are dominant in the view. The SCE substation, with its utilitarian design elements, is also prominent in the mid-frame portion of the view (on the left), and the height of the power transmission lines on the west side of the road add strong vertical line elements that break up the view to a moderate degree. Clusters of evergreen trees add another contrasting vertical line element on the right at mid-frame. Horizontal line elements seen in the roadway configuration, and the flat-to-slightly rolling topography, are contrasted by the expansive open sky, as well as scattered glimpses of distant buttes and foothills that terminate the view on the north. There are some signs, service structures, commercial buildings, and other features of a utilitarian nature that serve to diminish overall unity of the view.

The gray color of the road pavement and tan/gray color of the bare soil are dominant in the view, contrasted by the coarse texture of the gray/green desert scrub vegetation, the evergreen color of trees, and the expansive blue color of the sky.

**Vividness**

The various competing visual components combine in ways that are only moderately striking or memorable. Although desert scrub vegetation is present, anthropogenic features of utilitarian and disparate design are more dominant in the foreground and mid-frame portions of the view. Vividness is thus rated moderate (4.0).
Intactness

Although there are a number of anthropogenic elements in the view, including the electrical transmission lines, utilitarian structures, and signs, these detract only to a moderate degree from the intactness of the visual components of the view. Existing intactness is therefore rated moderate (4.0).

Unity

The view possesses only a moderate level of color unity. In addition, the presence of numerous anthropogenic elements of low aesthetic value—signage, power transmission towers, and utilitarian structures—reduces visual unity in the view. Combined with the open, flat topography, the road serves to visually link the disparate landscape elements. Existing unity is thus rated low (3.0).

KOP 14—Eastbound View of Southerly Alignment, Southwest of Kramer Junction

As shown in Figure 3.7.14, KOP 14 documents the area that would be traversed by eastbound travelers on the southerly alignment southwest of Kramer Junction under Alternative 3. At present, the vantage shows open land with desert scrub vegetation in the foreground and utilitarian Caltrans maintenance facility structures occurring mid-frame to the left. Dirt paths and a number of high power towers and other utilitarian design elements are prominent in the mid-frame portion of the view (from left to right), adding strong vertical line elements that break up the view to a moderate degree. The largely flat topography forms a dominant horizontal pattern, contrasted by the expansive open sky. The curvilinear line elements present in the foothills and buttes are far-off contrasting features of slight importance.

Gray and gray/green are the dominant colors in the view, ranging from the medium gray/blue color of the far-off foothills and buttes to the light gray/tan color of the bare soil. Typical green/gray-colored desert scrub growth is present and provides a moderately vivid element of contrasting texture in the view.

Vividness

The largely undeveloped open space, the wide expansive sky, the presence of vegetation, and the contrast in texture between bare soil and the areas of vegetation, lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0) based on the overall visual power of the landscape, notwithstanding the presence of electrical power towers and other anthropogenic features of utilitarian design at mid-frame.

Intactness

Although the desert landscape is dominant in the view, there also are a number of anthropogenic elements. These, including the electrical transmission lines and utilitarian structures, detract from the intactness of the visual components of the view. Existing intactness is therefore rated as moderate (4.0).
Unity

The view possesses a high level of color unity due to the presence of desert scrub vegetation in the foreground. Although anthropogenic elements of low aesthetic value are present in the mid-frame portion of the view—power transmission towers and utilitarian structures—the expansive view across the landscape, with the low foothills and buttes forming a backdrop on the east, possesses an overall unity; thus, unity is rated as moderately high (5.0).

KOP 15—Westbound View of Railroad Separation, Southwest of Kramer Junction, Where the Southerly and Existing Alignments Cross

As shown in Figure 3.7.15, KOP 15 documents the area that would be traversed under Alternative 3 by westbound travelers on the southerly alignment where it crosses the existing SR-58 alignment and the BNSF Railroad southwest of Kramer Junction. At present, the vantage shows a frontage road, wide gravel and dirt shoulders, and open land with desert scrub vegetation in the foreground. Highway and railroad signage, lighting, and crossing arms occur in the foreground and at mid-frame. Telephone poles also are visible in the mid-frame portion of the view (extending from left to right), adding modest vertical line elements that break up the view to a moderate degree. The largely flat topography forms a dominant horizontal pattern, contrasted by the expansive open sky. The strong curvilinear line elements typically present due to the foothills and buttes throughout much of the project viewshed are only slightly evident as far-off features in this vantage.

Gray and gray/green are the dominant colors in the view, ranging from the pale gray of the frontage road to the light gray/tan color of the bare soil. Typical green/gray-colored desert scrub vegetation is present and provides a moderately vivid element of contrasting texture in the view.

Vividness

The presence of some undeveloped open space, the wide expansive sky, the presence of vegetation, and the contrast in texture between bare soil and the areas of vegetation lend the view a moderate degree of vividness. Vividness is thus rated moderately high (5.0) based on the overall visual power of the landscape, notwithstanding the presence of other utilitarian anthropogenic features in the foreground and at mid-frame.

Intactness

There are a number of anthropogenic elements that diminish the intactness of the landscape, including the electrical transmission lines and highway and railroad fixtures. Existing intactness is therefore only rated as moderate (4.0).

Unity

The view possesses a high level of color unity due to the presence of desert scrub vegetation in the foreground and mid-frame. Anthropogenic elements of low aesthetic value are present in the mid-frame portion of the view—power transmission towers and utilitarian structures—compete with the expansive view across the landscape to the low foothills and buttes forming a minor backdrop on the west. Unity is thus rated as moderate (4.0).
3.7.3.2 Viewer Groups

Viewer groups at all of the KOPs include local commuting motorists, truck drivers, patrons and workers at local businesses, persons driving for pleasure, and residents. Viewer sensitivity and view duration are consistent at each KOP for the viewer groups. Table 3.7-1 displays viewer sensitivity and view duration for each viewer group.

Table 3.7-1: Viewer Sensitivity and View Duration at All Key Observation Points along the Project Alignment

<table>
<thead>
<tr>
<th>Viewer Sensitivity</th>
<th>View Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commuting Motorists</td>
<td>Moderate</td>
</tr>
<tr>
<td>Truck Drivers</td>
<td>Low</td>
</tr>
<tr>
<td>Residents</td>
<td>High</td>
</tr>
<tr>
<td>Patrons and Employees of Local</td>
<td>Moderate</td>
</tr>
<tr>
<td>Businesses/ Community Facilities</td>
<td></td>
</tr>
<tr>
<td>Persons Driving for Pleasure</td>
<td>High</td>
</tr>
</tbody>
</table>

Source: Caltrans 2007a.

The viewer group sensitivity levels are based on the time and nature of the exposure each group has to the existing landscape and the visual quality that currently characterizes this visual setting. The views of mountain ridgelines, open spaces, and unobstructed sky views are key characteristics within the project area.

**Commuting Motorists and Truck Drivers**

Motorist sensitivity to the visual character increases with the nature, duration, and frequency of travel through the project area. Truck drivers have a low sensitivity to changes in scenery because the nature, duration, and frequency of their exposure to the project area are set by commercial needs as opposed to personal preference. Commuters are moderately sensitive to changes in scenery because they choose to travel through the project area on a regular basis but do not live in or adjacent to the project area. Local travelers are highly sensitive to changes in scenery because of their continuous and intentional presence within the community.

**Residents**

Residents reside in several specific locations within the project viewshed, including the community of Boron and at Kramer Junction. Virtually all of these residents live in Boron and at Kramer Junction in custom-built rural homes and mobile home units. Views from these homes are typically expansive, with sweeping mid-ground and foreground views. Other residents are found outside the project limits in the community of Hinkley, eight miles from the eastern end of the proposed project. These residents also drive through the corridor on a frequent basis to reach places of employment and to conduct daily errands. Residents enjoy long-term, expansive views that feel like extensions of their homes, making them highly sensitive as a group to changes in visual character. The rural nature of the views also makes the residents highly sensitive to changes in scenery.
Local Businesses/ Community Facilities Patrons and Employees

Local businesses and community facilities include a small number of highway-oriented commercial uses, including restaurants, gas stations and convenience stores, and a school. These facilities serve as gathering points for the residents. The school holds activities that are both indoors and outdoors; other facilities typically hold only indoor activities. The predominance of indoor uses makes these viewers moderately sensitive to changes in visual character.

3.7.4 Environmental Consequences

The changes in visual quality that would occur due to implementation of the proposed build alternatives at each of the KOPs are described below, and visual simulations of each viewpoint are provided in Figures 3.7.16 through 3.7.31. A summary of the visual impacts of each alternative is provided in the discussion that follows under Section 3.7.4.1, Permanent Impacts, and Section 3.7.4.2, Temporary Impacts.
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VIEW 2: WESTBOUND TRAVELER’S VIEW OF PROPOSED INTERCHANGE LOCATION FOR NORTHERN ALIGNMENT
Figure 3.7.18
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**KOP 1—US-395, View South at Location of the Northerly Alignment**

Because it would be elevated above the landscape, the concrete interchange overcrossing proposed at this location under Alternatives 1 and 1A would introduce a strong new and visually dominant contrasting horizontal line element. This would simultaneously add a greater degree of unity and cohesiveness to the view, as it would obscure some of the existing visually-distracting built elements, and constrain south-facing views from the roadway and obscure views (i.e., north of the interchange) of the mountains ridgelines to the south. The interchange embankments would be planted with vegetation to match the desert scrub groundcover, which would somewhat soften the presence of the interchange. However, the embankment would also block other southward views across the viewshed looking away from the roadway. The resulting change from the existing conditions to a new raised alignment would result in a change of visual quality (see Table 3.7-2). Under Alternative 1, vividness would remain the same, despite the partial loss of ridgeline views (-0.0), while intactness and unity would increase slightly (+1.0), resulting in a slight increase (+0.7) in overall visual quality. Under Alternative 1A, vividness and intactness would remain the same, while unity would increase slightly (+1.0), resulting in a slight increase in overall visual quality under Alternative 1 (+0.7) and Alternative 1A (+0.4). A visual simulation of the viewpoint is provided in Figure 3.7.16.

**Table 3.7-2: Changes in Key Observation Point 1**

<table>
<thead>
<tr>
<th>Key Observation Point</th>
<th>Vividness</th>
<th>Intactness</th>
<th>Unity</th>
<th>Average (V+I+U)/3</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOP 1</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>Proposed Alternative 1</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.0</td>
<td>+0.7</td>
</tr>
<tr>
<td>Proposed Alternative 1A</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3.7</td>
<td>+0.4</td>
</tr>
</tbody>
</table>

Source: Caltrans 2007a.

**KOP 2—View West Towards the US-395 Interchange, Northerly Alignment**

The view at this vantage changes from open land dotted with desert scrub vegetation to a paved roadway with a wide median. The roadway pavement would become the dominant element in the view and would introduce an elevational change on approach to the US-395 interchange. It would thereby contrast with the surrounding landscape but also obscure far-off views of the low buildings and electrical transmission features. Although the view would remain vivid due to the presence of undeveloped land alongside the new roadway, the new pavement would be a major departure from the existing natural landscape. The resulting change from the existing conditions would result in a change of visual quality (see Table 3.7-3). Vividness would decrease (-1.0) under Alternative 1 while intactness would increase. Under Alternative 1A both vividness and intactness would decrease (-1.0). Overall visual quality would not change under Alternative 1 but would change under Alternative 1A to moderately low. A visual simulation of the viewpoint is provided in Figure 3.7.17.
Table 3.7-3: Changes in Key Observation Point 2

<table>
<thead>
<tr>
<th>Key Observation Point</th>
<th>Vividness</th>
<th>Intactness</th>
<th>Unity</th>
<th>Average (V+I+U)/3</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOP 2</td>
<td>Existing (Baseline)</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>4.0</td>
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<tr>
<td>Proposed Alternative 1</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.0</td>
<td>-0.0</td>
</tr>
<tr>
<td>Proposed Alternative 1A</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3.3</td>
<td>-0.7</td>
</tr>
</tbody>
</table>

Source: Caltrans 2007a.

**KOP 3—US-395, View North at Location of the Northerly Alignment**

Because it would be elevated above the landscape, the concrete interchange overcrossing proposed at this location under both Alternative 1 and 1A would introduce a new horizontal line element that would contrast with the surrounding landscape. However, due to the distance the viewer is from the interchange at this vantage, the degree of contrast would be only moderate. In the foreground, the roadway would be substantially widened; in the mid-frame, adjacent vacant land would be replaced by highway ramps, slopes, a bridge deck, and planted embankments, impinging on some of the north-facing views from the roadway of the adjoining desert landscape. The interchange embankments would be planted with vegetation to match the desert scrub groundcover, which would somewhat soften the presence of the interchange. The resulting change from the existing conditions would result in a change of visual quality. Under Alternative 1, vividness and intactness would remain the same—due in part to the distance the interchange would be from the vantage point—unity would decrease (-1.0). By contrast, under Alternative 1A both intactness and unity would be decreased (-1.0). The results are a slight decrease (-0.3) under Alternative 1 and a slightly larger decrease (-0.6) under Alternative 1A (see Table 3.7-4). A visual simulation of the viewpoint is provided in Figure 3.7.18.

Table 3.7-4: Changes in Key Observation Point 3

<table>
<thead>
<tr>
<th>Key Observation Point</th>
<th>Vividness</th>
<th>Intactness</th>
<th>Unity</th>
<th>Average (V+I+U)/3</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOP 3</td>
<td>Existing (Baseline)</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4.3</td>
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<tr>
<td>Proposed Alternative 1</td>
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<td>4</td>
<td>3</td>
<td>4.0</td>
<td>-0.3</td>
</tr>
<tr>
<td>Proposed Alternative 1A</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3.7</td>
<td>-0.6</td>
</tr>
</tbody>
</table>

Source: Caltrans 2007a.

**KOP 4—View East Towards the US-395 Interchange, Northerly Alignment**

Under Alternative 1 and Alternative 1A, while traveling eastbound, driver views would be newly dominated by the addition of east–west roadway pavement of the SR-58 highway. Although viewers would continue to see the desert scrub vegetation, it would become a roadside and median feature, and therefore would be less dominant in the foreground and at mid-frame. However, in the mid-frame portion of the view, as the highway approaches US-395, it would be elevated above the landscape. The interchange overcrossing proposed at this location under Alternative 1 and Alternative 1A would introduce a curving line to the roadway, which would serve to partially obscure the low foothills and buttes that currently terminate east-facing views, and virtually all the visually obtrusive power poles that now occur at mid-frame would remain.
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This would add a greater degree of unity and cohesiveness to the view, because it would obscure some of the existing visually distracting built elements. Views would terminate along a newly emphasized horizon line where the pavement and sky meet, and in which some anthropogenic features are diminished. Vividness, intactness, and unity would remain the same. As a result, overall visual quality would be unchanged (-0.0) (see Table 3.7-5). A visual simulation of the viewpoint is provided in Figure 3.7.19.

<table>
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<tr>
<th>Key Observation Point</th>
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<td>Proposed Alternative 1</td>
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<td>Proposed Alternative 1A</td>
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<td>4.3</td>
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</tbody>
</table>

Source: Caltrans 2007a.

**KOP 5—Westbound Motorists’ View of Railroad Crossing, Northerly Alignment**

The view at this vantage changes from open land dotted with desert scrub vegetation to a paved roadway with a wide median. The roadway pavement would become the dominant element in the view and would introduce an elevational change on approach to the BNSF railroad crossing. It would thereby contrast with the surrounding landscape but also obscure far-off views of the low buildings and electrical transmission features. Although the view would remain vivid due to the presence of undeveloped land alongside the new roadway, the new pavement would be a major departure from the existing natural landscape. The resulting change from the existing conditions would result in a change of visual quality (see Table 3.7-6). Vividness, intactness, and unity would each decrease, resulting in a decrease, (-1.0) under Alternative 1 and (-1.4) under Alternative 1A, in overall visual quality. This would change the overall visual quality at this vantage from moderately high to moderate. A visual simulation of the viewpoint is provided in Figure 3.7.20.

<table>
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<th>Key Observation Point</th>
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<td>3.3</td>
</tr>
</tbody>
</table>

Source: Caltrans 2007a.

**KOP 6—US-395, View South at Location of the Existing Alignment**

Because it would be elevated above the landscape, the concrete interchange overcrossing proposed at this location under Alternative 2 would introduce a horizontal line element that would contrast with its setting. However, due to the distance the viewer is from the interchange at this vantage, the degree of contrast is only moderate. In the foreground, the roadway would be substantially widened; in the mid-frame, adjacent vacant land would be replaced by highway
ramps, slopes, a bridge deck, and planted embankments, impinging on some of the south-facing views from the roadway of the adjoining desert landscape. The interchange embankments would be planted with vegetation to match the desert scrub groundcover, which would somewhat soften the presence of the interchange. Therefore, the resulting change from the existing conditions would be negligible. Vividness and unity would remain unchanged—due in part to the distance the interchange would be from the vantage, while intactness would increase slightly (+1.0). As a result, a small improvement in overall visual quality would occur (+0.4) (see Table 3.7-7). A visual simulation of the viewpoint is provided in Figure 3.7.21.

Table 3.7-7: Changes in Key Observation Point 6

<table>
<thead>
<tr>
<th>Key Observation Point</th>
<th>Vividness</th>
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<td>Proposed Alternative 2</td>
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<td>3.7</td>
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</table>

Source: Caltrans 2007a.

KOP 7—View West Towards the US-395 Interchange, Existing Alignment

The view at this vantage changes from open land dotted with desert scrub vegetation to a paved roadway with a wide median. The roadway pavement would become the dominant element in the view and would introduce an elevational change on approach to the US-395 interchange. It would thereby contrast with the surrounding landscape but also obscure far-off views of the low buildings and electrical transmission features. The view would remain vivid due to the presence of undeveloped land alongside the new roadway, notwithstanding the insertion of new pavement, and the change from the existing natural landscape. The resulting change would result in a change of visual quality (see Table 3.7-8). Unity would increase (+1.0), and, thus, overall visual quality would increase slightly but remain moderate. A visual simulation of the viewpoint is provided in Figure 3.7.22.

Table 3.7-8: Changes in Key Observation Point 7

<table>
<thead>
<tr>
<th>Key Observation Point</th>
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<td>Proposed Alternative 2</td>
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</tbody>
</table>

Source: Caltrans 2007a.

KOP 8—US-395, View North at Location of the Existing SR-58 Alignment

Because it would be elevated above the landscape, the concrete interchange overcrossing proposed at this location under Alternative 2 would introduce a strong new and visually dominant contrasting horizontal line element. This would simultaneously add a greater degree of unity and cohesiveness to the view, as it would obscure some of the existing visually distracting built elements, while also noticeably obscuring north-facing views from the roadway and obscuring views (i.e., north of the interchange) of the desert landscape. The asphalt pavement on US-395 would be widened, and the embankment would also block other northward views across
the viewshed away from the roadway, requiring the removal of the stand of mature trees along
the east side of the US-395. However, the interchange embankments would be planted with
vegetation to match the desert scrub groundcover, which would somewhat soften the presence of
the interchange. The resulting change from the existing conditions to a new raised alignment
would result in a negligible change of visual quality. Vividness would be reduced due to the
partial loss of ridgeline views (-1.0), while intactness and unity would increase slightly (+1.0),
respectively, resulting in a slight increase (+0.3) in visual quality (see Table 3.7-9). A visual
simulation of the viewpoint is provided in Figure 3.7.23.

Table 3.7-9: Changes in Key Observation Point 8

<table>
<thead>
<tr>
<th>Key Observation Point</th>
<th>Vividness</th>
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</table>

Source: Caltrans 2007a.

**KOP 9—SR-58, View East Towards Kramer Junction, Existing SR-58 Alignment**

Under Alternative 2, while traveling eastbound, drivers would continue to experience views in
which the SR-58 roadway and the roadside desert scrub vegetation would be dominant in the
foreground along both the side of the roadway and in the median. However, in the mid-frame
portion of the view, as the highway approaches Kramer Junction and US-395, it would be
elevated above the landscape. The interchange overcrossing proposed at this location under
Alternative 2 would introduce a curving line to the roadway at mid-frame, which would serve to
block out views of much of the existing utilitarian commercial development. It would require
removal of a number of the visually obtrusive power poles that now occur at mid-frame. This
would add greater degree unity and cohesiveness to the view, as it would obscure some of the
existing visually-distracting built elements. Views under Alternative 2 would terminate along a
newly emphasized horizon line where the pavement and sky meet, and in which anthropogenic
features are diminished. As a result, overall visual quality would remain moderate (see Table
3.7-10). Vividness and unity would remain the same, and intactness would increase (+1.0);
visual quality would increase by a slight value (+0.3). A visual simulation of the viewpoint is
provided in Figures 3.7.24 and 3.7.25.

Table 3.7-10: Changes in Key Observation Point 9

<table>
<thead>
<tr>
<th>Key Observation Point</th>
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Source: Caltrans 2007a.

**KOP 10—Eastbound Motorists’ View of Railroad Crossing, Existing Alignment**

Under Alternative 2, while traveling eastbound, driver views would be newly dominated by the
addition of east–west roadway pavement of the SR-58 highway. Although viewers would
continue to see the desert scrub vegetation, it would become a roadside and median feature and,
therefore, would be less dominant in the foreground and at mid-frame. However, in the mid-frame portion of the view, as the highway approaches the BNSF railroad corridor, it would be elevated above the landscape. The interchange overcrossing proposed at this location under Alternative 2 would introduce a curving line to the roadway, which would serve to partially obscure the low foothills and buttes that currently terminate east-facing views, and virtually all the visually obtrusive power poles that now occur at mid-frame would remain. This would add a greater degree of unity and cohesiveness to the view, because it would obscure some of the existing visually distracting built elements. Views would terminate along a newly emphasized horizon line where the pavement and sky meet, and in which some anthropogenic features are diminished. Vividness and unity would be reduced (-1.0) due to the prominence of the new highway paving, while intactness would remain the same. As a result, overall visual quality would be reduced (-0.6) (see Table 3.7-11). A visual simulation of the viewpoint is provided in Figure 3.7.26.

Table 3.7-11: Changes in Key Observation Point 10

<table>
<thead>
<tr>
<th>Key Observation Point</th>
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<td>-0.6</td>
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</tbody>
</table>

Source: Caltrans 2007a.

**KOP 11—US-395, View South at Location of the Southerly Alignment**

Because it would be elevated above the landscape, the concrete interchange overcrossing proposed at this location under Alternative 3 would introduce a horizontal line element that would contrast with its setting. However, due to the distance the viewer is from the interchange at this vantage, the degree of contrast is only moderate. In the foreground, the roadway would be substantially widened; in the mid-frame, adjacent vacant land would be replaced by highway ramps, slopes, a bridge deck, and planted embankments, impinging on some of the south-facing views from the roadway of the adjoining desert landscape. The interchange embankments would be planted with vegetation to match the desert scrub groundcover, which would somewhat soften the presence of the interchange. The resulting change from the existing conditions would be negligible. Vividness, intactness, and unity would remain unchanged—due in part to the distance the interchange would be from the vantage. As a result, no change (0.0) in overall visual quality would occur (see Table 3.7-12). A visual simulation of the viewpoint is provided in Figure 3.7.27.

Table 3.7-12: Changes in Key Observation Point 11

<table>
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<th>Key Observation Point</th>
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</table>

Source: Caltrans 2007a.
**KOP 12—View West Towards the US-395 Interchange, Southerly Alignment**

The view at this vantage changes from open land dotted with desert scrub vegetation to a paved roadway with a wide median. The roadway pavement would become the dominant element in the view and would introduce an elevational change on approach to the US-395 interchange. It would thereby contrast with the surrounding landscape but also obscure far-off views of the low buildings and electrical transmission features. The view would remain vivid due to the presence of undeveloped land alongside the new roadway, notwithstanding the insertion of new pavement, and the change from the existing natural landscape. Vividness, intactness and unity would not change; thus, overall visual quality would remain moderate (see Table 3.7.13). A visual simulation of the viewpoint is provided in Figure 3.7.28.

<table>
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<tr>
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</table>

Source: Caltrans 2007a.

**KOP 13—US-395, View North at Location of the Southerly Alignment**

Because it would be elevated above the landscape, the concrete interchange overcrossing proposed at this location under Alternative 3 would introduce a strong new and visually dominant contrasting horizontal line element. This would simultaneously add a greater degree of unity and cohesiveness to the view, because it would obscure some of the existing visually distracting built elements while also noticeably obscuring north-facing views from the roadway and obscuring views (i.e., north of the interchange) of the desert landscape. The asphalt pavement on US-395 would be widened, and the embankment would also block other northward views across the viewshed away from the roadway. However, the interchange embankments would be planted with vegetation to match the desert scrub groundcover, which would somewhat soften the presence of the interchange. The resulting change from the existing conditions to a new raised alignment would result in a negligible change of visual quality. Vividness and intactness would remain unchanged, while unity would increase slightly (+1.0), respectively, resulting in a slight increase (+0.3) in visual quality (see Table 3.7-14). A visual simulation of the viewpoint is provided in Figure 3.7.29.

<table>
<thead>
<tr>
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Source: Caltrans 2007a.
**KOP 14—Eastbound View of Southerly Alignment, Southwest of Kramer Junction**

Under Alternative 3, while traveling eastbound, driver views would be newly dominated by the addition of east-west roadway pavement of the SR-58 highway. Although viewers would continue to see the desert scrub vegetation, it would become a roadside and median feature, and therefore, would be less dominant in the foreground and at mid-frame. However, in the mid-frame portion of the view, as the highway approaches US-395, it would be elevated above the landscape. The interchange overcrossing proposed at this location under Alternative 3 would introduce a curving line to the roadway, which would serve to partially obscure the low foothills and buttes that currently terminate east-facing views, and virtually all the visually obtrusive power poles that now occur at mid-frame would remain. This would add a greater degree of unity and cohesiveness to the view, as it would obscure some of the existing visually-distracting built elements. Views under Alternative 3 would terminate along a newly emphasized horizon line where the pavement and sky meet, and in which some anthropogenic features are diminished. Vividness and unity would be reduced due to the loss of much natural landscape from the view (-1.0), while intactness would remain the same. As a result, overall visual quality would be reduced (-0.7) (see Table 3.7-15). A visual simulation of the viewpoint is provided in Figure 3.7.30.

<table>
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<th>Key Observation Point</th>
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<tr>
<td>Proposed Alternative 3</td>
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<td>-0.7</td>
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</table>

Source: Caltrans 2007a.

**KOP 15—Westbound View of Railroad Separation, Southwest of Kramer Junction, Where the Southerly and Existing Alignments Cross**

Under Alternative 3, while traveling westbound, driver views would be newly dominated by the addition of east-west roadway pavement of the SR-58 highway. Although viewers would continue to see the desert scrub vegetation, it would become more of a roadside and median feature than at present, and therefore would be less dominant in the foreground and at mid-frame. However, in the mid-frame portion of the view, as the highway approaches the BNSF Railroad crossing, it would be elevated above the landscape. The interchange overcrossing proposed at this location under Alternative 3 would introduce a curving line to the roadway, which would serve to partially obscure the low foothills and buttes that currently terminate west-facing views; however, virtually all the visually obtrusive power poles that now occur at mid-frame would remain. Although road signs would remain, railroad crossing arms, signs, and lights at mid-frame would be replaced as a result of the new railroad grade-separated crossing with landscaped embankments on its sides. Though partially obscured, the distant foothills would still be visible in the background. Vividness and intactness would be reduced due to the more dominant presence of the roadway and loss of natural landscape from the view (-1.0). The change in these values would result in an overall reduction in visual quality (-0.6) but it would remain moderate (see Table 3.7-16). A visual simulation of the viewpoint is provided in Figure 3.7.31.
### Table 3.7-16: Changes in Key Observation Point 15

<table>
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Source: Caltrans 2007a.

### 3.7.4.1 Permanent Impacts

**Alternative 1—Northerly Alignment 4-Lane Divided Expressway**

Under Alternative 1, visual changes would occur along the entire project length. Although the smallest number of sensitive viewers is present in proximity to this proposed alignment, without mitigation, construction would result in a potentially substantial adverse effect upon the quality of the existing visual environment as predominantly natural landscapes are replaced with anthropogenic elements. However, the implementation of standard Caltrans project design policies and implementation practices (e.g., use of Context Sensitive Solutions approaches) would reduce the effect but not to a level that is minor adverse (see Avoidance, Minimization, and Mitigation Measures found in Section 3.7.6).

Alternative 1 would result in a dominant mid-frame view effect for KOP 1 that is slightly positive for motorists because the proposed bridge and interchange features would screen views of some of the anthropogenic clutter at Kramer Junction. By contrast however, at KOPs 3 and 5, the alignment would create a new mid-frame and foreground element accentuating the presence of anthropogenic highway features. The proposed project also would improve motorist views within the viewsheild because the raised roadbed would enhance the mid-frame and background views by elevating traffic above the landscape. The view experienced while traveling from east to west would be a new view, because the alignment would be north of existing SR-58 (Alternative 1 would diverge from the location of existing SR-58 at KOP 5). Viewers located close to the proposed alignment may have potentially adverse effects to their northern- and southern-facing views because a highway and interchange would be introduced where none currently exists.

A majority of the viewers are commuting motorists, truck drivers, and employees at local businesses/public utilities—viewing groups not considered sensitive. These viewers would experience minimal impacts, including a slight improvement of visual quality at certain locations where the visual clutter at Kramer Junction would be partly blocked from view by the proposed highway elements (e.g., KOP 1). The northern-facing views would remain most intact for those viewers who are east and west of the points where the Alternative 1 alignment converges with the existing SR-58 alignment.

**Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)**

Under this alternative, the proposed project includes a cloverleaf interchange with highway ramps, slopes, a bridge deck, and planted embankments, along with a new horizontal line.
element of the highway overpass itself, thereby contrasting with the existing desert scrub landscape (as documented in KOP 3). Although the interchange embankments would be planted with vegetation to match the desert scrub groundcover, which would somewhat soften the presence of the interchange, even after mitigation and design minimization practices are implemented, construction would likely result in a potentially substantial adverse effect as predominantly natural landscapes are replaced with anthropogenic elements.

A majority of the viewers in vicinity of the interchange are commuting motorists, truck drivers, and employees at local businesses/public utilities—viewing groups not considered sensitive. Effects upon/impacts to these viewers would be minimal. For the smaller number of more sensitive viewers, the implementation of standard Caltrans project design policies and implementation practices would reduce the effect but not to a level that is minor adverse (see Avoidance, Minimization, and Mitigation Measures found in Section 3.7.6).

**Alternative 2—Existing Alignment 4-Lane Expressway with Median**

Existing views under Alternative 2 are documented in KOPs 8 and 9. Visual changes would occur along the entire project segment. Changes to SR-58 would include the realignment and widening of the existing two-lane highway to a four-lane configuration, with opposing travel lanes separated by a wide unpaved median with dirt shoulders on each side of the roadway. The proposed project would improve motorists’ views within the viewshed because the raised roadbed as it crosses over US-395 would enhance the mid-ground and background views by elevating traffic above the landscape. Under this alternative, the impact to motorist views along the proposed alignment would be largely positive, as visual quality would improve due to the removal of the visual clutter associated with the anthropogenic features at Kramer Junction (viz., power towers, signs, lights and other utilitarian structures), permitting the natural landscape in the viewshed to become more apparent.

The residents, local businesses, and community facilities at Kramer Junction, however, would experience a deterioration of foreground and mid-frame views compared with the existing views due to the addition of the proposed interchange and roadbed. The level of deterioration would be highest among adjacent viewers north and south of the proposed alignment and would decrease in severity based on the distance from the project area and the degree of viewer sensitivity. The impact to these viewer groups may potentially be substantially adverse based on the degree of sensitivity of the viewers. The implementation of standard Caltrans project design policies and implementation practices would somewhat reduce the effect; however, it would likely remain substantial adverse (see Avoidance, Minimization, and Mitigation Measures found in Section 3.7.6).

**Alternative 3—Southerly Alignment 4-Lane Divided Expressway**

Under Alternative 3, visual changes would occur along the entire project alignment, with the views shown at KOPs 11, 13, and 14 being representative. Construction of this alternative would result in negative impacts to existing visual quality within the viewshed, as existing predominantly natural landscapes are replaced with anthropogenic elements along the proposed alignment. In addition, northbound motorists traveling on US-395, would experience a slight improvement in visual quality south of the SR-58 interchange proposed under this alternative.
because the improvements would partially block views of the visual clutter in vicinity of Kramer Junction.

Some of the residents, local businesses, and community facilities at Kramer Junction—those located south of SR-58—would experience a deterioration of foreground and mid-frame views compared with the existing views due to the addition of the proposed interchange and roadbed. The level of deterioration would be highest among adjacent viewers north and south of the proposed alignment and would decrease in severity based on the distance from the project area and the degree of viewer sensitivity. The impact to these viewer groups could be potentially substantially adverse based on the degree of sensitivity of the viewers (e.g., residents north and south of Cameo Street, east from US-395). The implementation of standard Caltrans project design policies and implementation practices would reduce the effect; however, it would likely remain substantial adverse (see Avoidance, Minimization, and Mitigation Measures found in Section 3.7.6).

**Alternative 4—No-Build Alternative**

No new structural elements would be added under the No-Build Alternative; therefore, no change in the visual setting and visual resources would occur.

### 3.7.4.2 Temporary Impacts

**Build Alternatives 1, 1A, 2, and 3**

Potential visual impacts would result from earthmoving activities, limited removal of vegetation in the construction zone, and other construction activities (e.g., staging/stockpiling road-building materials, the presence of construction equipment, and temporary traffic barricades). Construction activities would include grading work, other routine construction activities, and truck shipments.

The resulting temporary impacts would adversely affect the southern views of residential viewer groups located along the proposed alignments because there would be disruption to areas where there are currently no activities associated with building a highway.

**Alternative 4—No-Build Alternative**

There would be no visual impacts associated with the No-Build Alternative because there would be no construction activities associated with this project. Therefore, Alternative 4 would result in no temporary visual effects.

### 3.7.5 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to avoid, minimize, and/or mitigate potential visual impacts associated with the proposed project.

- **AES-1:** All lighting used for the project will be directional, directing light to the highway facility and away from homes and habitats to minimize glare impacts to the night sky, and to avoid affecting background sky views. Glare shields will be used.
• **AES-2:** Detention basins and bioswales will be designed and addressed as visually integrated elements of the landscape planting. Contour grading of basins will minimize the visual impact by blending with the surrounding natural landscape features.

• **AES-3:** Bridge structures will be pigmented an earth tone that is compatible with the native soil color within the project limits. Bridge structures, signs, and other highway appurtenances will be selected for their form, scale, color, aesthetic treatment, spacing, and configuration to enhance compatibility with the rural community and desert landscape design contexts.

• **AES-4:** Native plantings will be used to minimize the visual impact of the highway and associated detention basins. Drought-tolerant native trees and shrubs will be planted at appropriate locations, especially near the drainages and drainage basins, and at the proposed interchange and railroad overcrossing to soften the structures. The interchange will become the gateway into the community and will be landscaped. Inert materials will also be considered where appropriate to beautify these areas and reduce erosion. The restoration of desert scrub vegetation will include replanting of native vegetation and Joshua trees on disturbed sites, including staging areas, borrow pits, and other areas of surface disturbance. Any portion of existing SR-58 roadway pavement which is no longer needed will be removed, leaving an earthen surface that will be seeded with native seeds.

• **AES-5:** Where possible, concrete drainage ditches will be avoided in favor of soft-bottom ditches to reduce urbanizing elements, and to encourage infiltration and vegetation growth. Where required, concrete ditches will be pigmented to blend with adjacent soil.

• **AES-6:** All disturbed soil areas will be treated with erosion control measures, including seeding with native plant/native grass seeds. For further detail see Measure **GEO-2.**

• **AES-7:** During construction, existing vegetation will be retained to the maximum extent feasible by minimizing the amount of clearing and earthwork. During construction, Environmentally Sensitive Area (ESA) fencing will be provided around trees and vegetation to ensure its preservation.

• **AES-8:** Joshua trees that would be removed will be replanted away from the proposed pavement areas. If onsite relocation is not feasible, Caltrans will contact the San Bernardino County Building and Safety Office for a list of residents willing to adopt and care for the relocated trees. Transportation standards will follow best nursery practices.

• **AES-9:** Slopes will be landscaped with native vegetation to reflect vegetation in the surrounding area and to mask the hard lines created by engineered cuts and embankments.

The proposed project will be consistent with a Context Sensitive Solution (CSS) approach. CSS is a Caltrans policy that requires early consideration of the total context within which a transportation improvement project is proposed. This consideration includes protection of the environment and preservation of scenic, aesthetic, cultural, and environmental resources, while maintaining or improving traffic safety and mobility. It also reflects the public interest by involving all affected stakeholders in order to share ownership and create partnerships that drive innovative ways to achieve transportation system environmental and engineering goals.
3.8 Cultural Resources

3.8.1 Regulatory Setting

The term “cultural resources” as used in this document refers to all “built environment” resources (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 of 1966 (NHPA), as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such 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, 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. 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). On January 1, 2014, 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 was executed.

The Archaeological Resources Protection Act (ARPA) applies when a project may involve archaeological resources located on federal or tribal land. ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties. See Appendix B for specific information regarding Section 4(f).

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as CA Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places 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 National Register or are registered or eligible for registration as California Historical Landmarks.

Caltrans’ policy is to conduct NHPA Section 106 and CEQA Historical Resources studies concurrently and to use the NHPS Section 106 determinations for the basis of making CEQA conclusions.

### 3.8.2 Affected Environment

Unless otherwise noted, the information from this section was taken from the *Historic Property Survey Report* (HPSR) (Caltrans 2013b), which included a *Historical Resources Evaluation Report* (HRER) (Caltrans 2013d), an *Archaeological Survey Report* (ASR) (Caltrans 2013e), an Extended Phase I Proposal (XPI) (Caltrans 2013i), an XPI Report (Caltrans 2013j), a California Archaeological Resource Identification and Data Acquisition Program (CARIDAP) Proposal (Caltrans 2013k), a CARIDAP Report (Caltrans 2013l), a Supplemental HPSR (Caltrans 2014a), which included a Supplemental HRER, Supplemental CARIDAP Report, and an Archaeological Evaluation Report (AER), and Finding of Effect (Caltrans 2014b) documenting cultural resource identification and evaluation efforts and effects finding in the project Area of Potential Effect (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 defines the geographic area within which the proposed project has the potential to directly or indirectly affect historic properties, if any such properties exist. Delineation of the APE was determined by the extent of the project footprint (i.e., area of direct impact [ADI]), which was defined as 400 feet from proposed centerline, and was expanded where necessary to account for potential indirect effects (e.g., visual, atmospheric, noise, vibration, or access) to historic properties resulting from project construction and operation. For the purposes of this project, the archaeological study, as documented in the ASR, focused on the ADI, while the built-environment study, as documented in the HRER, included the area of direct impact, as well as additional areas to account for potential indirect effects. The project APE boundary—the maximum extent of all potential direct and indirect project disturbance—is depicted on the APE Map (Exhibit 3) in Attachment A of the HPSR.

Consultation with interested parties, including Native American groups and historical organizations, was conducted beginning in 2007. A request was made to the Native American Heritage Commission (NAHC) for a search of the Sacred Lands File on July 6, 2007. The NAHC responded on November 15, 2007, stating that a search of the Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate project area. A list of twelve Native American individuals/organizations was provided by the NAHC for additional consultation in regards to Native American cultural resources or project-related concerns. The Caltrans District 8 Native American Coordinator ultimately decided that 10
individuals/organizations should be contacted. Native American correspondence related to the proposed project can be found in Attachment H of the HPSR and in the Supplemental HPSR and is summarized in the ASR (HPSR Attachment B) and AER (Supplemental HPSR Attachment F). In addition, four local historical societies and preservation groups were contacted on December 27, 2007, to illicit comments or concerns regarding the proposed project. No concerns regarding cultural resources were raised by these groups. Correspondence with these organizations can be found in HRER Appendix C. Consultation with the Base Historic Preservation Officer (BHPO) at the Edwards Air Force Base was conducted beginning in 2007. On February 5, 2014, Caltrans requested that Edwards Air Force Base designate Caltrans, District 8 as Lead Agency for the purposes of Section 106 compliance for the project, and on February 6, 2014, the BHPO designated Caltrans District 8 to act as Lead Agency on Edwards Air Force Base’s behalf for the purposes of Section 106 compliance.

A cultural resources literature and records search of the general project area was first conducted on June 4, 2007, at the San Bernardino Archaeological Information Center (SBAIC). An updated records search at the SBAIC was completed February 29, 2012. For purposes of this investigation, the general project location was defined as a one-mile radius surrounding the project APE.

Results of this record search indicate that 30 area-specific cultural resources surveys and/or evaluation investigations have been previously conducted within the general project vicinity. These investigations resulted in the documentation of 185 cultural resources, of which 27 were reported within the boundaries of the project APE. Of these, 19 were field verified during the current study. The reported location of two resources was visited during the field survey but no evidence of either resource was found. The six remaining previously recorded resources located on Edwards Air Force Base were adequately documented in reports provided by Edwards Air Force Base cultural resources staff. Finally, five previously recorded resources were combined into one large resource.

The intensive archaeological survey of the APE was carried out between February 4 and February 10, 2002, and June 6 and November 14, 2007. As a result of the cultural resources field survey of the project APE, 54 new archaeological resources, including 31 archaeological sites and 23 isolated artifacts, were identified.

Initial built environment field surveys were conducted in November and December 2007, with follow-up in November and December 2012. Seventeen built environment resources were identified within the project’s APE and recorded and evaluated. The built environment resources include 10 linear resources—seven late nineteenth- and early twentieth-century road segments, two former Atchison, Topeka & Santa Fe (AT&SF) railroad segments, and a segment of the Southern Sierras “Tower Line” transmission line—and seven properties containing buildings or groups of buildings.

In total, the project APE contains 88 cultural resources, 59 of which were previously evaluated or required evaluation. The remaining 29 cultural resources within the APE were determined to have minimal potential for significance and were exempted from evaluation in accordance with Attachment 4 of the Section 106 PA. The 59 non-exempted cultural resources include 42 archaeological resources and 17 built-environment resources. These resources are listed in Table 3.8-2. All 17 of the built-environment resources and eight of the archaeological
resources were evaluated and determined not eligible for the National Register of Historic Places as a result of the current study, and are also not considered historical resources under CEQA because they do not meet the California Register of Historical Resources criteria. The SHPO concurred with these determinations on April 3, 2013 (see Appendix M). In addition, four of the identified archaeological sites were previously determined not eligible for the NRHP and CRHR with previous SHPO concurrence (see HPSR for details).

To assess the project’s potential impact to cultural properties and to allow a comparison of the alternatives, Caltrans has completed the identification of all properties (i.e., built environment and archaeological) within the APE. Caltrans also fully evaluated the historical significance, under Section 106, of the 17 built environment properties because the evaluation of those properties is based upon information readily obtained during the identification process and does not require physical disturbance of the property. Similarly, eight prehistoric sites in the ADI of the Alternative 1A portion of the APE were determined to meet the criteria of sparse lithic scatters as defined in the CARIDAP, and per CARIDAP guidelines, could be considered ineligible for listing on the National Register of Historic Places (NRHP) with only minimal archaeological testing. None of these 25 evaluated cultural resources are eligible for the NRHP or are historical resources for the purposes of CEQA. These results are reported in the HPSR and its attachments, and are summarized here.

The evaluation of the historic significance of the remaining 30 archaeological sites, unlike the built environment properties, requires the gathering of additional information through some type of ground disturbing activity. Since ground disturbing activities destroy some of the value of the archaeological property, those activities were postponed until after public circulation of this Draft EIR/EIS. Alternative 1A was selected as the Preferred Alternative, and contains 9 unevaluated archaeological sites. Caltrans assessed effects to the prehistoric archaeological site (CA-SBR-15085) and the multicomponent archaeological site (CA-SBR-15073/H) that were assumed eligible for the purposes of the project only. Upon selection of the Preferred Alternative, but prior to the approval of the Final EIR/EIS, Caltrans performed the Section 106 evaluations on the remaining five historical-period archaeological sites, and two prehistoric archaeological sites within the Alternative 1A alignment. By limiting subsurface testing and additional study to those sites within the Preferred Alternative (Alternative 1A), Caltrans avoided unnecessary impacts to sites on the other unselected alternatives.

### Table 3.8-1: Cultural Resources within Alternative 1A Evaluated/Assumed Eligible After Circulation of Draft

<table>
<thead>
<tr>
<th>Trinomial</th>
<th>Description</th>
<th>Alternative</th>
<th>Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA-SBR-15098</td>
<td>Prehistoric lithic scatter</td>
<td>1A</td>
<td>Evaluated in AER (Phase II), ineligible</td>
</tr>
<tr>
<td>CA-SBR-15088</td>
<td>Prehistoric lithic scatter</td>
<td>1A</td>
<td>Evaluated in Supplemental CARIDAP Report, ineligible</td>
</tr>
<tr>
<td>CA-SBR-15085</td>
<td>Prehistoric lithic scatter</td>
<td>1A</td>
<td>Assumed eligible, Stipulation VIII.C.4</td>
</tr>
<tr>
<td>CA-SBR-2071H</td>
<td>Historical-period refuse scatter and well</td>
<td>1A</td>
<td>Evaluated in Supplemental HRER, ineligible</td>
</tr>
<tr>
<td>CA-SBR-6572H</td>
<td>Historical-period refuse scatter</td>
<td>1A</td>
<td>Evaluated in Supplemental HRER, ineligible</td>
</tr>
</tbody>
</table>
Results of the Phase II testing and evaluation performed for prehistoric archaeological site CA-SBR-15098 indicated the site does not and will not yield information important in prehistory. Caltrans also assessed the site’s significance under Criteria A, B, and C and found that the site is not associated with events that have made a significant contribution to the broad patterns of our history, not associated with the lives of significant persons in the past, and does not embody the distinctive characteristics of a type, period, or method of construction or work of a master. Accordingly, Caltrans determined the site to be ineligible for listing in the NRHP under Criteria A, B, C, or D.

Prehistoric archaeological site CA-SBR-15088 was determined to meet the criteria for sparse lithic scatters as defined in the CARIDAP: Sparse Lithic Scatters, and per CARIDAP guidelines was evaluated through implementation of the CARIDAP and found ineligible for listing in the NRHP.

Historical-period sites CA-SBR-2071H, -6572H, -15076H, -15086H, and -15087H were evaluated in the Supplemental HRER and determined to be ineligible for listing the NRHP under any of the four criteria. Site CA-SBR-15073/H was assumed eligible per Stipulation VIII.C.4 of the Caltrans Section 106 PA. The historical component does not contribute to the eligibility of the site as a whole for the NRHP or the CRHR, should it be formally evaluated in its entirety. The prehistoric component of site CA-SBR-15073/H is outside the area of direct impact and can be fully protected through the delineation of an Environmentally Sensitive Area.

One prehistoric archaeological site, CA-SBR-15085, has been assumed eligible for the purposes of this project only with Caltrans CSO approval, per Stipulation VIII.C.4 of the Caltrans Section 106 PA. A finding of “no adverse effect” was determined for this site. Less than 20 percent of the site is within the project’s area of direct impact. An Extended Phase I evaluation was conducted in portions of CA-SBR-15085 to determine the presence or absence of subsurface cultural deposits within the area of direct impact. No subsurface deposits are present within the project’s area of direct impact. The majority of the site will be protected through delineation of an ESA and AMA during construction. While implementation of the undertaking will impact a portion of the site, the majority of the site will not be adversely affected.

Caltrans reported the findings of these evaluations in a Supplemental HPSR and sought concurrence on these findings from SHPO in a letter dated May 27, 2014. SHPO concurred with the evaluations on June 6, 2014. Additionally, Caltrans sought concurrence on a Finding of No Adverse Effect on June 6, 2014. SHPO concurred with the finding on June 10, 2014 (see
Appendix M). The Finding of No Adverse Effect has four conditions (unanticipated discoveries, establishment of environmentally sensitive areas, establishment of archaeological monitoring areas, and buried sites testing program) that are captured in measures CR-1 through CR-5. The results of the extensive inventory efforts suggest a low probability of encountering significant undisturbed subsurface archaeological deposits. However, there remains a possibility that aeolian and hydrologic processes may have obscured presently unidentified sites, although it is also expected that they would be similar in character to those encountered in the surface surveys. Consultation with the San Manuel Band indicated concerns over the possibility of additional finds. To that end, a buried site testing program will be developed and implemented in cooperation with the San Manuel Band to further define any areas of sensitivity that should be subject to archaeological and Native American monitoring in addition to the vicinity of the known sites to be protected with ESAs.

The 59 cultural resources identified within the APE that are the subject of project cultural resources studies are listed in Table 3.8-2. The table also identifies the alternative the resource is located within and the evaluation status of the resource.

None of the archaeological sites evaluated in the Preferred Alternative alignment warrant preservation in place. As mentioned in the regulatory setting, historic sites on or eligible for the NRHP and archaeological sites on or eligible for the NRHP, that warrant preservation in place as determined by Caltrans and the official(s) with jurisdiction, require evaluation to determine if use of a 4(f) resource is anticipated. As part of the project development for this project, Caltrans determined that the required archaeological excavations to further document the potential impacts would be completed between the Draft and Final EIR/EIS in order to reduce the amount of disruption and impact to potentially sensitive sites. After completion of the technical study, Caltrans updated the Cultural Resources section of this EIR/EIS. Since the assumed eligible resources are not determined to warrant preservation in place, there is no consequent 4(f) use of a cultural resource. All necessary evaluations and SHPO Concurrences under Section 106 have been obtained prior to completion of the Final EIR/EIS.

Table 3.8-2: Identified Cultural Resources within the Project APE

<table>
<thead>
<tr>
<th>No.</th>
<th>Temporary No.</th>
<th>Resource Type</th>
<th>Description</th>
<th>Alternative</th>
<th>Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>APN 49823251*</td>
<td>Built-Environment</td>
<td>Converted railroad boxcar/building</td>
<td>3</td>
<td>Evaluated in HRER</td>
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<tr>
<td>2</td>
<td>CA-SBR-6693H*</td>
<td>Built-Environment</td>
<td>Segment of Atchison, Topeka and Santa Fe Railroad</td>
<td>1, 2, and 3</td>
<td>Evaluated in HRER</td>
</tr>
<tr>
<td>3</td>
<td>CA-SBR-16144H*</td>
<td>Built-Environment</td>
<td>Historical dirt road</td>
<td>2 and 3</td>
<td>Evaluated in HRER</td>
</tr>
<tr>
<td>4</td>
<td>APN 49223106*</td>
<td>Built-Environment</td>
<td>Single-family residence</td>
<td>2</td>
<td>Evaluated in HRER</td>
</tr>
<tr>
<td>5</td>
<td>CA-SBR-16145H*</td>
<td>Built-Environment</td>
<td>Historical dirt road</td>
<td>2 and 3</td>
<td>Evaluated in HRER</td>
</tr>
<tr>
<td>6</td>
<td>CA-SBR-7431H*</td>
<td>Built-Environment</td>
<td>Historical Wagon Road</td>
<td>1</td>
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<tr>
<td>7</td>
<td>CA-SBR-5731H*</td>
<td>Built-Environment</td>
<td>Randsburg Railroad Grade</td>
<td>1</td>
<td>Evaluated in HRER</td>
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## Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

### Section 3.8. Human Environment—Cultural Resources

<table>
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<th>Description</th>
<th>Alternative</th>
<th>Disposition</th>
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<tr>
<td>8</td>
<td>CA-SBR-16146H*</td>
<td>Built-Environment</td>
<td>Historical dirt road</td>
<td>2 and 3</td>
<td>Evaluated in HRER</td>
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<tr>
<td>9</td>
<td>CA-SBR-10316H*</td>
<td>Built-Environment</td>
<td>“Tower Line” power transmission line</td>
<td>1, 2, and 3</td>
<td>Evaluated in HRER</td>
</tr>
<tr>
<td>10</td>
<td>APN 49219212*</td>
<td>Built-Environment</td>
<td>Darr Motel</td>
<td>2</td>
<td>Evaluated in HRER</td>
</tr>
<tr>
<td>11</td>
<td>40475 U.S. Highway 395*</td>
<td>Built-Environment</td>
<td>Single-family residence</td>
<td>2</td>
<td>Evaluated in HRER</td>
</tr>
<tr>
<td>12</td>
<td>Collier Residence U.S. 395*</td>
<td>Built-Environment</td>
<td>Single-family residence and three ancillary buildings</td>
<td>2</td>
<td>Evaluated in HRER</td>
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<td>14</td>
<td>CA-SBR-16147H*</td>
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<td>Historical dirt road</td>
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<td>16</td>
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<td>Built-Environment</td>
<td>Historical dirt road</td>
<td>1, 2, and 3</td>
<td>Evaluated in HRER</td>
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<tr>
<td>17</td>
<td>Kramer Services Corp. / 40654 Highway 395</td>
<td>Built-Environment</td>
<td>Commercial property</td>
<td>2</td>
<td>Evaluated in HRER</td>
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<td>18</td>
<td>CA-SBR-2071H#</td>
<td>Site</td>
<td>20th century refuse dump (insulators)</td>
<td>1</td>
<td>Evaluated in Supp. HRER</td>
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<td>19</td>
<td>CA-SBR-6572H#</td>
<td>Site</td>
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<td>Evaluated in Supp. HRER</td>
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<td>20</td>
<td>CA-SBR-9813</td>
<td>Site</td>
<td>Sparse lithic scatter</td>
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<td>21</td>
<td>CA-SBR-9891</td>
<td>Site</td>
<td>Temporary camp</td>
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<td>22</td>
<td>CA-SBR-10367</td>
<td>Site</td>
<td>Temporary camp</td>
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<td>23</td>
<td>CA-SBR-10368</td>
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<td>20th century refuse dump</td>
<td>3</td>
<td>Deferred Evaluation</td>
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<tr>
<td>25</td>
<td>CA-SBR-12456H</td>
<td>Site</td>
<td>WWII Target and survey marker</td>
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<td>CA-SBR-12578/H</td>
<td>Site</td>
<td>Sparse lithic scatter/ WWII first aid kit</td>
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<td>27</td>
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<td>28</td>
<td>CA-SBR-13381H</td>
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<td>20th century refuse dump</td>
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<td>Deferred Evaluation</td>
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<tr>
<td>29</td>
<td>CA-SBR-15072H</td>
<td>Site</td>
<td>Historical Kramer Station and Townsite</td>
<td>2 and 3</td>
<td>Deferred Evaluation</td>
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<tr>
<td>30</td>
<td>CA-SBR-15073/H#</td>
<td>Site</td>
<td>Residential/refuse and mining complex</td>
<td>1, 2, and 3</td>
<td>Assumed eligible, Stipulation VIII.C.4</td>
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</table>
### Cultural Resources

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<thead>
<tr>
<th>No.</th>
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<th>Description</th>
<th>Alternative</th>
<th>Disposition</th>
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<td>31</td>
<td>CA-SBR-15074⁹</td>
<td>Site</td>
<td>Sparse lithic scatter</td>
<td>1 and 3</td>
<td>Evaluated/ CARIDAP</td>
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<tr>
<td>32</td>
<td>CA-SBR-15075⁹</td>
<td>Site</td>
<td>Sparse lithic scatter</td>
<td>1, 2, and 3</td>
<td>Evaluated/ CARIDAP</td>
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<td>33</td>
<td>CA-SBR-15076H⁹</td>
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<td>20ᵗʰ century refuse dump</td>
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<td>Evaluated in Supp. HRER</td>
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<td>34</td>
<td>CA-SBR-15077H</td>
<td>Site</td>
<td>Residential/refuse complex</td>
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<td>Deferred Evaluation</td>
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<td>35</td>
<td>CA-SBR-15078</td>
<td>Site</td>
<td>Sparse lithic scatter</td>
<td>2</td>
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3.8 Human Environment—Cultural Resources

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</table>

Notes: XPI = Extended Phase I investigation.
# Site is within the vicinity of the Preferred Alternative (Alternative 1A).
Source: Caltrans 2013b.

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.

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

3.8.3 Environmental Consequences

As discussed in the previous sections, none of the cultural resources evaluated during the course of the present study meet the NRHP eligibility criteria. However, two of the archaeological sites, CA-SBR-15085 and CA-SBR-15073/H, have been assumed eligible for the purposes of this project only with Caltrans CSO approval, per Stipulation VIII.C.4 of the Caltrans Section 106 PA. Alternative 1A has the potential to affect two sites. Caltrans has determined a finding of “no adverse effect” for the undertaking with the implementation of avoidance measures. The Finding of No Adverse Effect has four conditions (unanticipated discoveries, establishment of environmentally sensitive areas, establishment of archaeological monitoring areas, and buried sites testing program) that are captured in measures CR-1 through CR-5.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the use of land from historic properties. Since the sole assumed eligible resource is not determined to warrant preservation in place, there is no consequent 4(f) use of a cultural resource. Caltrans has determined that site CA-SBR-15085 is assumed to be a historic property that does not qualify as a Section 4(f) resource.

3.8.3.1 Permanent Impacts
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Section 3.8. Human Environment—Cultural Resources

Alternative 1—Northerly Alignment 4-Lane Divided Expressway

No known historic properties, yet identified, in the alternative would be affected. However, nine of the unevaluated archaeological sites lie within the alternative footprint and could be affected by construction of the proposed project. The impacts could be substantial adverse if important archaeological resources are disturbed or destroyed during construction.

Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

The Supplemental HPSR and Finding of Effect prepared for the Preferred Alternative identified one historic property within the Alternative 1A footprint that would be impacted.

Alternative 2—Existing Alignment 4-Lane Expressway with Median

Alternative 1A has been identified as the Preferred Alternative for the project. Alternative 2 would not be constructed; therefore, cultural resources within the vicinity of Alternative 2 would not be affected. Because Alternative 2 was not identified as the Preferred Alternative, the 18 known archaeological sites have not been evaluated.

Alternative 3—Southerly Alignment 4-Lane Divided Expressway

Alternative 1A has been identified as the Preferred Alternative for the project. Alternative 3 would not be constructed; therefore, cultural resources within the vicinity of Alternative 3 would not be affected. Because Alternative 3 was not identified as the Preferred Alternative, the 10 known archaeological sites have not been evaluated.

Alternative 4—No-Build Alternative

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

3.8.3.2 Temporary Impacts

Build Alternatives 1, 1A, 2, and 3

Impacts on cultural resources would result from construction of any of the build alternatives (Alternatives 1, 1A, 2, and 3), not from operation of the facility itself. Impacts on cultural resources are considered permanent, not temporary.

Alternative 4—No-Build Alternative

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

3.8.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance and minimization measures CR-1, CR-2, and CR-3 would address any unanticipated discoveries during construction. CR-4 will ensure full avoidance of the prehistoric component of
site CA-SBR-15073/H. CR-5 will minimize impacts to site CA-SBR-15085 through delineation of an ESA around the majority of the site. Based on the SHPO’s concurrence with Caltrans’ findings in the Supplemental HPSR and Finding of Effect, avoidance measure CR-5 will address any potential effects to the assumed historic property.

The following measures 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 earthmoving 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 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 Osteologically Trained Archaeological Monitor(s) and Native American Monitor(s) shall be present during all ground disturbing construction activities in sensitive areas, which will be defined after the buried site testing and before completion of final design. In the event that additional cultural deposits are uncovered during construction operations, the archaeological monitor shall be empowered to halt or divert work in the vicinity of the find until the archaeologist is able to determine the nature and the significance of the discovery.

- **CR-3a:** Prior to construction, buried site testing will be performed to further define the boundaries of the “sensitive areas.” The buried site testing will include a geo-archaeological analysis of the potential for the presence of buried subsurface deposits. If the results of the buried sites testing indicate that the presence of buried subsurface deposits are “likely,” a Discovery Plan will be prepared and implemented in the event of inadvertent discoveries.

- **CR-4:** An Environmentally Sensitive Area (ESA) will be delineated around the prehistoric component of CA-SBR-15073/H as described in the ESA Action Plan in the Finding of Effect. The ESA will be delineated on the final plans, which will be reviewed by a qualified archaeologist.

- **CR-5:** An Environmentally Sensitive Area (ESA) will be delineated around a portion of site CA-SBR-15085 as described in the ESA Action Plan in the Finding of Effect. The ESA will be delineated on the final plans, which will be reviewed by a qualified archaeologist.
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3.9 Hydrology and Floodplains

3.9.1 Regulatory Setting

3.9.1.1 Federal Regulations

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration (FHWA) requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

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, and
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted 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.”

3.9.1.2 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.

3.9.1.3 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.
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- **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.

### 3.9.2 Affected Environment

The following discussion is based on information contained in the September 2012 Water Quality Questionnaire—State Route 58 Kramer Junction Expressway Project (Caltrans 2012b), the February 2010 *Location Hydraulic Study* (Caltrans 2012c), the September 2009 *Floodplain Evaluation Report Summary—State Route 58 Kramer Junction Expressway Project* (Caltrans 2012d), and the October 2012 *Initial Site Assessment* (ISA) (Caltrans 2012e). References used in the technical studies are not carried over into this section.

#### 3.9.2.1 Topography and Drainage

Topography of the area is typical of desert areas. It 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 (see Figure 3.9.1, Topography/Drainage Patterns). 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 project site ranges from about 2,480 feet above mean sea level (amsl) in the west limit of the project to approximately 2,417 feet amsl in the east limit of the project. The headwater elevation at Saddleback Mountain is approximately 2,795 feet, and 3,207 feet above mean sea level at Kramer Hills.
Figure 3.9.1
Hydrology and Water Quality Maps – Topography/Drainage Patterns
State Route 58 Kramer Junction Expressway Project

Legend
- Alternative 1A
- Alternative 1
- Alternative 2
- Alternative 3
- Channels*

*Channels are based on topographic information and they do not necessarily correspond to real washes in the area. Fieldwork for the JD revealed that not all the mapped channels exist.

Source: ESRI USA Imagery (2012)
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616
Figure 3.9.2
Hydrology and Water Quality Maps – Watersheds
State Route 58 Kramer Junction Expressway Project
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3.9.2.2 Surface Water Hydrology

The project area is within the Mojave hydrologic basin of the Antelope-Fremont Valleys and Coyote-Cuddeback Lakes watersheds (see Figure 3.9.2, Watersheds). The overall Mojave hydrologic basin, which has a surface area of approximately 4,500 square miles, is located entirely within the County of San Bernardino. The Mojave River, located 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 one and a half acres.

3.9.2.3 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 ISA, reports groundwater at depths greater than 150 feet below ground surface (bgs). According to the GeoTracker website, depth to groundwater is reported to be 70 to 150 feet below the ground surface in wells located near the intersection of US-395 with SR-58. The Antelope Valley and Harper Valley groundwater basins underlie the project area (see Figure 3.9.3, Groundwater Basins).

Antelope Valley Groundwater Basin

The Antelope Valley groundwater basin underlies an extensive alluvial valley of the western Mojave Desert. The Antelope Valley basin’s total surface area is approximately 1,010,000 acres (approximately 1,580 square miles). The elevation of the valley floor ranges from 2,300 to 3,500 feet amsl. The Antelope Valley groundwater basin is bounded on the northwest by the Garlock fault, at the base of the Tehachapi Mountains, and on the southwest by the San Andreas fault, at the base of the San Gabriel Mountains. The basin is bounded on the east by ridges, buttes, and low hills that form a surface and groundwater drainage divide and on the north by the Fremont Valley groundwater basin, which is located at a groundwater divide approximated by a southeastward-trending line from the mouth of Oak Creek through Middle Butte to exposed bedrock near Gem Hill. The Rand Mountains are located farther to the east.

The basin is recharged primarily from perennial runoff that originates in the surrounding mountains and hills. Most recharge occurs at the foot of the mountains and hills as runoff percolates through the head of alluvial fan systems. Big Rock and Little Rock Creeks, in the southern part of the basin, contribute about 80 percent of the runoff in the basin.

From 1975 through 1998, groundwater levels changed, increasing by as much as 84 feet and decreasing by as much as 66 feet. The parts of the basin with declining water levels are along the SR-14 corridor (i.e., from Palmdale to Lancaster and Rosamond) and surrounding Rogers Lake on Edwards Air Force Base.

Historically, groundwater in the basin flowed north from the San Gabriel Mountains and south and east from the Tehachapi Mountains toward Rosamond Lake, Rogers Lake, and Buckhorn Lake. These dry lakes are places where groundwater can discharge by evaporation. Because of
recent groundwater pumping, groundwater levels and flow have been altered in urban areas such as Lancaster and Edwards Air Force Base. Groundwater pumping has caused subsidence of the ground surface as well as earth fissures in Lancaster and on Edwards Air Force Base.

**Harper Valley Groundwater Basin**

The Harper Valley groundwater basin, which underlies the eastern portion of the 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 located 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 feet. 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.

### 3.9.2.4 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 identify flood hazard areas in the vicinity of the proposed project (see Figure 3.9.4, FEMA Floodplain Map). There are no FEMA-mapped floodplains within the limits of the proposed project alternatives. However, the build alternatives are located in an area that has been identified as having a possible but undetermined flood hazard. No flood hazard analysis has been conducted for this area by FEMA.

As part of the proposed project, a Location Hydraulic Study was prepared to determine the existence or non-existence of flooding problems within the limits of the proposed project alternatives (Caltrans 2012c). Peak discharges were calculated for each hydrologic basin that drains to the project area by considering a 100-year storm event. A 100-year storm event has a
one percent probability of occurring within a given year. As part of the analysis, the tributary area to the proposed project was divided into 20 drainage basins. These drainage basins were modeled to determine their adequacy with respect to conveying 100-year storm flows. Please see Section 3.9.3, “Environmental Consequences” for each of the Build Alternatives for a summary analysis of the results of the Location Hydraulic Study.
Figure 3.9.3
Hydrology and Water Quality Maps – Groundwater Basins
State Route 58 Kramer Junction Expressway Project
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Figure 3.9.4
Hydrology and Water Quality Maps – FEMA Floodplain Map
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3.9.3 Environmental Consequences

3.9.3.1 Permanent Impacts

Build Alternatives 1, 1A, 2, and 3

A total of thirteen natural drainages will be affected by implementation of the proposed project. Under all of the build alternatives (Alternatives 1, 1A, 2, and 3), new drainage facilities to improve on-site drainage would be included as part of the realignment and roadway improvements. Culverts under the new roadway are proposed at 13 locations, at least two of which would be oversized to provide opportunities for animals to cross the expanded SR-58 facility. Although locations for the culverts have been proposed, their final design will be determined when the final hydrology studies are completed. The culverts would be constructed and sized to capture runoff from the appropriate drainage area according to Caltrans’ standards. No substantial adverse effects on regional drainage patterns would occur.

The hydrology analysis presented in the location hydraulic study indicates that all anticipated 100-year storm flows would be conveyed under the proposed highway alternatives. The analysis of storm flows at the middle of the project area took into account the proposed interchange at the SR-58/US-395 Junction for each of the build alternatives. The land in the western part of the project area is very flat, with no flow lines where it approaches the new alignment. Therefore, generalized ponding in areas on either side of the expressway embankment could occur. In addition, some culverts could act as pressure equalizers.

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. Within the cut sections of the alignment, groundwater may be perched, or may become perched, on contact between rock and alluvium. 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 the proposed highway. 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 drainage improvements proposed as part of the project.

Implementation of the build alternatives 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 to the quantity, flow, and/or quality of groundwater would be minor adverse.

The build alternatives would not result in “significant encroachment,” as defined by 23 CFR 650.105, onto a floodplain. Furthermore, they 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, they would not result in a substantial adverse risk to life or property, nor would they result in impacts on natural and beneficial floodplain values.
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 alternatives would not result in a tsunami or mudflow hazard.

The build alternatives would not result in indirect permanent impacts related to hydrology or flooding in adjacent areas. Long-term or permanent impacts would be considered minor adverse.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, there would be no improvements made to SR-58. 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.

**3.9.3.2 Temporary Impacts**

**Build Alternatives 1, 1A, 2, and 3**

A total of thirteen natural drainages will be affected by the construction of the proposed project. Under all build alternatives (Alternatives 1, 1A, 2, and 3), new drainage facilities to facilitate on-site drainage would be included as part of the realignment and roadway improvements.

Construction activities could temporarily disturb soil surfaces and 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, a total of one and a half acres of drainage areas would be disturbed during site development, exposing the underlying surfaces to erosion forces.

Following construction 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), Storm Water Data Report (SWDR), and mitigation measures identified in Section 3.10, Water Quality. With implementation of the measures HF-1 through HF-6 identified in Section 3.9.4, impacts would be considered minor adverse.

**Alternative 4—No-Build Alternative**

Alternative 4 would not involve any construction, and no direct or indirect substantial adverse hydrology or floodplain impacts would occur.
3.9.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be incorporated into the design of the project in order to avoid and minimize hydraulic and flooding impacts:

- **HF-1**: The project will be designed so that stormwater flows do not overtop the roadway section.

- **HF-2**: Culverts in the part of the project area where it is very flat and no flow lines approach the new alignment may require training dikes to concentrate flows into the inlets. The exact size and location will be determined during the project’s final design phase.

- **HF-3**: All culverts will be constructed with their inverts on natural ground that approximates the gradient flow line they serve. Placement in such a manner helps prevent bedload deposition in the culvert.

- **HF-4**: As the project area is entirely within a desert area, all culverts will be designed for the 100-year AMC II storm.

- **HF-5**: The following preliminary design features and recommendations will be incorporated during the final design phase of the project in accordance with Caltrans’ standard design practice:
  - Stormwater flows will not be allowed to overtop the road section,
  - Channels and ditches will be used to collect and convey flows into one main flow before crossing the road,
  - A bulking factor between 25 and 50 percent will be considered,
  - Box culverts will be as wide in span as economically feasible,
  - Training dikes will be considered for culverts to concentrate flows into the inlets,
  - Box culverts will be constructed with their inverts on natural ground that approximates the gradient of the flow line they serve,
  - All culverts will be designed for the 100-year AMC II storm, and
  - Water velocity at the culvert will be limited to 10 feet per second to prevent excessive scour.
Section 3.9. Physical Environment—Hydrology and Floodplains

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3.10 Water Quality and Stormwater Runoff

This section describes the environmental and regulatory setting associated with water quality and stormwater runoff in the project area. This section also describes the impacts of project implementation on water resources.

3.10.1 Regulatory Setting

3.10.1.1 Federal Regulations

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 unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it 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. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which 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 (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

USACE issues two types of 404 permits: Standard and General 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 authorize a variety of minor project activities with no more than minimal effects.
There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Standard permits. 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 CFR 40 Part 230), and whether permit approval is in the public interest. The Guidelines state that 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 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 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.

3.10.1.2 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 regarding water quality standards in a project area are contained 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. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.
State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National 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). The U.S. EPA defines an MS4 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 are designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 pursuant to 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 was renewed (Order No 2012-0011-DWQ) on September 19, 2012, and became effective July 1, 2013. The permit contains three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);

2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and

3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.
Construction General Permit

Construction General Permit (Order No. 2009-009-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 U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by 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 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.
3.10.1.3 Local Regulations

San Bernardino General Plan

The following policies from the County’s Circulation and Infrastructure Element would apply to the proposed project:

- **Policy CI 11.13.** Prevent surface and groundwater pollution and continue the cleanup of contaminated waters and watersheds.
- **Policy CI 13.2.** Promote the implementation of low impact design principles to help control the quantity and improve the quality of urban runoff. These principles include:
  a. Minimize changes in hydrology and pollutant loading; ensure that post development runoff rates and velocities from a site do not adversely impact downstream erosion, and stream habitat; minimize the quantity of stormwater directed to impermeable surfaces; and maximize percolation of stormwater into the ground where appropriate.
  b. Limit disturbance of natural water bodies and drainage systems; conserve natural areas; protect slopes and channels;
  c. Preserve wetlands, riparian corridors, and buffer zones; establish reasonable limits on the clearing of vegetation from the project site;
  d. Establish development guidelines for areas particularly susceptible to erosion and sediment loss;
  e. Require incorporation of structural and non-structural BMPs to mitigate projected increases in pollutant loads and flows.

3.10.2 Affected Environment

The following discussion is based on information contained in the September 2012 Water Quality Questionnaire, State Route 58 Kramer Junction Expressway Project prepared for the proposed project (Department 2012b). References from the technical study are not carried forward into this section.

3.10.2.1 Climate

The proposed project is located in the Mojave Desert. Summer temperatures are high with low humidity and rainfall. Winter temperatures are cold and can be below freezing. Average annual precipitation near the project area is approximately five inches and ranges from approximately three to seven inches. This portion of the Mojave Desert receives an average of five inches of precipitation annually while experiencing high levels of evaporation. The region receives the majority of its precipitation during the winter in the form of rain and irregular snowstorms; however, snowstorms occur at higher elevations than this location.

3.10.2.2 Topography

Topography of the area is typical of desert areas. It varies from rugged rocky mountaintops, surrounded by gravel laden alluvial fans and aprons, to sand and clay deposits in flat valley
areas. The features 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 (see Figure 3.9.1, Topography/Drainage Patterns). 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 project site ranges from about 2,480 feet above mean sea level (amsl) in the west limit of the project to approximately 2,417 feet amsl in the east limit of the project. The headwater elevation at Saddleback Mountain is approximately 2,795 feet, and 3,207 feet above mean sea level at Kramer Hills.

### 3.10.2.3 Surface Water

The project area is within the Antelope and Mojave hydrologic units and the North Muroc and Lockhart sub-watersheds. The overall Mojave hydrologic basin has a surface area of approximately 4,500 square miles. The nearest water course in the area is the Mojave River, which is approximately 15 miles southeast of the proposed project. Most of the Mojave River is subterranean, but flows breach the surface between the cities of Barstow and Victorville.

Several washes cross the proposed project alternatives, totaling an area of approximately one and a half acres. These drain to Harper Dry Lake, a depression approximately nine and a half miles northwest of the project. The washes are protected under the Federal Clean Water Act as regulated by the USACE, under Section 1600 of the CDFW code and the Lahontan Regional Water Quality Control Board (LRWQCB). According to the 2010 Clean Water Act Section 303(d) List, no surface waters in the project area are listed as impaired.

Additionally, the LRWQCB has developed a watershed management initiative, with a special focus on the Mojave River watershed as a result of the hydrologic basin’s non-point source issues relating to overdraft of groundwater, including impacts on wetlands and springs, water quality impacts from confined animal facilities, and potential water quality effects of urban and construction-related runoff.

### 3.10.2.4 Groundwater

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, reports groundwater at depths greater than 150 feet below ground surface (bgs) (Department 2012d). According to the GeoTracker website, depth to groundwater is reported to be 70 to 150 feet below the ground surface in wells located near the intersection of US-395 with SR-58. The Antelope Valley and Harper Valley groundwater basins underlie the project area (see Figure 3.9.3, Groundwater Basins).
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.10. Physical Environment—Water Quality and Stormwater Runoff

Antelope Valley Groundwater

The Antelope Valley Groundwater Basin’s total surface area is approximately 1,010,000 acres (approximately 1,580 square miles). The basin is bounded on the northwest by the Garlock fault zone; on the southwest by the San Andreas Fault zone; on the east by the Rand Mountains and ridges, buttes, and low hills; and on the north by the Fremont Valley Groundwater Basin.

The Antelope Valley Groundwater Basin has an estimated storage capacity of 68,000,000 acre-feet (af). Recharge to the basin occurs primarily via runoff from the surrounding mountains and hills. Minor flow inputs to the groundwater basin are from the return of irrigation water and septic system effluent. Historical groundwater flows in the basin traveled towards the north from the San Gabriel Mountains and south and east from the Tehachapi Mountains. However, recent groundwater flows have been altered due to groundwater pumping, which caused subsidence below urban areas such as Lancaster and Edwards Air Force Base.

The Antelope Valley Groundwater Basin’s water quality is characterized by calcium bicarbonate near the surrounding mountains and sodium bicarbonate or sodium sulfate in the central part of the basin. Groundwater impairments in the Antelope Valley Groundwater Basin include high nitrates and boron, primary inorganics, radiological particles, pesticides, and volatile organic compounds and semi-volatile organic compounds.

Harper Valley Groundwater

The Harper Valley Groundwater Basin, which underlies the eastern portion of the proposed project, has a total surface area of 410,000 acres or 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 towards Harper (dry) Lake.

Harper Valley Groundwater Basin has an estimated storage capacity of 6,975,000 af and an estimated storage of 101,500 af. Recharge to the basin generally occurs through infiltration of rainfall and percolation of surface water runoff through alluvial fans around the edges of the valley. Other sources of recharge to the basin include groundwater underflow from the Middle Mojave River Valley and Cuddeback Valley Groundwater Basins. Groundwater flows have remained steady and predominantly toward the dry Harper Lake, though groundwater levels in some wells have fluctuated.

Groundwater level data in or near the project area is limited. However, available data indicate groundwater depths may range from approximately 170 to 310 feet below the ground surface (bgs). 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 during 1974 through 1999, rising about 1.6 feet. Hydrographs for wells in the western portion of the basin indicate steady groundwater levels during 1992 through 1998. The hydrograph for a well in the southern part of the basin indicates that the groundwater surface elevation declined about 12 feet

Groundwater quality in the Harper Valley Groundwater Basin 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.

3.10.2.5 Surface and Groundwater Quality

As described above, there are no named surface waters in the project area; however, minor surface waters in the North Muroc and Lockhart sub-watersheds are assigned beneficial uses of agriculture supply, municipal and domestic supply, groundwater recharge, contact and non-contact recreation, cold and warm freshwater habitat, commercial and sport fishing, and wildlife habitat (RWQCB, Region 6 2010). 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 the Department’s Stormwater Research and Monitoring Program, pollutants that are expected to be found in roadway runoff include conventional constituents (biochemical oxygen demand, calcium carbonate, chemical oxygen demand, total dissolved solids, total organic carbon, total suspended solids, total volatile suspended solids, etc.), 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 3.10-1.
### Table 3.10-1: Known Roadway Pollutants

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Primary Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulates</td>
<td>Pavement wear, vehicles, atmosphere, maintenance, snow/ice abrasives, sediment disturbance</td>
</tr>
<tr>
<td>Nitrogen, Phosphorus</td>
<td>Atmosphere, roadside fertilizer application, sediments</td>
</tr>
<tr>
<td>Lead</td>
<td>Auto exhaust, tire wear, lubricating oil and grease, bearing wear, atmospheric fallout</td>
</tr>
<tr>
<td>Zinc</td>
<td>Tire wear, motor oil, grease</td>
</tr>
<tr>
<td>Iron</td>
<td>Auto body rust, steel highway structures, moving engine parts</td>
</tr>
<tr>
<td>Copper</td>
<td>Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicide and insecticide application</td>
</tr>
<tr>
<td>Cadmium</td>
<td>Tire wear, insecticide application</td>
</tr>
<tr>
<td>Chromium</td>
<td>Metal plating, moving engine parts, brake lining wear</td>
</tr>
<tr>
<td>Nickel</td>
<td>Diesel fuel and gasoline, lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving</td>
</tr>
<tr>
<td>Manganese</td>
<td>Moving engine parts</td>
</tr>
<tr>
<td>Bromide</td>
<td>Exhaust</td>
</tr>
<tr>
<td>Cyanide</td>
<td>Anticake compound used to keep deicing salt granular</td>
</tr>
<tr>
<td>Sodium, Calcium</td>
<td>Deicing salts, grease</td>
</tr>
<tr>
<td>Chloride</td>
<td>Deicing salts</td>
</tr>
<tr>
<td>Sulphate</td>
<td>Roadway bed, fuel, deicing salts</td>
</tr>
<tr>
<td>Petroleum</td>
<td>Spills, leaks or blow-by of motor lubricants, antifreeze and hydraulic fluids, asphalt leachate</td>
</tr>
<tr>
<td>Polychlorinated biphenyls (PCBs), Pesticides</td>
<td>Spraying of highway rights-of-way, atmospheric deposition, PCB catalyst in synthetic tires</td>
</tr>
<tr>
<td>Pathogenic Bacteria</td>
<td>Soil litter, bird droppings, trucks hauling livestock/stockyard waste</td>
</tr>
<tr>
<td>Rubber</td>
<td>Tire wear</td>
</tr>
<tr>
<td>Asbestos*</td>
<td>Clutch and brake lining wear</td>
</tr>
</tbody>
</table>


* Runoff does not contain mineral asbestos; however, some breakdown products of asbestos have been measured.

### 3.10.3 Environmental Consequences

#### 3.10.3.1 Permanent Impacts

**Alternative 1—Northerly Alignment 4-Lane Divided Expressway**

Widening and realigning SR-58 under Alternative 1 would increase the existing 67 acres of impervious surface in the area by approximately 130 acres to a total of 197 acres of impervious surface, which has the potential to increase stormwater runoff. Increases in stormwater runoff volume could accelerate soil erosion and increase the transport of pollutants to waterways. The
amount of lubricants, sloughed tire and brake material, and other contaminants associated with motorized vehicles and roadways would be similar to existing conditions and would not be expected to have a substantial adverse effect on the local water quality. Additionally, the proposed project would construct drainage facilities so that runoff would not disturb pollutants, sediments, or cause rilling in the soil surface. Alternative 1 would be required to implement temporary and post-construction stormwater quality BMPs, under the Department and Regional SWMP prepared for compliance with the NPDES Permits. The permanent BMPs will not be selected until the PS&E phase during construction of the project.

There are several washes that may be receiving water bodies, but there are no receiving water bodies listed as impaired on the 2010 Clean Water Act Section 303(d) list; therefore, there are no TMDLs established. In addition, the project site is located far away (over 15 miles) from the Mojave River. The proposed project would be designed to maximize sheet-flow from the highway to adjacent roadside to be infiltrated. Where necessary, highway runoff would be conveyed into permeable swales to maximize infiltration and retain sediment and litter. Overall, Alternative 1 would not substantially increase the amount or rate of runoff within the drainage features’ watersheds. Given the limited amount of runoff that would result from the implementation of Alternative 1 and the distance from impaired receiving water bodies, Alternative 1 would have no effect on the beneficial uses of minor surface waters in the North Muroc and Lockhart sub-watersheds and other water bodies in the region. Therefore, Alternative 1 would not have a substantial adverse effect on stormwater runoff and surface water quality. No substantial adverse effects under NEPA would occur.

The existing drainage patterns would be altered by Alternative 1; however, it is unlikely that the change would cause substantial adverse effects on water quality as there are other locations in the watershed for groundwater recharge, and the project’s increase in impervious surfaces would not result in a substantial loss of groundwater recharge and would not adversely affect groundwater levels. A total of 13 culverts would be constructed at various locations along the proposed alignment to convey drainage under the roadway (see Table 2-1), at least two of which would be oversized to provide opportunities for animals to cross the expanded SR-58 facility. The final locations of these culverts have been proposed; however, final design will be determined when hydrology studies are complete. All drainage facilities would be constructed and sized to convey runoff from the appropriate drainage area according to the Department’s standards. No substantial adverse effects under NEPA on regional or local drainage would occur.

Alternative 1 would not directly use groundwater resources (there would be no new groundwater wells associated with the proposed project) such that the direction of flow or level of groundwater would be affected. In addition, Alternative 1 does not involve groundwater extraction or extensive grading or tunneling that could adversely affect groundwater resources. Additionally, because there are several other locations in the watershed for groundwater recharge, the proposed project’s increase in impervious surface would not result in a considerable loss of groundwater recharge and would not affect groundwater levels. The implementation of Alternative 1 is not expected to cause appreciable changes in the quantity of groundwater through direct additions, interception of an aquifer by cuts or excavations, withdrawal, or through substantial loss of groundwater recharge capability. No substantial adverse effects under NEPA are anticipated.
Alternative 1 would permanently affect 3.40 acres of CDFW jurisdictional waters. Proposed impacts to state waters would be considered a potential substantial adverse impact under NEPA; however, mitigation measures BIO-2 through BIO-5, identified in Section 3.18, Wetlands, would minimize potential impacts to these water resources. A WDR from the LRWQCB pursuant to the State Porter-Cologne Act would be required. No substantial adverse effects under NEPA are anticipated after the implementation of proposed mitigation measures.

The release of hazardous materials could occur as a result of spills from vehicles using the freeway. The transportation and cleanup of hazardous materials is strictly regulated by the US EPA, the California and Federal Occupational Health and Safety Administrations, and a number of other federal, state, and local agencies; as such, no substantial adverse effects under NEPA are anticipated.

The use of pesticides, herbicides, and fertilizers associated with roadside vegetation maintenance could result in chemical changes to local water bodies; however, due to the minimal amount of vegetation and because vegetation maintenance would conform to all applicable local, state, and federal regulations, substantial adverse effects under NEPA are not anticipated.

**Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)**

Alternative 1A would increase the existing 67 acres of impervious surface in the area by approximately 123 acres to a total of 190 acres of impervious surface, which has the potential to increase stormwater runoff. Increases in stormwater runoff volume could accelerate soil erosion and increase the transport of pollutants to waterways. The amount of lubricants, sloughed tire and brake material, and other contaminants associated with motorized vehicles and roadways would be similar to existing conditions and would not be expected to have a substantial adverse effect on the local water quality. Additionally, the proposed project would construct drainage facilities so that runoff would not cause downstream effects or cause erosion. Alternative 1A would be required to implement temporary and post-construction stormwater quality BMPs, under the Department and Regional SWMP prepared for compliance with the NPDES Permits. The permanent BMPs will not be selected until the PS&E phase during construction of the project.

There are several washes that are receiving water bodies, but there are no receiving water bodies listed as impaired on the 2010 Clean Water Act Section 303(d) list; therefore, there are no TMDLs established. In addition, the project site is located far away (over 15 miles) from the Mojave River. The proposed project would be designed to maximize sheet-flow from the highway to the adjacent roadside to be infiltrated. Where necessary, highway runoff would be conveyed into permeable swales to maximize infiltration and retain sediment and litter. Overall, Alternative 1A would not substantially increase the amount or rate of runoff within the drainage features’ watersheds. Although the area experiences seasonal high-intensity rainfall events, there are low levels of annual rainfall in the area, and the amount of runoff that would result from the implementation of Alternative 1A would be limited. Considering the limited amount of increased runoff that would occur and the distance from impaired receiving water bodies, Alternative 1A would have no effect on the beneficial uses of minor surface waters in the North Muroc and Lockhart sub-watersheds and other water bodies in the region. Therefore, Alternative 1A would
not have a substantial adverse effect on stormwater runoff and surface water quality. No substantial adverse effects under NEPA would occur.

The existing drainage patterns would be altered by Alternative 1A; however, it is unlikely that the change would cause substantial adverse effects to water quality because there are other locations in the watershed for groundwater recharge, the project’s increase in impervious surfaces would not result in a substantial loss of groundwater recharge, and it would not adversely affect groundwater levels. A total of 13 culverts would be constructed at various locations along the proposed alignment to convey drainage under the roadway. The final locations of these culverts have been proposed; however, final design will be determined when hydrology studies are complete. All drainage facilities would be constructed and sized to convey runoff from the appropriate drainage area according to the Department’s standards. No substantial adverse effects under NEPA on regional or local drainages would occur.

Alternative 1A would not directly use groundwater resources (there would be no new groundwater wells associated with the proposed project) such that the direction of flow or level of groundwater would be affected. In addition, Alternative 1A does not involve groundwater extraction or extensive grading or tunneling that could adversely affect groundwater resources. Additionally, because there are several other locations in the watershed for groundwater recharge, the proposed project’s increase in impervious surface would not result in a considerable loss of groundwater recharge and would not affect groundwater levels. The implementation of Alternative 1A is not expected to cause appreciable changes in the quantity of groundwater through direct additions, interception of an aquifer by cuts or excavations, withdrawal, or through substantial loss of groundwater recharge capability. No substantial adverse effects under NEPA are anticipated.

Alternative 1A would permanently affect 3.40 acres of CDFW jurisdictional waters. Proposed impacts to state waters would be considered a potential substantial adverse impact under NEPA; however, mitigation measures BIO-2 through BIO-5, identified in Section 3.18, Wetlands, would minimize potential impacts to these water resources. A WDR from the LRWQCB pursuant to the State Porter-Cologne Act would be required. With implementation of proposed mitigation measures, no substantial adverse effects under NEPA are anticipated.

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

The use of pesticides, herbicides, and fertilizers associated with roadside vegetation maintenance could result in chemical changes to local water bodies; however, due to the minimal amount of vegetation and because vegetation maintenance would conform to all applicable local, state, and federal regulations, substantial adverse effects under NEPA are not anticipated.
**Alternative 2—Existing Alignment 4-Lane Expressway with Median**

Alternative 2 would increase the existing 67 acres of impervious surface by approximately 317 acres to a total of 384 acres of impervious surface. 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 Alternative 2 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 water bodies in the region. Alternative 2 would affect 3.44 acres of CDFW jurisdictional waters. Proposed impacts to state waters would be a potential substantial adverse effect under NEPA and a significant impact under CEQA. Mitigation measures BIO-2 through BIO-5, identified in Section 3.18, Wetlands, would minimize potential impacts to these water resources. A WDR from the LRWQCB pursuant to the State Porter-Cologne Act would be required. With implementation of proposed mitigation measures, no substantial adverse effects under NEPA are anticipated.

Additionally, Build Alternative 2 would require coordination with Southern California Edison (SCE) and the LRWQCB to minimize water quality impacts as a result of rerouting the expressway through the SCE utility substation and waste water impoundments. The implementation of measures WQ-5 and WQ-6 would minimize impacts on the SCE utility substation and waste water impoundments.

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

The use of pesticides, herbicides, and fertilizers associated with roadside vegetation maintenance could result in chemical changes to local water bodies; however, due to the minimal amount of vegetation and because vegetation maintenance would conform to all applicable local, state, and federal regulations, substantial adverse effects under NEPA are not anticipated.

**Alternative 3—Southerly Alignment 4-Lane Divided Expressway**

Alternative 3 would increase the existing 67 acres of impervious surface by approximately 356 acres to a total of 423 acres of impervious surface, thereby increasing the potential for stormwater runoff and transport of pollutants. 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 Alternative 3 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 water bodies in the region. With the implementation of standard BMPs, however, these impacts would be minimized under NEPA.

An estimated 4.70 acres of CDFW jurisdictional waters would be affected by Alternative 3. Proposed impacts to state waters would be a potential substantial adverse effect under NEPA and a significant impact under CEQA. Mitigation measures BIO-2 through BIO-5, identified in Section 3.18, Wetlands, would minimize potential impacts to these water resources. A WDR
from the LRWQCB pursuant to the State Porter-Cologne Act would be required. With implementation of proposed mitigation measures, no substantial adverse effects under NEPA are anticipated.

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

The use of pesticides, herbicides, and fertilizers associated with roadside vegetation maintenance could result in chemical changes to local water bodies; however, due to the minimal amount of vegetation and because vegetation maintenance would conform to all applicable local, state, and federal regulations, substantial adverse effects under NEPA are not anticipated.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, there would be no changes made to SR-58. There would be no increase in impermeable surfaces and therefore no anticipated potential to increase runoff or adversely affect water quality in the area.

### 3.10.3.2 Temporary Impacts

**Build Alternatives 1, 1A, 2, and 3**

Construction to realign and widen SR-58 under the proposed build alternatives (Alternatives 1, 1A, 2, and 3) could result in soil exposure to rainfall and runoff from grading and clearing operations. Disturbed soil could cause potential erosion and sediment control issues. In general, the severity of temporary, construction-related water quality impacts depends on soil erosion potential; construction practices; the frequency, magnitude, and duration of precipitation events; and the proximity of construction to stream channels or water bodies. Disturbed or loosened soils exposed to rainfall, runoff, and wind have the potential to be transported to waterways and settle out as sediment, and to “carry” pollutants (e.g., hydrocarbons, metals, certain pesticides), via adsorption, to nearby surface waters. Sediment is considered a pollutant by the LRWQCB. Standard measures would be employed to control erosion during construction thereby minimizing or avoiding sediment-related water quality impacts. Furthermore, the project is located in the Mojave Desert, and construction is expected to occur in the dry season; therefore, rainfall and runoff are expected to be minimal during construction activities. Regardless, in the event that construction activities must be conducted in the rain, the contractor would stop work and all appropriate BMPs would be implemented in accordance with the project SWPPP whenever the weather forecast predicts precipitation. As such, the build alternatives would not result in substantial temporary adverse effects under NEPA.
Construction of the proposed project would involve the use of construction equipment and associated fuels, solvents, lubricants, and other petroleum-based pollutants. There is the potential for accidental direct or indirect release of these substances into the environment where they may adversely affect surface and/or groundwater. In addition, concrete, soap, trash, and sanitary wastes are other common sources of potentially harmful materials on construction sites that could be accidentally introduced into a nearby waterway. The impact of toxic, construction-related materials on water quality varies depending on the duration and time of activities. A SWPPP would be developed and implemented to address discharges of stormwater runoff. The SWPPP would include a sampling and analysis plan for non-visible pollutants (contaminants).

The project would comply with the provisions of Statewide NPDES permit, issued to the Department by the SWRCB, Order No. 99-06-DWQ. The BMPs as described in Section 3 of the Department’s Statewide SWMP, Statewide Stormwater Management Plan, and Project Planning and Design Guide (PPDG) would be evaluated prior to completion of the Project Approval and Environmental Document phase and incorporated into the final design. Design pollution prevention BMPs are selected to reduce temporary and post-construction discharges. Examples of design pollution prevention BMPs are: preservation of vegetated areas, soil modification to increase infiltration, slope and surface protection systems, and earthen swales. Construction site BMPs are incorporated in the SWPPP and implemented during the construction period. The SWPPP would also include post-construction erosion control measures such as re-vegetation of disturbed soil areas.

The contractor would be responsible for preparing a SWPPP according to the Department’s standards, incorporating all BMPs in the contract plans, and amending the SWPPP during the course of construction as necessary. The Department’s Resident Engineer would review and approve the SWPPP. The contractor would also implement, inspect, and maintain all measures, with oversight by the Resident Engineer. With implementation of measures WQ-1, WQ-2, WQ-3, and WQ-4, impacts from temporary construction activities would be avoided and/or minimized for all build alternatives.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, there would be no changes made to SR-58. As such, there would be no potential for construction-associated impacts to adversely affect water quality in the area.

**3.10.4 Avoidance, Minimization, and/or Mitigation Measures**

Implementation of the avoidance and/or mitigation measures identified below would ensure that adverse impacts under NEPA 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 the Department’s Standard Specifications and Storm Water Quality Handbook, with consideration of the requirements of applicable government agencies. See also measures BIO-2 and BIO-5 in Section 3.18, Wetlands.

- **WQ-1:** The project will comply with the provisions of the Statewide NPDES permit. Treatment BMPs, as described in Section 3 of the Department’s Statewide SWMP
(Department 2003b) and the Project Planning and Design Guide (PPDG) (Department 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 percent 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 the Department’s 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 the Department’s Construction Site Best Management Practices Manual (Department 2003c) and/or the Department’s Storm Water Quality Handbooks, Project Planning and Design Guide (Department 2010) include 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 Department’s Construction Site Best Management Practices Manual (Department 2003c) and/or the Department’s Storm Water Quality Handbooks, Project Planning and Design Guide (Department 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 would 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:** Coordination with the LRWQCB and SCE will be required should Alternative 2 be selected to avoid water quality impacts from relocation of the utility substation and the waste water impoundments.

- **WQ-5:** Coordination with the USACE, CDFW, and LRWQCB is ongoing and required to minimize water quality impacts to the 13 natural drainages that cross the project alternatives. It is necessary to obtain a WDR from the LRWQCB. The project will require an Approved Jurisdictional Determination from the USACE, a 1602 Lake and Streambed Alteration Agreement from the CDFW, and a 401 Water Quality Certification from LRWQCB.
• **WQ-6:** Construction staging areas are to be sited in upland areas outside stream channels and other surface waters on or around the project site.

• **WQ-7:** Buffer areas should be identified and exclusion fencing is to be used to protect the water resources and prevent unauthorized vehicles or equipment from entering or otherwise disturbing the stream channels.

• **WQ-8:** Construction equipment will use existing roads.
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3.11 Geology/Soils/Seismic/Topography

3.11.1 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 provide 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 available at http://dot.ca.gov/hq/esc/earthquake_engineering/sdc/.

3.11.1.1 State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

California’s Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Section 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in corridors along active faults (referred to as earthquake fault zones). It defines criteria for identifying active faults, giving legal weight to terms such as active, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones. It also encourages and regulates seismic retrofits of some types of structures.

Seismic Hazards Mapping Act of 1990

The Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690–2699.6) is intended to avoid or reduce damage resulting from earthquakes. While the Alquist-Priolo Earthquake Fault Zoning Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Earthquake Fault Zoning Act (i.e., the state is charged with identifying and mapping areas at risk

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1 Liquefaction is a phenomenon in which the strength and stiffness of a soil are reduced by earthquake shaking or other rapidly applied loading. Liquefaction and related types of ground failure are of greatest concern in areas where well-sorted, sandy unconsolidated sediments are present in the subsurface and the water table is comparatively shallow.
of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones).

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

### 3.11.2 Affected Environment

Unless otherwise noted, the information from this section is based on the May 2007 Preliminary Geotechnical Report prepared for the proposed project (Caltrans 2007b). References used in the Preliminary Geotechnical Report are not carried over into this section. This Preliminary Geotechnical Report is based on site reconnaissance, limited subsurface exploration (due to restriction of right of entry on private properties and difficulty of obtaining permits from the BLM), laboratory testing of onsite materials, literature review of geotechnical reports of adjacent properties, and local geological and geotechnical information. This report does not present final design recommendations for use during the design phase of the proposed project. Final geotechnical investigations are typically conducted, and final recommendations made, after the completion of the Project Approval and Environmental Document phase.

The project limits or geologic study area as defined in the geotechnical study are between PM R143.5 and PM R13.80, extending from 0.4 miles west of the Kern/San Bernardino County line, crossing US-395, and continuing to PM R13.80. It should be noted that the Preliminary Geotechnical Report includes preliminary geotechnical studies for the northern alignment, which would be located just north of the existing SR-58; a central alignment, located approximately along the existing SR-58; and a southern alignment, located just south of the existing SR-58. The report did not include geotechnical studies for bridge foundations or culverts. These types of investigations are typically conducted during final design—after completion of the Project Approval and Environmental Document phase.

**Regional Geology**

The project site 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 alternatives, 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 project site is underlain by thick alluvial deposits of Quaternary-age\(^2\) material, derived from the mountains that border the desert region and the highlands within it (refer to Figure 3.11.1, Geologic Map). Near the eastern end of the project site, the alignment pass through a low rise composed of Cretaceous\(^3\) or Jurassic\(^4\) 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 (Caltrans 2007b). In addition to the surficial alluvial deposits, artificial fills composed of various earth materials are most likely present along the proposed alternatives. Relatively thick accumulations of these fills may be present locally where the alternatives traverse developed areas.

**Topography and Surface Drainage**

The existing topography of the site is relatively flat terrain of a broad alluvial plain. Elevations in the vicinity of the proposed project range from approximately 2,480 feet at the beginning of the project, just west of the Kern/San Bernardino county line, to approximately 2,470 feet at the intersection of US-395 to approximately 2,460 feet near the end of the project (approximately 13.3 miles east of the Kern/San Bernardino county line). Drainage along most of the alternatives is toward the east.

**Groundwater**

The proposed project lies within the Mojave River drainage basin. The eastern half of the project realignment lies in part of the Mojave River 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.

Groundwater information for wells located a few miles north of the SR-58/US-395 intersection show that the water table is fluctuating. In one well, groundwater measurements recorded depths ranging from 169.7 feet below ground surface on November 19, 1992, to 170.2 feet on March 3, 1998. In another well, groundwater measurements recorded depths ranging from 201.9 feet below ground surface on April 18, 1996, to 174.5 feet on March 20, 1998.

**Seismicity**

The study area is located in a high 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,

\(^2\) The Quaternary period in the geologic time scale spans from 2.588 million years ago to the present.
\(^3\) The Cretaceous geologic period spans from approximately 145 to 66 million years ago.
\(^4\) The Jurassic geologic period spans from approximately 201 to 145 million years ago.
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 thus 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 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 located in an area with relatively deep groundwater, the potential for liquefaction during a seismic event is considered minimal to non-existent.

**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 Lockhart/Lockhart South fault, located zero to 11 miles away from various portions of the proposed project. The fault is capable of generating a maximum credible earthquake moment magnitude of 7.25. Additionally, the Helendale fault, located approximately one to 13 miles from various portions of the proposed project alternatives, is capable of generating a maximum credible earthquake moment magnitude of 7.25. The Kramer Hills fault, located approximately two to eight miles from various portions of the proposed project alternatives, is capable of generating a maximum credible earthquake moment magnitude of 6.25 (see Figure 3.11.2, Geologic Map-Seismic Hazards Map).
Figure 3.11.1
Geologic Map
State Route 58 Kramer Junction Expressway Project

Legend
- Alternative 1A
- Alternative 2
- Alternative 1
- Alternative 3
- Qs - Quaternary, dune sand, lake or marine deposit (non-glacial)
- Q - Quaternary (Pliocene to Holocene), alluvium, terrace
- QPc - Late Tertiary-Early Quaternary (Miocene to Pleistocene), sandstone, conglomerate
- MC - Oligocene to Pleistocene, sandstone, conglomerate
- Tv - Tertiary (4-22 Ma), rhyolite, basalt
- grMZ - Permian to Tertiary; most Mesozoic, granodiorite, quartz monzonite
- Mzv - Triassic to Cretaceous, felsic volcanic rock, intermediate volcanic rock
- mv - Paleozoic (?) to Mesozoic (?), intermediate volcanic rock, mafic volcanic rock
- pC - Early Proterozoic to Miocene, gneiss, granitoid

Source: ESRI USA Imagery (2012)
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 080000616
Figure 3.11.2
Seismic Hazards Map
State Route 58 Kramer Junction Expressway Project
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Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

Section 3.11. Physical Environment—Geology/Soils/Seismic/Topography

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 Lockhart/Lockhart South fault approximately 5.0 miles east of the intersection with US-395. 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.

SR-58 crosses the northern extent of the Helendale fault, just east of the eastern end of the proposed project. The Helendale fault is listed on the Alquist-Priolo Earthquake Fault Zone Map as potentially active, with a relatively high potential for ground rupture.

Scour

No perennially flowing creek or stream was observed within the limits of the proposed project during site reconnaissance. However, up to 13 sandy ephemeral dry washes, totaling approximately one and a half acres, 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 a major problem because the topography of the site region is subdued.

3.11.3 Environmental Consequences

3.11.3.1 Permanent Impacts

Build Alternatives 1, 1A, 2, and 3

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 each 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 located in an area with relatively deep groundwater, the potential for liquefaction during a seismic event is considered minimal to non-existent. The potential for
other geologic hazards related to liquefaction, such as lateral spreading, is also considered minimal to non-existent.

**Groundwater**

Groundwater is not expected to affect the proposed alignments. As discussed in Section 3.10, Water Quality and Stormwater Runoff, the proposed project would not involve groundwater extraction, extensive grading, or tunneling that could affect groundwater resources. Within the cut sections of the alignments, 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.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, no permanent effects involving geology, erosion, soils, seismicity, topography, or mineral resources would occur.

**3.11.3.2 Temporary Impacts**

**Build Alternatives 1, 1A, 2, and 3**

**Soils**

Due to the sandy nature of the onsite soils, the 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 one 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.

**Settlement**

Immediate settlement due to the weight of embankment fill as well as compression is expected to occur during construction of embankments. It is estimated that subsidence would total approximately 1.2 inches. According to the subsurface investigation, secondary settlement from soil collapse under future embankment loading is not anticipated. No substantial adverse effects are anticipated.

If any developed properties along any of the proposed build alternatives include onsite septic disposal systems, they would need to be removed prior to construction. Excavations created
during the removal process would be backfilled, with the fill compacted under Caltrans supervision.

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 4—No-Build Alternative**

Under the No-Build Alternative, no short-term or temporary effects involving geology, soils, seismicity, or topography would occur.

### 3.11.4 Avoidance, Minimization, and/or Mitigation Measures

To minimize potential impacts related to geology and soils, the following measures will be implemented:

- **GEO-1**: Earthwork in the project area will be performed in accordance with the latest edition of the Caltrans Standard Specifications.

- **GEO-2**: During grading and site preparation, all onsite earthwork will be performed in accordance with the following:
  1. **Cut slope.** Cut slope for this project shall be 1:1.5 (V:H) or flatter. For planning purposes, the earthwork factor is 1.3 for rock cuts, and 1.05 for cut in alluvium.
  2. **Grading Factor.** A value of 1.3 for earthwork factor in the rock cuts and a value of 1.05 for cuts in alluvium are recommended. These values may be adjusted based on further field exploration and laboratory testing.
  3. **Embankment.** Embankment slope shall be 1:2 (V:H) or flatter. Where the future embankment will be constructed across natural drainage courses, 0.5 feet of alluvium shall be sub-excavated (over-excavated) from the embankment culvert foundation area and replaced as compacted fill. Embankment foundations shall be prepared in accordance with Section 19 of the Standard Specifications. Where embankment foundations cross existing cultivated land, the embankment foundation shall be sub-excavated 2.6 feet and restored to grade with compacted fill. The recommendation may be modified or deleted based on supplemental exploration and testing for the Geotechnical Design Report. Embankment foundations areas disturbed by building demolition or basement backfilling operations should be over-excavated and restored with compacted fill.
  4. **Structure Foundations**
     a. **Retaining wall.** The wall foundation soils should be sub-excavated and restored as compacted fill; either a Type 1 or Type 2 Standard Plan retaining wall can be used. Alternatively, a Mechanically Stabilized Embankment (MSE) wall could be used. The MSE walls are more tolerable to settlement and sub-excavation, and recompaction of the foundation soils would be significantly reduced or eliminated. For planning purposes, assume no sub-excavation for an MSE wall.
b. During preparation of the Geotechnical Design Report, bulk samples will be taken from the proposed sub-excavated area for laboratory compaction, remolded, direct shear, sieve analysis, and sand equivalent testing. This data will be used to analyze the bearing capacity, external stability, and suitability of onsite soils as structure backfill.

5. Erosion.
   a. Vegetate and mulch the slope surface and include the use of erosion protection coverings. Specifications will require the embankment construction to be done in phases, with completed slopes covered following each phase of grading. The Preliminary Geotechnical Report defers to the District Landscape Architect for techniques, specifications, and materials in vegetating slopes.
   b. Time the embankment construction to minimize soil exposure. Precipitation is a key factor in slope erosion. If possible, it would be best not to perform embankment construction during the relatively wet season. The embankment could be constructed during late spring to early summer months and vegetated/mulched prior to the rainy season.
   c. Divert runoff away from slope surface. Use a combination of pavement cross-slope and AC dikes to prevent flow over the toe of the slope.
   d. Roughen the slope surface by applying salvaged topsoil (with vegetation) from the clearing and grubbing operation. This would reduce the runoff velocity and enhance the growth of native vegetation.
   e. Armor the slope using rock fragments derived from blasting/cutting the cut slopes section on the west side of the proposed alignment.
   f. Build “zoned” embankments such that the sides of the embankments are equipment width “shells” of rock fill derived from cutting the hard rock segments of the projects.

6. Excavation Techniques. Excavations can be accomplished by conventional techniques for this project.

7. Settlement. Consolidation tests to further review the primary consolidation estimates for the higher embankment as well as the potential for collapsible soils will be needed.
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Section 3.12. Physical Environment—Paleontology

3.12 Paleontology

3.12.1 Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. 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 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. 23 United States Code (USC) 305 authorizes funds be appropriated and used for archeological and paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above. 16 United States Code (USC) Section 470aaa prohibits the excavation, removal or damage of any paleontological resources located on federal land. 23 Code of Federal Regulations (CFR) 1.9(a) states that the use of federal funds must be in conformity with federal and state law. Under California law, paleontological resources are protected by CEQA.

3.12.2 Affected Environment

The information in this section was synthesized from the May 2013 Paleontological Identification Report and Paleontological Evaluation Report (PIR/PER) prepared for the proposed project (Caltrans 2013f). References used in the PIR/PER are not carried over into this section. Figures 3.12.1 through 3.12.3 show the area of potential effects (APE) for paleontological resources.

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.

The mountain ranges in the vicinity of the project alternatives reach altitudes of 7,900 to 10,080 feet above sea level. The desert itself, which has a comparatively low relief, is virtually an alleviated 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.

3.12.2.1 Stratigraphy

The geologic mapping of the region indicates that the proposed project alignment traverses surface exposures of Pleistocene older alluvium overlain by a thin sedimentary veneer of
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Holocene alluvium. The surface and subsurface Pleistocene sediments derive from the ancestral Mojave River, have high potential to contain fossil resources, and are assigned high paleontological sensitivity. Published reports on the paleontological resources of this area referenced in the PIR/PER demonstrate that excavation into Pleistocene sediments in this region may have high potential to encounter fossil resources. Similar sediments throughout the Barstow and Lenwood regions to the east, and Victorville to the south, have also been repeatedly demonstrated to have high paleontological sensitivity.

3.12.2.2 Records Search and Field Reconnaissance

A search for paleontological records was completed with online databases and published materials. These included a paleontological record search requested from the San Bernardino County Museum (SBCM). The results of this search indicated that numerous previously known 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.

A qualified professional conducted paleontological reconnaissance of the study area on April 11, 2009. The survey consisted of a windshield survey with intensive pedestrian inspection of open ground surface areas of high sensitivity formations and lithologies. The project location and some detailed features were photographed to document the condition of the study area. No fossils were observed during the survey in any of the formations examined. This is typical as most fossils are subsurface.

3.12.3 Environmental Consequences

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 3.12-1).

Table 3.12-1: Caltrans’ Paleontology Sensitivity Scale

<table>
<thead>
<tr>
<th>Potential</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>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.</td>
</tr>
<tr>
<td>Low</td>
<td>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.</td>
</tr>
<tr>
<td>No</td>
<td>Rock units of intrusive igneous origin, most extrusive igneous rocks, and moderately to highly metamorphosed rocks.</td>
</tr>
</tbody>
</table>

Source: Caltrans 2011a.
3.12.3.1 Permanent Impacts

*Build Alternatives 1, 1A, 2, and 3*

The build alternatives would involve construction and operation of an expanded SR-58 facility and would involve new right-of-way, which would require earth-moving activities on vacant, undeveloped land along the alignments of the build alternatives. Given that earth-moving and excavation activities would be required for all four build alternatives and the unknown locations of previously undiscovered fossil resources, there are no discernible differences between the impacts that would occur under the different build alternatives. Therefore, the impacts are discussed collectively.

The records search and literature review demonstrate that excavation in conjunction with development has a high potential to result in adverse effects on nonrenewable paleontological resources present within the boundaries of the proposed project. Although no evidence of fossils was uncovered during field reconnaissance conducted in 2009, the stratigraphy of the study area suggests that there is a high potential that the study area contains fossil resources. Based on the records search and stratigraphy of the study area, there is potential for adverse effects to occur to paleontological resources.

*Alternative 4—No-Build Alternative*

No project improvements would occur under the No-Build Alternative. Therefore, no permanent impacts to paleontological resources would occur.

3.12.3.2 Temporary Impacts

*Build Alternatives 1, 1A, 2, and 3*

Any impacts to paleontological resources are permanent and irreparable; therefore, there would be no temporary impacts for any of the build alternatives.

*Alternative 4—No-Build Alternative*

The No-Build Alternative would not result in temporary impacts to paleontological resources.

3.12.4 Avoidance, Minimization, and/or Mitigation Measures

Due to 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 mitigation measures, however, potential effects to paleontological resources would be reduced.

*PA-1:* Grading, excavation, and other surface and subsurface excavation in defined areas of the proposed project have the potential to affect nonrenewable fossil resources. A Paleontological Mitigation Plan (PMP) shall be prepared during final project design by a qualified paleontologist.
The PMP will detail 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 communications 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 Standard Environmental Reference (Caltrans 2003).

**PA-7:** A Paleontological Mitigation Report 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.
3.13 Hazardous Waste/Materials

3.13.1 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.

3.13.1.1 Federal Regulations

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. 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), and
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

In addition to the acts listed above, Executive Order 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.

3.13.1.2 State Regulations

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could affect ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22, Division 4.5, Environmental Health.
Standards for the Management of Hazardous Waste; Title 23, Waters; and Title 27, Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials issues that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is encountered, disturbed, or generated during project construction.

### 3.13.2 Affected Environment

Unless otherwise noted, the information in this section was synthesized from the October 2012 Initial Site Assessment (ISA) prepared for the proposed project (Caltrans 2012e) and the February 2014 Preliminary Site Investigation (PSI). References used in the ISA are not carried over into this section. The purpose of the ISA is to identify recognized environmental conditions (RECs), as defined by American Standard Testing Methods (ASTM) Standard Practice E1527-00, 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 approximately 14.5 square miles of land located along SR-58 at Kramer Junction in San Bernardino County. The footprint begins near the Kern/San Bernardino county line and extends approximately 13.3 miles east along SR-58. The width of the environmental footprint extends approximately one-half mile north of the northernmost alternative (Alternative 1) and approximately one-half mile south of the southernmost alternative (Alternative 3), as shown in Figures 3.13.1 through 3.13.3.
Hazardous Waste Site Locations

State Route 58 Kramer Junction Expressway Project

Figure 3.13.1

06-Ker-58 PM R143.6/R143.9
08-Sbd-58 PM R0.0/R12.9
EA 08-34770
Project Number 080000616

Figure 3.13.1
Hazardous Waste Site Locations
State Route 58 Kramer Junction Expressway Project
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Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Figure 3.13.1a
Hazardous Waste Site Locations
State Route 58 Kramer Junction Expressway Project
Figure 3.13.1c
Hazardous Waste Site Locations
State Route 58 Kramer Junction Expressway Project
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Figure 3.13.2
Hazardous Waste Site Locations
State Route 58 Kramer Junction Expressway Project
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Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project
Figure 3.13.3
Hazardous Waste Site Locations
State Route 58 Kramer Junction Expressway Project

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616
3.13.2.1 Site Reconnaissance

As part of the ISA, a site reconnaissance study of the environmental footprint was conducted on June 28, 2012, to assess site conditions. The majority of the environmental footprint is structurally undeveloped, with only telephone poles and associated pole-mounted transformers, along with high-voltage transmission lines, placed along SR-58 and US-395. The environmental footprint also contains segments of existing SR-58, US-395, and an Atchison, Topeka, & Santa Fe railroad line. The reconnaissance was limited to observations made from the public right-of-way. Improvements noted within the environmental footprint include:

- Approximately 60 residences as well as the unincorporated area of Boron,
- Boron airstrip,
- Motel (seven vacant buildings and one occupied building),
- Commercial facilities and restaurants,
- Service stations,
- Auto repair and scrap yard facilities,
- Wetlands,
- Paved and unpaved streets and highways,
- Underground utilities,
- Groundwater production wells (at least 16),
- Aboveground storage tanks (ASTs) for water, and
- Wastewater treatment and evaporation ponds.

Hazardous materials may exist on several of the properties listed above. These materials may include petroleum hydrocarbons, solvents, asbestos, metals, and chemicals. Dumped refuse was observed at numerous locations within the environmental footprint. Several scrap metal and vehicle storage yards, as well as abandoned cars and miscellaneous debris (cement piles, wood, tires, pipes, etc.), were noted at various locations throughout the environmental footprint. Observations made during the site reconnaissance specific to each alternative are discussed briefly below.

**Alternative 1 Site Conditions**

The following discussion briefly describes the environmental observations made along the proposed Alternative 1 right-of-way:

- **Electrical Substations, Power Lines, or Transformers:** High-voltage transmission lines run parallel to US-395 and extend eastward into the Alternative 1 right-of-way, just north of the airplane hangars (Facility 10; refer to Figure 3.13.2a). However, no transformers or substations were observed within the proposed Alternative 1 right-of-way.
Vehicle Maintenance, Repair, or Scrap Yards: Potential evidence of vehicle maintenance, repair, or scrapping was observed on three properties near the northwest corner of Kramer Junction.

Airplane Hangars (Facility 10; Figure 3.13.2a [40716 US-395]): A commercial property north of Kramer Junction on the west side of US-395 was developed with two airplane hangars and an associated parts storage yard. The entire property is located in the Alternative 1 right-of-way. Further discussion of this property is provided in Section 3.13.3.

Antique Vehicle Restoration Shop (Facility 11, Figure 3.13.2a [40716 US-395]): An antique car restoration facility was observed on the west side of US-395, just north of Kramer Junction and south of the airplane hangars. Several large spools of cable, scrap metal, old vehicles, and debris were noted on this property. Further discussion of this property is provided in Section 3.13.3.

Reyes Truck Polishing and Former Shell Service Station (Facility 13; Figure 3.13.2a [40666 US-395]): The southern boundary of the Alternative 1 right-of-way encroaches onto the Reyes Truck Polishing facility, which is located on the west side of US-395, just north of Kramer Junction. Historically, this property was developed with a Shell service station, with a small service building and adjacent canopy. The current land use appears to be truck washing and car detailing. This property is discussed in further detail in Section 3.13.3.

Alternative 1A Site Conditions

Alternative 1A is virtually the same as Alternative 1, except that the eastbound off-ramp is relocated from the west side to the east side of US-395. Therefore, all of the properties and site conditions discussed under Alternative 1 are the same under Alternative 1A, except for the antique vehicle restoration shop (Facility 11, Figure 3.13.2a [40716 US-395]) and Reyes Truck Polishing and the former Shell service station (Facility 13; Figure 3.13.2a [40666 US-395]). These two properties are not located within the right-of-way for Alternative 1A.

Alternative 2 Site Conditions

The following describes the environmental observations made along the proposed Alternative 2 right-of-way:

Electrical Substations, Power Lines, or Transformers (Facility 21; Figure 3.13.2b [Kramer Substation, Boron, CA]): The northern half of a Southern California Edison (SCE) substation encroaches onto the Alternative 2 right-of-way on the west side of US-395, just south of Kramer Junction. High-voltage power lines traverse the right-of-way in a northerly direction from the substation. In addition, several large transformers are found within the right-of-way. Depending on the age of these transformers, they may have contained polychlorinated biphenyl (PCB) oils at one time. Additional information regarding the facilities is provided in Section 3.13.3.

Pad-mounted electrical transformers were observed in the western portion of the Chevron service station property (Facility 19; Figure 3.13.2b) and at the northeast corner of the Burger King restaurant (Facility 24; Figure 3.13.2b). All of these electrical transformers appeared to
be in good condition, with no stains or discolored soil noted in the vicinity of the transformers.

- **Vehicle Maintenance, Repair, or Scrap Yards (Facility 6; Figure 3.13.1 [possible address: 2564 SR-58]):** Alternative 2 traverses the southwest corner of the Boron airstrip, which is discussed further in Section 3.13.3.

Two vehicle maintenance/scrap facilities appear to be located near the southeast corner of Kramer Junction, immediately south and east of the Burger King restaurant (Facility 24; Figure 3.13.2b [6158 SR-58]). One of the vehicle maintenance facilities (Facility 27; Figure 3.13.2b) appears to be a small personal business that was constructed on residential property. The doors on the service bays were closed at the time of the reconnaissance; consequently, the actual use of this facility could not be verified through observations from the public right-of-way. The second maintenance facility (Facility 28; Figure 3.13.2b [no posted address]) is located slightly north of the previously described facility. Two service bays and one exterior hydraulic lift were observed on this property. Vehicle parts (bumpers, wheels, and tires) and several unlabeled 55-gallon drums were observed on these properties. However, the contents or any evidence of chemical release could not be verified from the right-of-way.

- **Service Stations/Underground Storage Tanks (USTs):** Four service stations were noted within the boundaries of the proposed Alternative 2 right-of-way (Figure 3.13.2b), as discussed below.
  - **Chevron station (Facility 22; Figure 3.13.2b [5258 SR-58]):** The Chevron service station is located at the northeast corner of Kramer Junction and immediately south of the Atchison, Topeka, & Santa Fe railroad. This property is discussed further in Section 3.13.3.
  - **Unocal 76 Station (Facility 23; Figure 3.13.2b [6158 SR-58]):** This facility is located at the southeast corner of Kramer Junction and discussed further in Section 3.13.3.
  - **Pilot Travel Center (Facility 20; Figure 3.13.2b [5725 SR-58]):** Pilot, the largest of the service stations, is located at the southwest corner of Kramer Junction and discussed further in Section 3.13.3.
  - **Arco Station (Facility 31; Figure 3.13.2b [5121 SR-58]):** The Arco service station is located approximately 900 feet east of Kramer Junction, along the south side of SR-58, and discussed further in Section 3.13.3.

- **Wastewater Treatment Facility (Facility 33; Figure 3.13.2b [no posted address; assessor’s parcel number (APN) 0492193100000]):** Two wastewater evaporation ponds were observed on the east side of US-395 (south of Kramer Junction). The northern ends of the evaporation ponds appear to encroach within the proposed southern boundary of the Alternative 2 right-of-way (Figure 3.13.2b). The ponds are discussed further in Section 3.13.3.

In addition, a concrete-lined dry evaporation pond was observed on the Pilot facility on the southwest corner of Kramer Junction (Figure 3.13.2b). A five-stage grease interceptor/clarifier was observed in the parking lot immediately east of the Burger King restaurant, near the
southeast corner of Kramer Junction (Figure 3.13.2b). Both these facilities are discussed in further detail in Section 3.13.3.

**Alternative 3 Site Conditions**

Alternative 3 crosses over the Mojave natural gas pipeline at several locations. Two natural gas metering stations (Kramer and PG&E Trona Tap) were observed. These stations encroach onto the northern edge of the proposed right-of-way (see Figure 3.13.2).

- **Electrical Substations, Power Lines, or Transformers:** Alternative 3 crosses high-voltage power lines at several locations. However, the proposed alignment does not appear to encroach onto properties with transformers or substations.

- **Vehicle Maintenance, Repair, or Scrap Yards:** Potential evidence of vehicle maintenance was observed on one property southwest of Kramer Junction:
  - Beecher’s Corner Caltrans Maintenance Station (Facility 22; Figure 3.13.2b [40400 US-395]): The proposed Alternative 3 right-of-way encroaches on the southeast portion of the Caltrans yard and is discussed in detail in Section 3.13.3.

- **Wastewater Treatment Facility** (Facility 33; Figure 3.13.2b [no posted address; APN 0492193100000]): The northern boundary of the Alternative 3 right-of-way encroaches onto a wastewater evaporation pond, which is discussed in detail in Section 3.13.3.

- **Wetlands:** Alternative 3 appears to encroach onto an area that is listed in the Environmental Data Resources (EDR) database report as a wetlands area (Figures 3.13.1, 3.13.1b, and 3.13.2).

**Alternatives 1, 1A, 2, and 3 Site Conditions**

The northeast corner of Edwards Air Force Base (95 ABW/PA, 1 South Rosamond Boulevard, Edwards Air Force Base, CA 93524), which is located within the project’s environmental footprint, crosses Alternatives 1, 1A, 2, and 3. The base is on the National Priority List (NPL) under the Superfund program. Edwards Air Force Base occupies 301,000 acres southwest of the junction of US-395 and SR-58 (Figure 2b). This site is discussed further in Section 3.13.3.

**Other Observations/Issues**

The following additional potential environmental concerns were observed within the environmental footprint:

- Scrap and junk yards were observed at various locations throughout the footprint,
- Dumped refuse was observed at locations throughout the footprint,
- Domestic wells and monitoring wells were observed at several homes and businesses, and
- Septic systems, clarifiers, and surface impoundments were observed at several locations.
**Polychlorinated Biphenyls**

Electrical transformers, hydraulic capacitors, fluorescent light fixtures, and similar equipment may contain PCBs in the hydraulic fluid or dielectric insulating fluids within the units. A substation with large transformers and several pole-mounted transformers were observed along SR-58 and US-395. The transformers associated with the substation near the southwest corner of Kramer Junction are located within the Alternative 2 right-of-way.

**Lead-Based Paint**

Lead is a pliable metal that can be used in the manufacture of pipes, rods, and containers. Before 1978, lead was a common ingredient in paint because it added strength and shine and extended the life of the paint. In 1978, the U.S. Environmental Protection Agency (EPA) banned the use of lead pigments in paints used on interior and exterior residential surfaces. The original scope of services did not include an assessment of lead-based paint (LBP) at the project site. However, given the pre-1978 construction of many structures, including bridges, within the environmental footprint, lead-based paint should be anticipated. It is anticipated that structures within or near the selected alternative would require demolition.

**Aerially Deposited Lead**

An aerially deposited lead (ADL) survey was conducted as part of the PSI for a portion of SR-58, from approximately three-tenths mile east of the Kern county line to 10 miles east of Kramer Junction (US-395). The results of the ADL investigation indicate that ADL is present along the existing right-of-way at low, non-hazardous concentrations.

Subsequent to the ADL survey conducted as part of the PSI, the ADL Investigation Report was prepared in December 2013. Three soil samples were collected from each of three boring locations along the unpaved shoulders of US-395 at depths of 0 to 0.5 feet below ground surface (bgs), 1.5 to 2 feet bgs, and 3 to 3.5 feet bgs. Laboratory analysis of these samples indicates that total lead concentrations ranged from less than 1 to 88 milligrams per kilogram (mg/kg), with a mean concentration of 13.5 mg/kg. Based on these data, the ADL Investigation Report concluded that:

- ADL is present at some locations within the study area;
- The reported lead concentrations do not exceed California hazardous waste total threshold limit concentration (TTLC) of 1,000 mg/kg;
- Total lead concentrations did not exceed the EPA residential or commercial Regional Screening Level (RSL) of 400 mg/kg and 800 mg/kg, respectively; and
- The calculated 95% upper confidence limit for total lead (30.2 mg/kg) is less than 10 times the soluble threshold limit concentration. Therefore, it is expected that surplus soil, treated as a whole, will qualify as a non-hazardous waste.
Asbestos-Containing Materials

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 material, pipe and duct insulation, plaster, roofing, floor tile, and linoleum. Adverse health effects have been associated with the inhalation of airborne asbestos fibers. The original scope of services did not include an assessment of asbestos-containing materials (ACMs) at the project site. However, given the pre-1978 construction of many of the observed structures, including bridges and belowground utility lines, ACMs should be anticipated. It is anticipated that structures within or near the selected alternative would require demolition.

Pesticides

Field reconnaissance and historical research of properties within the environmental footprint indicate that the area was primarily undeveloped prior to existing development. No evidence of row cropping or orchards was observed within the environmental footprint.

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 four picocuries per liter (pCi/L) of radon gas on a regular basis increases the risk of lung cancer. Those concentrations of radon, however, usually only occur inside buildings where the air cannot circulate or dissipate easily. Given that no buildings are to be constructed during widening/realignment of SR-58, radon is not considered to be a concern within the environmental footprint.

Contaminated Groundwater

According to Regional Water Quality Control Board (RWQCB) personnel, files can be obtained through the Geotracker website and, if necessary, any additional information not provided online can be researched via a file review. Based on the information obtained from Geotracker, two of the four service stations currently at Kramer Junction have had documented releases of gasoline from on-site USTs. These two service stations were the Unocal 76 and Bob’s Chevron. As part of ongoing remedial operations at these two sites, a total of 35 groundwater monitoring wells are located on the northeast (Chevron) and southeast (Unocal) corners of Kramer Junction. Fourteen of these monitoring wells were installed by Chevron due to a release of gasoline in which Methyl tert-butyl ether (MTBE), a fuel oxygenate, impacted groundwater beneath the facility. The remaining 21 groundwater monitoring wells were installed by Unocal to address a gasoline release in which groundwater was also affected by MTBE from this facility. Based on information provided on Geotracker, remedial methods used to clean up soil and groundwater at both service stations included soil vapor extraction and dual phase extraction. Remedial operations at both facilities operated intermittently between 2002 and 2006. A manifold for a soil vapor extraction system remains in the eastern portion of the Chevron property. In December of 2011, closure was requested from the RWQCB for both properties by the same consultant under
potential qualification as low risk site. No information has been uploaded to Geotracker by the RWQCB in response to these requests.

### 3.13.2.2 Environmental Database Search

A computerized environmental database search was performed by EDR on July 27, 2012, for the environmental footprint. The search included federal, state, and local databases. The review was conducted to determine whether the project site or properties in the vicinity of the site have reported substantial unauthorized releases of hazardous substances or other events with potentially adverse environmental effects. Five properties were identified within the environmental footprint and are described below. In addition, three surrounding properties within a one-mile radius were also identified; however, it was determined that it would be unlikely for the properties to affect areas where the proposed alternatives would be located given the distance from each of these properties.

- The northeast corner of Edwards Air Force Base (refer to Figure 3.13.2b) is located within the environmental footprint and crosses Alternatives 1, 1A, 2, and 3. This facility listing is referenced under the NPL; Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); RCRA Corrective Action Sites (CORRACTS); RCRA Treatment, Storage, and Disposal Facilities (TSDF); RCRA Large-Quantity Generator (LQG); Department of Defense (DOD); Record of Decision (ROD); Facility Index System (FINDS); RCRA Administrative Action Tracking System (RAATS); US INST CONTROL; NY MANIFEST; CA HIST CalSites; CA Cortese; CA DEED; CA HAZNET; and CA ENVIROSTOR databases. The EDR report lists the base as having either no address or 5 East Popson Avenue as its address. Edwards Air Force Base occupies 301,000 acres southwest of the junction of SR-58 and US-395. The EDR report maps the entire boundary of the Air Force base as a DOD facility.

Documented releases of hazardous materials have occurred in the central and southern portions of the main Air Force base, resulting in contamination from heavy metals (chromium and arsenic), solvents (dichloroethane [DCE], trichloroethylene [TCE], and perchloroethylene [PCE]), and pesticides (dichlorodiphenyltrichloroethane [DDT] and chlordane) in soil and groundwater. These source areas of contamination are located approximately 12 miles southwest of the westernmost portion of the environmental footprint. However, given the distance from the actual base (i.e., more than 12 miles), it is considered unlikely that contaminants from Edwards Air Force Base would interfere with construction of the proposed highway. As a result, no further investigation regarding the NPL listing is necessary. However, although not an environmental concern, it should be anticipated that challenges will most likely be encountered when attempting to purchase DOD lands located within the boundary of the chosen alternative.

- Four Corners Unocal (Facility 23; refer to Figure 3.13.2b) is located within the boundary of Alternative 2 on the southeast corner of Kramer Junction. This facility is referenced under the leaking underground storage tank (LUST) database and reported to have had a release of gasoline that affected drinking water in an aquifer. According to data provided by GeoTracker (Case No. 90082), a perched groundwater zone is present at approximately 75 feet bgs. Past subsurface soil investigations indicate that a vadose zone plume, consisting primarily of benzene, toluene, ethylbenzene, and total xylenes, is present below the UST
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cluster located 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.

At present, semi-annual groundwater monitoring is being performed at the facility. According to the Fourth Quarter 2011 Progress Report issued by Veir Corporation in December 2011, high concentrations of gasoline-range petroleum hydrocarbons, benzene, and MTBE were detected in the groundwater samples collected from monitoring wells located on the site. Despite these detections, Veir has requested that the Regional Water Quality Control Board (RWQCB) review the case to determine whether the facility would qualify for closure as a low-risk facility. No response from the RWQCB has been uploaded to GeoTracker in response to this request.

Further discussion regarding this property is provided in Sections 3.13.2.3 and 3.13.3.

- Beecher’s Corner (Caltrans Site; Facility 22; refer to Figure 3.13.2b) is located approximately one-third mile south of Kramer Junction, slightly within the northern boundary of Alternative 3. This facility is referenced under the CA SWEEPS, CA HIST UST, and CA FID UST databases. Beecher’s Corner is listed as currently or historically having two USTs (a 1,000-gallon diesel UST and a 2,000-gallon gasoline UST). EDR does not report this facility as having historically had a release, and it is not listed in the LUST or Spills, Leaks, Investigations, and Cleanups (SLIC) databases. However, information collected from file reviews indicates that one of the USTs did have a release, as discussed further in Sections 3.13.2.3 and 3.13.3.

- Bob’s Chevron (Facility 19; refer to Figure 3.13.2b) is located within the boundary of Alternative 2 on the northeast corner of Kramer Junction. This facility is referenced under the CA SWEEPS UST and CA FID UST databases. Bob’s Chevron is reported to have three USTs that contain fuel. Although EDR does not list this facility under the Leaking Underground Storage Tank (LUST) database, records available at the GeoTracker website indicate that this facility has had a release of gasoline, with MTBE, a fuel oxygenate, affecting groundwater beneath the facility. In addition, these documents indicate that several groundwater monitoring wells and vapor extraction wells were drilled following the discovery of the release in 1995. One of the USTs was removed; the two remaining 10,000-gallon USTs were abandoned in place because of their location beneath the dispenser islands and canopy.

Soil vapor extraction was initiated at the facility in 2002 and continued through 2006. Past subsurface soil investigations indicate that a vadose zone plume, similar to the plume found at the Four Corners Unocal, consisting of primarily benzene, toluene, ethylbenzene, and total xylenes, is present below the UST cluster located approximately 15 feet north of the existing SR-58 right-of-way. Figures from an environmental report reviewed in the San Bernardino County Fire Department (SBCFD) file indicate that soil contamination most likely extends below the existing SR-58 right-of-way. Groundwater monitoring by the previous consultant, Central Sierra Environmental, indicates that free product was encountered in various monitoring wells and that periodic dual-phase extraction events were performed at the Chevron station between 1998 and 2004. According to the Fourth Quarter 2011 Progress Report issued by Veir Corporation in December 2011, high concentrations of gasoline-range
petroleum hydrocarbons, benzene, and MTBE were detected in the groundwater samples collected from monitoring wells located on the property. Despite these detections, Veir requested that the RWQCB review the case to determine whether the facility would qualify for closure as a low-risk facility. No response from the RWQCB has been uploaded to GeoTracker in response to this request.

Further discussion regarding this property is provided in Sections 3.13.2.3 and 3.13.3.

- Blount International Ltd., located at Kramer Junction (SR-58 and US-395) (refer to Figure 3.13.2b), is listed under the Emergency Response Notification System (ERNS) database for a release of approximately 200 gallons of therminol oil that affected soil near an unspecified corner at Kramer Junction. The release reportedly occurred as a result of “equipment failure” involving a tanker truck on December 30, 1987. There is no indication in the EDR as to the specific location of the release, nor is there any information regarding remediation to remove contaminated soil in the affected area. Therefore, potential cleanup costs due to this contamination are unknown at this time.

3.13.2.3 Environmental Regulatory Agency Inquiries

Local regulatory agencies were contacted for reasonably ascertainable and practically reviewable documentation regarding environmental conditions at the subject site and adjacent facilities. Given the characteristics of the project site, the following agencies were contacted for documentation:

- The San Bernardino County Building and Safety Department provided two permits, associated with APN 492-193-02, two permits associated with APN 492-192-31, one permit associated with APN 492-192-16, two permits associated with APN 492-192-08, six permits associated with APN 492-192-07, and one permit associated with APN 494-312-27. All of the permits related to service station operations, except for APN 494-312-27, were identified as environmental concerns for Alternatives 1, 1A, and 2. No permits related to environmental concerns were identified for Alternative 3.

- The San Bernardino County Department of Environmental Health Services (DEHS) was contacted in July 2012. According to department personnel, records for USTs and hazardous materials are maintained by SBCFD, Hazardous Materials Division. The results of a records request related to the wastewater evaporation ponds located southeast of Kramer Junction indicate that no records were found.

- SBCFD, Hazardous Materials Division (Certified Unified Program Agency [CUPA]): A certified record search request was submitted to the CUPA in July 2012. A file review request was made for the following addresses, all of which are located in unincorporated areas of San Bernardino County:
  - Boron Airstrip (Facility 6; see Figure 3.13.1 [APN 498-232-51; 2564 SR-58]): The certified record search indicates that no records exist.
  - Beecher’s Corner Caltrans Maintenance Station (Facility 22; see Figure 3.13.2b [APN 492-194-09]) at 40400 US-395: This facility held Hazardous Material Handler and Hazardous Waste Generator permits. The two documents in the file pertain to two small releases (i.e., 10 gallons or less) of diesel fuel. One resulted from a spill of 10 gallons of...
diesel fuel during an attempted theft. The release reportedly occurred on the pavement, and the fuel was absorbed and disposed of. The other release resulted from the use of diesel fuel to clean asphalt trucks with a Hudson sprayer at the facility. No containment area was associated with the wash-down activities. Because of the small quantity of diesel used during these activities, DEHS issued closure on June 25, 1986.

The facility was not found to hold active permits for USTs. However, the SBCFD file for the facility revealed a release at the facility during the removal of former USTs (1,000-gallon diesel and 2,000-gallon gasoline tanks) on July 24, 1985. The UST was located in the north-central portion of the property. It was estimated that approximately 1,200 gallons of gasoline were lost from the gasoline UST over a three- to four-month period. Soil borings found contamination as deep as 70 feet bgs. No closure letter was issued for the facility, but a DEHS job card for abandonment of the underground storage site was on file and awaiting final approval for backfill. DEHS personnel reported that the release occurred at a time before closure letters were issued; therefore, the signature on the job card serves as closure. Contamination may persist at the facility.

- Express Tires (Facility 32; see Figure 3.13.2b [APN 492-193-07]) at 5875 East SR-58: The certified record search indicates that no records exist.

- Hangars and Antique Car Restoration (Facilities 10 and 11; see Figure 3.13.2a [APN 492-191-04]) at 40716 US-395: The certified record search indicates that no records exist.

- Former Shell Service Station (Facility 13; see Figure 3.13.2a [APN 492-191-04]) at 40666 US-395: This property is located within the boundary of the Alternative 1 right-of-way and adjacent to the Alternative 1A boundary. Documents reviewed in the SBCFD file included UST applications, leak detection reports, violations regarding unpermitted USTs, UST removal documents, complaints regarding the storage of waste drums off-site, and various documents or letters regarding historical site operations. This property is discussed further in Section 3.13.3.

- Southern California Edison Substation (Facility 21; see Figure 3.13.2b [APN 492-194-05]): The facility, which holds a Hazardous Material Handler permit, reportedly requires mineral oil for its transformers, capacitors, and switch racks. Cumulatively, the volume of mineral oil at the facility is estimated to be 156,000 gallons. The largest source of mineral oil is the 22,000-gallon AST located in the center of the property. According to laboratory reports contained in the file, the mineral oil was tested to determine whether PCBs were present in the oil. Analytical testing found variable PCB concentrations, ranging from below the laboratory reporting limit of two mg/kg to a maximum of 31 mg/kg. The only other hazardous chemical reportedly used at the facility is sulfur hexafluoride. There is no indication that USTs are present at the property.

The only documented releases in the file are related to off-site locations. According to the file, less than one gallon of sodium hydroxide was spilled from an SCE truck at the neighboring Pilot station. The two other releases were related to motorists crashing into power poles along SR-58 and US-395 and causing the mounted transformers to break. One of these accidents occurred approximately eight and one-half miles north of Kramer...
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Junction and the other in the city of Hinkley. Both locations are outside the environmental footprint.

- Auto Compu-Tune (Facility 17A; see Figure 3.13.2a [APN 492-191-04]) at the northwest corner of SR-58 and US-395 (no address; map of property location provided to SBCFD): The certified record search indicates that no records exist.

- Four Corners Arco AM/PM (Facility 31; see Figure 3.13.2b [APN 492-193-16]) at 5121 SR-58 and Chevron Station (Facility 19; Figure 3.13.2b [APN 492-192-16]) at 5852 SR-58: This property is located within the right-of-way of Alternative 2. The facility holds Hazardous Material Handler and UST permits. In 1995, one UST was removed and two 10,000-gallon USTs were abandoned in place because of their location beneath the dispenser islands and canopy. Elevated levels of gasoline-range petroleum hydrocarbons and fuel oxygenates were detected at the time of UST removal. Figures from the environmental report reviewed in the SBCFD file suggest that soil contamination extends below the existing SR-58 right-of-way. Remediation at the facility (i.e., soil vapor extraction) began in March 19, 2002, and apparently continued into 2007. Additional discussion regarding this property is provided in Section 3.13.3.

- Four Corners Union 76 (Facility 23, see Figure 3.13.2b [APN 492-193-10]) at 6158 SR-58: This property is located in the Alternative 2 right-of-way. This facility holds Hazardous Material Handler and UST permits, and remediation and semi-annual groundwater monitoring are currently under way. Documents reviewed in the SBCFD file indicate that approximately 20 cubic yards of gasoline-contaminated soil were placed in a bioremediation cell located at the northeast corner of a vacant parcel (APN 0492-192-13) north of an abandoned motel (Facility 14, Figure 3.13.2a [40661 US-395]) and outside the boundaries of all of the alternatives. In June 1999, five soil samples were collected from the treatment cell and analyzed for gasoline-range petroleum hydrocarbons using EPA Method 8015; benzene, toluene, ethylbenzene, and xylenes (BTEX) and MTBE were analyzed using EPA Method 8020. Gasoline-range petroleum hydrocarbons, BTEX, and MTBE were not above laboratory reporting limits in any of the five samples. The owner of the Chevron and Unocal stations proposed, to SBCFD, reusing the treated soil as grading fill in the immediate vicinity of the treatment cell. The treatment cell appears to be located approximately 150 feet north of the Alternative 1 and 1A rights-of-way. Additional discussion of this property is provided in Section 3.13.3.

- Pilot Travel Center (Facility 20; see Figure 3.13.2b [APN 492-194-12; previously APN 492-194-07]) at 5725 SR-58: The record search for this facility returned information regarding the current use of the parcel, Pilot Travel Center #200 (Pilot), and the historic use, Ghazaleh Mobil Service Station #11-MMM (Ghazaleh Mobil).

Several Hazardous Material Handler and UST permits have been issued to the Pilot Travel Center. Pilot currently has three diesel USTs (20,000 gallons each) and two gasoline USTs (12,000-gallon and 15,000-gallon tanks) permitted at the facility. A 5,000-gallon capacity clarifier is located near the southwest corner of the convenience store building, and a 7,500-gallon capacity septic system is located along the northern property boundary near the SR-58 right-of-way. In addition, a grease trap is located in the parking lot, immediately west of the convenience store building. No releases have been documented at the Pilot station; however, a leaking pipe was observed within the
dispenser containment area. No pooling was noted, and the pipe was immediately repaired to stop the leak.

Prior to redevelopment of the property as a Pilot station, Ghazaleh Mobil occupied the property and held Hazardous Material Handler and UST permits. Three gasoline USTs, located north of the former Ghazaleh Mobil building, and one waste oil UST, located west of the former building, were removed from the property on July 16, 1999. A review of the file revealed that contamination was found at the former USTs, dispenser islands, and at one of the former hydraulic lifts. Subsurface investigations conducted at the facility by Kleinfelder found extensive soil contamination at depths ranging from 15 to 40 feet bgs at the former USTs and 15 to 60 feet below the dispenser pumps. Deeper sampling indicated the presence of a buffer zone of clean soil between 60 and 120 feet bgs (maximum depth drilled). Soil contamination (124 mg/kg of gasoline-range petroleum hydrocarbons) was found at the northern hydraulic lift. It is unclear why the soil sample collected at the hydraulic lift was analyzed for gasoline rather than oil-range petroleum hydrocarbons. Groundwater was not encountered in any boring. A Remedial Action Completion Certification letter was issued for the facility by SBCFD on July 13, 2000.

Documents on file with SBCFD also indicate that the facility operated a 280-gallon waste oil UST, which was removed in February 1990. Figures contained in the file suggest that the UST was located west of the former Ghazaleh Mobil building. Minimal soil contamination (17 mg/kg of total recoverable petroleum hydrocarbon) was detected in confirmation samples collected at the time of UST removal. PCB levels were not above laboratory reporting limits, and metals were within the range of typical background concentrations for California. A closure letter was issued by DEHS on August 15, 1990. Despite the two closure letters issued for Ghazaleh Mobil, soil contamination may persist at the facility.

In addition, documents for Ghazaleh Mobil indicate that waste oil had been disposed of on the ground near an electrical shed in January 1987. According to the property owner, the contaminated soil was not located on his property. However, SBCFD still required him to clean up the property. No documents were found in the file regarding any remediation performed for this release, and an electrical shed is not depicted in any of the facility figures reviewed in the file. As a result, the location of this release has not been identified.

- The following environmental concerns were identified in additional SBCFD files. However, the locations of these concerns are ambiguous because specific information was not provided in the files. Therefore, soil contamination may persist at these locations that could be encountered during highway construction activities.
  - Torno America (unspecified location along SR-58, east of Kramer Junction): According to the file, Torno America reportedly performed construction upgrades on SR-58 in the early 1990s and set up a construction yard along the highway. The specific location of the former yard is not listed in the file; its general location was east of Kramer Junction, along SR-58. Given this general information, the potential exists for the location of the yard to be within the boundary of Alternative 2. A rough sketch of the site was found in the file, illustrating that a 10,000-gallon diesel AST with secondary containment ("plastic
liner”) was located on-site. In addition, the sketch shows four 1,000-gallon ASTs and several drums. According to a document written by DEHS, all of the ASTs contained waste oil, new oil, and hydraulic oil and were situated on “plasticliners.” Small areas of contaminated soil were noted around all of the ASTs, including the 10,000-gallon diesel AST. The total amount of contaminated soil at this property was estimated to be two cubic yards. The facility was ordered by DEHS to “farm out” the contaminated soil. The same document indicates that the case was closed by DEHS. It is unclear what remediation measures were implemented, if any.

- **Blount Pipeline (unspecified location at Kramer Junction):** The less-specific record search for SR-58 and US-395 returned information regarding a release of 50 gallons of thermal oil in January 1987 at an unspecified location at the junction of SR-58 and US-395. Therefore, the potential exists that the release occurred within the boundary of Alternative 2, although the specific location is unknown. The file states that small amounts of oil were routinely spilled while repairing laterals to a pipeline. It further states that any oil spilled was drummed and either hauled to a Class 1 landfill or a local landfill under a small-quantity exemption. There is no detailed information regarding removal of contaminated soil in the affected area.

- **Drug Lab Waste (unspecified location along US-395):** DEHS documents indicate two instances of drug lab waste being stored in drums along US-395. It is unclear whether the waste was discovered during a police operation or abandoned along the highway. Both documents indicate that the waste was containerized, and no spillage was noted.

- **RWQCB (Lahontan, Region 6) files were reviewed through the GeoTracker website. The GeoTracker database included records for the Unocal 76 (Facility 23, see Figure 3.13.2b) and Bob’s Chevron (Facility 19; Figure 3.13.2b) sites. As part of ongoing remedial operations at these two sites, a total of 35 groundwater monitoring wells were drilled on the northeast (Chevron) and southeast (Unocal) corners of Kramer Junction. Fourteen of these monitoring wells were drilled by Chevron because a release of gasoline with MTBE, a fuel oxygenate, affected groundwater beneath the facility. The remaining 21 monitoring wells were drilled by Unocal to address issues related to a release of gasoline with MTBE that affected groundwater beneath its facility. Information provided by GeoTracker indicates that the remedial methods used to clean up soil and groundwater at both service stations included soil vapor extraction and dual-phase extraction. Remedial operations at both facilities took place intermittently between 2002 and 2006. A manifold for a soil vapor extraction system remains in the eastern portion of the Chevron property. In December 2011, under potential qualification as a low-risk site, closure was requested for both properties by the same consultant. No information has been uploaded to GeoTracker by the RWQCB in response to these requests.

- **Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) oil fields maps were reviewed to determine if the environmental footprint is located within an active oil or gas field. According to DOGGR maps, two oil wells are located within the environmental footprint, George H. Marsh 1 and L.A. Thomson 1 (Thomson Cimarron). Both oil wells are listed in DOGGR records as plugged and abandoned dry holes. Although the wells appear to be located within the boundaries of the environmental footprint, the EDR well map and DOGGR map indicate that both are outside of the rights-of-way for
Alternatives 1, 1A, 2, and 3. However, past experiences and discussions with DOGGR personnel suggest that oil wells plotted on DOGGR maps and the DOGGR Online Mapping System (DOMS) are occasionally plotted incorrectly, sometimes by as much as several hundred feet. The Thomson Cimarron oil well is plotted as being in a location more than 1,600 feet north of the proposed alternatives; therefore, it is not considered an environmental concern to the proposed project. The George H. Marsh 1 well is located approximately 250 feet south and 450 feet north of Alternative 1 and approximately 70 feet south of Alternative 1A (see Figure 3.13.2a), near the northeast corner of the junction of SR-58 and US-395. Therefore, the potential exists that the abandoned oil well identified as George H. Marsh 1 is located within the Alternative 1 and 1A rights-of-way.

A file review request for the George H. Marsh 1 well was submitted to DOGGR to determine whether it was ever a producing well as well as its location, given the legal description contained in the file. The well record obtained indicates that no oil was discovered in the George H. Marsh 1 well when it was drilled and abandoned in 1948. The legal description for the oil well indicates a location roughly 800 feet north of its plotted position on DOGGR maps.

### 3.13.3 Environmental Consequences

#### 3.13.3.1 Permanent Impacts

**Build Alternatives 1, 1A, 2, and 3**

Following construction of the proposed project improvements, operations are not expected to result in the creation of any new health hazards or expose people to potential new health hazards since the proposed project involves improvements to an existing highway only, and the storage of toxic materials or chemicals is not a proposed component of the proposed project. Some vehicles using the highway may contain materials deemed hazardous; however, the proposed project is not anticipated to increase the potential for vehicles carrying hazardous materials to travel in the project area or increase the potential for accidents to occur in the project area. The hazards associated with vehicular transport of hazardous waste are regulated under existing programs and would not be affected by any of the proposed build alternatives.

Following implementation of any of the build alternatives, project operations are not expected to result in the creation of health hazards or to expose people to potential health hazards because the proposed project is for highway improvements only. There are two schools in the area, Boron Elementary School and Boron Junior-Senior High School, and are located 3.4 and 1.3 miles west of the western terminus of the project, respectively. Project operations are not expected to result in the creation of new health hazards or expose people to potential new health hazards because the project consists of improvements to an existing highway only, and the storage of toxic materials or chemicals is not a proposed component of the proposed project.

The project site is not within or adjacent to a high fire hazard area. The proposed build alternatives would not result in the introduction of new land uses, or substantial additions or changes to the existing structure that would increase the exposure of people or structures to the risk of loss, injury, or death involving wildland fires.
**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, the project site would not be disturbed and no long-term effects involving hazardous materials would occur.

### 3.13.3.2 Temporary Impacts

Construction activities, including earth moving activities, structure demolition, and pavement removal, could result in the disturbance and release of hazardous materials into the environment, a potential substantial adverse impact. Potential environmental concerns and sources of hazardous materials or wastes observed within the environmental footprints of the build alternatives include the following:

- Service stations and vehicle repair and maintenance facilities;
- Scrap and junk yards;
- Illegally dumped piles of trash;
- Septic systems, clarifiers, and surface impoundments;
- Accidental petroleum releases from transporter vehicles;
- Two dry oil wells;
- Electrical substation and pole-mounted transformers;
- Potential existence of ADL along highways; and
- Lead-based paint and asbestos-containing materials.

It is noted that the environmental footprint and the proposed rights-of-way of all four build alternatives encroach onto the boundaries of Edwards Air Force Base. The base is listed as an NPL facility. However, after a review of data provided by EDR, it does not appear that the known extent of contamination extends into the environmental footprint for the highway expansion project. Consequently, it is unlikely that construction of the highway would be affected by releases at Edwards Air Force Base.

Of the four build alternatives that were evaluated, Alternative 2 appears to have the highest number of RECs, followed by Alternative 1. However, Alternative 1A, which effectively moves the eastbound off-ramp to the east side of US-395, reduces the number of RECs. However, Alternative 3 still appears to result in the fewest RECs but only by a small margin.
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Alternative 1—Northerly Alignment Four-Lane Divided Expressway

Hazardous materials may exist on the types of properties listed in this section. According to the ISA, there are known or suspected hazardous material sources, such as USTs, ASTs, contaminated soil, and an abandoned oil well, within the proposed Alternative 1 alignment. The following is a discussion of potential RECs that would result in temporary impacts during construction of Alternative 1.

Service Station and Truck Washing/Detailing

Reyes Truck Polishing and Former Shell Service Station (Facility 13; see Figure 3.13.2a [40666 US-395])

The southern boundary of Alternative 1 encroaches onto the Reyes Truck Polishing facility on the west side of US-395, just north of Kramer Junction. Historically, this property was developed as a Shell service station, with a small service building and adjacent canopy. Documents reviewed in the SBCFD file indicate that an adjacent building, currently occupied by Astro Burger (Facility 15; refer to Figure 3.13.2a [40654 US-395]), may have been part of the service station at one time.

The property is currently used by Reyes Truck Polishing for truck washing and auto detailing. Located beneath the west end of the canopy on the property is a trench that was cut into the canopy’s concrete slab. It appears that the trench is used to divert wastewater after vehicle washing. The trench does not appear to have been professionally installed, and it is not known if the bottom of the trench is lined. It is also not known if the trench leads to a sump or clarifier on the property. The potential exists that the trench is unlined or connected to a sump or clarifier that was not observable from the public right-of-way. Furthermore, SBCFD records indicate that a trench on the property with oily water was reported.

As previously indicated, this property was historically a Shell service station. Although the canopy for the dispenser island remains, all of the dispenser pumps have been removed. The three USTs that were observed during the previous ISA in 2008 have been removed, and a “no further action” determination was made by SBCFD on March 1, 2010. However, based on documents reviewed in the SBCFD file, the potential exists that, historically, as many as eight USTs were located at the property. Three of these USTs were issued closure in 2010, as discussed above. Four of the eight USTs, which were reportedly installed in 1971, have no record of removal, other than the property owner claiming that they were removed on a Saturday without agency oversight. There is no documentation in the file regarding the remaining UST, other than the SBCFD file that indicates a total of eight USTs at the property.

The right-of-way encroaches into an area occupied by two 10,000-gallon diesel ASTs (see Figure 3.13.2a). The ASTs were observed immediately south of the antique vehicle restoration yard and west of Reyes Truck Polishing. Both ASTs are contained within metal bins for secondary containment purposes. Asphalt surfaces surrounding this area appeared to be in good condition, with no observable staining or other evidence of releases. The SBCFD file indicates that the property owner used these two ASTs to store diesel fuel that serviced a dispenser pump.
in the rear portion of the property. The ASTs were red tagged by SBCFD in 1991 as being unlawfully used. There is some speculation in the file about the two ASTs being two of the four steel USTs referenced above.

Local agencies may require removal of any remaining USTs, ASTs, sumps, and clarifiers, as well as site remediation. Investigations will be required to determine potential cleanup costs.

*Maintenance and Repair*

**Airplane Hangars (Facility 10; see Figure 3.13.2a [40716 US-395])**

A commercial property north of Kramer Junction, on the west side of US-395, is developed with two airplane hangars and an associated parts storage yard in the western portion of the property. A drum storage area was observed in the northwest portion of the property. An unlabeled, approximately 250-gallon AST was observed in the southwest portion of the property. No staining was noted on the soil surrounding these areas. However, stained soils were observed from the public right-of-way near the east-central portion of the property. The area is approximately 20 by 15 feet. The staining appeared to be from a surficial release, most likely occurring during maintenance/repair activities.

The entire property is located in the Alternative 1 right-of-way. Two antique-style fuel dispensers are located in front of the hangars. Whether these are associated with former or existing USTs is unknown. However, because of the use of the property (i.e., to service airplanes), the potential exists for USTs to be present on the property, and result in temporary impacts during construction of Alternative 1. Further investigations will be required to determine the extent of contamination and potential cleanup costs.

**Antique Vehicle Restoration Shop (Facility 11; see Figure 3.13.2a [40716 US-395])**

An antique car restoration facility was observed on the west side of US-395, just north of Kramer Junction and south of the airplane hangars (Alternative 1 right-of-way). Scrap metal, old vehicles, and debris were noted on this property, but there was no evidence of contamination that would pose a temporary impact during construction of Alternative 1.

*Historical Land Uses*

**Possible Former Surface Impoundment (Facility 33; see Figure 3.13.2a [no posted address])**

A feature that appears to be a former surface impoundment (most likely a wastewater evaporation pond) along the east side of US-395 (north of Kramer Junction and within the Alternative 1 right-of-way) is visible on a 1973 topographic map and in a 1984 aerial photograph. This potential surface impoundment was not observed during the field reconnaissance and is not visible in other aerial photographs before or after 1984. Although the configuration of the potential surface impoundment in the one aerial photograph resembles that of the wastewater evaporation ponds currently in the Kramer Junction area, this assumption cannot be confirmed because the impoundment no longer exists. The historic use and...
construction (i.e., lined vs. unlined) of the potential impoundment is not known. Therefore, soil sampling for petroleum, volatile organic compounds (VOCs), metals, pesticides, and PCBs is recommended in the area where the former surface impoundment intersects the Alternative 1 right-of-way. For purposes of this impact analysis, these RECs would result in a temporary impact due to the construction of Alternative 1.

Abandoned Oil Wells

As discussed in Section 3.13.2.3, according to DOGGR maps, two abandoned oil wells are located within the environmental footprint and identified as George H. Marsh 1 and L.A. Thomson 1 (Thomson Cimarron). Both of these wells appear to be outside of the rights-of-way of all four of the alternatives. However, past experiences and discussions with DOGGR personnel suggest that oil wells plotted on DOGGR maps and DOMS are occasionally plotted incorrectly, sometimes by as much as 300 feet. The Thomson Cimarron oil well is plotted as being in a location more than 1,600 feet north of the proposed alternatives; therefore, it is not considered an environmental concern to the proposed project. The George H. Marsh 1 well is located approximately 250 feet south and 450 feet north of Alternative 1. Therefore, the potential exists that the abandoned oil well identified as George H. Marsh 1 is located within the Alternative 1 right-of-way.

The well record obtained indicates that no oil was discovered in the George H. Marsh 1 well when it was drilled and abandoned in 1948. The legal description for the oil well indicates a location roughly 800 feet north of its plotted position on DOGGR maps, confirming the potential for discrepancies between locations mapped by DOGGR and the actual locations.

The Oil Well Search was prepared as a part of the PSI. The purpose of the investigation was to identify the location, and identify measures to preserve the integrity, of the mapped George H. Marsh 1 oil well in the project vicinity. A geophysical survey of an area approximately 200 feet by 200 feet in the suspected area of the well did not identify substantial anomalies consistent with a buried well. Two trenches that were excavated as part of the investigation also did not identify the precise location of the George H. Marsh 1 oil well. For the purposes of this impact analysis, the well would present a temporary impact during construction of Alternative 1. If encountered during construction it would have to be properly abandoned (if it is not already).

Alternative 1A—Northerly Alignment Four-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

Hazardous materials may exist on the types of properties listed in this section. According to the ISA, the RECs and recommendations for the following properties/facilities are the same as those for Alternative 1. The following RECs would present temporary impacts with the construction of Alternative 1A:

- Airplane hangars (Facility 10; Figure 3.13.2a [40716 US-395]),
- Possible former surface impoundment (Facility 33; Figure 3.13.2a [no posted address]); and
- Abandoned oil wells.
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Section 3.13. Physical Environment—Hazardous Waste/Materials

Alternative 2—Existing Alignment Four-Lane Expressway with Median

Hazardous materials may exist on the types of properties listed in this section. According to the ISA, there are known or suspected hazardous material sources within the proposed Alternative 2 alignment. The following is a discussion of potential RECs that would result in temporary impacts during construction of Alternative 2.

Vehicle Maintenance, Repair, or Scrap Yards

Boron Airstrip (Facility 6; see Figure 3.13.1 [2564 SR-58])

Alternative 2 traverses the southwest corner of the Boron airstrip (Figure 3.13.1). As shown in greater detail in Figure 3.13.1b, the right-of-way encroaches onto properties where junk vehicles, debris, scrap, and other materials are or were formerly stored. Given the lack of information regarding the extent and concentration of possible contaminants, it is assumed that these materials would result in temporary impacts during construction of Alternative 2.

Vehicle Maintenance/Scrap Facilities (Facilities 27 and 28; see Figure 3.13.2b [6158 SR-58])

Two vehicle maintenance/scrap facilities appear to exist near the southeast corner of Kramer Junction, immediately south and east of the Burger King restaurant. One of the vehicle maintenance facilities (Facility 27) appears to be a small personal business that was constructed on residential property. The doors on the service bays were closed at the time of reconnaissance; consequently, the actual use of this facility could not be verified through observations from the public right-of-way. The second maintenance facility (Facility 28) is located slightly north of the facility described above. Two service bays and one exterior hydraulic lift were observed on this property. Vehicle parts (bumpers, wheels, and tires) and several unlabeled 55-gallon drums were observed on these properties. However, the contents or any evidence of chemical release could not be verified from the right-of-way. Extensive sampling and subsurface surveys may be required to adequately access the presence and extent of contamination. Given the lack of information regarding the extent and concentration of possible contaminants, it is assumed that these materials would result in temporary impacts during construction of Alternative 2.

Express Tires (Facility 32; see Figure 3.13.2b [5875 East SR-58])

Express Tires, which is located within the boundary of Alternative 2, occupies the northwest corner of the Relax Inn property (Facility 30; Figure 3.13.2b). Tires were piled outside of a building that appeared to be the primary maintenance area. It is unknown whether other automobile maintenance or repair activities are performed at this facility. Access will be necessary to assess whether RECs are associated with the property. Observations indicate that soil sampling for petroleum, VOCs, metals, and PCBs may be necessary. Given the lack of information regarding the extent and concentration of possible contaminants, it is assumed that these materials would result in temporary impacts during construction of Alternative 2,
Section 3.13. Physical Environment—Hazardous Waste/Materials

Service Stations/USTs

Four service stations were noted within the boundaries of the proposed Alternative 2 right-of-way, as discussed below.

*Chevron Station (Facility 19; see Figure 3.13.2b [5258 SR-58])*

The Chevron service station is located at the northeast corner of Kramer Junction and immediately south of the Atchison, Topeka, & Santa Fe railroad. This service station currently operates with three dispenser pumps and two associated USTs. Approximately 14 wells provide ongoing monitoring of groundwater contamination from past releases. A disconnected soil vapor extraction manifold was observed in the eastern portion of the facility. No other soil vapor extraction equipment was noted at the facility. Contamination at the facility has already been confirmed by the presence of remediation equipment and through reviews of agency records. Currently semi-annual groundwater monitoring is being performed at the facility. Groundwater monitoring and remediation will continue until the requirements of the governing agency are met. Therefore, there would be a temporary impact due to construction of Alternative 2.

*Unocal 76 Station (Facility 27; see Figure 3.13.2b [6158 SR-58])*

This facility is located at the southeast corner of Kramer Junction. This service station currently operates with six dispenser pumps and four associated USTs. Approximately 21 monitoring wells provide ongoing monitoring of groundwater contamination related to past releases. Contamination at the facility was confirmed during the 2008 ISA by the presence of soil vapor extraction equipment and through reviews of recent agency records. The facility remediation efforts will continue until the property is considered clean by the governing agency. Therefore, there would be a temporary impact with the construction of Alternative 2.

*Pilot Travel Center Station (Facility 20; see Figure 3.13.2b [5725 SR-58])*

Pilot (formerly Mobil), which is the largest of the service stations, is located at the southwest corner of Kramer Junction. The property can be divided into two areas (east and west). The east half of the property is developed with a convenience store, adjoining Subway restaurant, and gasoline service station. Four dispenser pumps, five USTs north of the convenience store, and one additional UST immediately west of the convenience store were observed on the east side of the property. Given the size and extensive history of this facility, additional unknown USTs may be present. In addition, a concrete-lined dry pond, approximately 20 feet by 15 feet, was observed immediately south of the Pilot convenience store. No drainage outlet or clarifier was noted at this structure. Field observations indicate that this structure is an evaporation pond that collects surface runoff from the service station.

The west half of the property is developed as a truck stop, with eight dispenser pumps, a scale, and paved parking areas. No vehicle maintenance areas were observed at the Pilot station, and no groundwater monitoring wells or pieces of remediation equipment were observed on the property.

A closure letter was issued by the County of San Bernardino in 2000; however, residual fuel oil concentrations most likely exist at this facility. Therefore, this would result in a temporary
impact during construction of Alternative 2. Further investigations will be required to determine potential cleanup costs.

**Arco Station (Facility 31; see Figure 3.13.2b [5121 SR-58])**

The Arco service station is located approximately 900 feet east of Kramer Junction, along the south side of SR-58. The entire property is asphalt paved and developed with a convenience store on the southern portion of the lot. Six dispenser pumps and four associated USTs were observed on the northern portion of the property. No monitoring wells or pieces of remediation equipment were noted on or adjacent to the property. A septic tank was observed immediately south of the Arco station, on the opposite side of a chain link fence. Temporary impacts are not expected to occur at this location with construction of Alternative 2.

**Other Facilities**

**SCE Substation (Kramer Substation) (Facility 21; see Figure 3.13.2b)**

The northern half of an SCE substation encroaches onto the Alternative 2 right-of-way on the west side of US-395, just south of Kramer Junction. Two ASTs were observed within the proposed right-of-way; however, no determination as to the contents could be made from the public right-of-way. Given the lack of information regarding the extent and concentration of possible contaminants, it is assumed that these materials would result in temporary impacts during construction of Alternative 2.

**Accidental Releases**

A review of the ERNS database, along with other environmental databases, revealed an accidental release of approximately 200 gallons of therminol oil that affected soil near an unspecified corner at Kramer Junction. The release reportedly occurred as a result of “equipment failure” involving a tanker truck on December 30, 1987. A 50-gallon spill of therminol oil was reported in the SBCFD records with the date January 13, 1987. There is no indication in the file as to the specific locations of these releases, nor is there any information regarding remediation for contaminated soil.

If Alternative 2 is selected and soils with petroleum hydrocarbon contamination are discovered during construction activities, there would be a temporary impact during construction of this alternative.

**Land Use Issues**

A five-stage grease interceptor/clarifier was observed in the parking lot immediately east of the Burger King restaurant, near the southeast corner of Kramer Junction (Facility 24; Figure 3.13.2b [6158 SR-58]). This clarifier is associated with the restaurant and most likely filled with waste grease/oils used during cooking processes. Therefore, this unit does not pose an environmental concern. If the construction zone falls within the area of the clarifier, the unit will need to be removed and disposed of properly.
Most facilities in the area are very likely on septic tanks and leach fields.

**Wastewater Treatment (Facility 33; see Figure 3.13.2b [no posted address])**

Two wastewater evaporation ponds were observed on the east side of US-395 (south of Kramer Junction [no posted address]). The northern ends of the evaporation ponds appear to encroach within the proposed southern boundary of the Alternative 2 right-of-way (Figure 3.13.2b). These wastewater ponds were dry during field reconnaissance. The Lahontan RWQCB was contacted during the 2008 ISA to determine the contents and generator of these ponds. According to the RWQCB, the two ponds located within the Alternative 2 right-of-way contain treated sewage from the nearby Roadhouse Grill restaurant. Soil sampling for petroleum, VOCs, metals, and PCBs is recommended in the area where the wastewater treatment ponds intersect the project right-of-way. Therefore, there would be a potential for temporary impacts as a result of constructing Alternative 2.

**Alternative 3—Southerly Alignment Four-Lane Divided Expressway**

Hazardous materials may exist on the types of properties listed in this section. According to the ISA, there are known or suspected hazardous material sources within the proposed Alternative 3 alignment. The following is a discussion of potential RECs that would result in temporary impacts during construction of Alternative 3.

**Beecher’s Corner Caltrans Maintenance Yard (Facility 22; see Figure 3.13.2b [40400 US-395])**

The southeast portion of the Beecher’s Corner Caltrans maintenance yard encroaches onto the right-of-way of Alternative 3. Given the proposed project configurations, the ASTs, maintenance structures, and former UST release location would be located outside the proposed right-of-way. However, the Beecher’s Corner Caltrans maintenance yard office would be located within the right-of-way.

If procurement of the entire property or a portion of the property is necessary, soil sampling for petroleum hydrocarbons, VOCs, and metals is recommended below the ASTs, former USTs, clarifier, and other potential RECs within the maintenance and storage buildings. Contamination is known to persist at the facility. Therefore, there would be a temporary impact with the construction of Alternative 3.

**Wastewater Treatment (Facility 33; see Figure 3.13.2b)**

The northern boundary of the Alternative 3 footprint encroaches onto a wastewater treatment pond (Figure 3.13.2b [no posted address]). During field reconnaissance for the 2008 ISA, a strong odor of sulfur was noted in the vicinity of this pond. No odors were noted during field reconnaissance for the 2012 ISA. According to a RWQCB contact, the pond contains treated sewage from the nearby Roadhouse Grill restaurant. Most facilities in the environmental footprint are very likely on septic systems. Therefore, there is a potential for temporary impacts due to the construction of Alternative 3.
Build Alternatives 1, 1A, 2, and 3

RECs identified in all four build alternatives are described below.

Railroad Right-of-Way

Active railroad tracks run roughly parallel to and just north of SR-58, intersecting all four alternatives (Figures 3.13.1c, 3.13.2a, and 3.13.3).

A BNSF Railroad investigation was prepared as part of the February 2014 PSI Report in order to evaluate the potential presence of contamination in subsurface soils resulting from historical railroad operations. Four soil borings, two on the north side of the existing tracks and two on the south side, were advanced to a maximum depth of 3 feet bgs. Samples collected at three depths at each location were composited into a single sample for each boring location, which were analyzed for total petroleum hydrocarbons (TPH), VOCs, semi-volatile organic compounds (SVOCs), Title 22 metals, organochlorine pesticides, PCBs, asbestos, and pH. With the exception of benzo(a)pyrene, an SVOC, all substances were either not detected or detected in concentrations well below their respective EPA RSL, California Human Health Screening Level (CHHSL), or method detection limit. Concentrations of benzo(a)pyrene exceeded the CHHSL at two of the four testing locations and exceeded the RSL at one of the four locations. pH levels of samples were determined to be consistent with soils in other semi-arid to arid locations.

Data from this analysis do not indicate the existence of a significant release of chemicals to subsurface soils. Any impacts encountered at the time of construction activities are expected to be minor and limited in extent.

It is recommended that shallow soil sampling for petroleum hydrocarbons, VOCs, metals, asbestos, pesticides, semi-VOCs, and PCBs be performed at areas around the railroad tracks that may be disturbed during construction activities, as part of the Phase II environmental site assessment (ESA).

Lead-Based Paint Survey

It is anticipated that portions of the existing roadways may require alteration or demolition during construction activities. LBP should be anticipated in lane striping paint along the current SR-58 and US-395 alignments. Therefore, a temporary impact would occur with construction of Build Alternatives 1, 1A, 2, and 3.

Asbestos-Containing Materials

Given the pre-1978 construction of some of the structures, roadways, and bridges within or near the proposed alternatives, there is the potential for ACMs to be present in building materials. Therefore, this represents a potential for temporary impacts with construction of Build Alternatives 1, 1A, 2, and 3.
Aerially Deposited Lead

The results of the ADL investigation indicate that ADL is present along the existing right-of-way at low, non-hazardous concentrations. After evaluation of the data, it is still prudent to consider the potential of temporary impacts during construction due to exposure to ADL.

Alternative 4—No-Build Alternative

Under the No-Build Alternative, the project site would not be disturbed, and no effects involving hazardous materials would occur.

3.13.4 Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following avoidance, minimization, and mitigation measures, some of which are standard practice on all Caltrans projects, would ensure that impacts related to hazards and hazardous materials would be minor adverse:

- **HAZ-1**: Prior to construction activities, a geophysical survey of affected properties will be conducted to further investigate the potential for underground features and hazardous materials storage. If underground features and hazardous materials storage are encountered, they will be removed and disposed of in accordance with Section 7-1.13 of Caltrans’ Standard Specifications, “Disposal of Material Outside the Highway Right of Way,” and soil sampling will be conducted to evaluate the potential for any releases of petroleum, VOCs, metals, and PCBs. These activities would be conducted in accordance with Standard Specification 7-1.13, Environmental Rules and Requirements, as outlined in the Caltrans Construction Manual-7-103D(1), Caltrans & Contractor Designated Disposal, Staging, and Borrow Sites. Site investigations have been performed and no underground features or hazardous materials/waste were detected. See Preliminary Site Investigations, February 2014.

- **HAZ-2**: A geophysical survey and exploratory potholing will be performed to confirm the location of the abandoned oil well and determine whether it is located within the construction zones of Alternative 1 and Alternative 1A. A Preliminary Site Investigation was performed, and no evidence of oil well was observed.

- **HAZ-3**: Shallow soil sampling for petroleum, VOCs, metals, and PCBs will be conducted near identified drum storage areas, USTs, ASTs, sumps/clarifiers, wastewater trenches, and debris-covered areas within the environmental footprint of all alternatives to determine if special handling and soil disposal is needed. A Preliminary Site Investigation was performed, including soil sampling, and no hazardous waste was detected.

- **HAZ-4**: Soil sampling for petroleum hydrocarbons, VOCs, metals, and PCBs will be conducted in the wastewater treatment pond where it encroaches onto the selected alternative’s right-of-way. The preferred Alternative 1A does not encroach in this area. No site investigations were performed.

- **HAZ-5**: Shallow soil sampling for petroleum hydrocarbons, VOCs, metals, asbestos, pesticides, semi-VOCs, and PCBs will be performed at areas around the railroad tracks that may be disturbed during construction activities. A Preliminary Site Investigation was performed, including soil sampling. No hazardous waste was detected.
• **HAZ-6:** All soil excavation conducted on-site will be monitored by the construction contractor for visible soil staining, odor, and the possible presence of unknown hazardous-material sources. Contaminated soils will be segregated and profiled for disposal.

• **HAZ-7:** Septic tanks and leach fields that fall within the construction zone will be removed and disposed of.

• **HAZ-8:** For structures within the proposed right-of-way of the selected alternative that require demolition, an asbestos pre-demolition survey will be completed prior to the disturbance of building materials to determine the asbestos content. A certified asbestos contractor will be retained to abate any identified ACM issues in accordance with all applicable laws, including OSHA guidelines.

• **HAZ-9:** In the event that ACMs that were not identified in the asbestos study are uncovered during demolition/renovation activities, the contractor must stop work and have the materials tested for asbestos content. Any demolition or renovation of a structure will require the Mojave Desert Air Quality Management District (MDAQMD) to be notified and fees to be submitted at least 10 days prior to proceeding with demolition work; failure to do so may result in being fined for regulatory non-compliance.

• **HAZ-10:** In the event that alteration or demolition of the painted roadway is required, a LBP survey will be conducted prior to disturbing highway structural materials to evaluate the lead content of the painted surface.

• **HAZ-11:** Because of the possible presence of elevated lead concentrations in the yellow thermoplastic and yellow painted traffic stripes along the existing highway, it is recommended that special provisions be included that require the contractor to manage removed striping and pavement markings properly (i.e., as a hazardous waste) and have and implement a lead compliance plan prepared by a Certified Industrial Hygienist (CIH).

• **HAZ-12:** Caltrans Waste Management and Materials Pollution Control BMPs, Material Delivery and Storage and Material Use: Thermoplastic waste will be disposed of in accordance with Standard Specification 14-11.07. Environmental rules and requirements, as outlined in the Caltrans Construction Manual, 7-103D (1), Caltrans- and Contractor-Designated Disposal, Staging, and Borrow Sites, will be followed and/or implemented.

• **HAZ-13:** A site safety plan that addresses issues related to the management of potential health and safety hazards to workers and the public will be prepared and implemented prior to initiation of the proposed construction activities. Instructions, guidelines, and requirements for handling hazardous materials will be included in the site safety plan to ensure employee safety, as provided in Chapter 16, Hazardous Materials Communication Program, of the Caltrans Safety Manual.

• **HAZ-14:** Wastes and petroleum products used during construction will be collected, transported, and removed from the project site in accordance with RCRA regulations and federal OSHA standards, including Waste Management and Materials Pollution Control BMPs, Spill Prevention and Control, and Materials and Waste Management BMPs, Hazardous Waste Management. All hazardous waste will be stored, transported, and disposed of as required in Title 22, CCR, Divisions 4.5 and 49; CFR 261-263; and Caltrans...
requirements, as stated in Section 7-109, Solid Waste Disposal and Recycling Reporting, of the Caltrans Construction Manual.

- **HAZ-15**: Additional ADL studies will be performed at locations where the selected right-of-way crosses or includes the existing right-of-way and previous ADL studies were not performed. An ADL survey was completed in December 2013. ADL is non-hazardous in the project area.

- **HAZ-16**: A lead compliance plan will be prepared under Section 7-1.02K(6)(j)(ii) of the Caltrans Standard Specifications. The lead compliance plan will include provisions regarding the use of earth material. If earth material will be relinquished to the contractor, the level of lead concentration and the depth of the earth material in which the lead was detected will be disclosed. If earth material will not be relinquished to the contractor, all excavated earth material with lead, which is typically found within the top two feet of material in unpaved areas of the highway, will be reused within the project limits.

- **HAZ-17**: Earth material containing lead will be handled according to all applicable laws, rules, and regulations, including those of the following agencies: (1) Cal/OSHA, (2) the California Regional Water Quality Control Board, Region 6 – Lahontan, and (3) the California Department of Toxic Substances Control.

- **HAZ-18**: As recommended in the BNSF railroad investigation conducted as part of the Preliminary Site Investigation, the contractor will ensure that excess soils not used on site are disposed of as non-hazardous waste at a Class II facility. Excess soils may be reused within the construction zone, but off-site reuse is not permitted. In the event that stained or odorous soils are encountered during excavation, soils will be segregated, stockpiled, and characterized for disposition in accordance with local, state, and federal regulations and requirements. All work will be conducted under the guidance of a soil management plan (SMP) prepared by a Professional Engineer or Professional Geologist. The purpose of the SMP is to identify measures that would be implemented during construction activities to minimize dust and potential exposure to workers.

- **HAZ-19**: If a commercial landfill will be used to dispose of earth material, (1) the earth material will be transported to a Class II or Class III landfill that is appropriately permitted to receive the material and (2) the contractor will be responsible for identifying the appropriately permitted landfill that will receive the earth material and paying all associated trucking and disposal costs, including costs for any additional sampling and analysis required by the receiving landfill. If hazardous waste material is discovered during construction, such material must be transported under manifest to a permitted Class I disposal facility.

- **HAZ-20**: Coordination with the San Bernardino County Department of Airports and impacted airstrip and Boron Airport owners will be conducted to establish the appropriate construction or closure notification and safety procedures. The airstrip and Boron Airport do not appear to meet the requirements of CFR Title 14 Part 77.9; however, if during the coordination process it is determined that the FAA should be notified, then all notification requirements in accordance with CFR Title 14 Part 77.9 will be followed.
3.14 Air Quality

3.14.1 Regulatory Setting

The Federal Clean Air Act (FCAA), as amended in 1990, is the federal law that governs air quality, while the California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by the U.S. Environmental Protection Agency (U.S. EPA) and California Air Resources Board (ARB), set standards for the quantity of pollutants that can be 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. The criteria pollutants are carbon monoxide (CO); nitrogen dioxide (NO$_2$); ozone (O$_3$); particulate matter (PM), broken down for regulatory purposes into particles of 10 micrometers or smaller—(PM$_{10}$) and particles of 2.5 micrometers and smaller (PM$_{2.5}$); lead (Pb); and sulfur dioxide (SO$_2$). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H$_2$S), and vinyl chloride. The NAAQS and state standards are set at a level that protects 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 within their general definition.

Federal and state air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). In addition to this type of environmental analysis, a parallel “conformity” requirement under the Clean Air Act 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 are not first found to conform to State Implementation Plan (SIP) for achieving the goals of Clean Air Act requirements related to the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional—or planning and programming—level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas of 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 standards set for carbon monoxide (CO), nitrogen dioxide (NO$_2$), ozone (O$_3$), particulate matter (PM$_{10}$ and PM$_{2.5}$), and, in some areas (although not in California), sulfur dioxide (SO$_2$). California has nonattainment or maintenance areas for all of these transportation-
related “criteria pollutants,” except SO₂, 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 Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all of the transportation projects planned for a region over a period of at least 20 years for the RTP, and 4 years for the FTIP. RTP and FTIP conformity uses travel demand and air quality models to determine whether or not the implementation of those projects would conform to emission budgets or other tests 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 Clean Air Act. Otherwise, the projects in the RTP and/or TIP 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 is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity 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 (PM₁₀ or PM₂.₅). A region is “nonattainment” if one or more of the monitoring stations in the region measures violation of the relevant standard, and 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 the 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.

### 3.14.2 Affected Environment

The information in this section is based on the September 11, 2012 Air Quality Report (AQR) for the State Route 58 Kramer Junction Expressway Project (Realign and Widen to Four-Lane Expressway) (Caltrans 2012f). The findings of that report are summarized in this section. The methodologies and assumptions for the air quality analysis are described in the AQR (Caltrans 2012f).

#### 3.14.2.1 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.

3.14.2.2 Monitored 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 3.14-1 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 approximately 24 miles east of the project site at 1301 West Mountain View Street, Barstow. The Barstow station monitors major criteria pollutants, including CO, NO₂, SO₂, PM₁₀, and O₃. The closest monitoring station that monitors the remaining pollutant, PM₂.₅, is the Victorville–Park Avenue station (ARB Station No. 36306), located approximately 30 miles south of the project site at 14306 Park Avenue, Victorville (see Appendix J). The existing air quality conditions in the area of the proposed project can be characterized from monitoring data collected at these stations. Table 3.14-2 presents air monitoring data from the Barstow and Victorville monitoring stations.

As shown in Table 3.14-2, both the one-hour and eight-hour O₃ concentrations exceeded state and federal standards during the three-year reporting period, except for the one-hour standard in 2011. PM₁₀ concentrations also exceeded state standards. CO, NO₂, and PM₂.₅ 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 (O₃), PM₂.₅, and PM₁₀. U.S. EPA has designated this area as being a nonattainment area (moderate) for both ozone (eight-hour standard) and PM₁₀ (see Table 3.14-1).
### Table 3.14-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>(\text{State}^g) Standard</th>
<th>(\text{Federal}^g) Standard</th>
<th>(\text{Principal Health and Atmospheric Effects})</th>
<th>Typical Sources</th>
<th>(\text{Attainment Status})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone ((\text{O}_3))^2</td>
<td>1 hour 8 hours 8 hours (conformity process^s)</td>
<td>0.09 ppm 0.070 ppm ---</td>
<td>...</td>
<td>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 volatile organic compounds (VOCs) may also contribute.</td>
<td>Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROGs/VOCs) and nitrogen oxides (NOx) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.</td>
<td>Federal: Nonattainment, Moderate State: Nonattainment</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>1 hour 8 hours 8 hours (Lake Tahoe)</td>
<td>20 ppm 9.0 ppm 1 6 ppm</td>
<td>35 ppm 9 ppm ---</td>
<td>CO interferes with the transfer of oxygen to the blood and depletes sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.</td>
<td>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.</td>
<td>Federal: Unclassified/ Attainment/ State: Attainment</td>
</tr>
<tr>
<td>Respirable Particulate Matter (PM(_{10}))^2</td>
<td>24 hours Annual</td>
<td>50 (\mu g/m^3) 20 (\mu g/m^3)</td>
<td>150 (\mu g/m^3) ---</td>
<td>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 aerosol and solid compounds are part of PM(_{10}).</td>
<td>Dust- and fume-producing industrial and agricultural operations, combustion smoke, atmospheric chemical reactions, construction and other dust-producing activities, unpaved road dust and re-entrained paved road dust, and natural sources (e.g., wind-blown dust, ocean spray).</td>
<td>Federal: Nonattainment, Moderate State: Nonattainment</td>
</tr>
<tr>
<td>Fine Particulate Matter (PM(_{2.5}))^2</td>
<td>24 hours Annual</td>
<td>--- 12 (\mu g/m^3)</td>
<td>35 (\mu g/m^3) 15 (\mu g/m^3) (12 (\mu g/m^3) once area designations are determined, anticipated early 2015)</td>
<td>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(<em>{2.5}) size range. Many aerosol and solid compounds are part of PM(</em>{2.5}).</td>
<td>Combustion, including motor vehicles, other mobile sources, and industrial activities, and residential and agricultural burning; also formed through atmospheric chemical, including photochemical, reactions involving other pollutants, including NOx, sulfur oxides (SOx), ammonia, and ROG.</td>
<td>Federal: Unclassified/ Attainment/ State: Nonattainment</td>
</tr>
<tr>
<td>Pollutant</td>
<td>Averaging Time</td>
<td>State Standard</td>
<td>Federal Standard</td>
<td>Principal Health and Atmospheric Effects</td>
<td>Typical Sources</td>
<td>Attainment Status</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Nitrogen Dioxide (NO₂)</td>
<td>1 hour</td>
<td>0.18 ppm</td>
<td>0.100 ppm 7 (98th percentile over 3 years) 0.053 ppm</td>
<td>Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the “NOₓ” group of ozone precursors.</td>
<td>Motor vehicles and other mobile sources; refineries; industrial operations.</td>
<td>Federal: Unclassified/Attainment</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>0.030 ppm</td>
<td></td>
<td></td>
<td></td>
<td>State: Attainment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfur Dioxide (SO₂)</td>
<td>1 hour</td>
<td>0.25 ppm</td>
<td>0.075 ppm 8 (98th percentile over 3 years) 0.5 ppm 1.4 ppm 0.030 ppm</td>
<td>Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.</td>
<td>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.</td>
<td>Federal: Unclassified State: Attainment</td>
</tr>
<tr>
<td></td>
<td>3 hours</td>
<td>---</td>
<td>0.04 ppm</td>
<td></td>
<td></td>
<td>State: Attainment</td>
</tr>
<tr>
<td></td>
<td>24 hours</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead (Pb)³</td>
<td>Monthly</td>
<td>1.5 μg/m³³</td>
<td>---</td>
<td>Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.</td>
<td>Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.</td>
<td>Federal: Unclassified State: Attainment</td>
</tr>
<tr>
<td></td>
<td>Quarterly</td>
<td>---</td>
<td>1.5 μg/m³³ 0.15 μg/m³³</td>
<td></td>
<td></td>
<td>State: Attainment</td>
</tr>
<tr>
<td></td>
<td>Rolling 3-month average</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfate</td>
<td>24 hours</td>
<td>25 μg/m³³</td>
<td>---</td>
<td>Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.</td>
<td>Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.</td>
<td>State Only: Attainment (entire state)</td>
</tr>
<tr>
<td>Hydrogen Sulfide (H₂S)</td>
<td>1 hour</td>
<td>0.03 ppm</td>
<td>---</td>
<td>Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.</td>
<td>Industrial processes (e.g., refineries, oil fields, asphalt plants) livestock operations, sewage treatment plants, and mines. Some natural sources such as volcanic areas and hot springs.</td>
<td>State Only: Unclassified</td>
</tr>
<tr>
<td>Visibility-Reducing Particles (VRP)</td>
<td>8 hours</td>
<td>Visibility of 10 miles or more with relative humidity less than 70%</td>
<td>---</td>
<td>Reduces visibility. Produces haze. NOTE: Not 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.</td>
<td>See particulate matter above.</td>
<td>State Only: Unclassified</td>
</tr>
</tbody>
</table>
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

Section 3.14. Physical Environment—Air Quality

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>State Standard</th>
<th>Federal Standard</th>
<th>Principal Health and Atmospheric Effects</th>
<th>Typical Sources</th>
<th>Attainment Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinyl Chloride</td>
<td>24 hours</td>
<td>0.01 ppm</td>
<td>---</td>
<td>Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.</td>
<td>Industrial processes</td>
<td>State Only: Unclassified (entire state)</td>
</tr>
</tbody>
</table>

Based on the ARB Air Quality Standards chart (ARB 2012).

Notes: ppm = parts per million; μg/m³ = micrograms per cubic meter; ppb = parts per billion (thousand million)
1. Rounding to an integer value is not allowed for the state eight-hour CO standard. Violation occurs at or above 9.05 ppm. Violation of the federal standard occurs at 9.5 ppm because of integer rounding.
2. Annual PM10 NAAQS revoked October 2006 (was 50 μg/m³). Twenty-four-hour PM2.5 NAAQS tightened October 2006 (was 65 μg/m³). In September 2009, U.S. EPA began reconsidering the PM2.5 NAAQS; the 2006 action was partially vacated by a court decision.
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 PM10 and, in larger proportion, PM2.5. Both ARB and U.S. EPA have identified lead and various organic compounds, which are precursors to ozone and PM2.5, as toxic air contaminants. There are no exposure criteria for adverse health effects 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. Lead NAAQS are not required to be considered in Transportation Conformity analysis.
4. Prior to June 2005, the one-hour NAAQS was 0.12 ppm. The one-hour NAAQS is still used only on eight-hour ozone early-action compact areas (there are none in California). However, emission budgets for one-hour ozone may still be in use in some areas where eight-hour ozone emission budgets have not been developed.
5. The 65 μg/m³ PM2.5 (24-hour) NAAQS was not revoked when the 35 μg/m³ NAAQS was promulgated in 2006. Similarly, the 15 μg/m³ PM2.5 (Annual) NAAQS was not revoked when the 12 μg/m³ NAAQS was promulgated in 2012. Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for the newer NAAQS are found adequate or SIP amendments for the newer NAAQS are completed.
6. As of September 16, 2009, U.S. EPA was reconsidering the 2008 eight-hour ozone NAAQS (0.075 ppm); U.S. EPA is expected to tighten the primary NAAQS to somewhere in the range of 60 to 70 ppb and add a secondary NAAQS. U.S. EPA planned to finalize reconsideration and promulgate a revised standard by August 2010.
7. Final one-hour NO2 NAAQS published in the Federal Register on February 9, 2010 (effective March 9, 2010). Initial nonattainment area designations expected in 2012, with conformity requirements effective in 2013. Project-level hot-spot analysis requirements, while not yet required for conformity purposes, are expected.
9. State standards are “not to exceed” unless stated otherwise. Federal standards are “not to exceed more than once a year” or as noted above.
10. For certain areas.
### Table 3.14-2: Ambient Air Quality Monitoring Data Collected from the Barstow (ARB Station No. 36155) and Victorville (ARB Station No. 36306) Monitoring Stations

<table>
<thead>
<tr>
<th>Pollutant Standards</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ozone (O₃)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 1-hour concentration (ppm)</td>
<td>0.095</td>
<td>0.097</td>
<td>0.093</td>
</tr>
<tr>
<td>Maximum 8-hour concentration (ppm)</td>
<td>0.086</td>
<td>0.078</td>
<td>0.083</td>
</tr>
<tr>
<td><strong>Number of Days Standard Exceeded</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAAQS 1-hour standard (&gt; 0.09 ppm)</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>NAAQS 8-hour standard (&gt; 0.075 ppm)</td>
<td>5</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 8-hour concentration (ppm)</td>
<td>0.89</td>
<td>0.89</td>
<td>1.35</td>
</tr>
<tr>
<td><strong>Number of Days Standard Exceeded</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS/CAAQS 8-hour standard (&gt; 9.0 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Nitrogen Dioxide (NO₂)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 1-hour concentration (ppm)</td>
<td>0.060</td>
<td>0.062</td>
<td>0.077</td>
</tr>
<tr>
<td>Annual average concentration (ppm); CAAQS = 0.030 ppm</td>
<td>0.016</td>
<td>0.017</td>
<td>0.017</td>
</tr>
<tr>
<td><strong>Number of Days Standard Exceeded</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS 1-hour standard (&gt; 0.100 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Particulate Matter (PM10)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National maximum 24-hour concentration (μg/m³)</td>
<td>76.0</td>
<td>38.0</td>
<td>108.0</td>
</tr>
<tr>
<td>National second-highest 24-hour concentration (μg/m³)</td>
<td>65.0</td>
<td>35.0</td>
<td>98.0</td>
</tr>
<tr>
<td>State maximum 24-hour concentration (μg/m³)</td>
<td>72.0</td>
<td>35.0</td>
<td>96.0</td>
</tr>
<tr>
<td>State second-highest 24-hour concentration (μg/m³)</td>
<td>59.0</td>
<td>32.0</td>
<td>93.0</td>
</tr>
<tr>
<td>National annual average concentration (μg/m³)</td>
<td>26.8</td>
<td>18.8</td>
<td>22.6</td>
</tr>
<tr>
<td>State annual average concentration (μg/m³)</td>
<td>25.0</td>
<td>NA</td>
<td>21.5</td>
</tr>
<tr>
<td><strong>Number of Days Standard Exceeded</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAAQS 24-hour standard (&gt;50 μg/m³)</td>
<td>11.8</td>
<td>NA</td>
<td>11.8</td>
</tr>
<tr>
<td>NAAQS 24-hour standard (&gt;150 μg/m³)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Particulate Matter (PM2.5)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National maximum 24-hour concentration (μg/m³)</td>
<td>20.0</td>
<td>18.0</td>
<td>15.0</td>
</tr>
<tr>
<td>National second-highest 24-hour concentration (μg/m³)</td>
<td>17.0</td>
<td>15.0</td>
<td>11.0</td>
</tr>
<tr>
<td>State maximum 24-hour concentration (μg/m³)</td>
<td>20.0</td>
<td>18.0</td>
<td>16.0</td>
</tr>
<tr>
<td>State second-highest 24-hour concentration (μg/m³)</td>
<td>17.0</td>
<td>16.0</td>
<td>12.0</td>
</tr>
<tr>
<td>National annual average concentration (μg/m³)</td>
<td>8.9</td>
<td>7.2</td>
<td>NA</td>
</tr>
<tr>
<td>State annual average concentration (μg/m³)</td>
<td>9.3</td>
<td>7.6</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Number of Days Standard Exceeded</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS 24-hour standard (&gt; 35 μg/m³)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Notes:**
- CAAQS = California Ambient Air Quality Standards.
- NAAQS = National Ambient Air Quality Standards.
- NA = Insufficient data available to determine the value/data not available.

**Source:** Caltrans 2012f.
3.14.2.3 Description of Pollutants

Ozone

Ozone is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and certain materials.

Ozone, which is a regional pollutant, is not emitted directly into the air but formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROGs) and nitrogen oxides (NOx), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. In addition, photochemical reactions take time to occur; therefore, high ozone levels often occur downwind of the emission source.

U.S. EPA revoked the federal one-hour ozone standard on June 15, 2005; the new federal eight-hour ozone standard was effective as of that same date. A state standard for ozone has been established for the one-hour and eight-hour averaging times. The state one-hour and eight-hour ozone standards are 0.09 part per million (ppm) and 0.070 ppm, respectively, not to be exceeded. The federal eight-hour ozone standard is 0.075 ppm and not to be exceeded more than three times in any three-year period.

On April 15, 2004, U.S. EPA released its list of eight-hour ozone nonattainment areas, together with the deadline for each nonattainment area to attain the standard. The designation and classification became effective on June 15, 2004; the eight-hour ozone attainment year for the western portion of the Basin was 2010. Areas with the highest eight-hour concentrations and the greatest number of days exceeding the new standard were given the longest time to reach attainment status. The Basin is classified as a moderate nonattainment area for the 1997 federal eight-hour ozone standard. Further, U.S. EPA released area designations for the 2008 eight-hour ozone standard (0.075 ppm) on May 21, 2012, and the Basin was classified as a Severe-15 nonattainment area for the 2008 federal eight-hour ozone standard. Attainment plans are due to U.S. EPA within three years of designation (May 21, 2015). The Basin is also a nonattainment area for the state ozone standard.

Inhalable Particulate Matter

Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode certain materials. Particulate emissions are generated by a wide variety of sources, including industrial operations; vehicles and construction equipment, which can create dust with suspended particulate matter; and reactions in the atmosphere that form secondary aerosols. The federal and state ambient air quality standards for particulate matter apply to two classes of particulates: PM\textsubscript{2.5} and PM\textsubscript{10}. 
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The federal PM$_{2.5}$ standards are 35 micrograms per cubic meter (μg/m$^3$) for the 24-hour averaging period$^1$ and 12 μg/m$^3$ for the annual average concentration$^2$. On June 20, 2002, California adopted an annual PM$_{2.5}$ standard of 12 μg/m$^3$. EPA released its final nonattainment area designations for PM$_{2.5}$ on January 5, 2005 (70 Federal Register 943). The first federal conformity determination for PM$_{2.5}$ (for the 2004 Southern California Association of Governments [SCAG] RTP) was issued on March 30, 2006. The portion of the MDAB where the project is located is classified as a nonattainment area for the state PM$_{2.5}$ standard and an unclassifiable/attainment area for the federal PM$_{2.5}$ standard. With respect to PM$_{10}$, the federal and state standards for the 24-hour averaging period are 150 μg/m$^3$ and 50 μg/m$^3$, respectively. In addition, the state has an annual average PM$_{10}$ standard of 20 μg/m$^3$. The portion of the MDAB where the project is located is classified as a nonattainment area for the state PM$_{10}$ standard and a moderate nonattainment area for the federal PM$_{10}$ standard.

**Carbon Monoxide**

CO is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. CO can cause health problems such as fatigue, headache, confusion, or dizziness and even lead to death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily in the winter during periods with light winds and ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

State and federal CO standards have been set for one-hour and eight-hour averaging times. The state one-hour standard is 20 ppm by volume, whereas the federal one-hour standard is 35 ppm. Both the state and federal standard for the eight-hour averaging period is 9 ppm. The portion of the MDAB where the project is located is classified as unclassified/attainment for the federal CO standard and as attainment for the state CO standard.

**Nitrogen Dioxide**

Nitrogen oxides are a family of highly reactive gases and the primary precursors to the formation of ground-level ozone. These gases react in the atmosphere to form acid rain. NO$_X$ is emitted from solvents as well as combustion processes in which fuel is burned at high temperatures, emanating principally from motor vehicles and stationary sources such as electric utility plants and industrial boilers. A brownish gas, NO$_2$ is a strong oxidizing agent that reacts in the air to form corrosive nitric acid as well as toxic organic nitrates.

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$^1$ Given the 2004–2006 monitoring data, EPA revised the federal PM$_{2.5}$ 24-hour standard from 65 micrograms per cubic meter (μg/m$^3$) to 35 μg/m$^3$. This change became effective on April 5, 2010. States must attain this revised standard by 2020 (71 Federal Register 61216).

$^2$ The EPA finalized the new PM$_{2.5}$ annual arithmetic mean standard of 12 μg/m$^3$ on December 14, 2012, which went into effect March 18, 2013. However, the previous 15 μg/m$^3$ standard remains in effect for conformity purposes until the EPA issues designations for the new 12 μg/m$^3$ standard (http://www.epa.gov/pm/2012/decfsimp.pdf).

$^3$ California does not have a 24-hour concentration standard.
NO\textsubscript{X} can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. The effects of short-term exposure are still unclear, but continued or frequent exposure to concentrations that are typically much higher than those normally found in the ambient air may cause an increased incidence of acute respiratory illness in children. Health effects associated with NO\textsubscript{X} are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO\textsubscript{2} may lead to eye and mucus membrane aggravation along with pulmonary dysfunction. NO\textsubscript{X} can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO\textsubscript{X} can also impair visibility. NO\textsubscript{X} is a major component of acid deposition in California. NO\textsubscript{X} may affect both terrestrial and aquatic ecosystems. NO\textsubscript{X} in the air is a potentially substantial contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduces the amount of oxygen in the water, producing an environment that is destructive to fish and animal life.

On February 19, 2008, the Office of Administrative Law approved amendments to the regulations for the state ambient air quality standards for NO\textsubscript{2}. Those amendments lowered the previous one-hour average standard of 0.25 ppm to 0.18 ppm, which is not to be exceeded, and established a new annual average standard of 0.030 ppm, not to be exceeded. The new standard became effective on March 20, 2008. Also, EPA established a new one-hour NO\textsubscript{2} standard on January 22, 2010, of 0.100 ppm (188 μg/m\textsuperscript{3}). The Basin is classified as an unclassified/attainment area for the federal NO\textsubscript{2} standard and an attainment area for the state NO\textsubscript{2} standard.

**Sulfur Oxides**

Sulfur oxides (SO\textsubscript{X}) are a family of colorless, pungent gases, including SO\textsubscript{2}, that are formed primarily by the combustion of sulfur-containing fossil fuels (mainly coal and oil), metal smelting, and other industrial processes. SO\textsubscript{X} can react to form sulfates, which significantly reduce visibility. SO\textsubscript{X} is a precursor to particulate matter formation. The project area is in nonattainment status with respect to state particulate matter standards and in nonattainment for the federal PM\textsubscript{10} standard.

The major health concerns associated with exposure to high concentrations of SO\textsubscript{X} include effects related to breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive to SO\textsubscript{X} include individuals with cardiovascular disease or chronic lung disease, such as bronchitis or emphysema, as well as children and the elderly. Emissions of SO\textsubscript{X} also can damage the foliage of trees and agricultural crops. Together, SO\textsubscript{X}, and NO\textsubscript{X} are the major precursors to acid rain, which is associated with the acidification of lakes and streams and accelerated corrosion on buildings and monuments.

The state standards are 0.25 ppm for the one-hour averaging period and 0.04 ppm for the 24-hour averaging period. The federal standard is 0.075 ppm for the one-hour averaging period (75 Federal Register 35520). The Basin is designated as an attainment area for both the one-hour and the 24-hour state standards and unclassified for the federal one-hour standard.
Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. It is neither created nor destroyed in the environment, so it essentially persists forever. In the past, lead was used to increase the octane rating in automotive fuel, and gasoline-powered automobile engines that used leaded fuels were a major source of airborne lead. However, for the most part, the use of leaded fuel has been phased out, and ambient concentrations of lead have dropped dramatically. Short-term exposure to high levels of lead can cause vomiting, diarrhea, convulsions, coma, or even death. However, even small amounts of lead can be harmful, especially to infants, young children, and pregnant women. Symptoms of long-term exposure to lower lead levels may be less noticeable but are still serious. Anemia is common, and damage to the nervous system may cause impaired mental function. Other symptoms are appetite loss, abdominal pain, constipation, fatigue, sleeplessness, irritability, and headache. Continued excessive exposure, as in an industrial setting, can affect the kidneys.

Lead exposure is most serious for young children because they absorb lead more easily than adults and are more susceptible to its harmful effects. Even low-level exposure may harm the intellectual development, behavior, size, and hearing of infants. During pregnancy, lead can cross the placenta and affect the fetus, especially in the last trimester. Pregnant female workers exposed to high levels of lead have more miscarriages and stillbirths. The Basin is classified as an unclassified/attainment area for the federal lead standard and an attainment area for the state lead standard.

Toxic Air Contaminants

Although ambient air quality standards exist for criteria pollutants, no ambient standards exist for toxic air contaminants (TACs). Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, ARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risk each presents. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a Hazard Index, is used to evaluate risk.

In the early 1980s, ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807) created California’s program to reduce exposure to air toxics. The Air Toxics “Hot Spots” Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) is present in approximately 44 of California’s 58 counties. Asbestos is often found in serpentine rock and ultramafic rock near fault zones. Asbestos is a human health hazard when airborne. Asbestos fibers can be inhaled into lungs, causing
inflammation and respiratory ailments and cancers. A General Location Guide for Ultramafic Rock in California indicates that there is no naturally occurring asbestos located on or near the project site. For that reason, no analysis is required. Refer to Section 3.13, Hazardous Waste/Materials, for additional information on NOA and/or see Appendix E, HAZ-3. In addition, the National Emissions Standards for Hazardous Air Pollutants (NESHAP) asbestos regulations protect the public by minimizing the release of asbestos fibers during activities that involve the processing, handling, and/or disposal of asbestos-containing material (ACM). The asbestos NESHAP specifies work practices to be followed during demolitions and renovations of all structures (which would include overpass/bridge structures). The NESHAP regulations require the property owner and/or contractor notify applicable state and local agencies and/or EPA regional offices before structure demolition of any structure that contain a certain threshold amount of ACM.

3.14.3 Environmental Consequences

3.14.3.1 Permanent Impacts

Build Alternatives 1, 1A, 2, and 3

Regional Air Quality Conformity

The proposed project is listed in the financially constrained 2012–2035 RTP which was found to conform by SCAG on April 4, 2012, and FHWA and FTA made a regional conformity determination on June 4, 2012. The project is also included in SCAG’s financially constrained 2013 FTIP (page 140 of 169). The SCAG FTIP was determined to conform by FHWA and FTA on December 13, 2012. The design concept and scope of the proposed project is consistent with the project description in the 2012–2035 RTP and the 2013 FTIP as well as the “open to traffic” assumptions of SCAG’s regional emissions analysis. As such, it can be concluded that the project’s operational emissions (which include the ozone precursors ROG and NOX) meet the transportation conformity requirements imposed by EPA.

Although the proposed project is a conforming project for regional emissions, it requires both CO and PM2.5/PM10 hot-spot analyses to determine any localized emissions effects. The potential for significant and adverse local impacts from both pollutants is assessed below.

Project-Level Conformity

Carbon Monoxide

CO is used as an indicator of a project’s direct and indirect impact on local air quality because CO does not readily disperse in the local environment during periods of cool weather when the wind is fairly calm. The Caltrans’ Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1997) was used to assess the project’s impact on local CO concentrations, and a screening analysis was conducted to determine whether the proposed project would result in any CO hot spots. Localized emissions of CO may increase in the future due to increases in traffic volumes on SR-58, but given the lack of a difference in traffic volumes under the no-build and build alternatives (as shown in Table 1-14), increases would not be attributable to project
implementation. However, as described in detail in the September 11, 2012 Air Quality Report (Caltrans 2012f) and indicated in Table 3.14-1, the Basin is classified as a federal unclassified/attainment area for CO and a state attainment area for CO. The location of the nearest monitoring station used to establish background concentrations for the project area is provided in Appendix J. The September 2012 Air Quality Report determined that the project would not increase CO concentrations under the build alternative, when compared to no-build, as the build alternative would have no meaningful effect on traffic volumes or fleet mix. Because project implementation would not result in higher CO concentrations than those existing within the region at the time of attainment demonstration, on the basis of the protocol’s analysis methodology, no further analysis is needed.

**Particulate Matter (PM$_{10}$ and PM$_{2.5}$)**

The Basin is classified as a federal nonattainment (moderate) area and a state nonattainment area for PM$_{10}$ (Table 3.14-1). With regard to PM$_{2.5}$, the Basin is classified as a federal unclassified/attainment area and a state nonattainment area. Therefore, a qualitative PM$_{10}$ and PM$_{2.5}$ conformity review was conducted. The qualitative PM$_{2.5}$ and PM$_{10}$ conformity review was based on the December 2010 EPA guidance provided below.

The availability of two new EPA guidance documents for completing PM$_{2.5}$ and PM$_{10}$ hot-spot analyses was announced in the Federal Register (Volume 75, No. 243, Monday, December 20, 2010, Notices [79370]). EPA approved both the latest version of MOVES (MOVES2010) and EMFAC (EMFAC2007). Further, it was announced that a two-year grace period will be allowed before EMFAC2007 will be required for quantitative particulate matter hot-spot analyses for project-level conformity determinations in California. As such, the qualitative PM$_{2.5}$ and PM$_{10}$ conformity review was based on EPA’s 2010 *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas*.

The qualitative conformity review found that the proposed project would not be considered a Project of Air Quality Concern, as defined by 40 CFR 93.123(b)(1). Therefore, PM$_{10}$ and PM$_{2.5}$ hot-spot evaluations for project-level conformity are not required. In addition, the quantitative analysis provided in the AQR (summarized in Table 3.14-3) demonstrates that re-entrained roadway emissions of PM$_{10}$ and PM$_{2.5}$ along the project limits of SR-58 would be identical under the build and no build alternatives at Opening Year 2019 and Horizon Year 2039. Emissions would be the same under the build and no-build alternatives because annual average daily traffic (AADT) (and related vehicle miles traveled [VMT]) would be the same under all project alternatives. Compared to baseline/existing conditions, PM$_{10}$ and PM$_{2.5}$ emissions would increase by 29 percent at Opening Year 2019 and by 124 percent at Horizon Year 2039. These project increases would be the result of ambient traffic growth and not the proposed project build alternative, as traffic volumes are projected to be the same under the build alternatives when compared to no build scenario at Opening Year 2019 and Horizon Year 2039. As such, it is unlikely that the proposed project would generate new air quality violations, worsen existing violations, or delay attainment of the NAAQS for PM$_{10}$ and PM$_{2.5}$.

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4 Note that PM$_{2.5}$/PM$_{10}$ Quantitative Hot-Spot Analyses in California are performed using the most recent version of EMFAC. As of February 2013, the most recent version of EMFAC is EMFAC2007. Until EMFAC2011 is approved by EPA, EMFAC2007 will be used for conformity purposes.
Table 3.14-3: Re-entrained Road Dust Emissions in Tons per Year

<table>
<thead>
<tr>
<th>Evaluation Year/Build Alternative</th>
<th>PM10</th>
<th></th>
<th>PM2.5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons/Year</td>
<td>Percent Change over No Project</td>
<td>Percent Change over Existing</td>
<td>Tons/Year</td>
</tr>
<tr>
<td>Baseline/Existing 2010</td>
<td>4.9</td>
<td>--</td>
<td>--</td>
<td>1.2</td>
</tr>
<tr>
<td>Opening Year 2019 No Build</td>
<td>6.3</td>
<td>--</td>
<td>29%</td>
<td>1.5</td>
</tr>
<tr>
<td>Opening Year 2019 Build</td>
<td>6.3</td>
<td>0%</td>
<td>29%</td>
<td>1.5</td>
</tr>
<tr>
<td>Horizon Year 2039 No Build</td>
<td>10.9</td>
<td>--</td>
<td>124%</td>
<td>2.7</td>
</tr>
<tr>
<td>Horizon Year 2039 Build</td>
<td>10.9</td>
<td>0%</td>
<td>124%</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Source: Caltrans 2012. State Route 58 Widening to 4 Lane Expressway (Kramer Junction) Air Quality Report, Appendix A (Worksheet Fugitive Dust Calculations)

The SCAG Transportation Conformity Working Group (TCWG) concurred with the determination that the proposed project is not considered to be a Project of Air Quality Concern on September 23, 2008. A copy of this finding, as well as the particulate matter Conformity Hot-Spot Analysis Project Summary Form for Interagency Consultation completed for the project, is provided in the Air Quality Report (Caltrans 2013f). Clean Air Act, 40 CFR Part 93.116, requirements are met without any explicit hot-spot analysis; therefore, the proposed project can be screened from further analysis.

In response to a December 30, 2013 request from Caltrans for a project-level conformity determination, FHWA issued its determination on January 30, 2014 that the requirements of 40 CFR Part 93 have been met, stating that the design concept and scope of the Preferred Alternative (Alternative 1A) have not changed significantly from those assumed in the regional air quality conformity analysis (see Appendix E). The localized CO and PM analyses included in the AQR demonstrate that the project would not create any new violation of air quality standards or increase the severity or number of existing violations.

**Mobile Source Air Toxics**

With respect to the proposed project, the projected AADT volume at horizon year 2039 of 30,940 (see Table 1-16) would be well below the 140,000 to 150,000 AADT criterion established by FHWA for projects that are considered to have higher potential for mobile-source air toxics (MSAT) effects. As such, the proposed project is considered a project with lower potential MSAT effects.

For both the No-Build Alternative and the build alternatives, the amount of MSATs emitted would be proportional to VMT, assuming that other variables, such as fleet mix, are the same for each alternative. According to the Air Quality Report, estimated AADT and VMT numbers for the build alternatives are essentially the same as the numbers for the No-Build Alternative. This is because SR-58 is the main link between the economic centers and rapidly developing high desert communities for interregional travelers in the project vicinity. Although the roadway is predicted to operate at a low level of service (LOS) in future years without any improvements, traffic would not divert to other routes because no other viable alternatives for travel exist in the vicinity.
project vicinity. Even without development of the proposed project, SR-58 would remain the shortest path for interregional travel; therefore, demand would still exist. As a result of this phenomenon, the travel demand volume is not predicted to vary between the build alternatives and the No-Build Alternative. The build alternatives would simply handle the predicted increase in traffic volumes that would occur under the No Build Alternative at a better LOS. For example, peak-hour LOS is predicted to improve from LOS F to LOS B at horizon year 2039 as a result of proposed improvements (see Table 1-16).

Because estimated VMT under both the build alternatives and the No-Build Alternative would be the same, it is expected there would be no appreciable difference in overall MSAT emissions between the project alternatives. Also, regardless of the build alternative chosen, emissions will most likely be lower than present levels in the design year as a result of U.S. EPA’s national control programs, which are projected to reduce MSAT emissions by 72 percent between 1999 and 2050, while VMT are projected to increase by 145 percent. Local conditions may differ from those used in the national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, with the magnitude of the U.S. EPA-projected reductions being so great (even after accounting for VMT growth), MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

The additional travel lanes contemplated as part of build alternatives would have the effect of moving some traffic closer to some homes, schools, and businesses, while moving some traffic further away from homes, schools, and businesses. For example, Alternative 1 would move traffic further away from residences, while moving traffic closer to some businesses. Therefore, under the build alternatives, there may be localized areas where ambient concentrations of MSATs could be higher compared with the No-Build Alternative.

There are no schools, hospitals, or care centers for the elderly within 500 feet of any of the build alternatives. Nevertheless, as detailed in Appendix C of the MSAT interim guidance dated December 6, 2012, which discusses 40 CFR Section 1502.22 (Council on Environmental Quality Provisions Covering Incomplete or Unavailable Information), the magnitude and duration of potential increases, compared with the No-Build Alternative, cannot be accurately quantified because of incomplete or unavailable information for forecasting project-specific MSAT health impacts. Such impacts cannot be determined because comparison thresholds for pollutants are not available.

When a highway is widened and/or realigned, the localized level of MSAT emissions from the build alternative could be higher relative to existing conditions or the No-Build Alternative at some locations, but this could be offset with increased speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT emissions would be lower in other locations when traffic shifts away from them. In any case, on a regional basis, EPA’s vehicle and fuel regulations, coupled with fleet turnover, will result in substantial reductions over time that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than they are today.
Alternative 4—No-Build Alternative

The No-Build Alternative is the baseline for the comparison of air quality impacts. Under this alternative, local air quality would deteriorate because of increased vehicular congestion in the project area.

3.14.3.2 Temporary Impacts

Build Alternatives 1, 1A, 2, and 3

The project proposes to realign and widen a 13.3-mile segment of SR-58 from 0.4 miles west of the Kern/San Bernardino county line Post Mile (PM) Route (R) 0.0 and a point approximately 7.5 miles east of US-395. The project would widen SR-58 from a two-lane conventional highway to a four-lane expressway/freeway and construct a railroad grade separation and interchange or a signalized intersection at the junction of SR-58 and US-395.

Construction is expected to last approximately 27 months, beginning in June 2017 and ending in September 2019. 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 activities related to construction. Emissions from construction equipment also are anticipated and would include CO, NO\textsubscript{x}, VOCs, PM\textsubscript{10} and PM\textsubscript{2.5}, and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO\textsubscript{x} and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate enough PM\textsubscript{10}, PM\textsubscript{2.5}, and small amounts of CO, SO\textsubscript{2}, NO\textsubscript{x}, and VOCs to be of concern. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM\textsubscript{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM\textsubscript{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the U.S. EPA to add 1.2-tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. The use of water or dust palliative compounds generally reduces potential fugitive dust emissions during construction.

In addition to dust-related PM\textsubscript{10} emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO\textsubscript{2}, NO\textsubscript{x}, VOCs and some soot.
particulate (PM$_{10}$ and PM$_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO$_2$ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain 300 ppm or more of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 ppm), so SO$_2$-related issues due to diesel exhaust will be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site. Such odors would be quickly dispersed below detectable thresholds as distance from the sites increases.

The Caltrans’ policy to reduce construction-period emissions by the greatest extent feasible requires implementation of effective and comprehensive avoidance and minimization measures, as identified below.

**Exhaust Emissions**

The project would conform to the Caltrans’ construction requirements, as specified in the Department’s Standard Specifications (2010), Section 14-9.021 (General) (Air Pollution Control):

> The contractor shall comply with all air pollution control ordinances and statutes that apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances, and statutes specified in Section 11017 of the Government Code.

Implementation of the exhaust emission control measures in Section 3.14.4 would avoid and/or minimize impacts on air quality.

**Particulate Emissions**

The MDAQMD adopted Rule 403.2 (Fugitive Dust Control for the Mojave Desert Planning Area) to ensure that state and federal ambient air quality standards for PM$_{10}$ will not be exceeded as a result of man-made sources of fugitive dust within the Mojave Desert Planning Area and to ensure the control measures contained in the federal PM$_{10}$ attainment plan are implemented. Avoidance and minimization measures have been incorporated into the proposed project, as described in Section 3.14.4.

**Diesel Particulate-Related Health Risk during Construction**

MDAQMD does not consider diesel-related cancer risks from construction equipment to be an issue because of the short-term nature of construction activities. Construction activities associated with the proposed project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period. Because the period of exposure to diesel exhaust would be well below the 70-year exposure period, construction of the
proposed project is not anticipated to result in an elevated cancer risk because of the short-term nature of construction. Consequently, risks associated with diesel exhaust during construction would have no effect on humans.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, the proposed improvements would not be implemented, and there would be no construction-related air quality impacts.

### 3.14.4 Avoidance, Minimization, and/or Mitigation Measures

Most of the impacts on air quality from construction would be short term in duration and, therefore, would not result in significant/adverse or long-term effects. Implementation of the following measures would reduce and minimize any air quality impacts resulting from construction activities.

Caltrans will require implementation of effective and comprehensive avoidance and minimization measures, as detailed in the Caltrans’ Standard Specifications, Section 7-1.01F (Air Pollution Control), and MDAQMD Rule 403.2 (Fugitive Dust Control).

- **AQ-1:** Measures to reduce exhaust emissions specified in Section 7-1.01F (Air Pollution Control) may include the following:
  
  a) Maintain and operate construction equipment to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would have their engines turned off when not in use to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.
  
  b) Properly tune and maintain all equipment in accordance with the manufacturer’s specifications.
  
  c) Use electricity from power poles rather than temporary diesel- or gasoline-powered generators if and/or where feasible.
  
  d) Use on-site mobile equipment powered by alternative fuel sources (i.e., methanol, natural gas, propane, butane) as feasible.
  
  e) Develop a construction traffic management plan that includes: (1) consolidating truck deliveries; (2) providing a rideshare or shuttle service for construction workers; and (3) providing dedicated turn lanes for construction trucks and equipment on- and off-site.
  
  f) Use solar-powered changeable message sign.

- **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.

3.14.4.1 Climate Change

Climate change is analyzed in Chapter 4, California Environmental Quality Act Evaluation. Neither the U.S. EPA nor FHWA has promulgated explicit guidance or methodology 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 facilitate decision-making and improve efficiency at the program level and 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 regarding climate change, the issue is addressed in the CEQA chapter of this EIR/EIS, the contents of which may be used to inform the 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 a reduction in the growth of vehicle hours traveled.
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3.15 Noise and Vibration

3.15.1 Regulatory Setting

3.15.1.1 Federal Regulations

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide a broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

The California Environmental Quality Act requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the NEPA-23 Code of Federal Regulations (CFR) 772 noise analysis; please see Chapter 4 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations [CFR] 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use to be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). The following table lists the noise abatement criteria for use in the NEPA-23 CFR 772 analysis.
Table 3.15-1: Noise Abatement Criteria

<table>
<thead>
<tr>
<th>Activity Category</th>
<th>NAC, Hourly A-Weighted Noise Level, L&lt;sub&gt;eq(h)&lt;/sub&gt;</th>
<th>Description of Activity Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>57 (Exterior)</td>
<td>Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.</td>
</tr>
<tr>
<td>B&lt;sup&gt;1&lt;/sup&gt;</td>
<td>67 (Exterior)</td>
<td>Residential.</td>
</tr>
<tr>
<td>C&lt;sup&gt;1&lt;/sup&gt;</td>
<td>67 (Exterior)</td>
<td>Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.</td>
</tr>
<tr>
<td>D</td>
<td>52 (Interior)</td>
<td>Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.</td>
</tr>
<tr>
<td>E</td>
<td>72 (Exterior)</td>
<td>Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.</td>
</tr>
<tr>
<td>F</td>
<td>No NAC—reporting only</td>
<td>Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.</td>
</tr>
<tr>
<td>G</td>
<td>No NAC—reporting only</td>
<td>Undeveloped lands that are not permitted.</td>
</tr>
</tbody>
</table>

Source: Caltrans 2011b.

<sup>1</sup> Includes undeveloped lands permitted for this activity category.

L<sub>eq</sub> = equivalent sound level

Figure 3.15.1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.
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In accordance with the Department’s *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, May 2011, a noise impact occurs when the future noise level with the project results in a substantial increase in noise levels (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within one dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would most likely be incorporated in the project.

The Department’s *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum five dBA reduction in the future noise level must be achieved.
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for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is a basically cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents’ acceptance and the cost per benefited residence.

3.15.2 Affected Environment

The following discussion is derived from the September 2012 Noise Study Report on State Route 58 from the Kern/San Bernardino County Line to 7.5 miles East of US-395 (Caltrans 2012g).

3.15.2.1 Sound, Noise, and Decibels

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound that interferes with normal activities. Sound levels are measured and expressed in decibels (dB). However, the human ear does not respond uniformly to sounds at all frequencies and is less sensitive to low and high frequencies than to medium frequencies, which correspond with human speech. Therefore, the A-weighted noise scale was developed. The A-weighted sound level is called the “noise level” and referenced in units of dBA.

Noise is measured on a logarithmic scale; a doubling of sound energy results in a three dBA increase in the noise level. The human ear, however, does not typically notice changes in noise levels of less than three dBA.

3.15.2.2 Noise Descriptors

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors that are most commonly used in traffic noise analysis.

- **Equivalent Sound Level** (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The one-hour A-weighted L_{eq} is the energy average of A-weighted sound levels occurring during a one-hour period and the basis for the NAC used by Caltrans and FHWA.

- **Percentile-Exceeded Sound Level** (L_{xx}): L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time).

- **Maximum Sound Level** (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period.

- **Day-Night Level** (L_{dn}): L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.
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- **Community Noise Equivalent Level** (CNEL): Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., with a five dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

### 3.15.2.3 Land Uses

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed project. Land uses in the project area were categorized according to land use type; activity category, as defined in Table 3.15-1; and the extent of frequent human use. As stated in the protocol, although all developed land uses are evaluated, analysis focuses on locations of frequent human use that would benefit from a lower noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards, school athletic fields/playgrounds, and parks.

Land uses in the project area include rural single-family residential and some commercial land uses (i.e., at the SR-58/US-395 junction). However, the majority of land in the area is undeveloped. Figures 3.15.2 through 3.15.5 show land uses surrounding the project alignment.

### 3.15.2.4 Existing Noise Environment

To establish the existing noise environment, short-term noise measurements were taken on August 17, 2007. Short-term monitoring was conducted at four locations (FR-1 to FR-4) that were selected to represent the various noise-sensitive land use types within the project area. Measurements were taken for 30 minutes at two receptor sites (FR-1 and FR-2) and for 15 minutes at the other two receptor sites (FR-3 and FR-4) using a Bruel & Kjaer 2230 sound-level meter.

Dominant noise sources and other relevant measurement conditions were identified and logged. SR-58 was determined to be the dominant contributor to noise levels. Traffic on SR-58 was classified and counted during the short-term measurements. It should be noted that not all measurement stations are part of every alternative. Some stations are too far from an alternative to provide a meaningful noise reading. Table 3.15-2, below, provides a summary of the short-term measurements, which are shown in Figures 3.15.2 through 3.15.5. A description of the short-term measurement locations follows.
Figure 3.15-2 Sheet 1
Noise Measurement and Modeling Locations - Alternative 1
State Route 58 Kramer Junction Expressway Project

Alternative 1
Proposed Right-of-Way
Proposed Centerline
Proposed Drainage
Proposed Improvements

Noise Measurement Locations
Modeled Receptor
Field Measured Receptor

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.

Source: NAIP Imagery (2005)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-Sbd-58 PM R0.0/R12.9
EA-09-34770
Project Number 0800000616

K:\Irvine\GIS\Projects\Caltrans_D8_oncall\00006_13\mapdoc\Noise\Fig3_15_02_noise_locs_alt1.mxd Date: 3/21/2013 24991

Source: NAIP Imagery (2005)
Section 3.15. Human Environment—Noise and Vibration

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Figure 3.15-2 Sheet 2
Noise Measurement and Modeling Locations - Alternative 1
State Route 58 Kramer Junction Expressway Project

06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 080000616

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way. Therefore, no proposed right-of-way is shown.
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.15. Human Environment—Noise and Vibration

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Figure 3.15-2 Sheet 3
Noise Measurement and Modeling Locations - Alternative 1
State Route 58 Kramer Junction Expressway Project

Alternative 1
- Proposed Right-of-Way
- Cut and Fill
- Proposed Centerline
- Proposed Drainage
- Proposed Improvements

Noise Measurement Locations
- Modeled Receptor
- Field Measured Receptor

Note: Areas where the proposed right-of-way segment is missing or areas within the existing Department right-of-way: therefore, no proposed right-of-way is shown.
Section 3.15. Human Environment—Noise and Vibration

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Figure 3.15-3 Sheet 1
Noise Measurement and Modeling Locations - Alternative 1A
State Route 58 Kramer Junction Expressway Project

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616

Alternative 1A
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage

Noise Measurement Locations
- Modeled Receptor
- Field Measured Receptor

Note: Areas where the proposed right-of-way segments or modeling are areas within the existing Department right-of-way. Therefore, no proposed right-of-way is shown.
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Figure 3.15-3 Sheet 2
Noise Measurement and Modeling Locations - Alternative 1A
State Route 58 Kramer Junction Expressway Project

Alternative 1A
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage

Noise Measurement Locations
- Modeled Receptor
- Field Measured Receptor

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way. Therefore, no proposed right-of-way is shown.
Figure 3.15-4 Sheet 1
Noise Measurement and Modeling Locations - Alternative 2
State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616

Alternative 2
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage

Noise Measurement Locations
- Modeled Receptor
- Field Measured Receptor

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way, therefore, no proposed right-of-way is shown.
Figure 3.15-4 Sheet 3
Noise Measurement and Modeling Locations - Alternative 2
State Route 58 Kramer Junction Expressway Project

Alternative 2
- Proposed Right-of-Way
- Proposed Improvements
- Proposed Centerline
- Proposed Drainage

Noise Measurement Locations
- Modeled Receptor
- Field Measured Receptor

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.15. Human Environment—Noise and Vibration

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Figure 3.15-5 Sheet 1
Noise Measurement and Modeling Locations - Alternative 3
State Route 58 Kramer Junction Expressway Project

Proposed Right-of-Way
Proposed Improvements
Proposed Centerline
Proposed Drainage

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.

Source: NAIP Imagery (2005)
Figure 3.15-5 Sheet 2
Noise Measurement and Modeling Locations - Alternative 3
State Route 58 Kramer Junction Expressway Project

Alternative 3
- Proposed Right-of-Way
- Proposed Centerline
- Proposed Improvements
- Proposed Drainage

Noise Measurement Locations
- Modeled Receptor
- Field Measured Receptor

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.
Figure 3.15-5 Sheet 3
Noise Measurement and Modeling Locations - Alternative 3
State Route 58 Kramer Junction Expressway Project

Alternative 3
- Proposed Right-of-Way
- Proposed Improvements
- Proposed Centerline
- Proposed Drainage

Note: Areas where the proposed right-of-way segment is missing are areas within the existing Department right-of-way; therefore, no proposed right-of-way is shown.

Noise Measurement Locations
- Modeled Receptor
- Field Measured Receptor

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-Sbd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616

Source: NAIP Imagery (2005)
Section 3.15. Human Environment—Noise and Vibration
Table 3.15-2: Summary of Short-Term Measurements

<table>
<thead>
<tr>
<th>Measurement Position</th>
<th>Land Use</th>
<th>Start Time</th>
<th>Duration (Minutes)</th>
<th>Measured Noise Level (dBA)</th>
<th>Autos (A)</th>
<th>Medium Trucks (MT)</th>
<th>Heavy Trucks (HT)</th>
<th>Motorcycles</th>
<th>Observed Speed (mph) A/MT/HT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR-1</td>
<td>Residential</td>
<td>11:03</td>
<td>30</td>
<td>50</td>
<td>714</td>
<td>44</td>
<td>260</td>
<td>18</td>
<td>55/55/45</td>
</tr>
<tr>
<td>FR-2</td>
<td>Residential</td>
<td>11:55</td>
<td>30</td>
<td>54</td>
<td>840</td>
<td>72</td>
<td>276</td>
<td>28</td>
<td>55/55/45</td>
</tr>
<tr>
<td>FR-3</td>
<td>Residential</td>
<td>10:09</td>
<td>15</td>
<td>60</td>
<td>828</td>
<td>48</td>
<td>296</td>
<td>0</td>
<td>55/55/45</td>
</tr>
<tr>
<td>FR-4</td>
<td>Residential</td>
<td>10:45</td>
<td>15</td>
<td>56</td>
<td>788</td>
<td>32</td>
<td>256</td>
<td>12</td>
<td>55/55/45</td>
</tr>
</tbody>
</table>

- FR-1: Single-family residence (2564 SR-58 in Boron). The noise meter was located in the backyard and shielded by the residence and a 4-foot masonry wall during the measurement.
- FR-2: Single-family residence (2728 SR-58 in Boron). The noise meter was located outside the property because permission to enter the property was not given.
- FR-3: Single-family residence (3248 SR-58 in Boron). The noise meter was located in front of the residence by two horse pens.
- FR-4: Single-family residence (3788 SR-58 in Boron). The noise meter was located outside the property because permission to enter the property was not given.

The Traffic Noise Model (TNM) was calibrated using noise levels from field measurements to ensure accuracy. This involved comparing modeled noise levels, using traffic volumes that were input into the TNM, with traffic noise levels that were measured during field measurements. Table 3.15-3 shows the calibration results.

Table 3.15-3: Comparison of Measured Sound Levels with Predicted Sound Levels in the TNM Model

<table>
<thead>
<tr>
<th>Measurement Position</th>
<th>Measured Noise Level (dBA)</th>
<th>Predicted Noise Level Adjusted to Peak Hour (dBA)</th>
<th>Measured minus Predicted (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR-1</td>
<td>50</td>
<td>48</td>
<td>-2</td>
</tr>
<tr>
<td>FR-2</td>
<td>54</td>
<td>57</td>
<td>3</td>
</tr>
<tr>
<td>FR-3</td>
<td>60</td>
<td>59</td>
<td>-1</td>
</tr>
<tr>
<td>FR-4</td>
<td>56</td>
<td>58</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Caltrans 2012g.

Calibration was applied only to the Alternative 2 TNM because there would be no significant change to the proposed alignment. For Alternatives 1, 1A, and 3, calibration was not applied per Caltrans’ Technical Noise Supplement (TeNS) because reconstruction projects that significantly alter alignments and/or profiles do not lend themselves to model calibration.¹ Section 5.4 of TeNS provides further information on calibrating the TNM.

3.15.3 Environmental Consequences

3.15.3.1 Permanent Impacts

Alternative 1—Northerly Alignment 4-Lane Divided Expressway

Alternative 1 is classified at a federally funded Type 1 project and would construct an access-controlled four-lane divided expressway north of the existing alignment, an interchange at the junction of SR-58 and US-395, and a railroad grade separation (overhead). Four diamond ramps would connect SR-58 and US-395, and US-395 would be widened to four lanes, with a left-turn lane at the junction of SR-58 and US-395.

The traffic noise modeling results in Table 3.15-4 indicate that traffic noise levels at affected land uses would range from 45 to 76 dBA L_{eq}(h) in the design year under Alternative 1. The results also indicate that the change in noise level between the existing condition and the design-year build condition would be between -15 and seven dBA, with five of the eight modeled receivers showing a reduction in noise levels. Additionally, results also indicate that the change in noise level between the no-build and build condition during the design year would be between -16 and 8 dBA, with five of the eight modeled receivers showing a reduction in noise levels. Traffic noise levels are not expected to result in a substantial noise increase (i.e., more than 12 dBA) at any of the representative receptors under the design-year build condition. However, traffic noise levels under the design-year build condition are predicted to approach or exceed the land use category E NAC of 72 dBA L_{eq}(h) at one receiver location (Receptor 1-6). No modeled receivers would approach or exceed the land use category B NAC of 67. Noise abatement is not proposed at the affected location because the affected land use does not have exterior areas with frequent human use. Furthermore, noise abatement is not proposed because access requirements to driveways would be restricted.
Table 3.15-4: Summary of Noise Impact Analysis – Alternative 1

<table>
<thead>
<tr>
<th>Receptor #</th>
<th>Land Use/Activity Category</th>
<th>Existing Noise Level (dBA)</th>
<th>Future Peak-Hour Noise Levels, $L_{eq}(h)$, dBA</th>
<th>Predicted Noise Level with Abatement (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level without Project (dBA)</td>
<td>Design-Year Noise Level with Project</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level with Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level with Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level with Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level with Project</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level with Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level with Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level with Project</td>
<td></td>
</tr>
<tr>
<td>1-1</td>
<td>Residential/B</td>
<td>59</td>
<td>61</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-16</td>
<td>-14</td>
</tr>
<tr>
<td>1-2</td>
<td>Residential/B</td>
<td>63</td>
<td>63</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-15</td>
<td>-15</td>
</tr>
<tr>
<td>1-3</td>
<td>Residential/B</td>
<td>58</td>
<td>60</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-9</td>
<td>-7</td>
</tr>
<tr>
<td>1-4</td>
<td>Residential/B</td>
<td>50</td>
<td>53</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-4</td>
<td>-1</td>
</tr>
<tr>
<td>1-5</td>
<td>Commercial/E</td>
<td>63</td>
<td>62</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>1-6</td>
<td>Commercial/E</td>
<td>69</td>
<td>68</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>1-7</td>
<td>Commercial/E</td>
<td>70</td>
<td>70</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-8</td>
<td>-8</td>
</tr>
<tr>
<td>1-8</td>
<td>Commercial/E</td>
<td>63</td>
<td>64</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Caltrans 2012g.

Bolded entries signify receptors that would approach or exceed the NAC for the respective land use category.

No wall heights were analyzed due to the lack of feasibility associated with access constraints to the driveways.
**Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)**

Alternative 1A is classified at a federally funded Type 1 project and is similar to Alternative 1 but proposes a spread diamond on the north side and a cloverleaf on the south side of the junction at SR-58 and US-395. The project cost estimate and right-of-way requirements for Alternative 1A are two project features that differentiate Alternative 1A from Alternative 1.

The traffic noise modeling results in Table 3.15-5 indicate that traffic noise levels at affected land uses would range from 45 to 76 dBA $L_{eq}(h)$ in the design year under Alternative 1A. The results also indicate that the change in noise level between the existing condition and the design-year build condition would be between -15 and 7 dBA, with five of the nine modeled receivers showing a reduction in noise levels. Additionally, results also indicate that the change in noise level between the no-build and build condition during the design year would range from -16 to 8 dBA, with five of the nine modeled receivers showing a reduction in noise levels. Traffic noise levels are not expected to result in a substantial noise increase (i.e., more than 12 dBA) at any of the representative receptors under the design-year build condition. However, traffic noise levels during the design-year build condition are predicted to approach or exceed the land use category E NAC of 72 dBA $L_{eq}(h)$ at two receiver locations (Receptors 1A-6 and 1A-9). No modeled receivers would approach or exceed the land use category B NAC of 67. Noise abatement is not proposed at the affected locations because the affected land uses do not have exterior areas with frequent human use. Furthermore, noise abatement is not proposed because access requirements to driveways would be restricted.
### Table 3.15-5: Summary of Noise Impact Analysis – Alternative 1A

<table>
<thead>
<tr>
<th>Receptor #</th>
<th>Land Use/Activity Category</th>
<th>Existing Noise Level (dBA)</th>
<th>Future Peak-Hour Noise Levels, $L_{eq}(h)$, dBA</th>
<th>Predicted Noise Level with Abatement (dBA)</th>
<th>Reasonable and Feasible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level without Project (dBA)</td>
<td>Design-Year Noise Level with Project (dBA)</td>
<td>6-foot Wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8-foot Wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10-foot Wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12-foot Wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14-foot Wall</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16-foot Wall</td>
</tr>
<tr>
<td>1A-1</td>
<td>Residential/B</td>
<td>59</td>
<td>61</td>
<td>45</td>
<td>-16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-14</td>
</tr>
<tr>
<td>1A-2</td>
<td>Residential/B</td>
<td>63</td>
<td>63</td>
<td>48</td>
<td>-15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-15</td>
</tr>
<tr>
<td>1A-3</td>
<td>Residential/B</td>
<td>58</td>
<td>60</td>
<td>51</td>
<td>-9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-7</td>
</tr>
<tr>
<td>1A-4</td>
<td>Residential/B</td>
<td>50</td>
<td>53</td>
<td>49</td>
<td>-4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1</td>
</tr>
<tr>
<td>1A-5</td>
<td>Commercial/E</td>
<td>63</td>
<td>62</td>
<td>66</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>1A-6</td>
<td>Commercial/E</td>
<td>69</td>
<td>68</td>
<td>76</td>
<td>8</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>1A-7</td>
<td>Commercial/E</td>
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<td>70</td>
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<td></td>
<td></td>
<td></td>
<td>-8</td>
</tr>
<tr>
<td>1A-8</td>
<td>Commercial/E</td>
<td>63</td>
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<td>64</td>
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<tr>
<td>1A-9</td>
<td>Commercial/E</td>
<td>66</td>
<td>67</td>
<td>73</td>
<td>6</td>
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<tr>
<td></td>
<td></td>
<td></td>
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<td>7</td>
</tr>
</tbody>
</table>

Source: Caltrans 2012g.  
**Bolded entries signify receptors that would approach or exceed the NAC for the respective land use category.**  
No wall heights were analyzed due to the lack of feasibility associated with access constraints to the driveways.
Alternative 2—Existing Alignment 4-Lane Expressway with Median

Alternative 2 is classified at a federally funded Type 1 project and would construct an access-controlled four-lane divided expressway along the existing alignment, an interchange at the junction of SR-58 and US-395, and a railroad grade separation (overhead). Four diamond ramps would connect SR-58 and US-395, and US-395 would be widened to four lanes, with a left-turn-lane at the junction of SR-58 and US-395.

The traffic noise modeling results in Table 3.15-6 indicate that traffic noise levels at the affected land uses would range from 56 to 69 dBA $L_{eq}(h)$ in the design year under Alternative 2. The results also indicate that the change in noise level between the existing condition and the design-year build condition would be between -7 and 11 dBA, with three of the six modeled receivers showing a reduction in noise levels. Additionally, results also indicate that the change in noise level between the no-build and build condition during the design year would be between -7 and 8 dBA, with three of the six modeled receivers showing a reduction in noise levels. Traffic noise levels are not expected to result in a substantial noise increase (i.e., more than 12 dBA) at any of the representative receptors under the design-year build condition. Traffic noise levels during the design year are not predicted to approach or exceed the land use category E NAC of 72 dBA $L_{eq}(h)$ or the land use category B NAC of 67 dBA $L_{eq}(h)$ at any representative receptor locations. Therefore, abatement is not warranted and is not proposed.

Alternative 3—Southerly Alignment 4-Lane Divided Expressway

Alternative 3 is classified at a federally funded Type 1 project and would construct an access-controlled four-lane divided-expressway south of the existing alignment, an interchange at the junction of SR-58 and US-395, and a railroad grade separation (overhead). Four diamond ramps would connect SR-58 and US-395, and US-395 would be widened to four lanes, with a left-turn-lane at the junction of SR-58 and US-395.

The traffic noise modeling results in Table 3.15-7 indicate that traffic noise levels at the affected land uses would range from 49 to 71 dBA $L_{eq}(h)$ in the design year under Alternative 3. The results also indicate that the change in noise level between the existing condition and the design-year build condition would be between -12 and 8 dBA, with five of the nine modeled receivers showing a reduction in noise levels. Additionally, results also indicate that the change in noise level between no-build and build condition during the design year would be between -12 and 5 dBA, with five of the nine modeled receivers showing a reduction in noise levels. Traffic noise levels are not expected to result in a substantial noise increase (i.e., more than 12 dBA) at any of the representative receptors under the design-year build condition. Traffic noise levels during the design year are not predicted to approach or exceed the land use category E NAC of 72 dBA $L_{eq}(h)$ or the land use category B NAC of 67 dBA $L_{eq}(h)$ at any representative receptor locations. Therefore, abatement is not warranted and is not proposed.
Table 3.15-6: Summary of Noise Impact Analysis – Alternative 2

<table>
<thead>
<tr>
<th>Receptor #</th>
<th>Land Use/Activity Category</th>
<th>Existing Noise Level (dBA)</th>
<th>Future Peak-Hour Noise Levels, $L_{eq}(h)$, dBA</th>
<th>Predicted Noise Level with Abatement (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Design-Year Noise Level without Project (dBA)</td>
<td>Design-Year Noise Level with Project (dBA)</td>
</tr>
<tr>
<td>2-1</td>
<td>Residential/B</td>
<td>59</td>
<td>61</td>
<td>65</td>
</tr>
<tr>
<td>2-2</td>
<td>Residential/B</td>
<td>63</td>
<td>63</td>
<td>56</td>
</tr>
<tr>
<td>2-3</td>
<td>Residential/B</td>
<td>58</td>
<td>60</td>
<td>57</td>
</tr>
<tr>
<td>2-4</td>
<td>Residential/B</td>
<td>50</td>
<td>53</td>
<td>61</td>
</tr>
<tr>
<td>2-5</td>
<td>Commercial/E</td>
<td>70</td>
<td>70</td>
<td>63</td>
</tr>
<tr>
<td>2-6</td>
<td>Commercial/E</td>
<td>63</td>
<td>64</td>
<td>69</td>
</tr>
</tbody>
</table>

Source: Caltrans 2012g.
No wall heights were analyzed due to the lack of feasibility associated with access constraints to the driveways.
### Table 3.15-7: Summary of Noise Impact Analysis – Alternative 3

<table>
<thead>
<tr>
<th>Receptor #</th>
<th>Land Use/Activity Category</th>
<th>Existing Noise Level (dBA)</th>
<th>Design-Year Noise Level without Project (dBA)</th>
<th>Design-Year Noise Level with Project (dBA)</th>
<th>Design-Year Noise Level with Project Minus Design-Year No-Project Conditions ( L_{eq}(h) ), dBA</th>
<th>Design-Year Noise Level Minus Design-Year Noise Level with Project Minus Existing Conditions ( L_{eq}(h) ), dBA</th>
<th>6-foot Wall</th>
<th>8-foot Wall</th>
<th>10-foot Wall</th>
<th>12-foot Wall</th>
<th>14-foot Wall</th>
<th>16-foot Wall</th>
<th>Reasonable and Feasible</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>Residential/B</td>
<td>59</td>
<td>61</td>
<td>49</td>
<td>-12</td>
<td>-10</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
<tr>
<td>3-2</td>
<td>Residential/B</td>
<td>63</td>
<td>63</td>
<td>62</td>
<td>-1</td>
<td>-1</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
<tr>
<td>3-3</td>
<td>Residential/B</td>
<td>58</td>
<td>60</td>
<td>53</td>
<td>-7</td>
<td>-5</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
<tr>
<td>3-4</td>
<td>Residential/B</td>
<td>48</td>
<td>51</td>
<td>56</td>
<td>5</td>
<td>8</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
<tr>
<td>3-5</td>
<td>Commercial/E</td>
<td>63</td>
<td>62</td>
<td>63</td>
<td>1</td>
<td>0</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
<tr>
<td>3-6</td>
<td>Commercial/E</td>
<td>69</td>
<td>68</td>
<td>71</td>
<td>2</td>
<td>1</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
<tr>
<td>3-7</td>
<td>Commercial/E</td>
<td>70</td>
<td>70</td>
<td>58</td>
<td>-12</td>
<td>-12</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
<tr>
<td>3-8</td>
<td>Commercial/E</td>
<td>63</td>
<td>64</td>
<td>60</td>
<td>-4</td>
<td>-3</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
<tr>
<td>3-9</td>
<td>Commercial/E</td>
<td>67</td>
<td>67</td>
<td>69</td>
<td>2</td>
<td>2</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
<td>'--'</td>
</tr>
</tbody>
</table>

Source: Caltrans 2012g.

No wall heights were analyzed due to the lack of feasibility associated with access constraints to the driveways.
**Alternative 4—No-Build Alternative**

Alternative 4 would not provide improvements or result in any construction activities. As shown in Tables 3.15-4 through 3.15-7, under the No-Build Alternative, future noise levels would not approach or exceed the land use category E NAC of 72 dBA L_{eq}(h) or the land use category B NAC of 67 dBA L_{eq}(h) at any representative receptor, nor would any modeled receptor experience an increase of 12 dBA or more compared with existing conditions. Therefore, noise impacts are not anticipated to occur.

**3.15.3.2 Temporary Impacts**

**Build Alternatives 1, 1A, 2, and 3**

During construction of any of the build alternatives, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans’ Standard Specifications, Section 14-8.02:

- Do not exceed 86 dBA L_{max} at 50 feet from job site activities from 9 p.m. to 6 a.m.
- Equip internal combustion engines with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

If applicable, construction of any of the build alternatives would need to comply with Standard Special Provision S5-310.

Table 3.15-8 lists noise levels produced by the types of construction equipment that are commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of about six dB per doubling of distance.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Maximum Noise Level (dBA at 50 feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrapers</td>
<td>85</td>
</tr>
<tr>
<td>Bulldozers</td>
<td>85</td>
</tr>
<tr>
<td>Heavy Trucks</td>
<td>84</td>
</tr>
<tr>
<td>Backhoes</td>
<td>80</td>
</tr>
<tr>
<td>Pneumatic Tools</td>
<td>85</td>
</tr>
<tr>
<td>Concrete Pumpers</td>
<td>82</td>
</tr>
</tbody>
</table>

**Table 3.15-8: Construction Equipment Noise**


No substantial adverse effects from construction are anticipated because construction would be conducted in accordance with Caltrans’ Standard Specifications and applicable local government noise standards. Construction noise would be short term and intermittent and temporary noise impacts from construction would be minimized with implementation of the following measures:
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Section 3.15. Human Environment—Noise and Vibration

1) All equipment will have sound-control devices that are no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.

2) As directed by Caltrans, the contractor will implement appropriate additional noise minimization measures, such as changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

3.15.4 Avoidance, Minimization, and/or Mitigation Measures

23 CFR 772 requires that noise abatement measures that are reasonable and feasible and are likely to be incorporated into the project be identified before adoption of the final environmental document.

The preliminary reasonableness determination is made by calculating an allowance that is considered to be a reasonable amount of money, per benefited residence, to spend on abatement. The overall reasonable abatement is determined by considering factors such as cost; absolute predicted noise levels; predicted future increase in noise levels; expected noise abatement benefits; build date of surrounding residential development along the highway; environmental impacts of abatement construction; opinion of affected residents; input from the public and local agencies; and social, legal and technological factors. This reasonable allowance is then compared to the engineer’s cost estimate for the abatement. If the engineer’s cost estimate is less than the allowance, the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance, the preliminary determination is that abatement is not reasonable.

Noise abatement is not proposed at receiver locations for any of the build alternatives because none of the affected land uses have exterior areas where frequent human use would occur. However, if during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement will be made upon completion of the project design and the public involvement processes.

To avoid and minimize construction noise impacts the following measures will be implemented. If necessary, a project-specific Standard Special Provision, determined during final design, will also be implemented.

- **NOI-1**: To reduce noise levels from construction to the extent that is technically feasible and avoid unnecessary annoyance from construction noise, the construction noise control measures listed below will be implemented.
  a. To the extent practicable, avoid using construction equipment or any other activity that could generate high noise levels near homes. If nighttime construction is required, the community will be advised.
  b. Place maintenance yards, batch plants, haul roads, and other construction-oriented operations in locations that would be the least disruptive to the community.
c. Hold community meetings to explain to area residents the construction work, time involved, and control measures to be taken to reduce the impact of construction work, as appropriate.

d. Schedule the timing and duration of construction activities to minimize noise impacts at noise-sensitive locations.

e. As practicable, use noise-attenuating “jackets” or portable noise screens to provide shielding for pavement breaking, jack hammering, or other similar activities when work is close to noise-sensitive areas.

  
  • Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.
  
  • Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.
3.16 Energy

3.16.1 Regulatory Setting

3.16.1.1 Federal Regulations

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

3.16.1.2 State Regulations

The California Environmental Quality Act (CEQA) Guidelines, Appendix F, Energy Conservation, state that EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

3.16.2 Affected Environment

California is the most populous state in the nation and its total energy demand is second only to Texas. Although California is a leader in the energy-intensive chemical, forest products, glass, and petroleum industries, the state has one of the lowest per capita energy consumption rates in the country. The California energy efficiency programs and moderate climate have contributed to low per capita energy consumption (U.S. Energy Information Administration 2013).

Driven by high demand from California’s many motorists, major airports, and military bases, the transportation sector is the state’s largest energy-consumer. Roughly half of the energy Californians consume is for transportation. In 2007, Californians consumed an estimated 20 billion gallons of gasoline and diesel fuel on the state’s roads, an increase of nearly 50 percent over the prior 20 years. More motor vehicles are registered in California than in any other state, and worker commute times are among the longest in the country. The nearly 26 million registered vehicles operating in California produce approximately 40 percent of the state’s GHG emissions (California Energy Commission [CEC] 2010).

The consumption of energy in the SCAG region is summarized in Table 3.16.1 for the most recent year (2011) that data is available by category of consumption and fuel type.
Table 3.16-1: Annual Transportation Energy Consumption in the SCAG Region for Base Year (2011)

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Year</th>
<th>Consumption</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor vehicles¹ (Gasoline/diesel)</td>
<td>2011</td>
<td>6.8 billion</td>
<td>Gallons per year</td>
</tr>
<tr>
<td>Natural gas¹</td>
<td>2011</td>
<td>3,139</td>
<td>Million therms /year</td>
</tr>
<tr>
<td>Electricity</td>
<td>2011</td>
<td>80,013</td>
<td>GWh /year</td>
</tr>
</tbody>
</table>

¹ SCAG 2012-2035 RTP/SCS Draft PEIR

Nonrenewable energy products derived from crude oil (e.g., gasoline, diesel, kerosene, and residual fuel) provide most of the energy consumed for transportation purposes by on-road motor vehicles (i.e., automobiles and trucks), locomotives, aircraft, and ships. In addition, energy is consumed in connection with construction and maintenance of transportation infrastructure, such as streets, highways, freeways, locomotives, and airport runways. Trends in transportation-related technology indicate increased use of electricity and natural gas in transportation vehicles in the future (SCAG 2008b).

The majority of transportation energy is currently derived from a wide variety of petroleum products. Automobiles and trucks consume gasoline and diesel fuel. The transportation sector consumes relatively minor amounts of natural gas or electricity but, propelled mainly by air quality laws and regulations, technological innovations in transportation are expected to increasingly rely on compressed natural gas and electricity as energy sources. Biodiesel, which is derived from plant sources such as vegetable oils, is a small but growing source of transportation fuel. Vehicles powered by fuels other than gasoline or diesel are referred to as alternative fuel vehicles (SCAG 2008b).

Energy consumption by on-road motor vehicles reflects the types and numbers of vehicles, the extent of their use (typically described in terms of vehicle miles traveled [VMT]), and their fuel economy (typically described in terms of miles per gallon [mpg]). Trends in energy consumption by on-road motor vehicles generally follow trends in population and per capita income as well as trends in land use development patterns. For example, diffuse land use development patterns can result in an imbalance between jobs and housing, which can lead to longer average commute trips.

Natural gas is California’s preferred fuel because of its clean-burning capabilities. Natural gas is also used to generate electricity.

The production of electricity requires the consumption of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources. Most of these resources are used as heat sources for steam turbines that drive electric generators. The electricity generated is distributed via a network of transmission and distribution lines, commonly known as a power grid. Table 3.16-2 shows California’s gross system electricity production for 2011.
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Section 3.16. Physical Environment—Energy

Table 3.16-2. California 2011 Gross System Electricity Production

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Gigawatt Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>3,120</td>
<td>1.6</td>
</tr>
<tr>
<td>Large Hydro</td>
<td>36,596</td>
<td>18.3</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>90,751</td>
<td>45.3</td>
</tr>
<tr>
<td>Nuclear</td>
<td>36,666</td>
<td>18.3</td>
</tr>
<tr>
<td>Oil</td>
<td>36</td>
<td>0</td>
</tr>
<tr>
<td>Renewables</td>
<td>33,244</td>
<td>16.6</td>
</tr>
<tr>
<td>Biomass</td>
<td>5,777</td>
<td>2.9</td>
</tr>
<tr>
<td>Geothermals</td>
<td>12,685</td>
<td>6.3</td>
</tr>
<tr>
<td>Small Hydro</td>
<td>6,130</td>
<td>3.1</td>
</tr>
<tr>
<td>Solar</td>
<td>1,058</td>
<td>0.5</td>
</tr>
<tr>
<td>Wind</td>
<td>7,594</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>200,414</td>
<td>100</td>
</tr>
</tbody>
</table>


The California Public Utilities Commission (PUC) regulates privately owned electric, telecommunications, natural gas, water, and transportation companies as well as household goods movers. It also oversees rail safety. In addition, the PUC regulates local natural gas distribution facilities and services, natural gas procurement, intrastate pipelines, and intrastate production and gathering. It works to provide opportunities for competition when in the interest of consumers, takes the lead in the environmental review of natural gas-related projects, recognizes the growing interaction of electric and gas markets, and monitors gas energy efficiency and other public-purpose programs. The PUC’s Energy Division works to set electric rates, protect consumers, and promote energy efficiency, electric system reliability, and utility financial integrity.

3.16.2.1 Existing Energy Supplies and Demand

Economic conditions and population growth are the primary drivers of transportation energy demand. The California Department of Finance forecasts that California’s population is expected to grow at approximately 1.2 percent annually from 2008 until 2020. For comparison, statewide population grew an average of 1.4 percent annually from 1990 to 2008. The declining growth rates over the forecast horizon reflect lower rates of fertility and immigration as the population of California and other regions age. The CEC forecasts that the average household size will increase only by 0.14 percent by 2020, so that total households grow at a slower rate than the population. The number of households is forecast to increase at an average rate of 1.09 percent per year from 2010 to 2020. The CEC analysis assumes that real personal income will grow over that 10-year period at an average annual rate of approximately 2.75 percent, which is somewhat higher than the 2.49 percent annual growth rate for the previous 20 years (1990-2010), and the 1.77 percent growth rate for the previous 10 years (2000–2010) (CEC 2009).

State-wide, the VMT for light-duty vehicles (LDVs) is expected to increase from 316 billion miles in 2005 to between 473 and 500 billion miles in 2030, for a growth rate of between 1.51 and 1.85 percent per year. LDVs account for approximately 95 percent of the total VMT of all
on-road vehicles. The CEC forecasts that the number of on-road vehicles in California will reach approximately 37.7 million by 2030, up from approximately 26.1 million in 2005. This reflects an average growth rate of 1.5 percent per year. LDVs constitute approximately 97 percent of the on-road vehicles. Primarily because of the continued growth in cross utility vehicles, light trucks are projected to increase as a fraction of LDV stock in California from 42 percent in 2003 to over 52 percent by 2025. Despite this growth, the LDV fleet average fuel economy is forecast to increase by approximately 11 percent from 20.2 mpg in 2005 to up to 27.63 mpg in 2030, based on key assumptions as described in the CEC report. The CEC predicts that fleet fuel economy will increase at a faster pace than was seen the previous decade (CEC 2007).

Diesel demand within the state is projected to increase from 3.4 billion gallons in 2010 to 5.4 billion gallons by 2030, which translates to an average annual increase of 1.5 percent, based on a future “high demand price” scenario (CEC 2010).

Consistent with the zero emission vehicle (ZEV) program adopted by the Air Resources Board, the number of electric hybrid vehicles are projected to increase from 103,738 vehicles in 2005 to 279,788 in 2007 to 6,685,566 vehicles by 2030 (approximately 18 percent of total automobile sales). For diesel LDVs, the number of vehicles is projected to reach 316,910 vehicles in 2010, 3,055,165 vehicles by 2020, and 5,027,790 vehicles by 2030 (approximately 13 percent of sales). By 2030, the fleet penetration of hybrids and diesel LDVs is forecast to reduce gasoline demand projections by up to 1.9 billion gallons per year (assuming high fuel prices and GHG standards) (CEC 2007).

Transportation electricity demand, used primarily for plug-in hybrid and full electric vehicles as well as urban public transit, is projected to increase from 835 gigawatt-hours (GWhs) in 2007 to 856 GWhs in 2010 and up to 9,838 GWhs in 2030, which translates to an average annual increase of up to 11.3 percent. During the same period, the CEC forecasts that the demand for natural gas in vehicles will increase from 150 to up to 270 million therms per year. This translates into an average annual increase of up to 2.6 percent (CEC 2010).

Along SR-58, within the project area, VMT is expected to increase from 65.2 million miles in 2010 to 84.3 million miles in 2019, and 145.9 million miles in 2039. The estimated fuel consumed in the project area by existing (2010) vehicles traveling on SR-58 is estimated to be 2.2 million gallons. The amount of fuel consumed is projected to increase to 2.8 million gallons in 2019 and 4.9 million gallons in 2039. It should also be noted that SR-58 experiences a large volume of truck traffic (in 2010, truck traffic comprised 58.5% of traffic volumes) and consequently the fuel consumed by truck traffic represents a significant portion of the total fuel.

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1. In 2012, the U.S. Department of Transportation and the U.S. Environmental Protection Agency issued new standards that will require cars and light duty trucks, on an average industry fleet wide basis, to achieve 54.5 mpg by Model Year 2025.
2. VMT estimates calculated by multiplying the weighted-average ADT from the Traffic Study Report (2010) for each alternative by the project length.
3. Estimate of fuel consumption was calculated based on the general premise that AM + PM peak-hour ADT represents 20 percent of total VMT. As such, the peak-hour fuel consumption estimates provided in the Traffic Study Report (2010) were multiplied by 5 to estimate daily fuel consumption. Daily consumption estimates were multiplied by 365 to estimate annual fuel consumption.
consumed by vehicles traveling along SR-58 in the project area. The volume of truck traffic is expected to remain high in future years.

### 3.16.3 Environmental Consequences

#### 3.16.3.1 Methodology

This energy analysis is based on Caltrans’ *Standard Environmental Reference, Volume 1, Chapter 13, Energy, updated November 2008*. The energy analysis addresses two elements: direct and indirect energy consumption. Direct energy refers to the fuel consumed by vehicles using the highway facility. Indirect energy refers to the energy associated with the construction and operation of the facility.

Implementation of the proposed project would affect the use of indirect energy resources in the San Bernardino County and SCAG regions. Three main areas of impact have been identified: (1) energy demands for construction; (2) energy demands for operation of the regional transportation system as of 2035; and (3) the cumulative impacts of the growing energy demand associated with implementation of the proposed project and other projects in the region.

Direct transportation energy consumption was estimated for the proposed project using the following:

- Project traffic data (Traffic Study Report 2010),
- EMFAC2007-generated CO2 emissions, and
- EPA CO2 fuel content data for diesel and gasoline.

The calculation worksheet is provided in Appendix L. The discussions of project construction and operations impacts are discussed below. Cumulative impacts are discussed in Section 3.25.

#### 3.16.3.2 Permanent Impacts

*Build Alternatives 1, 1A, 2, and 3*

Local energy demand for transportation projects typically is dominated by vehicle fuel usage. The build alternatives would provide more capacity, improve traffic flow, increase safety, reduce weaving, and improve accessibility. Table 3.16-3 lists the estimate of fuel consumption in the study area associated with the vehicle trips for the build and no-build alternatives under the existing year 2010, opening year 2019, and horizon year 2039 conditions.
Table 3.16-3: Study Area Fuel Consumption Comparison

<table>
<thead>
<tr>
<th>Year</th>
<th>No-Build</th>
<th>Build</th>
<th>Percent Change between Existing and Build Alternatives</th>
<th>Percent Change between Build and No-Build Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gasoline</td>
<td>Diesel</td>
<td>Total Fuel Consumption</td>
<td>Gasoline</td>
</tr>
<tr>
<td>2010</td>
<td>657,664</td>
<td>3,301,235</td>
<td>3,958,899</td>
<td>n/a</td>
</tr>
<tr>
<td>2019</td>
<td>877,294</td>
<td>4,403,698</td>
<td>5,280,992</td>
<td>891,620</td>
</tr>
<tr>
<td>2039</td>
<td>1,603,412</td>
<td>8,048,543</td>
<td>9,651,955</td>
<td>1,610,045</td>
</tr>
</tbody>
</table>


Based on the traffic analysis, the VMT would remain the same under all build alternatives. This is because even without development of the proposed project, traffic would not divert to other routes because no other viable alternatives for travel exist in the project vicinity. SR-58 would remain the shortest path for interregional travel; therefore, travel demand volume is not predicted to vary considerably between the build and no-build alternatives.

As shown in Table 3.16-3, under existing conditions, fuel consumption is estimated to be 3.96 million gallons per year. During the opening year, 2019, under the no-build condition, fuel consumption is estimated to be 5.28 million gallons per year, which represents a 33.4% increase over existing conditions. Under the build alternatives, fuel consumption is estimated to be 5.37 million gallons per year, an increase of 35.6% over existing conditions, but only a 1.36% increase over the 2019 no-build alternative. During the horizon year, 2039, annual fuel consumption is estimated to be 9.65 million gallons under the no-build condition (an increase of 143.8% from existing conditions) and 9.69 million gallons per year under the build alternatives (an increase of 144.8% over the existing condition, but only a 0.41% increase over the 2039 no-build alternative). Increases in fuel consumption within the project limits would occur primarily due to increased traffic volumes on SR-58, as indicated in Table 3.6-2, but such rises in fuel consumption would occur whether or not the project is implemented and is not attributable to the project. Given that background growth in fuel consumption will occur, it is appropriate to compare future build and no-build alternatives to ascertain the build alternatives’ contribution to that increased fuel use. On the basis of that comparison, no substantial change in fuel consumption would occur as a result of implementation of the build alternatives.

Operation of the build alternatives would not introduce new features that would consume a substantial amount of energy. The build alternatives would include standard lighting along ramps and exits, but no additional street signals or other energy-consuming features would be installed. Consequently, potential impacts on energy or energy infrastructure would not be substantial adverse for the build alternatives.

**Alternative 4—No-Build Alternative**

The No-Build Alternative would not result in structural or physical changes. Under this alternative, the existing deficient capacity conditions would not change and traffic congestion and delay would continue to increase in the area. The additional congestion would lead to increased vehicle queuing, which would increase fuel consumption. Therefore, with
implementation of the No-Build Alternative, the potential exists for adverse effects on energy resources.

3.16.3.3 Temporary Impacts

Build Alternatives 1, 1A, 2, and 3

Construction under this alternative would result in short-term energy consumption related to the manufacture of construction materials, the use of construction equipment that requires petroleum fuels, and the use of construction workers' motor vehicles as they travel to and from the site. Construction activities would last approximately two years. Thus, construction-related energy consumption anticipated under build alternatives would be finite and limited and would have an incremental impact on area energy supplies.

Alternative 4—No-Build Alternative

No construction would occur under the No-Build Alternative. Therefore, no effect on energy consumption would occur. Current levels of energy consumption would not be expected to change under this scenario. Temporary impacts due to construction are not expected. Consequently, no additional energy would be consumed.

3.16.4 Avoidance, Minimization, and/or Mitigation Measures

As indicated above, no substantial adverse energy impacts are anticipated to occur under construction or operation of the build alternatives. No further discussion regarding avoidance, minimization, or mitigation is required.
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Section 3.16. Physical Environment—Energy

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3.17 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 Section 3.21, Threatened and Endangered Species. Wetlands and other waters are also discussed below in Section 3.18.

3.17.1 Affected Environment

Unless otherwise noted, the information from this section summarizes the August 2012 Natural Environment Study (NES) prepared for the proposed project (Caltrans 2012h). 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 illustrated in Figure 3.17-1.

No natural communities of special concern (as listed in the CNNDB) are present within the project footprint. The only vegetation communities present within the BSA are atriplex scrub, creosote bush scrub, and desert sink scrub. Disturbed/developed areas such as existing housing and roads are also located within the BSA. Figure 3.17-1 shows the location of the different communities.

Existing storm drainage culverts along SR-58 have been effectively serving as corridors for wildlife such as desert tortoise, Mohave ground squirrel, and various small mammals. These 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 site visits conducted during late spring 2007.

3.17.2 Environmental Consequences

Build Alternatives 1, 1A, 2, and 3

Impacts to natural vegetation communities of concern would not occur; none are present in the BSA. However, all of the build alternatives have the potential to disrupt animal movement and cause habitat fragmentation along SR-58. This could affect a number of species and individuals, including desert tortoise and Mohave ground squirrel. Impacts are considered substantially adverse. Impacts would be minimized with implementation of Measure BIO-1 identified below in Section 3.17.3.
Alternative 4—No-Build Alternative

Under the No-Build Alternative, no permanent impacts on natural vegetation communities of concern or animal movement/habitat fragmentation would occur.

3.17.3 Avoidance, Minimization, and/or Mitigation Measures

The following measure is proposed to mitigate the build alternatives’ impacts on wildlife corridors and movement.

- **BIO-1:** In coordination with USFWS and CDFW, two oversized culverts, east and west of US-395, will be installed as part of the project. These culverts will be a minimum of six feet tall and 10 feet wide. These will be box culverts, which are a specific requirement for desert tortoise and Mohave ground squirrel and have been designed as such. They will also accommodate small to medium sized animals. Desert tortoise fencing will be used to direct wildlife to them.
Figure 3.17-1 Sheet 1
Vegetation Communities
State Route 58 Kramer Junction Expressway Project

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Biological Survey Area (BSA)

Vegetation Type
- ATRIPLEX SCRUB
- CREOSOTE BUSH SCRUB
- DESERT SINK SCRUB
- ATRIPLEX SCRUB & CREOSOTE BUSH SCRUB
- DESERT SINK SCRUB & ATRIPLEX SCRUB
- DEVELOPED/DISTURBED
- DISTURBED ATRIPLEX SCRUB
- DISTURBED CREOSOTE BUSH SCRUB
- DISTURBED ATRIPLEX SCRUB & CREOSOTE BUSH SCRUB

Source: ESRI USA Imagery (2010)
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.17. Natural Environment—Natural Communities

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.17. Natural Environment—Natural Communities

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project

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Biological Survey Area (BSA)

Vegetation Type

1. ATRIPLEX SCRUB
2. CREOSOTE BUSH SCRUB
3. DESERT SINK SCRUB
4. ATRIPLEX SCRUB & CREOSOTE BUSH SCRUB
5. DEVELOPED/DISTURBED
6. DISTURBED ATRIPLEX SCRUB
7. DISTURBED CREOSOTE BUSH SCRUB
8. DISTURBED ATRIPLEX SCRUB & CREOSOTE BUSH SCRUB

Source: ESRI USA Imagery (2010)
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
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Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

Section 3.18. Natural Environment—Wetlands and Other Waters

3.18 Wetlands and Other Waters

3.18.1 Regulatory Setting

3.18.1.1 Federal Regulations

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 U.S. Environmental Protection Agency (U.S. EPA).

USACE issues two types of 404 permits: Standard and General 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 authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Standard permits. 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], and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by the U.S. EPA 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 that would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practical 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 Department, the Federal Highway Administration, USACE, U.S. EPA, and U.S. Fish and Wildlife Service (USFWS) entered into a memorandum of understanding (MOU) to integrate the National Environmental Policy Act (NEPA) and the CWA for Environmental Impact Statement
(EIS) projects that have five or more acres of permanent impact to waters of the United States (U.S.). Under this Memorandum of Understanding (MOU), the signatory agencies agree to coordinate at three checkpoints: 1) purpose and need, 2) identification of range of alternatives, and 3) preliminary determination of the LEDPA and conceptual mitigation plan. The goal of the MOU process is to allow the USACE to more efficiently adopt the Department’s EIS for their Section 404 permit action.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as FHWA and/or the Department, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

3.18.1.2 State Regulations

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Wildlife, (CDFW; formerly Fish and Game, CDFG), the State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Boards (RWQCB). For this document, the name change of CDFG to CDFW has been made; however reference to this agency’s legal code has been maintained as Fish and Game. 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. The RWQCB also issues water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the CWA. Please see the Section 3.10, Water Quality, for additional details.

San Bernardino County General Plan

The following policies from the San Bernardino County General Plan would apply to the proposed project:

Circulation and Infrastructure Element

- **Policy CI 13.2 (b)**: Limit disturbance of natural water bodies and drainage systems; conserve natural areas; protect slopes and channels;
- **Policy CI 13.2 (c)**: Preserve wetlands, riparian corridors, and buffer zones; establish reasonable limits on the clearing of vegetation from the project site.
3.18.2 Affected Environment

Unless otherwise noted, the information from this section was synthesized from the August 2012 Natural Environment Study (NES) prepared for the proposed project (Caltrans 2012h). References used in the NES are not carried over into this section.

The proposed project occurs in the western portion of the Mojave Desert, which is bound on the west-southwest by the Tehachapi, San Gabriel, and San Bernardino Mountains; these mountains block many of the moisture-bearing westerly winds from the coast, forming a rain shadow. Hence, the region receives low levels of precipitation while experiencing high levels of evapotranspiration. High temperatures, low rainfall, and low humidity are present during the summer, with temperatures regularly exceeding 100º F. Winter temperatures are cold and can be below freezing. This area of the western Mojave Desert receives on average about five inches of precipitation per year. The region receives the majority of its precipitation during the winter in the form of rain and irregular snowstorms; however, snowstorms are more prevalent at higher elevations.

Due to the lack of significant moisture in the desert during most of the year, soils are typically poorly developed and very thin. In addition, the soil texture in this region is sandy and does not hold water well. The combination of cold winter temperatures, low precipitation levels, low soil moisture content, lack of protective vegetation cover, and poor soil nutrient levels creates a unique environment for many plant species to become established and grow.

The project area is within the Antelope-Fremont Valleys and Coyote-Cuddeback Lakes Watersheds, and specifically within four subwatersheds. The Antelope-Fremont Valleys Watershed extends from Boron to Mojave and south to the Lancaster-Palmdale area. The Coyote-Cuddeback Watershed encompasses lands near Kramer Junction and much of the town of Hinkley and the surrounding area. The Mojave Watershed borders both of these watersheds.

All of the drainages recorded within the Antelope-Fremont Valleys watershed within the project area are thought to be isolated within the project area or to drain eastward along SR-58 to enter into the Coyote-Cuddeback Lakes watershed. Drainage courses mapped within the project area drain northward and eastward where they consolidate via surface and underground flows within a major east-west trending drainage course. The receiving body for these drainage features is Harper Dry Lake, approximately 13 miles north and east of the project area, within subwatershed Schweitzer Well-Harper Lake in the Coyote-Cuddeback Lakes Watershed.

3.18.2.1 Waters of the United States

No potential waters of the U.S. were mapped within the BSA. The ephemeral streams located in the project area are tributary to several unnamed drainages of various sizes and ultimately drain to Harper Lake (dry), which is an isolated water body. USACE regulates traditional navigable waters and their tributaries; there are none of these regulated waters within the project limits. Ephemeral streams are intrastate in nature and not interstate waters and, therefore, not subject to regulation under Section 401 and 404 of the Clean Water Act (Caltrans 2011c). However, the determination is ultimately made by the USACE. The Jurisdictional Delineation Report was...
submitted to the USACE on February 11, 2013, and USACE confirmed that ephemeral streams in the vicinity of the project alignment are under the jurisdiction of the Lahontan RWQCB.

3.18.2.2 Waters of the State

State jurisdiction within the BSA varies by alternative and is comprised entirely of ephemeral streams and manmade ditches (Caltrans 2011c). Unlike federal jurisdiction, state jurisdiction includes intermittent desert washes that do not directly drain into traditional navigable waters; therefore, only the state has jurisdiction over waters located within the project limits. The extent of state jurisdiction was mapped in the field according to the ordinary high water mark, the extent of riparian vegetation, and flood plain indicators such as debris lines, topographic changes, and sediment deposits, among other indicators. An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the streams. Permitting activities for projects affecting waters of the state within the project limits are administered by CDFW and the Lahontan Regional Water Quality Control Board (LRWQCB).

The western portion of the project area, west of Hinkley Road, contains all of the identified jurisdictional features within the project area. None of the streams supported riparian vegetation; all consist of non-vegetated streambeds of varying sizes with native upland desert vegetation along the perimeter.

3.18.2.3 National Wetland Inventory

There were no areas identified within the BSA that were suspected to contain the necessary criteria to meet the USACE definition of wetlands. A paired sample point was taken within the larger east-west trending drainage course that collects flows and diverts them towards Harper Dry Lake. This location was sampled due to the area appearing to support the most hydrology of any spot within the BSA. There were also several remnant playa-like areas and swales located within the BSA. These areas are remnants of ancient seabeeds and are highly alkaline in nature, mapped as palustrine (PUSJ) within the National Wetlands Inventory system. Because these areas within the BSA were not observed to be geomorphically capable of retaining water, and did not support vegetation, they were not sampled, as no indication of wetland hydrology or vegetation was evident.

3.18.3 Environmental Consequences

There are no perennial water sources in the BSA; however, there are up to 13 sandy ephemeral dry washes, totaling an area of approximately 11.54 acres, extending through the area that may be directly affected by the project. These washes are not considered to constitute waters of the U.S., due to their lack of connectivity with Traditional Navigable Waters. It was determined that they are protected under Section 1600 of the California Fish and Game code and under regulations of the LRWQCB; therefore, it will be necessary to obtain a 1600 Permit from CDFW and a waste discharge permit from the LRWQCB for impacts to these states waters.
3.18.3.1 Permanent Impacts

Build Alternatives 1, 1A, 2, and 3

No federal jurisdictional waters and wetlands are present. Table 3.18-1 shows the acreages of CDFW jurisdictional waters directly affected by Build Alternatives 1, 1A, 2, and 3.

### Table 3.18-1: Waters of the State within the BSA

<table>
<thead>
<tr>
<th>Alignment Alternative</th>
<th>Proposed Permanent Impacts (ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1</td>
<td>3.40</td>
</tr>
<tr>
<td>Alternative 1A</td>
<td>3.40</td>
</tr>
<tr>
<td>Alternative 2</td>
<td>3.44</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>4.70</td>
</tr>
</tbody>
</table>

1. Acreages are based on preliminary design. After the environmental document is approved and an alternative is selected, final design of the selected alternative will occur and acreage may be revised.
2. Permanent impacts to waters under the jurisdiction of CDFW and LRWQC are identical.

Source: Caltrans 2012.

Due to the extent of impact proposed, these direct losses of state jurisdictional resources would be a substantial adverse effect. In order to minimize impacts to state streambeds, Measures BIO-1 to BIO-5, identified below in Section 3.18.4, would be implemented.

### Alternative 4—No-Build Alternative

The No-Build Alternative would not permanently affect CDFW jurisdictional waters. No impacts to federal waters are expected as they are absent from the BSA.

3.18.3.2 Temporary Impacts

Build Alternatives 1, 1A, 2, and 3

For the impacts analysis of biological resources, including jurisdictional waters and wetlands, all direct impacts are considered to be permanent and are detailed in Section 3.18.3.1, above.

### Alternative 4—No-Build Alternative

The No-Build Alternative would have no temporary impacts to CDFW jurisdictional waters. No impacts to federal waters are expected as they are absent from the BSA.

3.18.4 Avoidance, Minimization, and/or Mitigation Measures

Implementation of the recommended minimization measures below would reduce the potential effects to state streambeds to minor adverse:

- **BIO-2. Water Pollution Control.** Avoidance and minimization measures to be utilized in order to protect aquatic resources during the course of the project will include the
implementation of BMPs (Caltrans 2003a) and the Storm Water Pollution Prevention Plan (SWPPP) (Caltrans 2003b) during all phases of construction.

- **BIO-3. Temporary Environmentally Sensitive Area (ESA) fencing.** An ESA fence will be installed around all washes within the right-of-way that will not be impacted by the project.

- **BIO-4. Biological Monitor.** A qualified construction monitor will assure that construction activities will not impact the washes delimited by the ESA fencing.

- **BIO-5.** The proposed project will require the acquisition of mitigation for federal and state listed species. This land is expected to include desert washes that should offset the impact for the project. There is no aquatic/riparian vegetation that will require any other additional mitigation. If the mitigation land acquired for the project does not include sufficient desert washes, supplementary mitigation may be required by the agencies with jurisdiction over the waters.

Additional coordination with the appropriate agencies will occur once an alternative is selected and final design is completed to obtain required permits for the proposed project.
3.19 Plant Species

3.19.1 Regulatory Setting

3.19.1.1 Federal and State Regulations

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded 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 3.21 in this document for detailed information regarding 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 16 United States Code (USC), Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), CA Public Resources Code, Sections 2100-21177.

3.19.2 Affected Environment

Unless otherwise noted, the information from this section was synthesized from the August 2012 Natural Environment Study (NES) prepared for the proposed project (Caltrans 2012h). References used in the NES are not carried over into this section.

Plant species in California that have special regulatory or management status were evaluated for potential to occur within the Biological Study Area (BSA). In order to comply with the provisions of various state and federal environmental statutes and executive orders, the potential impacts to natural resources of the region were investigated and documented. A list of species and habitats within the project region was developed based on information compiled by the USFWS, the California Natural Diversity Database (CNDDB), and current publications. The project site was field reviewed to identify habitat types, potential wetlands, potential for rare species, sensitive water quality receptors, and potential problem areas within the BSA. A rare plant survey was conducted in the spring of 2009 to verify the presence of rare plants yielded by the CNNDB.
The project area supports the following natural vegetation communities: atriplex scrub, creosote bush scrub, and desert sink scrub. Disturbed/developed areas such as existing housing and roads are also located within the BSA. Refer to Figure 3.17-1 in Section 3.17 for the location of the different communities. A list with all plant species observed within the project area while performing surveys is included in Appendix A of the NES (Caltrans 2012h).

A search of CNDDB and CNPS Electronic Inventory yielded eleven special-status plant species—Barstow woolly sunflower (*Eriophyllum mohavense*), desert cymopterus (*Cymopterus deserticola*), Utah glasswort (*Sarcornia utahensis*), crowned muilla (*Muilla coronata*), sagebrush loeflingia (*Loeflingia squarrosa var. artemisarum*), red rock poppy (*Eschscholzia minutiflora ssp. twisselmannii*), recurved larkspur (*Delphinium recurvatum*), pygmy poppy (*Canbya candida*), Booth’s evening primrose (*Camissonia boothii ssp. boothii*), alkali mariposa lily (*Calochortus striatus*), and Mojave spineflower (*Chorizanthe spinosa*)—with the potential to occur within the proposed project site, presented below in Table 3.19-1.

**Table 3.19-1: Nonlisted Special-Status Plant Species Occurring or Known to Occur in the BSA**

<table>
<thead>
<tr>
<th>Scientific Name Common Name</th>
<th>Status</th>
<th>Habitat Present (P) /Absent (A)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Calochortus striatus</em> alkali mariposa lily</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 1B.2 SEN</td>
<td>P</td>
</tr>
<tr>
<td><em>Camissonia boothii ssp. boothii</em> Booth’s evening primrose</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 2.3 None</td>
<td>P</td>
</tr>
<tr>
<td><em>Canbya candida</em> pygmy poppy</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 4.2 None</td>
<td>P</td>
</tr>
<tr>
<td><em>Chorizanthe spinosa</em> Mojave spineflower</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 4.2 None</td>
<td>P</td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Status</td>
<td>Habitat Present (P) /Absent (A)</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
<td>--------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Cymopterus deserticola</td>
<td>desert cymopterus</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 1B.2 SEN</td>
</tr>
<tr>
<td>Delphinium recurvatum</td>
<td>recurved larkspur</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 1B.2 None</td>
</tr>
<tr>
<td>Eriophyllum mohavense</td>
<td>Barstow woolly sunflower</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 1B.2 SEN</td>
</tr>
<tr>
<td>Eschscholzia minutiflora ssp. twisselmannii</td>
<td>red rock poppy</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 1B.2 None</td>
</tr>
<tr>
<td>Loeflingia squarrosa var. artemisarum</td>
<td>sagebrush loeflingia</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 1B.2 SEN</td>
</tr>
<tr>
<td>Muilla coronata</td>
<td>crowned muilla</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 4.2 None</td>
</tr>
<tr>
<td>Sarcornia utahensis</td>
<td>Utah glasswort</td>
<td>Fed: Ca: CNPS: BLM:</td>
<td>None None 2.2 None</td>
</tr>
</tbody>
</table>
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
Section 3.19. Natural Environment—Plant Species

### Scientific Name, Common Name, Status, Habitat Present (P)/Absent (A), Rationale

<table>
<thead>
<tr>
<th>Scientific Name Common Name</th>
<th>Status</th>
<th>Habitat Present (P)/Absent (A)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Designations BLM:</strong> Bureau of Land Management Sensitive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California Native Plant Society (CNPS) Designations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1B: Plants rare and endangered in CA and throughout their range.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Plants rare, threatened, or endangered in CA but more common elsewhere in their range.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Plants of limited distribution, a watch list.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plants 1B, 2, and 4 extension meanings:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.1 Seriously endangered in CA (over 80% of occurrences threatened / high degree and immediacy of threat)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>.2 Fairly endangered in California (20-80% occurrences threatened)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.3 Not very endangered in CA (&lt;20% of occurrences threatened or no current threats known)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: according to CNPS [Skinner and Pavlik 1994], plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions. (See text to the right)*

**Potential for Occurrence Criteria:**

- **Species Present:** Species was observed on site during a site visit or focused survey.
- **Species Absent:** Species was not observed during the focused survey and is assumed to not occur.
- **Habitat Present (P):** Habitat (including soils and elevation factors) for the species occurs on site and the species is known to occur in the region.
- **Habitat Absent (A):** Based on a species’ habitat requirements relative to site conditions, the site was determined to lack potential for the species; a lack of habitat.

**Source:** California Native Plant Society Electronic Inventory (CNPS 2009); Astley Rancho, Bird Spring, Boron, Boron NE, Boron NW, The Buttes, Fremont Peak, Galileo Hill, Jackrabbit Hill, Kramer Hills, Kramer Junction, Leuhman Ridge, North Edwards, Red Buttes, Rogers Lake North, Rogers Lake South, Saddleback Mountain, Twelve Gauge Lake, and Wild Crossing 7.5 minute USGS quads.

During rare plant surveys, Barstow woolly sunflower (CNPS List 1B.2 and BLM sensitive), desert cymopterus (CNPS List 1B.2 and BLM sensitive), Mojave spineflower (CNPS List 1B.2), and crowned muilla (CNPS List 4.2) were identified within the proposed project limits. Figure 3.19-1 presents the results of the rare plant surveys. Table 3.19-2 contains the population sizes for each species within each original alternative alignment.

Alkali mariposa lily, Booth’s evening primrose, pigmy poppy, recurved larkspur, red rock poppy, sagebrush loeflingia, and Utah glasswort had potential for occurrence in the region but were confirmed to be absent in the BSA. No further discussion about these nonlisted special-status plants is provided.

Although Joshua tree (*Yucca brevifolia*) has no formal status, they are locally sensitive and can be afforded protections by CEQA and local regulations. Several are spaced along open lands within the BSA, with approximately nine adjacent to the SR-58 existing roadbed.
Figure 3.19-1 Sheet 1
Rare Plant Survey Results
State Route 58 Kramer Junction Expressway Project

<table>
<thead>
<tr>
<th>Rare Plant Species</th>
<th>Rare Plant Population Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mojave spineflower (Chorizanthe apprassae)</td>
<td>1-10</td>
</tr>
<tr>
<td>desert cymopterus (Cymopterus desertiflora)</td>
<td>11-100</td>
</tr>
<tr>
<td>Barstow wooly sunflower (Eriophyllum mohavense)</td>
<td>101-1000</td>
</tr>
<tr>
<td>crowned muilla (Muilla coronata)</td>
<td>1000+</td>
</tr>
</tbody>
</table>

Source: ESRI USA Imagery (2010)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
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Figure 3.19-1 Sheet 2
Rare Plant Survey Results
State Route 58 Kramer Junction Expressway Project

Source: ESRI USA Imagery (2010)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA 08-34770
Project Number 0800000616

Rare Plant Survey Area

Rare Plant Species
- Mojave spineflower (Chorizanthe spinosa)
- desert cymopterus (Cymopterus desertiflorus)
- Barstow wooly sunflower (Eriophyllum mohavense)
- crowned muilla (Muilla coronata)

Rare Plant Population Size
- 1-10
- 11-100
- 101-1000
- 1000+

Source: ESRI USA Imagery (2010)
Figure 3.19-1 Sheet 3
Rare Plant Survey Results
State Route 58 Kramer Junction Expressway Project

Source: ESRI USA Imagery (2010)

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA-08-34770
Project Number 0800000616

Rare Plant Survey Area

Rare Plant Species
- Mojave spineflower (Chorizanthe spinosa)
- desert cymopterus (Cymopterus desertiflorus)
- Barstow wooly sunflower (Eriophyllum mohavense)
- crowned muilla (Muilla coronata)

Rare Plant Population Size
- 1-10
- 11-100
- 101-1000
- 1000+

Figure 3.19-1 Sheet 3
Rare Plant Survey Results
State Route 58 Kramer Junction Expressway Project

Source: ESRI USA Imagery (2010)
3.19.2.1 Barstow Woolly Sunflower

Barstow woolly sunflower is an endemic annual herb found in desert atriplex scrub, Mojave Desert scrub, creosote bush scrub, and desert playas (desert sink scrub). This species ranges in elevation from 1,640 to 2,953 feet above mean sea level (CNPS 2009). James M. André conducted an 8-year demographic study of Barstow woolly sunflower from 1991 to 1998, roughly 20 miles west of Barstow along the southern side of SR-58. In addition, a population on Edwards Air Force Base was revisited and an inventory and population characterization study was conducted during 1995 (Tetra Tech 1995). During this site visit, 20 new populations were discovered with an estimated total of 98,760 individuals. Also during 1998, a new population was discovered in the vicinity of Opal Mountain (McKay 1998).

The vast majority of the range of the Barstow woolly sunflower lies within federal lands managed by the BLM or Department of Defense. A portion of the range is protected in a small, fence enclosed Area of Critical Environmental Concern (Emery and Rado 1982). The most recent study for Barstow woolly sunflower was conducted in 1998 (André 1998) along the southern side of SR-58, roughly 20 miles (32.2 kilometers) west of Barstow, California, San Bernardino County in the southeast quadrant of Section 30 of T10N, R4W of the Barstow quadrangle for 8 consecutive years (1991 to 1998). More than 2,400 plants were observed in 1991, following above-average spring precipitation. Results indicated population density was strongly correlated with the amount of winter precipitation. In addition, the results of the study conducted by Tetra Tech, Inc. (1995) revealed the soil type strongly associated with this species has more clay within the upper layers, high alkalinity, high boron concentrations, and a hard consistency when compared to adjacent soil types. It is suggested that the hardpan layer acts to exclude shrubs and creates the open spaces where Barstow woolly sunflower most commonly grows (Tetra Tech 1995).

Specific threat to the Barstow woolly sunflower is fragmentation of its habitat by scattered development and widespread off-highway travel, which is a long-term problem.

Although the entire project footprint contains Mojavean desert scrub that is considered as potential habitat for this species, the only habitat where this species was discovered within the BSA is the desert sink scrub and its transitional habitats. There were 77 occurrences of Barstow woolly sunflower within the BSA (Figure 3.19-1). This species was found to occur in small populations ranging from a few individuals to over 50 individuals. All of these individuals were found to occur north of SR-58 and west of US-395 along the proposed footprints for Alternatives 1, 1A, and 3. Alternatives 1 and 1A contained the most individuals, with 77, followed by 50 individuals in Alternative 3. Fifty of the plants occurred in an area where Alternatives 1, 1A, and 3 overlap (see Table 3.19-2). This plant is nearly restricted to desert sink scrub (high alkalinity) areas intergrading with the surrounding atriplex scrub communities.

<table>
<thead>
<tr>
<th>Species (Status)</th>
<th>Population Range</th>
<th>Alternative 1</th>
<th>Alternative 1A</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Total Observed within BSA²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barstow woolly</td>
<td>1</td>
<td>77</td>
<td>77</td>
<td>0</td>
<td>50</td>
<td>127</td>
</tr>
</tbody>
</table>

Table 3.19-2: Rare (Nonlisted) Special-Status Plant Survey Summary
### Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

#### Section 3.20. Natural Environment —Plant Species

<table>
<thead>
<tr>
<th>Plant Species</th>
<th>1–10</th>
<th>11–100</th>
<th>101–1,000</th>
<th>+1,000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desert cymopterus</td>
<td>87</td>
<td>18</td>
<td>1</td>
<td>1</td>
<td>145</td>
</tr>
<tr>
<td>Crowned Muilla</td>
<td>87</td>
<td>18</td>
<td>1</td>
<td>1</td>
<td>146</td>
</tr>
<tr>
<td>Mojave spineflower</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

1These numbers reflect the actual amount of plant individuals observed within the alternative.
2These numbers reflect the amount of times that a certain population range occurs within the alternative.
3Because the alternatives overlap in several areas, the sum of Alternative 1, 1A, 2, and 3 may or may not add up.

**BLM SEN**: Bureau of Land Management Sensitive

**CNPS**:
- 1B.2: Plants rare and endangered in California and throughout their range; Fairly endangered in California (20%–80% occurrences threatened).
- 4.2: Plants of limited distribution, a watch list; fairly endangered in California (20%–80% occurrences threatened).

Source: Caltrans 2012h

#### 3.19.2.1 Desert Cymopterus

Desert cymopterus is a California endemic perennial herb found in creosote bush scrub and Joshua tree woodland at elevations between 2,050 and 2,986 feet. This species typically blooms in April, but may have identifiable features throughout the year, since it is a perennial.

Desert cymopterus has been reported in widely scattered, highly dispersed, small populations in the Western Mojave area. This species ranges from Apple Valley, San Bernardino County, northward approximately 55 miles to Cuddeback Lake basin, San Bernardino County, and westward approximately 45 miles to the Rogers and Buckhorn Lake basins on Edwards Air Force Base, Kern and Los Angeles Counties (Bagley 1995; BLM 1997; CDFG 1997; Dames and Moore 1993). The known existing portion of the range, not including Apple Valley, occurs in three adjacent areas: the Rogers Lake basin (including the small Buckthorn Lake area to the west and the Kramer Hills to the east), the Harper Lake basin, and the Cuddeback Lake basin. This extant portion of the range extends approximately 40 miles east-west and 35 miles north-south. The largest of these areas, according to Bagley (1995), is in the Rogers Dry Lake basin outside the project area. According to MacKay (2003), greater than 90% of the known occurrences of this species are on Edwards Air Force Base.

Development (solar, expansion of Edwards Air Force Base, and other private development), off-highway recreational vehicles, and grazing are the major threats to this species.
Desert cymopterus has multiple occurrence records within the BSA (CNDDB 2009) and was observed during the focused survey (Figure 3.19-1). There were 34 occurrences ranging from one to four plants for a single location. All of these individuals were found south of SR-58 and west of US-395 along Alternatives 2 and 3. Alternative 3 contained the most individuals with 21 plants, followed by Alternative 2 with 13 plants. None of these populations occurred in areas where the build alternatives overlap. No individuals were found within the build footprints for Alternatives 1 and 1A. The primary plant community where this species occurred was in sandy atriplex scrub, sometimes with a moderate degree of disturbance with or without nonnative plants in proximity.

### 3.19.2.2 Mojave Spineflower

Mojave spineflower is a California endemic annual herb species, which is found in sandy or gravelly soils in atriplex scrub, Joshua tree woodland, and Mojavean desert scrub at elevations ranging from 18 to 3900 feet above mean sea level (CNPS 2009). Mojave spineflower blooms from March through July (CNPS 2009).

Mojave spineflower has multiple occurrences within the BSA (CNDDB 2009) and was observed during the focused survey. A total of 49 discrete populations were recorded within the BSA (Figure 3.19-1). Alternatives 1 and 1A had the most Mojave spineflower and largest population sizes, followed by Alternative 3. Alternative 2 had just three populations recorded within its proposed footprint. Refer to Table 3.19-2 for details. Most of the populations observed within the BSA were primarily located on the fringes of desert sink scrub as it intergrades with atriplex scrub. There were a few populations that occurred in disturbed areas particularly around Kramer Junction.

### 3.19.2.3 Crowned Muilla

Crowned muilla is a bulbiferous herb that occurs in atriplex scrub, Joshua tree woodland, Mojave Desert scrub, and pinyon-juniper woodland from 2,510 to 6,430 feet above mean sea level (CNPS 2009). This species blooms from March through April (CNPS 2009).

A total of 176 discrete populations of crowned muilla were recorded within the BSA during focused surveys (refer to Table 3.19-2). This species was found to occur in every plant community present within the BSA (Figure 3.19-1). A few occurrences had specimen counts of over 1,000 plants and covered multiple acres. Alternative 3 contained the most occurrences of crowned muilla.

### 3.19.3 Environmental Consequences

#### 3.19.3.1 Permanent Impacts

Table 3.19-2 above summarizes the proposed impacts to each nonlisted special-status plant present in the BSA by build alternative.
Alternative 1—Northerly Alignment 4-Lane Divided Expressway

**Barstow woolly sunflower:** Alternative 1 has the potential to affect 77 individuals of Barstow woolly sunflower. Construction activities could result in direct and permanent loss of these individuals. Direct loss of 275.2 acres of potential Barstow woolly sunflower habitat would be a result of encroachment. Most of the individuals found within this alternative are located in the proximity of the proposed right-of-way; therefore, it is expected that Environmentally Sensitive Area (ESA) fencing would be able to protect most of the populations in place. The proposed SR-58 would be elevated, which could also cause alteration of the local hydrology within the habitat of this species. Freeways are also known to facilitate the introduction of invasive species that could affect Barstow woolly sunflower. In addition, the project is expected to contribute to habitat fragmentation since the project facilities are going to be elevated. However, the substantial adverse effects to Barstow woolly sunflower would be reduced to minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Desert cymopterus:** Rare plant surveys did not detect any desert cymopterus within the footprint of Alternative 1. No direct impact to this species is expected to occur as a result of the construction of this alternative. This alternative has the potential to affect 275.2 acres of potential habitat for desert cymopterus. All populations found during rare plant surveys are located south of the existing SR-58; therefore, negligible potential indirect impacts would be expected to occur as a result of the construction of this alternative. Alternative 1 is located downstream of the documented populations of desert cymopterus, and thus there would be no potential to alter the local hydrology of the area feeding the identified populations. This species has a fairly small distribution, indicating a very limited dispersion capacity. Because of this, Alternative 1 would be expected to contribute to potential habitat fragmentation. Since the populations are located south of the existing SR-58, this alternative would not be expected to increase the number of invasive species where this species is located. Potential substantial adverse impacts to desert cymopterus would be minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Mojave spineflower:** Alternative 1 has the potential to affect the most populations of this species (see Table 3.19-2). Direct impacts would result from encroachment and cut and fill of its habitat. Alternative 1 has the potential to affect 275.2 acres of Mojavean desert scrub, which is this species’ potential habitat. Construction activities could also have a direct take of this species and could compact the soils of the area, which would cause direct mortality. Local hydrology may also be affected by the new-elevated facility. In addition, this alternative would be expected to contribute to habitat fragmentation. Since highways are a focus for introduction of invasive species, the alternative could promote the introduction of these species, which could displace Mojave spineflower from the BSA. The potential for this is expected to be high because Alternative 1 is located in less disturbed habitat than Alternative 2. However, the substantial adverse effects to Mojave spineflower would be reduced to minor adverse with incorporation of the avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Crowned muilla:** Alternative 1 has the potential to affect 87 populations (refer to Table 3.19-2). This species was found in every habitat type, except developed/disturbed, and as such Alternative 1 would remove up to 662.5 acres of potential habitat. Direct impacts would consist
of encroachment, cut and fill activities, and soil compaction. Indirect impacts would consist of the alteration of local hydrology, increased habitat fragmentation, and introduction of invasive species. However, the substantial adverse effects would be reduced to minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

Joshua tree: Alternative 1 would remove approximately 12 Joshua trees. This substantial adverse impact would be reduced to minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

Barstow woolly sunflower: Alternative 1A would directly and permanently affect Barstow woolly sunflower. An estimated 77 individuals would be removed along with 275.2 acres of potential habitat. It is expected that ESA fencing would be able to protect the majority of the existing population of Barstow woolly sunflower since most of the population is in the proposed right-of-way rather than the proposed impact area. There would be potential for habitat fragmentation and altered hydrology, as well as potentially facilitating the introduction of nonnative invasive plants. With implementation of the avoidance, minimization, and mitigation measures identified below in Section 3.19.4, potential substantial adverse effects to Barstow woolly sunflower would be reduced to minor adverse.

Desert cymopterus: Direct impacts to this species are not expected from Alternative 1A because the populations within the BSA occur outside of the proposed footprint. In addition, the potential for indirect impacts to occur during construction is limited because the species is present south of SR-58. The potential for indirect effects to occur from altered hydrology is also limited due to the populations occurring upstream of this alternative. There remains, however, a potential for habitat fragmentation and the increased introduction of nonnative and invasive plants. With incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4, impacts would be reduced to minor adverse.

Mojave spineflower: Alternative 1A would directly affect Mojave spineflower (see Table 3.19-2) and 275.2 acres of its potential habitat through direct encroachment, causing not only direct mortality but degradation of habitat through soil compaction. The elevation of the roadbed could alter hydrology and cause habitat fragmentation. In addition, the improved facility could increase the introduction of nonnative invasive species, further degrading surrounding potential habitat. These direct impacts and potential indirect impacts would be substantial adverse. To reduce these proposed impacts to minor adverse, the avoidance, minimization, and mitigation measures identified below in Section 3.19.4 would be implemented.

Crowned muilla: Alternative 1A would directly affect 662.5 acres of potential habitat for crowned muilla and remove 87 identified populations (refer to Table 3.19-2). In addition to these direct impacts, this alternative would potentially degrade remaining potential habitat and existing populations through habitat fragmentation, altered hydrology, and increased introduction of nonnative invasive plants. These proposed impacts and potential indirect impacts would be
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substantial adverse effects, which could be reduced to minor adverse through implementation of the avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Joshua tree**: Alternative 1A would impact approximately 12 Joshua trees. This substantial adverse effect would be minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Alternative 2—Existing Alignment 4-Lane Expressway with Median**

**Barstow woolly sunflower**: This species was found absent from the proposed Alternative 2 alignment during focused rare plant surveys, but 275.9 acres of potential habitat for the species would be affected. Similar potential indirect effects as discussed under Alternative 1 would be expected to occur as a result of Alternative 2. The potential for the introduction of invasive species for Alternative 2 should be less intense than Alternatives 1 and 1A since this alternative runs closer to the existing SR-58 and hence through more disturbed habitat. These potential substantial adverse impacts to Barstow woolly sunflower from Alternative 2 would be minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Desert cymopterus**: Plant surveys within the Alternative 2 footprint yielded 13 individuals. This alternative would affect 275.9 acres of potential habitat for desert cymopterus. Construction activities could potentially indirectly affect individuals within the BSA. Placement of ESA fencing, combined with direction from the project biological monitor, would avoid impacts to these populations to the extent feasible. Since the new facility would be elevated, local hydrology could be altered, thus indirectly affecting individuals outside of the Alternative 2 footprint but within the BSA. The potential for the introduction of invasive species to occur from this alternative should be less intense than Alternatives 1, 1A, and 3 since this alternative runs close to the existing SR-58 and through more disturbed habitat. Potential substantial adverse impacts to desert cymopterus under this alternative would be minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Mojave spineflower**: Alternative 2 would have the potential to affect three populations of different sizes (see Table 3.19-2) and could result in the least amount of potential impacts to this species when compared to the other build alternatives. This alternative has the potential to affect 275.9 acres of potential habitat. Direct impacts would result in encroachment and cut and fill of its potential habitat. Construction activities could also permanently affect potential habitat through compaction of soils and mortality of individuals. Local hydrology may also be affected by the new elevated facility. Project impacts would be similar to Alternatives 1 and 1A. As discussed for Alternatives 1 and 1A, Alternative 2 is expected to contribute to habitat fragmentation due to the new-elevated facility. Alternative 2 could promote the introduction of invasive species that could displace Mojave spineflower from the BSA; however, because Alternative 2 would traverse more disturbed habitat than the other three alternatives, the intensity of this potential indirect impact is expected to be less than for Alternatives 1, 1A, and 3. These potential substantial adverse impacts would be minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.
Crowned muilla: Alternative 2 contains fewer individuals within its footprint than the other three build alternatives (refer to Table 3.19-2) and would affect 633.5 acres of potential habitat. The types of potential indirect impacts to this species by Alternative 2 would be similar to those discussed under Alternative 1. The proposed alignment could cause hydrological alterations such that remaining populations within the BSA could be indirectly affected, and the new elevated facility could increase habitat fragmentation. In addition, the potential for increased introduction of invasive plants into potential habitat within the BSA is present but is expected to be less severe than the other build alternatives because Alternative 2 crosses more disturbed habitat areas. Given the status of the species and the amount of individuals and potential habitat proposed for removal, potential substantial adverse impacts under this alternative would be minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

Joshua tree: Alternative 2 has the potential to affect eight Joshua trees. This substantial adverse impact would be reduced to minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

Alternative 3—Southerly Alignment 4-Lane Divided Expressway

Barstow woolly sunflower: Alternative 3 has the potential to affect 50 individuals of Barstow woolly sunflower and permanently affect 312.1 acres of potential habitat for this species. Similar potential indirect and temporary effects, as discussed above under Alternative 1, would be expected to occur as a result of Alternative 3. As such, potential substantial adverse effects to this species would be reduced to minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

Desert cymopterus: Alternative 3 has the potential to affect the most number of individuals (21) of desert cymopterus. This alternative would also affect 312.1 acres of potential habitat for this species. Similar indirect impacts as discussed above under Alternative 2, as well as impacts relative to the alteration of the local hydrology could occur. The construction of new freeways can be a conductor for the introduction of invasive species. As a result, Alternative 3 has the potential to increase the presence of invasive species since it would be located in less disturbed areas and thus has the potential, through indirect means, to adversely affect the remaining populations beyond the footprint but within the BSA. These potential substantial adverse effects would be reduced to minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

Mojave spineflower: Alternative 3 has the second largest population occurrences of the four build alternatives (see 3.19-2) and has the potential to affect 312.1 acres of potential habitat for the species. Impacts would be permanent and would include the removal of individuals, removal of potential habitat, and permanent degradation of soils during construction. Local hydrology may also be affected by the new elevated facility; there is also potential for increased habitat fragmentation. Just as discussed for the other build alternatives, this alternative has the potential to facilitate the introduction of invasive species and because Alternative 3 would traverse less disturbed habitat than that is affected under Alternative 2, these potential indirect impacts would be greater than Alternative 2. These potential substantial adverse effects would be reduced to
minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Crowned muilla:** Direct impacts would consist of encroachment and cut and fill activities as well as compaction of soils. Indirect impacts would consist of the alteration of local hydrology and introduction of invasive species. Alternative 3 contains the greatest number of individuals proposed for removal (refer to Table 3.19-2) and would directly affect 688.9 acres of potential habitat. Since highways are known to facilitate the introduction of invasive species, Alternative 3 could promote the introduction of species that could displace crowned muilla from the BSA, similar to the other build alternatives. Given the species’ status and the intensity of the impact, the potential impacts would be substantial adverse; however, impacts would be reduced to minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Joshua tree:** Alternative 3 would affect approximately six Joshua trees. This substantial adverse impact would be reduced to minor adverse with incorporation of avoidance, minimization, and mitigation measures identified below in Section 3.19.4.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, no permanent impacts to Barstow woolly start, desert cymopterus, Mojave spineflower, crowned muilla, and Joshua tree would occur.

### 3.19.3.2 Temporary Impacts

All direct impacts to nonlisted special-status plants were considered permanent; therefore, no analysis of potential temporary impacts is provided.

### 3.19.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and mitigation measures would be implemented to protect the special-status plants that could be present.

- **BIO-6:** Preconstruction surveys for rare plants will be conducted by a qualified biologist during the appropriate blooming period. Any plants identified will be flagged and avoided, if feasible.

- **BIO-7:** The project design will minimize impacts to special-status plants to the extent feasible.

- **BIO-8:** Temporary Fence (Type ESA). ESA fencing will be established around those populations of special-status plants that are to be protected in place to prohibit all construction activities and access from impacting the rare plant populations within the project area.

- **BIO-9:** Seeds will be collected from all those plant populations deemed appropriate for seed relocation if suitable habitat is available.
• **BIO-10**: Biological Monitor. A qualified biological monitor will monitor construction activities to ensure avoidance of any construction related impacts to special status plant species.

• **BIO-11**: Species Protection Measures will be made to ensure that temporary staging areas, storage areas, and access roads involved with this project will occur in the area of permanent direct impact. Access to the project site will be gained from the existing SR-58. No new access roads will be built as part of this project. Staging areas and equipment storage will take place on existing roads or within the proposed right-of-way of the realigned SR-58.

• **BIO-12**: Joshua trees within the direct impact area with a circumference of 50 inches measured at four feet, measuring 15 feet high, or occurring in a cluster of 10 or more within close proximity to each other will be transplanted or stockpiled for future transplanting to the extent feasible. Joshua trees will be shown on the plans for avoidance or transplanting.

• **BIO-13**: An Environmentally Sensitive Area (ESA) will be established around all Joshua trees within the project area that are to be protected in place, as shown on plans. To prohibit all construction activities and access from impacting the Joshua trees within the project area, temporary ESA fencing would be placed around the Joshua trees.
3.20 Animal Species

3.20.1 Regulatory Setting

3.20.1.1 Federal and State Regulations

Many state and federal laws regulate impacts on wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries Service), and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals that are not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 3.21, below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern as well as USFWS or NOAA Fisheries Service 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 (CEQA)
- Sections 1600–1603 of the California Fish and Game Code
- Section 4150 and 4152 of the California Fish and Game Code

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA) is the domestic federal law that affirms, or implements, the United States’ commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of shared migratory bird resources. Each of the conventions protects selected species of birds that are common to more than one country (i.e., they occur in more than one country at some point during their annual life cycle). Title 16, Chapter 7, Subchapter I, Section 701, of the act pertains to the protection of game and wild birds that have been deemed to be migratory and decrees that all migratory birds, as well as their parts (including eggs, nests, and feathers), are fully protected.

California Department of Fish and Wildlife Non-Game Protected Species

In addition to the MBTA, CDFW also enforces the protection of non-game native birds. California Fish and Game Code Sections 3503 and 3503.5 mandate the protection of California non-game native birds’ nests, and Section 3800 makes it unlawful to take California non-game native birds.
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Section 3.20. Natural Environment — Animal Species

3.20.1.2 Local Regulations

The West Mojave Plan is a habitat conservation plan and federal land use plan amendment that presents a comprehensive strategy to conserve and protect the desert tortoise, Mohave ground squirrel, and more than 100 other sensitive animal and plant species, as well as the natural communities of which they are a part, and provides a streamlined program for complying with the requirements of the California Endangered Species Act (CESA) and federal Endangered Species Act (FESA), respectively (Bureau of Land Management [BLM] 2005). The West Mojave Plan was implemented by BLM, the County of San Bernardino, and the City of Barstow.

The West Mojave Plan’s 9.4-million-acre planning area encompasses most of California’s western Mojave Desert. It extends from Ollancha in Inyo County on the north to the San Gabriel and San Bernardino Mountains on the south and from the Antelope Valley on the west to the Mojave National Preserve on the east. About one-third of the planning area is private land, another third is within military bases, and the final third consists of public lands managed by BLM (BLM 2005).

3.20.2 Affected Environment

Unless otherwise noted, the information in this section was synthesized from the August 2012 Natural Environment Study (NES) prepared for the proposed project (Caltrans 2012h). References used in the NES are not carried over into this section.

To comply with the provisions of various state and federal environmental statutes and executive orders, potential impacts on non-listed special-status animals of the region were investigated and documented. A list of species within the project region was developed from information compiled by the California Natural Diversity Database (CNDDB) and found in current publications.

The biological study area (BSA) lies within the southwestern portion of the Mojave Desert and is typified by highly variable climatic extremes. Most of the precipitation exists in the form of rain and irregular snowstorms during the winter when low temperatures often drop below freezing. The combination of extreme temperature ranges and low precipitation rates creates a unique environment for many plants and animals in the region. This unique, sparsely vegetated transition zone between the Sonoran Desert and the Great Basin is known for the diversity of its floral and faunal species and unique corresponding habitat types. The Mojave Desert hosts a number of species that exist nowhere else and is considered to be a biodiversity “hot spot.”

Common vertebrates in the BSA include reptiles, mammals, and birds. The most abundant vertebrate groups found in the project area are rodents and other small mammals as well as small passerines (songbirds). Invertebrate species such as insects are also abundant.

Resident species are defined as those wildlife species that spend their entire life cycle within a single habitat or habitat complex on-site. Characteristic resident species include Merriam’s kangaroo rat (Dipodomys merriami), white-tailed antelope ground squirrel (Ammospermophilus leucurus), desert woodrat (Neotoma lepida), and cactus mouse (Peromyscus eremicus). Desert cottontail (Sylvilagus audubonii) and black-tailed jackrabbit...
(Lepus californicus) are also common. Common reptiles are represented by a variety of lizard species, including side-blotched lizard (Uta stansburiana), western whiptail (Cnemidophorus tigris), desert iguana (Diposonsaurus dorsalis), zebra-tailed lizard (Urosaurus graciosus), and desert horned lizard (Phrynosoma platyrhinos). Snakes include coachwhip (Masticophis flagellum), Mojave patchnose snake (Salvadora hexalepis mojavensis), Great Basin gopher snake (Rhinoelis lecontei lecontei), Sonoran ground snake (Sonora semiannulata), Mojave shovel nose snake (Chionactis occipitalis occipitalis), desert night snake (Hypsiglena torquata deserticola), Mojave desert sidewinder (Crotalus cerastes), and speckled rattlesnake (Crotalus mitchelli).

Resident bird species typically in the BSA include common raven (Corvus corax), house finch (Carpodacus mexicanus), mourning dove (Zenaida macroura), horned lark (Eremophila alpestris), rock wren (Salpinctes obsoletus), black-throated sparrow (Amphispiza bilineata), and greater roadrunner (Geococcyx californianus). A variety of migratory bird species also utilize the habitat communities within the BSA, either during the summer breeding season or as wintering habitat. These migratory birds are protected under the MBTA. Measures that will be implemented to protect this species can be found in Section 3.20.4. Common migratory species associated with habitats in the BSA include Brewer’s sparrow (Spizella breweri), sage sparrow (Amphispiza belli), yellow-rumped (Audubon’s) warbler (Dendroica coronata auduboni), and American pipit (Anthis rubescens).

The low vegetation cover and abundant prey base available within the open desert scrub habitat in the BSA also provide foraging opportunities for a variety of raptors and mammalian predators, including red-tailed hawk (Buteo jamaicensis), golden eagle (Aquila chrysaetos), barn owl (Tyto alba), burrowing owl (Athene cunicularia), coyote (Canis latrans), gray fox (Urocyon cinereargenteus), desert kit fox (Vulpes macrotis), bobcat (Felis rufus), and mountain lion (Felis concolor). These predatory species are typically associated with a mosaic of habitat types within a contiguous geographical area. They may require habitat features such as trees and cliffs to fulfill habitat requirements throughout their life cycles.

As part of the planning area covered by the West Mojave Plan, the project area encompasses valuable ecological resources that are protected by federal and state laws. Table 3.20-1 identifies non-listed special-status animals that may be present and their status. This information, which was obtained through a CNNDB search, is provided to address issues related to environmental resources and analyze potential impacts on these resources. As mentioned earlier, species listed or proposed for listing as threatened or endangered are discussed in Section 3.21.

A total of six non-listed special-status animals are known to occur in the general region, and four have the potential to occur within the BSA. These four are burrowing owl, loggerhead shrike, Le Conte’s thrasher, and America badger. Potential habitat for the other two species (prairie falcon and silver-haired bat) is not present in the BSA, and no further discussion of these two species is included in this section.
### Table 3.20-1: Special-Status Species and Critical HabitatPotentially Occurring or Known to Occur in the BSA

<table>
<thead>
<tr>
<th>Scientific Name Common Name</th>
<th>Status</th>
<th>Habitat Present (P)/ Absent (A)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Athene cunicularia</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None CSC None SEN</td>
<td>P</td>
</tr>
<tr>
<td><em>Burrowing owl</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None WL None None</td>
<td>A</td>
</tr>
<tr>
<td><em>Falco mexicanus</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None CSC None SEN</td>
<td>P</td>
</tr>
<tr>
<td><em>Prairie falcon (nesting)</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None WL None None</td>
<td>A</td>
</tr>
<tr>
<td><em>Lanius ludovicianus</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None CSC None SEN</td>
<td>P</td>
</tr>
<tr>
<td><em>Loggerhead shrike (nesting)</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None WL None None</td>
<td>A</td>
</tr>
<tr>
<td><em>Toxostoma lecontei</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None CSC None SEN</td>
<td>P</td>
</tr>
<tr>
<td><em>Le Conte's thrasher</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None WL None None</td>
<td>A</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Lasionycteris noctivagans</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None None None SEN</td>
<td>A</td>
</tr>
<tr>
<td><em>Silver-haired bat</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None None None SEN</td>
<td>A</td>
</tr>
<tr>
<td><em>Taxidea taxus</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None CSC None SEN</td>
<td>P</td>
</tr>
<tr>
<td><em>American badger</em></td>
<td>Fed: CA: CNPS: BLM:</td>
<td>None CSC None SEN</td>
<td>P</td>
</tr>
</tbody>
</table>

**Federal Designations (BLM):** SEN = Sensitive

**State Designations:** (CESA, CDFW): CSC = California Species of Special Concern; WL = Watch List


CNPS = California Native Plant Society
3.20.2.1 Burrowing Owl

A burrowing owl habitat assessment was conducted on June 5, 2009, by avian biologists in accordance with the California Burrowing Owl Consortium’s (CBOC’s) Burrowing Owl Survey Protocol and Mitigation Guidelines and in alignment with the more recent CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). No protocol burrowing owl surveys were conducted. The burrowing owl habitat assessment prepared for this project revealed that potential habitat of varying quality for this species is present throughout the BSA for all alternatives. The frequency of California ground squirrel, badger, coyote, and desert tortoise burrows, which burrowing owls tend to use after tortoises vacate, was relatively low. No burrowing owls or suitable unoccupied owl burrows were observed within the BSA during the habitat assessment or the rare plant survey. One burrowing owl was observed in the northeast quadrant of the SR-58 and US-395 intersection during the 2001 desert tortoise surveys.

The following guidelines were used to assess habitat suitability for burrowing owl within the BSA:

- **Suitable Habitat:** native desert vegetation, non-native vegetation, disturbed native and non-native vegetation, debris piles (concrete and rocks), culvert pipe openings, historic agricultural fields (fallow), edges of agricultural fields, berms, edges of dirt detention basins.

- **Marginal Habitat:** areas immediately adjacent to development (fence-line edges around buildings and yards).

- **Unsuitable Habitat:** paved areas, building footprints, active agricultural fields (actual crop footprint), mechanically compacted soils, water features.

The burrowing owl habitat assessment determined that the BSA contains a large amount of potential suitable and marginal burrowing owl habitat. Figure 3.20-1 presents the results of the habitat assessment, and Table 3.20-2 presents the acreages for each habitat type (i.e., suitable, marginal, unsuitable) within the project area of each of the alternatives.

### Table 3.20-2: Burrowing Owl Habitat Assessment Results

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Averages of Habitat Types</th>
<th>Total(^1) (ac)</th>
<th>Potential Burrowing Owl Habitat(^2) (ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Suitable (ac)</td>
<td>Marginal (ac)</td>
<td>Unsuitable (ac)</td>
</tr>
<tr>
<td>1</td>
<td>654.9</td>
<td>20.8</td>
<td>77</td>
</tr>
<tr>
<td>1A</td>
<td>654.9</td>
<td>20.8</td>
<td>77</td>
</tr>
<tr>
<td>2</td>
<td>626</td>
<td>20.5</td>
<td>113.2</td>
</tr>
<tr>
<td>3</td>
<td>684.1</td>
<td>17.5</td>
<td>59.8</td>
</tr>
</tbody>
</table>

\(^1\) Sum of all three habitat types within alternative.

\(^2\) Sum of suitable and marginal types within alternative.

Source: Caltrans 2012h.
3.20.2.2 Loggerhead Shrike

There is no established survey protocol for this species; documentation of the species was done during focused study for other species. This was judged adequate given the species’ regulatory status. There was an incidental observation during desert tortoise surveys in 2001. Habitat for this species occurs throughout the project area. No additional incidental observations are documented.

3.20.2.3 Le Conte’s Thrasher

There is no established survey protocol for this species; documentation of the species was done during focused study for other species. This was judged adequate given the species’ regulatory status. There was an incidental observation during desert tortoise surveys in 2001. Habitat for this species occurs throughout the project area. No recent observations of this species have been documented as part of fieldwork associated with this project.

3.20.2.4 American Badger

There is no established survey protocol for this species; documentation of the species was done during focused study for other species. This was judged adequate given the species’ regulatory status. There was an incidental observation during desert tortoise surveys in 2001. Habitat for this species occurs throughout the project area. No badger burrows were identified during the burrowing owl habitat assessment. No recent observations of this species have been documented as part of fieldwork associated with this project.

3.20.2.5 Prairie Falcon

There is no established survey protocol for this species. However, additional study for prairie falcon was not conducted because of the lack of cliff ledges, which could provide nesting habitat. The presence of marginal foraging habitat for the species within the project limits did not necessitate further evaluation as there was no potential for a threshold of significance to be triggered.
Figure 3.20-1 Sheet 1
Burrowing Owl Habitat Assessment
State Route 58 Kramer Junction Expressway Project
Figure 3.20-1 Sheet 2
Burrowing Owl Habitat Assessment
State Route 58 Kramer Junction Expressway Project

State Route 58 Kramer Junction Expressway Project
06-Ker-58 PM R143.5/R143.9
08-SBd-58 PM R0.0/R12.9
EA08-34770
Project Number 0800000616

Biological Survey Area (BSA)  BUOW Habitat
1 - Suitable
2 - Marginal
3 - Unsuitable

Source: ESRI USA Imagery (2010)
Figure 3.20-1 Sheet 3
Burrowing Owl Habitat Assessment
State Route 58 Kramer Junction Expressway Project
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3.20.3 Environmental Consequences

3.20.3.1 Permanent Impacts

Alternative 1—Northerly Alignment Four-Lane Divided Expressway

Burrowing Owl. As summarized in Table 3.20-2, above, Alternative 1 would remove 675.7 acres of potential burrowing owl habitat. During the burrowing owl habitat assessment and rare plant surveys, no sign of this species was encountered, but if present there would be risk for direct mortality during construction, a potential substantial adverse effect. Whether burrowing owl uses the adjacent lands for breeding or just overwintering, Alternative 1 poses risks to the species (if present). In addition to direct mortality, Alternative 1 has the potential to cause indirect effects to the species during construction and during the long-term operation of the roadway. During construction there would be an increase in noise, dust, and human activity adjacent to potentially occupied lands. If burrowing owls are present on adjacent lands, they may avoid the area during construction and take residence in less suitable areas during the interim, thereby reducing overall productivity and survivorship. The long-term operation of the roadway brings increased potential for introduction of invasive plants that may degrade adjacent lands for burrowing owls and, like the existing roadway, increased risk of mortality from collisions with vehicles. With implementation of the avoidance, minimization, and mitigation measures presented in Section 3.20.4, potential impacts on burrowing owl from Alternative 1 would be reduced to minor adverse. These measures ensure that no direct mortality would occur and that compensation for the loss of occupied habitat (if the species is found present during preconstruction surveys) would be provided.

Loggerhead Shrike. This species is protected by the MBTA. All applicable measures of the MBTA can be found in Section 3.20.4. With implementation of these measures, the proposed project would not cause direct mortality to individuals. Although Alternative 1 would permanently remove potential habitat for this species (662.5 acres), there would remain enough habitat for this species within and outside of the BSA. Therefore, potential impacts on this species under Alternative 1 would be minor adverse.

Le Conte’s Thrasher. With implementation of the MBTA measures presented in Section 3.20.4, the proposed project would not cause direct mortality to individuals. Although the project would remove potential habitat for this species (662.5 acres), there would remain enough habitat available for this species within and outside of the BSA. Thus, potential impacts on Le Conte’s thrasher that could result from implementation of Alternative 1 would be minor adverse.

American Badger. Alternative 1 would remove 662.5 acres of potentially suitable habitat for American badger. With implementation of the applicable measures presented in Section 3.20.4, Alternative 1 would avoid direct mortality to this species. Although the project would remove potential habitat, there would remain enough habitat available for this species within and outside of the BSA. Potential habitat fragmentation would be minimized with the installation of culverts. Potential impacts on American badger under Alternative 1 would be minor adverse.
Alternative 1A—Northerly Alignment Four-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

Burrowing Owl. Alternative 1A would remove 675.7 acres of potential habitat for burrowing owl. This species was not found in the BSA during project studies; however, a focused survey for the species was not performed. If the species is present, there would be risk for direct mortality during habitat removal (site grubbing). This would be a potential substantial adverse effect. Even if surveys had been performed, this species of bird can be transitory in its habits and have a large home range, with only a portion of the home range being used for breeding and foraging in a given year. Whether burrowing owl uses the adjacent lands for breeding or just overwintering, Alternative 1A poses risks to the species (if present). In addition to direct mortality, Alternative 1A has the potential to cause indirect effects to the species during construction and during the long-term operation of the roadway. During construction there would be an increase in noise, dust, and human activity adjacent to potentially occupied lands. If burrowing owls are present on adjacent lands, they may avoid the area during construction and take residence in less suitable areas during the interim, thereby reducing overall productivity and survivorship. The long-term operation of the roadway brings increased potential for introduction of invasive plants that may degrade adjacent lands for burrowing owls and, like the existing roadway, increased risk of mortality from collisions with vehicles. With the implementation of the measures identified in Section 3.20.4, no direct mortality to the species would occur and compensation of occupied habitat would be provided, if the species is found during preconstruction surveys. Thus, proposed impacts to burrowing owl from Alternative 1A are not expected to be substantial adverse.

Loggerhead Shrike. Potential impacts on loggerhead shrike under Alternative 1A would occur through removal of 662.5 acres of potential habitat, and direct mortality could occur if the species were present, which would be a substantial adverse effect. At the time of this document, the species had not been detected in the BSA since 2001. The loss of potential habitat would not pose a risk to the species due to the large amount that would remain within the BSA and beyond. Thus, potential impacts would be minor adverse with implementation of the measures provided in Section 3.20.4

Le Conte’s Thrasher. An estimated 662.5 acres of potential habitat for this species would be removed by this alternative and direct mortality is possible if the species were present during construction, which would be a substantial adverse effect. This species has not been documented in the BSA since 2001. The loss of potential habitat would not pose a risk to the species due to the large amount of habitat that would remain in the BSA and adjacent lands. With incorporation of the measures provided in Section 3.20.4, direct mortality to the species would be avoided and thus, potential impacts to the species would be minor adverse.

American Badger. Alternative 1A would remove approximately 662.5 acres of potential habitat and could cause direct mortality if the species were present during construction, which would be a substantial adverse effect. The species was detected in the BSA in 2001 and not since. There is also potential for habitat fragmentation. The potential for direct mortality and habitat fragmentation would be addressed through implementation of the measures provided in Section 3.20.4. The loss of potential habitat would not pose a constraint to the project, as there remains enough habitat within the BSA and adjacent lands to continue supporting American badger. Potential impacts would be minor adverse with incorporation of the measures provided in Section 3.20.4.
Alternative 2—Existing Alignment Four-Lane Expressway with Median

Burrowing Owl. Alternative 2 would permanently affect 646.5 acres of potential burrowing owl habitat. This species was not found in the BSA during project studies; however, a focused survey for the species was not performed. If the species is present, there would be risk for direct mortality during habitat removal (site grubbing). This would be a potential substantial adverse effect. Even if surveys had been performed, this species of bird can be transitory in its habits and have a large home range, with only a portion of the home range being used for breeding and foraging in a given year. Whether burrowing owl uses the adjacent lands for breeding or just overwintering, Alternative 2 poses risks to the species (if present). In addition to direct mortality, Alternative 2 has the potential to cause indirect effects to the species during construction and during the long-term operation of the roadway. During construction, there would be an increase in noise, dust, and human activity adjacent to potentially occupied lands. If burrowing owls are present on adjacent lands, they may avoid the area during construction and take residence in less suitable areas during the interim, thereby reducing overall productivity and survivorship. The long-term operation of the roadway brings increased potential for introduction of invasive plants that may degrade adjacent lands for burrowing owls and, like the existing roadway, increased risk of mortality from collisions with vehicles. Potential impacts would be minor adverse with incorporation of the measures provided in Section 3.20.4. These measures ensure that direct mortality would not occur if the species is present during construction, and compensation for occupied habitat would be provided if found present during preconstruction surveys.

Loggerhead Shrike. An estimated 633.5 acres of potentially suitable habitat for loggerhead shrike would be permanently affected by Alternative 2. Given the large amount of potentially suitable habitat remaining in the BSA and elsewhere, the loss of 633.5 acres of potential habitat would not pose a risk to the continued existence of loggerhead shrike in the region. With implementation of the measures presented in Section 3.20.4, potential impacts would be minor adverse. These measures would ensure that direct mortality would not occur if the species is present during construction.

Le Conte’s Thrasher. Under Alternative 2, potential impacts on Le Conte’s thrasher may occur through permanent removal of potential habitat (633.5 acres) and direct mortality during construction. Implementation of the measures identified in Section 3.20.4 would ensure that direct mortality of individuals would not occur. The species has not been detected in the BSA since 2001. Given the large amount of potential habitat that would remain in the BSA and adjacent lands, the removal of 633.5 acres would not pose a biologically important risk to the species. With incorporation of the measures in Section 3.20.4, potential impacts would be minor adverse.

American Badger. Alternative 2 could affect American badger through the removal of 633.5 acres of potential habitat, habitat fragmentation, and direct mortality of individuals (during construction). Implementation of the measures for this species presented in Section 3.20.4 would avoid the potential for direct mortality of individuals and the installation of culverts would reduce potential effects from habitat fragmentation below a threshold of significance. Although potential habitat would be removed by this alternative, there would remain enough habitat in the BSA and adjacent lands to continue supporting the species. The proposed impacts to American badger by Alternative 2 would be minor adverse.
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures  
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**Alternative 3—Southerly Alignment Four-Lane Divided Expressway**

**Burrowing Owl.** Alternative 3 would remove an estimated 701.6 acres of potential burrowing owl habitat and potentially cause direct mortality of individuals during construction (if present). This species has not been documented in the BSA since 2001; however, a focused survey for the species was not performed. This would be a potential substantial adverse effect. Even if surveys had been performed, this species of bird can be transitory in its habits and have a large home range, with only a portion of the home range being used for breeding and foraging in a given year. Whether burrowing owl uses the adjacent lands for breeding or just overwintering, Alternative 3 poses risks to the species (if present). In addition to direct mortality, Alternative 3 has the potential to cause indirect effects to the species during construction and during the long-term operation of the roadway. During construction, there would be an increase in noise, dust, and human activity adjacent to potentially occupied lands. If burrowing owls are present on adjacent lands, they may avoid the area during construction and take residence in less suitable areas during the interim, thereby reducing overall productivity and survivorship. The long-term operation of the roadway brings increased potential for introduction of invasive plants that may degrade adjacent lands for burrowing owls and, like the existing roadway, increased risk of mortality from collisions with vehicles. The measures presented in Section 3.20.4 would reduce potential impacts to minor adverse through avoidance, minimization, and compensatory mitigation. Direct mortality would be avoided and if the species were found present during the preconstruction surveys, compensation of occupied habitat would occur.

**Loggerhead Shrike.** Under Alternative 3, an estimated 688.9 acres of potential loggerhead shrike habitat would be removed. Therefore, direct mortality could be a risk as a result of construction activities, which would be a substantial adverse effect. The measures presented in Section 3.20.4 would ensure that, with implementation of Alternative 3, direct mortality of loggerhead shrike would not occur. As a result of implementation of these measures coupled with large amounts of potential habitat remaining within the BSA and on adjacent land, potential impacts would be minor adverse.

**Le Conte’s Thrasher.** Alternative 3 would remove an estimated 688.9 acres of potential habitat and there would be risk of direct mortality to occur during construction if the species were present, which would a substantial adverse effect. The measures in Section 3.20.4 would ensure that direct mortality would not occur. With implementation of these measures combined with the large amount of suitable habitat remaining in the BSA and adjacent lands, potential impacts on Le Conte’s thrasher from Alternative 3 would be minor adverse.

**American Badger.** Alternative 3 would remove approximately 688.9 acres of potential habitat for American badger and could conceivably cause direct mortality during construction, which would be substantial adverse effect. There are measures in Section 3.20.4 that would ensure that direct mortality would not occur. With implementation of these measures coupled with the amount of potentially suitable habitat that would remain within the BSA and surrounding lands, the potential impacts on American badger from Alternative 3 would be minor adverse.

**Alternative 4—No-Build Alternative**

Under the No-Build Alternative, no permanent impacts on animal species would occur.
3.20.3.2 Temporary Impacts

All direct impacts on non-listed special-status animals are considered permanent. Therefore, no analysis of potential temporary impacts is provided.

3.20.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures would be applicable to the build alternatives. Lands acquired to mitigate the effects of the project on the desert tortoise and the Mohave ground squirrel will also mitigate any potential effect to migratory birds species (refer to Section 3.21).

**Burrowing Owl**

**BIO-14:** A preconstruction survey of the project site for burrowing owl will be conducted; the time lapse between surveys and site disturbance will be as short as possible and will be determined based on consultation with CDFW, but will not exceed 7 days prior to commencing construction activities.

**BIO-15:** Species Protection. Measures will be implemented to ensure that temporary staging areas, storage areas, and access roads for this project will occur in the area of permanent direct impact. Access to the project site will be gained from the existing SR-58. No new access roads will be built as part of this project. Staging areas and equipment storage will take place on existing roads or within the proposed right-of-way of the realigned SR-58.

**BIO-16:** Species Protection. If burrowing owls are found on-site during the preconstruction sweep:

- Occupied burrows shall not be disturbed during the nesting season (February 1 through August 31) unless a biologist can verify through non-invasive 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.

- A Burrowing Owl Mitigation and Monitoring Plan will be submitted to CDFW for review and approval.

- All relocation shall be approved by CDFW.

**BIO-17:** If, during preconstruction surveys, a burrowing owl is encountered, habitat compensation will be assessed and coordinated with CDFW during preparation of the Burrowing Owl Mitigation and Monitoring Plan. Appropriate mitigation lands for burrowing owl will be determined during preparation and CDFW agency approval of the Burrowing Owl Mitigation and Monitoring Plan. CDFW may allow the mitigation lands acquired following the above mitigation ratios to account for more than just burrowing owl, if species-specific habitat criteria are met in the habitat acquisition proposal. As provided in CDFW (2012) the mitigation for permanent habitat loss necessitates replacement with an equal or greater habitat area.
**Loggerhead Shrike and Le Conte’s Thrasher**

**BIO-18:** To avoid any impacts to migratory birds (including loggerhead shrike and Le Conte’s thrasher), vegetation removal must take place between September 15 and February 15 (outside of the breeding season). If, because of construction schedules, it is necessary to remove vegetation, including trees, during the breeding season (February 16 through September 14), a biological construction monitor must perform a preconstruction survey of each individual tree and/or the entire area where vegetation will be removed. All measures shall be taken to minimize impacts on nesting birds. A preconstruction sweep for nesting birds will be conducted prior to construction activities outside of the nesting season as well. The sweep will include areas used for staging, storage, sign placement, or parking. If an active bird nest is detected during surveys, a nest avoidance buffer will be implemented with a radius of 100 feet or as determined by the biological monitor. Depending on the species and nesting stage, it may be prudent to have a biological monitor present during construction to monitor nest activity while still allowing construction to take place.

**American Badger**

In addition to the measures listed for the desert tortoise in Section 3.21.4 of this document, the following measures will be implemented to protect American badger:

**BIO-19:** A preconstruction survey will take place to ensure that no American badgers are located within the project limits.

**BIO-20:** Biological Monitor. A qualified biological monitor will monitor construction activities to ensure avoidance of any construction-related impacts on American badger.

**BIO-21:** Species Protection. If a burrow occupied by badgers is found during construction, all construction activities will cease in the vicinity of the burrow, and coordination with CDFW will take place so that appropriate protective measures can be implemented.
Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures
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3.21 Threatened and Endangered Species

3.21.1 Regulatory Setting

3.21.1.1 State and Federal Regulations

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 subsequent 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 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.


3.21.1.2 Local Regulations

**West Mojave Plan**

The U.S. Fish and Wildlife Service (USFWS) in coordination with the Bureau of Land Management (BLM) established the Desert Tortoise (Mojave Population) Recovery Plan (June 1994) to strategize management and recovery of the species. State, federal, and local government agencies, along with BLM, have developed the West Mojave Plan (WMP), which is a multispecies and desert management plan covering 8.6 million acres that provides for long-term conservation for the desert tortoise and other sensitive species within the west Mojave Desert. These plans identify land designated as critical habitat and Desert Wildlife Management Areas (DWMA). The proposed project lies within the Fremont-Kramer desert tortoise critical habitat unit and Fremont-Kramer DWMA. The locations of the Fremont-Kramer critical habitat unit and the Fremont-Kramer DWMA are identical; however, the land is primarily managed by BLM.

**Desert Renewable Energy Conservation Plan**

The proposed project occurs within the proposed Desert Renewable Energy Conservation Plan (DRECP), which is in the planning phase and is a collaborative effort between the California Energy Commission, CDFW, BLM, and USFWS. The plan is focused on the desert regions and adjacent lands of seven counties: Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego. Approximately 22.5 million acres of federal and non-federal California desert lands are in the DRECP plan area that would help provide focused protection and conservation of desert ecosystems while allowing for the development of renewable energy projects.

3.21.2 Affected Environment

Unless otherwise noted, the information from this section was synthesized from the *Natural Environment Study* (NES) prepared for the proposed project (Caltrans 2012h). References used in the NES are not carried over into this section.

In order to comply with the provisions of various state and federal environmental statutes and executive orders, the potential impacts to natural resources of the region were investigated and documented. A list of threatened and endangered species within the project region was developed based on information compiled by the USFWS, CNDDB, the CNPS, and other current publications and is included in Appendix N. Table 3.21-1 identifies federally and/or state listed species that may potentially be present and the protection status afforded to them under FESA and CESA. In summary, two listed species have potential for occurrence—desert tortoise and Mohave ground squirrel.

<p>| Table 3.21-1: Listed Species Potentially Occurring or Known to Occur in the Project Area |
|-------------------------------------------|--------------|------------------|-----------------|</p>
<table>
<thead>
<tr>
<th><strong>Scientific Name</strong></th>
<th><strong>Common Name</strong></th>
<th><strong>Status</strong></th>
<th><strong>Habitat Present (P)/ Absent (A)</strong></th>
<th><strong>Rationale</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reptiles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gopherus agassizí</td>
<td>Desert tortoise</td>
<td>Fed: THR</td>
<td>P</td>
<td>Suitable habitat present; focused survey found the species present. Critical habitat present within BSA.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA: THR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CNPS: None</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BLM: None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Desert Tortoise**

The desert tortoise is a state and federally threatened species and has been observed inside the proposed project area as well as just outside the proposed project area. In California, the desert tortoise occurs primarily within the creosote, shadscale, and Joshua tree series of Mojave Desert scrub, and the lower Colorado River Valley subdivision of the Sonoran desert scrub. Optimal habitat has been characterized as creosote bush scrub in which precipitation ranges from two to eight inches, with a relatively high diversity of perennial plants and production of ephemeral streams. Soils must be friable enough for digging of burrows and firm enough to prevent burrows from collapsing. In California, desert tortoises are typically associated with gravelly flats or sandy soils with some clay but are occasionally found in windblown sand or rock terrain. Desert tortoise is most active in California during spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rainstorms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert.

Desert tortoise reproduction typically begins in late March or early April with clutches taking three to four months to hatch. Nests are often constructed at the entrance to burrows. Lack of rainfall and consequent scarcity of annual plants may result in reproductive failure. In addition, desert tortoise are undergoing a population decline due to off-road vehicle use, competition with livestock, disease (including upper respiratory tract disease), predation (an estimated 50 percent by ravens), deliberate killing, and general forms of harassment such as collecting without a permit. This species is also experiencing habitat loss and degradation due to urbanization. Other factors influencing the Mojave Desert populations of the desert tortoise are described by the road-effect zone or road corridor. These terms are used to describe the directly surrounding area that is influenced by the road and vehicle traffic along a travel route. The road-effect zone is defined as an area of depressed population of desert tortoise within 1,312 feet of an existing roadway. Those desert tortoises living within this distance of a roadway tend to be killed along the roadway.

During periods of activity, desert tortoises eat a variety of herbaceous vegetation primarily consisting of grasses and flowers of annual plants. Although they will eat exotic plants, tortoises generally prefer native forbs when available. They have also been known to eat other items such as insects, lizards, and feces, but these make up a very small proportion of their diets. In periods...
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of harsh or unusually dry conditions, desert tortoises can retreat to burrows where they lower their metabolism and loss of water, and consume very little food.

**Survey Results**

Desert tortoise presence/absence surveys were conducted for Caltrans in the project area on May, 3, 4, 7-11, 15-18, 22, 24 and 29, 2001 using 1992 USFWS Desert Tortoise Survey Protocols. Survey results were positive within the project area, including recent tortoise sign and live tortoises along the right-of-way corridor and the project zone of influence (ZOI). Figure 3.21-1 presents the results of the protocol surveys. A total of 116 corrected tortoise sign were detected within the right-of-way, and an additional 69 corrected sign were located on the ZOI transects. Additional surveys for a Caltrans project (EA 0F630) within the proposed project limits yielded presence of desert tortoise within the project limits, especially west of US-395.

Since the existing natural conditions and habitat quality within the project area remains similar to the conditions when the surveys took place, and after coordination with resource agencies, it was determined that assuming that desert tortoise is still present within the project area is the appropriate determination. No additional desert tortoise surveys were conducted as part of this project.

The western portion of the project area occurs within occupied federal designated critical habitat for desert tortoise and contains the essential habitat features (primary constituent elements) needed by the species. The primary constituent elements for desert tortoise are: (1) sufficient space to support viable populations within each of the six recovery units and provide for movements, dispersal, and gene flow; (2) sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such 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. These six primary elements are present within the project area, but have been degraded due to adjacency to the roadway. The quantity and quality of forage species and soil conditions to support such vegetation have been reduced in areas as shown by a reduced percent cover when compared to undisturbed lands. The lands show signs of soil compaction, which reduces native plant growth and viable burrowing, nesting, and overwintering abilities for the tortoise; further, adjacency to the road increases mortality by vehicular collision.

Coordination meetings with USFWS and CDFW have been conducted in order to establish mitigation for this project. In a meeting with Tonya Moore of CDFW, it was determined that a 5:1 mitigation ratio will apply east of Fornessa Road and a 3:1 mitigation ratio will apply west of Fornessa Road. A permanent desert tortoise fence will also be installed at Caltrans right-of-way limits to avoid desert tortoise road kills. Caltrans is proposing to mitigate for the loss of habitat to the desert tortoise and the Mohave ground squirrel as a result of this project through the purchase of land and monetary compensation. Several crossings are also proposed throughout the length of the new alignment of SR-58 to allow wildlife to cross under it. See Section 4.3 of this document to review avoidance and minimization measures that the project will implement to protect listed species.

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1 The amount of sign reported here is an “adjusted” number from that reported during the 2001 survey; adjustment made in coordination with CDFW and USFWS.
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Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project
Figure 3.21-1 Sheet 3
Desert Tortoise Survey Results
State Route 58 Kramer Junction Expressway Project

Survey Area (100% surveyed)
Tortoise Sign
- Live Tortoise
- Burrow
- Carcass
- Pallet
- Scat

Area Not Surveyed
- 100'
- 300'
- 600'
- 1200'
- 2400'

Source: ESRI USA Imagery (2010)
The Fremont-Kramer Unit, a BLM-designated critical habitat area established for the recovery and protection of the federal and state listed as threatened desert tortoise (*Gopherus agassizi*), exists within the project area.

The impact area is shown in the table below.

**Table 3.21-2: Impact Area (Acres [ha])**

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Impact Area (non-critical habitat)</th>
<th>Impact Area (Critical Habitat)</th>
<th>Total Impact Area</th>
<th>Total Mitigation Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>308 [124.64]</td>
<td>417 [168.75]</td>
<td>725 [293.4]</td>
<td>1,022.92 [2,527.69]</td>
</tr>
<tr>
<td>1A</td>
<td>308 [124.64]</td>
<td>417 [168.75]</td>
<td>725 [293.4]</td>
<td>1,022.92 [2,527.69]</td>
</tr>
</tbody>
</table>

**Mohave Ground Squirrel**

The Mohave ground squirrel (MGS) is listed as threatened under CESA and is found only in California, limited to a geographic range in the western Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties in California. Studies indicate that the optimal habitat types for the MGS include plant communities that harbor spiny hopsage (*Grayia spinosa*) and winterfat (*Krascheninnikovia lanata*), including creosote bush scrub, xerophytic saltbush, and Joshua tree woodland communities. Mohave ground squirrels have been found at elevations ranging from 1,800 to 5,000 feet. The MGS has the smallest geographic range of the seven *Xerospermophilus* ground squirrels in California: an estimated 7,691 square miles in the western Mojave Desert on federal, state, and private lands.

Threats to MGS populations include agricultural development, grazing, off-road vehicle use, and other human disturbances. Overall, about 10 percent of the habitat for MGS has deteriorated due to development (agricultural, residential, industrial, and commercial), with more of that habitat being lost as development spreads rapidly in the southern part of their range.

The northeast corner of Edwards Air Force Base (near intersection of SR-58 and US-395 [Kramer Junction]) is one of the identified core population areas for MGS (Brooks and Matchett 2002).

**Survey Results**

Two Mohave ground squirrel presence/absence protocol trapping study sessions were conducted for Caltrans on April 16–20, 2001 and May 21–25, 2001 at two locations along the eastern end of the northern alignment using 1991 survey guidelines recommended by CDFW. Although the survey efforts targeted higher quality habitat areas on both ends of the proposed northern alignment, the survey results were negative during both sessions. Negative results in this survey may have been due to two reasons: a regionally low density and highly dispersed population.
made it statistically difficult for the relatively localized trapping effort to detect animals, and there has been a drastic reduction of the species in the area since 1980, which has made successful trapping efforts difficult if not impossible in certain areas. More recent regional studies utilizing very large numbers of traps and covering larger grid cells than the standard 4 x 25 configuration have detected presence for this species as close as 3.25 miles to the project area near Kramer Hills and Edwards Air Force Base.

Since the project is within a core population area for this species, habitat for MGS is considered present; other surveys conducted within the vicinity of the project area have found presence of MGS. In coordination with CDFW and USFWS, it was determined in the best interest of Caltrans to assume that MGS is present within the project limits. No designated federal critical habitat is present for MGS because this species is not federally listed.

### 3.21.2.2 Federal and Resource Agency Consultation

The only federal listed species confirmed present within the project limits was the desert tortoise. All avoidance, minimization, and mitigation measures proposed herein were coordinated with USFWS representatives. A biological assessment was submitted on December 25, 2013 to USFWS. Due to the presence of habitat for an endangered species and a federal nexus, the project requires Section 7 consultation. Pursuant to MAP-21, 23 USC 327, as described in the NEPA Assignment between FHWA and Caltrans, Caltrans has been designated the authority to conduct formal Section 7 consultation in accordance with FESA. The Biological Opinion was received June 30, 2014 (see Appendix N).

Coordination with CDFW took place between May 2001 and February 2009, and all avoidance, minimization, and mitigation measures proposed herein were coordinated with CDFW representatives. Refer to Section 5.1.2 of this document or the NES prepared for the proposed project (Caltrans 2012h) for full coordination details. During project design, Caltrans will submit a 2081 Incidental Take Permit Authorization for desert tortoise and MGS.

### 3.21.3 Environmental Consequences

#### 3.21.3.1 Permanent Impacts

**Alternative 1—Northerly Alignment 4-Lane Divided Expressway**

**Desert Tortoise**

Desert tortoise fencing would be installed permanently along the right-of-way limits prior to the beginning of construction and would permanently exclude desert tortoise from the areas between the fencing and the right-of-way. Installation of desert tortoise fencing would result in the permanent loss of 419.79 acres of suitable desert tortoise habitat, of which a portion is designated critical habitat. Table 3.21-3 summarizes the impact areas by build alternative and the total mitigation area required as a result of the impacts from each build alternative.
Highways play a role in long-term introduction of invasive species. Although it has been documented that desert tortoises feed on certain invasive species, it is expected that introduction of these species would affect the availability of native species that are more palatable for the desert tortoise. Because Alternative 1 is already located in more disturbed habitat for tortoise than the other alternatives, it is expected to make less of a contribution to invasive species introduction. In addition, Alternative 1 would not create new access points to the area; therefore, the project is not expected to contribute to a greater use of the public lands in the vicinity. The project may induce some minor commercial growth within the new SR-58 and US-395 intersection. Alternative 1, like the other build alternatives, either would include a new intersection or the relocation of existing businesses.

The project has the potential to increase habitat fragmentation because Alternative 1 would introduce a new elevated freeway in the area. This impact would be minimized with the inclusion of culverts designed to allow desert tortoise and other animal species to move through them.

The realignment and widening of the existing SR-58 may create a wider and/or new road effect zone that would be deleterious to desert tortoises. The Road Effect Zone is defined as a depressed population of desert tortoise adjacent to roadways existing up to 1,312 feet from the edge of roadway. This impact would be substantial adverse, even though the realignment and widening under Alternative 1 would occur within more disturbed areas. Caltrans is minimizing this effect to the greatest extent feasible through placement of the desert tortoise exclusion fencing.

Potential impacts to desert tortoise under Alternative 1 would be substantial adverse effects but with incorporation of measures BIO-22 through BIO-30, BIO-34, and BIO-35 listed below in Section 3.21.4, these impacts can be reduced to minor adverse. Alternative 1 would result in the potential for direct take under FESA of desert tortoise and its habitat, resulting in a May Affect, Likely to Adversely Affect Determination under FESA. This alternative would also result in direct take and Adverse Modification of designated critical habitat for the species. As discussed previously, some of the primary constituent elements of the critical habitat present have been degraded through adjacency to the roadway. The soils show signs of compaction, which has reduced the percent cover of forage species, supports nonnative plant species of lower nutritional value to the tortoise, and reduces the ability of the desert tortoise to burrow, nest, and overwinter. In addition, there is an increase in mortality from vehicle collision.

### Table 3.21-3: Impact Area and Mitigation Ratios

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Area Impacted Mitigation Ratio 3:1 (ac [ha])</th>
<th>Area Impacted Mitigation Ratio 5:1 (ac [ha])</th>
<th>Total Impacted Area (ac [ha])</th>
<th>Total Mitigation Area (ac [ha])</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>37.73 [93.23]</td>
<td>132.14 [326.53]</td>
<td>169.88 [419.79]</td>
<td>773.93 [1912.42]</td>
</tr>
<tr>
<td>2</td>
<td>41.64 [102.89]</td>
<td>123.03 [304.02]</td>
<td>164.67 [406.90]</td>
<td>740.06 [1828.74]</td>
</tr>
<tr>
<td>3</td>
<td>38.73 [95.71]</td>
<td>151.43 [374.18]</td>
<td>190.16 [469.89]</td>
<td>873.32 [2158.03]</td>
</tr>
</tbody>
</table>

* Mitigation ratios were determined during formal agency consultation.
* Impact areas differ from critical habitat impact areas in Table 3.21-2, as some areas serve as mitigation areas for other projects and are not included in the calculation of mitigation areas for the proposed project.

Source: Caltrans 2012h
Mohave Ground Squirrel

All potential habitat (in this case, all lands not mapped as developed/disturbed) between the installed desert tortoise fencing where MGS has not been previously excluded (described in Section 3.21.3.1) would be considered permanently removed; therefore, 419.79 acres of suitable habitat for MGS would be removed by Alternative 1. Habitat degradation due to the introduction of invasive species is also expected to be substantial adverse under Alternative 1. The existing habitat quality for this species within the Alternative 1 footprint is judged to be low given the level of human disturbance that has occurred, including adjacency to the roadway. The percent cover of shrubs and annuals is lower when compared to lands less disturbed and the amount of nonnative annuals is higher nearer the roadway. In addition, soils appear to be compacted, which can reduce burrowing abilities, and adjacency to the roadway increases potential for mortality from vehicle collision. Since this species is more mobile, it is expected that the habitat fragmentation caused by Alternative 1 would be less severe than for desert tortoise. Culverts proposed for this project are expected to offset this impact.

Proposed impacts to MGS from Alternative 1 would be mitigable with incorporation of measures BIO-31 through BIO-33, BIO-36, and BIO-37 listed below in Section 3.21.4. With the implementation of these measures, proposed impacts from Alternative 1 would be reduced to minor adverse. Alternative 1 would have a Will Not Jeopardize the Continued Existence of MGS determination with implementation of measures BIO-31 through BIO-33, BIO-36, and BIO-37.

Alternative 1A—Northerly Alignment 4-Lane Divided Expressway (with Spread Diamond and Cloverleaf Interchange at SR-58/US-395)

Desert Tortoise

Alternative 1A would permanently remove 419.79 acres of suitable desert tortoise habitat, of which a portion is designated critical habitat through the placement of permanent desert tortoise exclusion fencing. Refer to Table 3.21-2 for a summary of proposed impacts to this species by mitigation ratio (3:1 vs. 5:1). Although this fencing protects desert tortoise from entering the highway, it excludes the habitat from desert tortoise and creates habitat fragmentation. The proposed alternative would also potentially cause increased introduction of nonnative invasive plant species that can degrade existing tortoise habitat such that the species foraging grounds are compromised. However, these potential impacts to desert tortoise under Alternative 1A are mitigable. With the implementation of measures BIO-22 through BIO-30, BIO-34, and BIO-35 presented in Section 3.21.4, potential impacts would be reduced to minor adverse. Alternative 1A would result in the potential for direct take under FESA of desert tortoise and its habitat, resulting in a May Affect, Likely to Adversely Affect Determination under FESA. This alternative would also result in direct take and Adverse Modification of designated critical habitat for the species. As discussed previously, some of the primary constituent elements of the critical habitat present have been degraded through adjacency to the roadway. The soils show signs of compaction, which has reduced the percent cover of forage species, supports nonnative plant species of lower nutritional value to the tortoise, and reduces the ability of the desert tortoise to burrow, nest, and overwinter. In addition there is an increase in mortality from vehicle collision.
Mohave Ground Squirrel

Alternative 1A would remove 419.79 acres of suitable habitat for MGS and the elevated roadbed along with the desert tortoise exclusion fencing is expected to cause habitat fragmentation. In addition, the roadway has the potential to facilitate the introduction of nonnative invasive plants into adjacent habitat. The existing habitat quality for this species within the Alternative 1 footprint is judged to be low given the level of human disturbance that has occurred, including adjacency to the roadway. The percent cover of shrubs and annuals is lower when compared to lands less disturbed and the amount of nonnative annuals is higher nearer the roadway. In addition, soils appear to be compacted, which can reduce burrowing abilities, and adjacency to the roadway increases potential for mortality from vehicle collision. Implementation of measures BIO-31 through BIO-33, BIO-36, and BIO-37 would avoid and minimize direct mortality to MGS during construction, minimize potential indirect effects from occurring, and compensate for the loss of “assumed occupied” MGS habitat. The proposed impacts to MGS from Alternative 1A would be biologically substantial; however, with the implementation of these measures listed in Section 3.21.4, potential impacts would be reduced to minor adverse, with a Will Not Jeopardize the Continued Existence of MGS determination under CESA.

Alternative 2—Existing Alignment 4-Lane Expressway with Median

Desert Tortoise

Desert tortoise fencing would be installed permanently along the right-of-way and would permanently exclude desert tortoise from the areas between the fencing. Installation of desert tortoise fencing would result in the permanent loss of 406.90 acres of suitable desert tortoise habitat, of which a portion is designated critical habitat. Refer to Table 3.21-2 for a summary of the impact area and the total mitigation area required as a result of this impact.

As discussed above under Alternative 1, highways play a role in the long-term introduction of invasive species and thus degradation of habitats. The potential for this indirect effect is high for Alternative 2 because it traverses less disturbed habitat. Although it has been documented that desert tortoises feed on certain invasive species, it is expected that introduction of these species would affect the availability of native species that are more palatable for the desert tortoise. Alternative 2 is expected to make a substantial adverse but mitigable contribution to degradation of desert tortoise habitat through introduction of invasive plant species.

Alternative 2 would not create new access points to the area; therefore, the project is not expected to contribute to a greater use of the public lands in the vicinity. The project may induce some minor commercial growth within the new SR-58 and US-395 intersection. Alternative 2 would have a similar level of impact as Alternative 1, 1A, and 3 since all of the build alternatives either would include a new intersection or the relocation of existing businesses.

Alternative 2, like the other build alternatives, has the potential to increase habitat fragmentation since it would include a new elevated freeway. This impact would be minimized with the inclusion of culverts designed to allow desert tortoise and other animal species to move through them.
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The realignment and widening of the existing SR-58 may create a wider and/or new road effect zone that would be deleterious to desert tortoises. This potential impact would be substantial adverse, since the realignment and widening under Alternative 2 is located within less disturbed habitat for desert tortoise. Caltrans would minimize this effect to the greatest extent feasible through placement of the desert tortoise exclusion fencing.

The potential impacts to desert tortoise from Alternative 2 would be substantial adverse effects but would be mitigable with incorporation of measures BIO-22 through BIO-30, BIO-34, and BIO-35 listed below in Section 3.21.4. With the implementation of the minimization, avoidance, and mitigation measures, potential impacts under Alternative 2 would be reduced to minor adverse. Alternative 2 would result in the potential for direct take under FESA of desert tortoise and its habitat, resulting in a May Affect, Likely to Adversely Affect Determination under FESA. This alternative would also result in direct take and Adverse Modification of designated critical habitat for the species. As discussed previously, some of the primary constituent elements of the critical habitat present have been degraded through adjacency to the roadway. The soils show signs of compaction, which has reduced the percent cover of forage species, supports nonnative plant species of lower nutritional value to the tortoise, and reduces the ability of the desert tortoise to burrow, nest, and overwinter. In addition, there is an increase in mortality from vehicle collision.

Mohave Ground Squirrel

Installation of desert tortoise fencing (described above Section 3.21.3.1) would permanently remove 406.90 acres of suitable habitat for MGS. Refer to Table 3.21-2 for a summary of the impact area and the total mitigation acreage required as a result of this impact. The existing habitat quality for this species within the Alternative 2 footprint is judged to be low given the level of human disturbance that has occurred, including adjacency to the roadway. The percent cover of shrubs and annuals is lower when compared to lands less disturbed and the amount of nonnative annuals is higher nearer the roadway. In addition, soils appear to be compacted, which can reduce burrowing abilities, and adjacency to the roadway increases potential for mortality from vehicle collision. Biologically substantial impacts to MGS would occur from habitat loss, habitat degradation due to the increased introduction of invasive species, and habitat fragmentation from the widened and elevated highway. However, these potential impacts under Alternative 2 are mitigable with incorporation of measures BIO-31 through BIO-33, BIO-36, and BIO-37 listed below in Section 3.21.4. With incorporation of these avoidance, minimization, and compensatory measures, potential impacts to MGS would be reduced to minor adverse, with a Will Not Jeopardize the Continued Existence of MGS determination under CESA. These measures include the assurance that direct mortality would be minimized during construction, that culverts are installed to facilitate safe movement from one side of the highway to the other, and that loss of habitat is replaced.

Alternative 3—Southerly Alignment 4-Lane Divided Expressway

Desert Tortoise

Desert tortoise fencing would be installed permanently along the right-of-way and would permanently exclude desert tortoise from the areas between the fencing. Installation of desert...
tortoise fencing would result in the permanent loss of 469.89 acres of suitable desert tortoise habitat of which a portion is designated critical habitat. Refer to Table 3.21-2 for a summary of the impact area and the total mitigation area required as a result of this impact.

As discussed for all of the build alternatives, Alternative 3 has the potential for the introduction of invasive plant species. Because this alternative crosses less disturbed habitat, this potential long-term indirect effect could be substantial adverse in degrading desert tortoise habitat. Desert tortoises prefer to eat native plants. Alternative 3 would not create new access points to the area; therefore, the project is not expected to contribute to a greater use of the public lands in the vicinity. The project may induce some minor commercial growth within the new SR-58 and US-395 intersection. Alternative 3 would have a similar level of impact as Alternative 1, 1A, and 2 since all of the alternatives either would include a new intersection or the relocation of existing businesses.

The project has the potential to increase habitat fragmentation since all of the build alternatives would introduce a new elevated freeway to the area. This impact would be minimized with the inclusion of culverts designed to allow desert tortoise and other animal species to cross underneath the road.

The realignment and widening of the existing SR-58 may create a wider and/or new road effect zone that would be deleterious to desert tortoises. This impact would be substantial adverse since the realignment and widening under Alternative 3 is located within less disturbed habitat areas for the species. Caltrans would minimize this effect to the greatest extent feasible through placement of the desert tortoise exclusion fencing.

The potential impacts to desert tortoise from Alternative 3 would be mitigable with incorporation of measures BIO-22 through BIO-30, BIO-34, and BIO-35 listed below in Section 3.21.4. With implementation of these measures, potential impacts would be reduced to minor adverse. Alternative 3 would result in the potential for direct take under FESA of desert tortoise and its habitat, resulting in a May Affect, Likely to Adversely Affect Determination under FESA. This alternative would also result in direct take and Adverse Modification of designated critical habitat for the species. As discussed previously, some of the primary constituent elements of the critical habitat present have been degraded through adjacency to the roadway. The soils show signs of compaction, which has reduced the percent cover of forage species, supports nonnative plant species of lower nutritional value to the tortoise, and reduces the ability of the desert tortoise to burrow, nest, and overwinter. In addition, there is an increase in mortality from vehicle collision.

Mohave Ground Squirrel

Installation of desert tortoise fencing (described above Section 3.21.3.1) would permanently remove 469.89 acres of suitable habitat for MGS. The existing habitat quality for this species within the Alternative 3 footprint is judged to be low low given the level of human disturbance that has occurred, including adjacency to the roadway. The percent cover of shrubs and annuals is lower when compared to lands less disturbed and the amount of nonnative annuals is higher nearer the roadway. In addition, soils appear to be compacted, which can reduce burrowing abilities, and adjacency to the roadway increases potential for mortality from vehicle collision.
Refer to Table 3.21-2 for a summary of the impact area and the total mitigation area required as a result of this impact. Habitat loss, habitat degradation due to the increased introduction of invasive species, and habitat fragmentation caused by Alternative 3 would be less severe than for desert tortoise but still substantial. Potential impacts to MGS proposed by Alternative 3 are mitigable with incorporation of measures BIO-31 through BIO-33, BIO-36, and BIO-37 listed below in Section 3.21.4. These measures assure that direct mortality to MGS would be minimized, that habitat loss is compensated, and culverts are installed to facilitate safe movement of the species from one side of the highway to the other. These and other measures would reduce potential impacts to this species to minor adverse and would ensure a Will Not Jeopardize the Continued Existence determination under CESA.

**Alternative 4—No-Build Alternative**

**Desert Tortoise**

Under the No-Build Alternative, no permanent impacts to desert tortoise would occur. Under Alternative 4, there would be a No Effect determination under FESA for desert tortoise and its designated critical habitat.

**Mohave Ground Squirrel**

No permanent impacts to Mohave ground squirrel would occur from the No-Build Alternative; therefore, there would be a Will Not Jeopardize the Continued Existence of MGS determination under CESA.

### 3.21.3.2 Temporary Impacts

All direct impacts to non-listed special status plants are considered permanent, and thus no analysis of potential temporary impacts are provided.

### 3.21.4 Avoidance, Minimization, and/or Mitigation Measures

**Desert Tortoise**

Each build alternative would result in direct and indirect impacts to desert tortoise including the potential for direct take under FESA of desert tortoise and its habitat, resulting in a May Affect, Likely to Adversely Affect Determination under FESA. Each build alternative would also result in direct take and Adverse Modification of designated critical habitat for the species. The following components of the project would support the long-term conservation of the desert tortoise:

1. Installation of permanent exclusionary desert tortoise fencing along the new alignment;
2. Removal of approximately 1.2 miles of the existing SR-58 to serve as a connection and to facilitate the east/west movement of desert tortoise; and
3. Installation of two oversized flat bottom culverts as part of the project components to facilitate desert tortoise movement for areas that would be otherwise isolated from the habitat north of the new SR-58 alignment (these will be located on each side of US-395 near Kramer Junction).
In addition, the following measures would be implemented to minimize impacts on desert tortoise habitat:

- **BIO-22:** Field Contact Representative or Resident Engineer. Caltrans will assign/designate a staff person to act as the Field Contact Representative (FCR) or Resident Engineer (RE) with specific experience in the implementation of environmental compliance programs. The FCR/RE will serve as the environmental compliance monitor for the project. They will be present throughout the construction period. This individual will be the liaison among the wildlife agencies, FHWA, Authorized Biologist(s), and Biological Monitor(s). The FCR/RE and Authorized Biologist will work closely together to ensure compliance with the various conditions and requirements of project permits and approvals set forth in the biological opinion and supporting plans appended to the biological assessment.

  Caltrans’s FCR/RE will act on the advice of the Authorized Biologist(s) and Biological Monitor(s) to ensure conformance with the protective measures set forth in the biological opinion. The Authorized Biologist(s) will have the authority to immediately stop any activity that is not in compliance with these conditions and/or order any reasonable measure to avoid take of an individual of a listed species. If required by an Authorized Biologist and Biological Monitor(s), Caltrans’s FCR/RE will halt all construction-related ground disturbance and other activities in areas specified by the Authorized Biologist(s).

- **BIO-23:** Authorized Biologists and Biological Monitors. Caltrans will review the credentials of all individuals seeking approval as Authorized Biologists prior to being submitted to USFWS to ensure the individuals possess the appropriate experience and training to serve as Authorized Biologists. Caltrans will then submit the credentials of appropriate individuals to USFWS and CDFW for approval at least 30 days prior to the time they must be in the field.

  The Authorized Biologist will be responsible for all aspects of clearance surveys, monitoring, developing and implementing the worker environmental awareness program, contacts with agency personnel, reporting, and long-term monitoring and reporting and be present, along with approved Biological Monitors, during construction, operation, and maintenance that could affect desert tortoises. Biological Monitors will be approved and supervised by the Authorized Biologist.

- **BIO-24:** Pre-Construction Surveys. Within desert tortoise habitat, Authorized Biologists will conduct pre-construction surveys of the project area including the right-of-way, staging areas, access routes, and all other construction sites. The surveys will also cover the adjacent undeveloped lands located between the existing and new alignment. Authorized Biologists will survey the right-of-way for desert tortoises using techniques providing 100-percent coverage of the area proposed for disturbance. Additional transects will be conducted on each side of the right-of-way to locate tortoises and their burrows within 50 feet of the right-of-way. Transects will be no greater than 10 meters (30 feet) apart. If construction occurs during the desert tortoise active season (March 1 through October 31), or when temperatures and environmental conditions are conducive to tortoise activity as determined by an Authorized Biologist, the survey will occur within 48 hours of surface disturbance. During the inactive season (November 1 through February 28, except as noted above), when conditions are not conducive to tortoise activity as determined by an Authorized Biologist, one survey must occur within 72 hours of surface disturbance or up to five days in advance of disturbance.
The Authorized Biologist will flag all desert tortoise burrows, and will only excavate burrows and move desert tortoises if project activities are likely to affect them. If a desert tortoise is moved, the Authorized Biologist will move it into appropriate habitat adjacent to the project site, but will not move it more than 1,000 feet if it is an adult or 300 feet if it is a juvenile or hatchling. Following the preconstruction survey and the relocation of desert tortoises if determined necessary by the Authorized Biologist, the contractor will install permanent fencing to exclude desert tortoises from all work areas and rights-of-way, as specified in Measure BIO-29.

- **BIO-25**: Biological Resource Information Program. Caltrans will be responsible for ensuring that all workers at the site receive worker environmental awareness training (Worker Environmental Awareness Program [WEAP]) prior to and throughout construction. The training will be administered to all on-site personnel including surveyors, construction engineers, employees, contractors, contractor’s employees, supervisors, inspectors, subcontractors, and delivery personnel. Caltrans will implement the WEAP to ensure that project construction and operation are both conducted within a framework of safeguarding environmentally sensitive resources. The WEAP will be available in English and Spanish. The Applicant will present the WEAP to all workers on site throughout the life of the project. Multiple sessions of the presentation may be given to accommodate training all workers. The WEAP will include but will not be limited to the following:
  
  a. Be developed by or in consultation with the Authorized Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media, including photographs of protected species, are made available to all participants;
  
  b. Provide an explanation of the purpose and function of the desert tortoise and MGS minimization measures and the possible penalties for not adhering to them;
  
  c. Inform workers that the FCR/RE, Authorized Biologist(s), and Biological Monitor(s) have the authority to halt work in any area where there would be an unauthorized adverse impact to biological resources if the activities continued;
  
  d. Discuss general safety protocols such as hazardous substance spill prevention and containment measures and fire prevention and protection measures;
  
  e. Provide an explanation of the sensitivity and locations of the vegetation, biological resources, and habitat within and adjacent to work areas, and proper identification of these resources;
  
  f. Place special emphasis on desert tortoise, MGS, American badger, burrowing owl, southwestern willow flycatcher, and BLM sensitive/CNPS plants, including information on physical characteristics, photos, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and conservation measures required for the project;
  
  g. Provide contact information for the Authorized Biologist(s) and Biological Monitor(s) for WEAP trainees to submit late comments and questions about the material discussed in the program, as well as to report any dead or injured wildlife species encountered during project-related activities;
h. Direct all WEAP trainees to report all observations of listed species and their sign to an Authorized Biologist for inclusion in the monthly compliance report;

i. Include a training acknowledgment form to be signed by each worker indicating that they received training and will abide by the guidelines; and

j. Provide an explanation regarding the protective measures (with special emphasis on the importance of trash removal and pick-up) to reduce the adverse effects associated with predation of desert tortoises by common ravens (*Corvus corax*) and other known predators of desert tortoise.

Only workers who have successfully completed the education program will be allowed to work on the project site.

- **BIO-26**: Species Protection. Caltrans will ensure that the Authorized Biologist(s) will follow the procedures for handling tortoises in the USFWS field manual (2009). Only the Authorized Biologist(s) will move desert tortoises and then solely for the purpose of moving them from harm’s way. The Authorized Biologist(s) will document each desert tortoise encounter/handling with the following information, at a minimum: a narrative describing circumstances; vegetation type; date; conditions and health; any apparent injuries and state of healing; if moved, the location from which it was captured and the location in which it was released; maps; whether animals voided their bladders; and diagnostic markings (that is, identification numbers marked on lateral scutes).

Tortoises found in the project area will be handled and relocated by an Authorized Biologist in accordance with the most current USFWS protocol in the Desert Tortoise Field Manual. Tortoises excavated from burrows must be relocated to unoccupied natural or artificially constructed burrows immediately following excavation. The artificial or unoccupied natural burrows must occur 150 to 300 feet from the original burrow. Relocated tortoises will not be placed in existing occupied burrows. If an existing burrow that is similar in size, shape, and orientation to the original burrow is unavailable, the Authorized Biologist(s) would construct one. Desert tortoises moved during inactive periods will be monitored for at least two days after placement in new burrows to ensure their safety. The Authorized Biologist(s) would be allowed some judgment and discretion to ensure that survival of the desert tortoise is likely. The relocated tortoise will be monitored during construction activities to ensure that it shelters and does not return to the right-of-way and be in harm’s way.

Desert tortoises that are found aboveground and need to be moved from harm’s way will be placed at unoccupied shelter sites including unoccupied soil burrows, spaces within rock outcrops, caliche caves, and the shade of shrubs at 150 to 300 feet from the point of encounter. During periods of the year when desert tortoises are generally active, a Biological Monitor will monitor these individuals to ensure that they do not move back into harm’s way or exhibit signs of physiological stress (e.g., gaping, foaming at the mouth). If a desert tortoise exhibits any signs of physiological stress, the Authorized Biologist(s) will immediately undertake actions to stabilize it (e.g., place it in a climate-controlled facility, shade it, lightly mist it with water); the desert tortoise will be released only after it is exhibiting normal behavior and temperatures are appropriate.

Whenever a vehicle or construction equipment is parked longer than two minutes within desert tortoise habitat, workers will inspect the ground around and underneath the vehicle for
desert tortoises prior to moving the vehicle. If the worker observes a desert tortoise, he or she will contact an Authorized Biologist or Biological Monitor. If possible, the desert tortoise will be left to move out of harm’s way on its own. If the desert tortoise does not move out of harm’s way within 15 minutes, an Authorized Biologist will move it out of harm’s way in accordance with the handling procedures.

Caltrans will ensure that no project personnel will exceed a vehicle speed limit of 20 miles per hour during project activities on unpaved access roads within desert tortoise habitat.

To prevent entry by common ravens (*Corvus corax*) and other predators such as the coyote (*Canis latrans*), trash will be placed in a sealed container and emptied at the close of business each day. The project area will be kept as clean of debris as possible. Each water source will be caged or netted to prevent use by ravens.

Caltrans will ensure that workers do not bring firearms and pets into the project area. This measure does not apply to law enforcement personnel and working dogs.

- **BIO-27:** Locating a Dead or Injured Tortoise. The Authorized Biologist will notify USFWS within 24 hours upon locating a dead or injured desert tortoise during construction, operation, and maintenance of the project. The notification will be made by telephone and in writing or by electronic mail to BLM and USFWS. The report will include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. Caltrans will submit desert tortoises that are fatally injured during project-related activities for necropsy, at its expense, as outlined in Berry (2001).

- **BIO-28:** Designated Areas. Caltrans will confine all project activities to the right-of-way, approved access roads, and storage areas. All storage areas and vehicle turn-around locations will use previously disturbed habitat as much as possible and will require USFWS approval prior to the initiation of project activities. Caltrans will restrict project vehicles to the right-of-way, designated areas, or existing roads and will prohibit off-road or cross-country travel except in emergencies. Caltrans will not create any new dirt or paved roads. The project construction boundaries will be clearly delineated with fencing, stakes, or flagging. If unforeseen circumstances require disturbance beyond the project right-of-way, Caltrans will notify USFWS immediately.

Caltrans will ensure that the Authorized Biologist or Biological Monitor will inspect any open trenches or excavations within project work sites at least three times daily and prior to backfilling. If a desert tortoise is located within an open trench, a USFWS-authorized biologist will remove it. Project personnel will cover open trenches or excavations with metal plates if they are left open overnight or on the weekend to prevent desert tortoises from entering them.

- **BIO-29:** Permanent Fence. Following preconstruction surveys and the relocation of desert tortoises if determined necessary by the Authorized Biologist but prior to the start of construction, Caltrans will require the contractor to install permanent fencing to exclude desert tortoises from all work areas and rights-of-way under the direction of an Authorized Biologist. Caltrans will construct the fence according to the protocols provided in Chapter 8 of the Desert Tortoise Field Manual (USFWS 2009). If desert tortoises are encountered during installation of the fence, the Authorized Biologist will move the individual the
shortest distance possible to an area outside the fence where it will be safe. The Authorized Biologist will use his or her judgment regarding the best measures to use to ensure the desert tortoise does not immediately return to the area inside of the fence. The Authorized Biologist may contact USFWS or CDFW to discuss specific situations if the need arises.

After the fencing is installed and before the onset of ground-disturbing activities, the Authorized Biologist will survey the area and remove all desert tortoises. The Authorized Biologist will survey the area as much as is needed to ensure that all desert tortoises have been found; generally, all desert tortoises will be considered to have been removed once a complete survey of the work area is conducted without finding any additional animals. Desert tortoises that are found inside the fenced area will be placed on the other side of the desert tortoise exclusion fence. The Authorized Biologist will use his or her best judgment to determine the optimal location for placement of desert tortoises. In general, desert tortoises will be moved to the nearest safe area south of the road realignment.

Caltrans will maintain the integrity of the fence to ensure that desert tortoises are excluded from the work area during construction and from the roadway thereafter. The fence will be inspected regularly; initially, it will be inspected on a monthly basis, but Caltrans may adopt a different schedule, based on experience. Caltrans will inspect and, if necessary, repair the fence immediately after any rainstorm that occurs during times of the year or at temperatures when desert tortoises are likely to be active.

- **BIO-30**: Construction Monitoring. An appropriate number of Authorized Biologists and Biological Monitors will be available during construction for the protection of desert tortoise. Authorized Biologists will be assigned to monitor each area of activity where conditions exist that may result in take of desert tortoise (e.g., clearing, grading, re-contouring, restoration activities).

  The Biological Monitor will survey ahead of the project activities and halt construction if he or she finds a desert tortoise in the path of construction equipment. Project activities will not resume until the desert tortoise moves out of harm’s way or the Authorized Biologist has relocated it.

  An Authorized Biologist or Biological Monitor will inspect all excavations that are not within desert tortoise exclusion fencing on a regular basis (several times per day) and immediately prior to filling of the excavation. If project personnel discover a desert tortoise in an open trench, an Authorized Biologist will move it to a safe location in accordance with the Desert Tortoise Field Manual (2009).

**Mohave Ground Squirrel**

In addition to the measures listed above for desert tortoise, the following measures will be implemented to protect MGS and to ensure a Will Not Jeopardize the Continued Existence determination under CESA. Refer to Section 5.1.2 for details on the agency coordination that occurred with CDFW to ensure proposed impacts to MGS were fully mitigated. The two proposed culverts were discussed with CDFW and USFWS and were agreed upon as a measure for the desert tortoise and MGS during informal consultation.

- **BIO-31**: Biological Monitor. A qualified biological monitor will monitor construction activities to ensure avoidance of any construction activities related to MGS.
• **BIO-32**: Biological Resource Information Program. MGS Awareness Training will be provided and integrated with WEAP Training prior to construction.

• **BIO-33**: Species Protection. If any MGS are injured or killed during the course of construction, work must stop in the immediate area, the animal must be left in place as is, and the project monitor and the Resident Engineer will be immediately notified. Only the authorized biologist will handle and transport the animal to a qualified veterinarian.

**Compensatory Mitigation**

These mitigation ratios for desert tortoise and MGS can be combined as long as land containing habitat for both species can be found for purchase. Each build alternative would result in direct and indirect impacts to desert tortoise, including the potential for direct take under FESA of desert tortoise and its habitat, resulting in a May Affect, Likely to Adversely Affect Determination under FESA. Each build alternative would also result in direct take and Adverse Modification of designated critical habitat for desert tortoise.

**Desert Tortoise**

• **BIO-34**: Caltrans, CDFW, and USFWS agreed to mitigate affected areas east of Fornessa Road with a mitigation ratio of 5:1, including the critical habitat areas east of US-395. Due to habitat quality, all areas west of Fornessa Road will be mitigated at a ratio of 3:1. The total impact area to be mitigated is shown in Table 3.21-2 in Section 3.21.3.1. Alternative 3 is the alternative that would require more mitigation for desert tortoise, followed by Alternative 1 and Alternative 1A. Since Alternative 2 is located within more previously disturbed areas, and areas already mitigated by previous projects, it is the alternative that would require less mitigation for this project. These mitigation ratios are combined with the mitigation ratios for the MGS.

• **BIO-35**: In coordination with CDFW and USFWS, two oversized culverts, east and west of US-395, will be installed as part of the project. These culverts will be a minimum of 6 feet tall and 10 feet wide.

**Mohave Ground Squirrel**

• **BIO-36**: Similar to compensatory mitigation for desert tortoise, Caltrans and CDFW have agreed to mitigate affected areas east of Fornessa Road with a mitigation ratio of 5:1. Due to habitat quality all areas west of Fornessa Road will be mitigated at a ratio of 3:1. The total impact area to be mitigated is disclosed on Table 3.21-2 in Section 3.21.3.1. Alternative 3 is the alternative that would require more mitigation for MGS, followed by Alternative 1 and Alternative 1A. Since Alternative 2 is located within more previously disturbed areas, and areas already mitigated by previous projects, it is the alternative that would require less mitigation for this project. These mitigation ratios are combined with the mitigation ratios for desert tortoise.

• **BIO-37**: In coordination with CDFW two oversized culverts, east and west of US-395 will be installed as part of the project. These culverts will be a minimum of 6 feet tall and 10 feet wide.
3.22 Invasive Species

3.22.1 Regulatory Setting

3.22.1.1 Federal Regulations

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. 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, currently maintained by the California Invasive Species Council to define the invasive plants that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

3.22.1.2 State and Local Regulations

_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.

3.22.2 Affected Environment

Unless otherwise noted, the information from this section summarizes the August 2012 NES prepared for the proposed project (Caltrans 2012h). References used in the NES are not carried over into this section.

The following invasive species are found in the project site: red brome (Bromus madritensis ssp. rubens), cheat grass (Bromus tectorum), ripgut grass (Bromus diandrus), barley (Hordeum marinum), and black mustard (Brassica nigra), all of them considered moderately invasive by the California Invasive Plant Council (CAL-IPC 2006) Sahara mustard (Brassica tournefortii), a highly invasive, and Mediterranean grass (Schismus barbatus), a limited invasive; were also encountered while conducting surveys.
3.22.3 Environmental Consequences

3.22.3.1 Permanent Impacts

Build Alternatives 1, 1A, 2, and 3

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 study area, or between work areas within the study area. The potential for adverse effects to natural open spaces from the introduction of invasive species from the proposed build alternatives is a possibility and potential impacts could be severe. Activities that would result in the spread of these species would be minimized through implementation of measures BIO-39 and BIO-40. With the implementation of these measures in Section 3.22.4, potential indirect impacts from the introduction of invasive species during construction would be minor adverse.

Alternative 4—No-Build Alternative

Under the No-Build Alternative, no permanent effects involving invasive species would occur.

3.22.3.2 Temporary Impacts

All direct impacts are considered permanent and thus no analysis of potential temporary impacts is provided.

3.22.4 Avoidance, Minimization, and/or Mitigation Measures

The following minimization and avoidance measures provided below would reduce potential impacts from the introduction of invasive species during construction, along with measures AES-4, AES-6, AES-8, and AES-10 provided in Section 3.7.6:

- **BIO-38:** Measures to minimize the introduction or spread of nonnative species would include cleaning all equipment and vehicles with water (or 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.

- **BIO-39:** Landscaping and erosion control measures proposed during this Caltrans project will not contain invasive species in the plant selections or seed mixtures.
3.23 Relationship between Local Short-term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

3.23.1 Introduction

Implementation of the build alternatives proposed under the SR-58 Kramer Junction Expressway Project would result in the attainment of short- and long-term transportation objectives at the expense of some long-term social, aesthetic, biological, and land use objectives. The proposed SR-58 transportation improvements at Kramer Junction were developed in response to state and local comprehensive planning efforts that considered present and future traffic requirements within the context of present and future land use development. The SR-58 Kramer Junction Expressway Project is consistent with the transportation goals and objectives identified in SCAG’s 2012 RTP, the SR-58 Route Concept Report, and the US-395 Route Concept Report.

3.23.2 Environmental Consequences

3.23.2.1 Build Alternatives 1, 1A, 2, and 3

Short-term losses and impacts resulting from the SR-58 Kramer Junction Expressway Project include:

- Economic losses experienced by businesses resulting from temporary displacements, relocations, or traffic detours;
- Temporary construction impacts on residents and visitors, such as increased noise, impaired air quality resulting from dust and debris, blocked viewsheds, and delays or detours for motorized and non-motorized traffic; and
- Temporary loss of productivity on and near sites used as temporary construction staging areas.

Short-term benefits resulting from the SR-58 Kramer Junction Expressway Project include:

- Increased revenue for the local region during construction and possibly limited temporary employment opportunities.

Long-term impacts resulting from the SR-58 Kramer Junction Expressway Project include:

- Economic impacts on businesses at Kramer Junction resulting from decreased accessibility and visibility from SR-58;
- Economic losses experienced by businesses resulting from relocations;
- Employment and income losses for employees of displaced/relocated businesses;
- Permanent impacts on plant resources, wildlife resources, and open space;
- Permanent impacts on residents, such as altered viewsheds;
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- Permanent impacts on community character; and
- Permanent impacts related to increased stormwater runoff and the need for new drainage facilities.

Long-term benefits resulting from the SR-58 Kramer Junction Expressway Project include:

- Benefits to the regional economy through more efficient traffic operations along SR-58, contributing to fewer delays in goods movement;
- An upgrade of this high-emphasis focus route to a controlled-access, four-lane expressway, which would match existing sections of SR-58 east and west of the project area;
- Congestion relief by providing a level of service that would be consistent with the SR-58 Route Concept Report;
- An upgrade to the roadway structure and cross section to meet current standards and accommodate high-volume truck traffic, thereby reducing roadway damage and maintenance costs;
- A considerable reduction in the number of traffic accidents and overall improved safety;
- Access controls that would limit the number of entrance and exit points to SR-58 from driveways, side streets, and US-395, thereby minimizing vehicular conflicts;
- Separation of rail and vehicular traffic; and
- Acceleration and deceleration lanes that could be used as merge and diverge lanes.

### 3.23.2.2 No-Build Alternative

The No-Build Alternative (Alternative 4) would not change existing conditions in the study area, as described throughout Chapter 3. Therefore, Alternative 4 would not result in the losses/impacts described above; however, it would not provide the benefits that would be realized with implementation of the SR-58 Kramer Junction Expressway Project.

### 3.23.3 Conclusions

Implementation of the SR-58 Kramer Junction Expressway Project would result in trade-offs between transportation needs and goals (short and long term) and adverse effects (short and long term). As discussed in Section 1.2.4.4, this portion of SR-58 is part of the state highway system (SHS), Intermodal Corridors of Economic Significance (ICES) system, Interregional Road System (IRRS), Freeway and Expressway System (FES), and a designated Surface Transportation Assistance Act of 1982 (STAA) route. Implementation of the proposed project would ensure that SR-58 is upgraded to meet defining aspects of the aforementioned legislation that it currently does not.

As part of the ICES system, SR-58 is an important transportation artery that connects or provides access to major sea or waterway ports, nationwide railway systems, airports, and interstate and intrastate highway systems. Therefore, it is necessary to maintain an uninterrupted link to intermodal centers of commerce that are served by the highway. To achieve this, the project proposes to grade separate rail traffic from trucks and passenger vehicles to ensure an
uninterrupted flow of highway traffic. This would eliminate potential delay times of up to 90 minutes. In addition, it is also proposed that the signalized intersection with US-395 be grade separated. This would also allow for uninterrupted traffic flow and would improve the level of service along SR-58 in the project area. Both these design improvements would meet the purpose of the proposed project by maintaining uninterrupted links between economic and community centers, achieving legislative compliance with the California Streets and Highways Code, and improving the safety and operation of the highway.

The proposed project would also affect a portion of SR-58 that is part of the IRRS and is considered a High-Emphasis Focus Route. As such, the facility is required to be, at minimum, a four-lane expressway. However, this portion of SR-58 does not meet that requirement, as it is only two lanes. As part of the IRRS plan, it would be necessary to meet the minimum standards and upgrade the existing two-lane highway to a four-lane expressway. Each build alternative proposed as part of the project would be a partial open access four-lane expressway and would meet the requirements of the IRRS plan. Therefore, the project purpose would be met by achieving legislative compliance with the California Streets and Highways Code, and improving operations by closing a gap between two four-lane segments of the expressway.

The stretch of SR-58 within the project limits is part of the FES and is therefore subject to access-control requirements. Currently, there are four paved cross streets, nine paved driveways, and 54 informal unpaved driveways within the proposed project limits (a total of 67 access points). Traffic flow is impeded and congestion is exacerbated by vehicles that turn into or come from the various access points. Each of the build alternatives proposes an access-controlled facility that meets FES access control requirements. Therefore, the project purpose would be met by achieving legislative compliance with the California Streets and Highways Code, and achieving access control as required by FES.

The proposed project involves a segment of SR-58 designated for use by STAA trucks. As a designated STAA route, there is a need to meet standards so that oversize STAA trucks can be accommodated. The current pavement structural section of SR-58 was not designed to accommodate the recent designation for ESAL and STAA extra-legal and oversized loads, which will result in increased pavement maintenance costs. The proposed project build alternatives would meet this need through the installation of sufficient roadway pavement sections to accommodate increasing ESAL and STAA extra-legal and oversize loads over the design life of the pavement.

The SR-58 Kramer Junction Expressway Project would improve traffic conditions within the region and improve SR-58 to meet defining legislative requirements. However, long-term benefits to the community and region (through transportation improvements) must be weighed against the short- and long-term environmental impacts of the project.
3.24 Irreversible and Irretrievable Commitments of Resources That Would Be Involved in the Proposed Project

3.24.1 Build Alternatives 1, 1A, 2, and 3

The construction of any of the build alternatives under analysis for the SR-58 Kramer Junction Expressway Project involves a commitment of various natural, physical, human, and fiscal resources. Land used in the construction of the proposed SR-58 Kramer Junction Expressway Project would be considered an irreversible commitment during the time period that the highway facility exists. However, if a greater need arose for use of the land or if the highway facility was no longer needed, the land could be converted to another use. There is no reason to believe such a conversion would ever be necessary or desirable within the foreseeable future.

Considerable amounts of fossil fuels, labor, public capital, and highway construction materials such as cement, aggregate, and bituminous material would be expended and would not be retrievable following construction of the SR-58 Kramer Junction Expressway Project. Additionally, large amounts of labor and natural resources are used in the production of construction materials, and these are generally not retrievable. However, they are not in short supply, and their use would not have an adverse effect upon continued availability of these resources.

Construction of the SR-58 Kramer Junction Expressway Project would require a substantial, one-time expenditure of both state and federal funds, which are not retrievable; savings in travel time and improved transportation system efficiency would offset the use of these materials, labor, resources, and funds. In addition to the costs of construction and right of way, there would be ongoing costs for roadway maintenance.

The commitment of these resources to the SR-58 Kramer Junction Expressway Project is based on the concept that residents, workers, travelers, and others in the immediate area, region, and state would benefit from the improved quality of the transportation system in San Bernardino County. These benefits would consist of improved accessibility, travel time, and safety, which are expected to outweigh the commitment of resources.

3.24.2 No-Build Alternative

The No-Build Alternative (Alternative 4) would not result in any irretrievable commitment of resources because Alternative 4 would not result in the construction of the SR-58 Kramer Junction Expressway Project.
3.25 Cumulative Impacts

3.25.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive 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.

The California Environmental Quality Act (CEQA) Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act (NEPA), can be found in 40 Code of Federal Regulations (CFR) Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

3.25.2 Resources Considered in the Cumulative Analysis

The cumulative impact analyses included in this section considers projects that are currently proposed, approved, or under construction in the general Mojave Desert region of San Bernardino County. The resource study area (RSA) boundary varies due to factors unique to the human or biological ecology of each resource. The specific RSA boundaries are noted, as applicable, in the discussion below. A list of projects included in the analysis is presented in Table 3.25-1. The respective locations of these recently completed and planned land uses relative to the proposed build alternatives are shown in Figure 3.1.3.

The proposed project would have no effect on parks and recreation, farmlands and timberlands, and mineral resources; therefore, the project would not contribute either directly or indirectly to a cumulatively considerable impact in these resource areas. The project would have minor adverse impacts on proposed and future land uses, growth, public services, operational noise, and energy; therefore, the potential for the proposed project to result in cumulative impacts that would be considered adverse in the above mentioned resource areas is considered low, and the proposed project does not have the potential to result in a cumulative impact that would affect the health or sustainability of any of these resource areas.
### Table 3.25-1: Recently Completed and Planned Land Uses in the Project Vicinity

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Name</th>
<th>Jurisdiction</th>
<th>Project Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Boulevard Associates, LLC Solar Plant</td>
<td>County of San Bernardino</td>
<td>Conditional Use Permit to establish a 20-megawatt photovoltaic solar energy facility on a 191-acre portion of a 313.8-acre parcel.</td>
<td>Conditionally approved in December 2010, with an expiration date of November 2013. No construction has been undertaken.</td>
</tr>
<tr>
<td>2</td>
<td>Office space for tire service business</td>
<td>County of San Bernardino</td>
<td>Minor User Permit to convert a 432 square foot storage space to office space for a mobile tire service and two 10x20-foot storage containers at an existing 12-unit motel on a 1.54-acre lot.</td>
<td>Conditionally approved in May 2010, with an expiration date of June 2013. No construction has been undertaken.</td>
</tr>
<tr>
<td>3</td>
<td>AT&amp;T Cellular Tower</td>
<td>County of San Bernardino</td>
<td>Revision to an approved AT&amp;T cell site to install a new 6-kilowatt hydrogen fuel cell and cabinet.</td>
<td>Conditionally approved in 2011, with an expiration date of 2014. No construction has been undertaken.</td>
</tr>
<tr>
<td>4</td>
<td>Pilot Travel Addition</td>
<td>County of San Bernardino</td>
<td>Revision to the approved truck travel center to add 1,800 square feet to the existing building on a 4.03-acre lot.</td>
<td>A draft of the final conditions is currently being processed. No construction has been undertaken.</td>
</tr>
<tr>
<td>5</td>
<td>Lightsource Renewables, LLC Solar Plant</td>
<td>County of San Bernardino</td>
<td>Conditional Use Permit to establish a 40-megawatt photovoltaic facility on a 350-acre portion of a 401.6-acre parcel.</td>
<td>Conditionally approved in 2011, expires in 2014. No construction has been undertaken.</td>
</tr>
<tr>
<td>6</td>
<td>US-395 Upgrade</td>
<td>Caltrans</td>
<td>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 4-lane expressway along the Northern Alignment. The purpose of the project is to realign and widen the existing highway. The proposed project runs between I-15 in County of San Bernardino and SR-14 in Kern County. Alternatives under consideration include various alignments with a 4- to 6-lane freeway or a 4-lane expressway.</td>
<td>The project is currently in the planning and preliminary engineering phases. No timeline for project completion has been set.</td>
</tr>
<tr>
<td>7</td>
<td>Kern River Gas Transmission Expansion Project</td>
<td>Federal Energy Regulatory Commission</td>
<td>Project included the construction of 1,152 km (715.8 mi) of 1.07 m (42 in) gas pipeline extending from Wyoming, Utah, Nevada, and California. The last 131.64 km (81.8 mi) of pipe was installed between Dagget, CA and Mojave, CA. The natural gas pipeline occurs within the project study area.</td>
<td>Construction of the project was completed in 2011.</td>
</tr>
</tbody>
</table>
### Chapter 3. Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures

#### Section 3.25. Cumulative Impacts

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Name</th>
<th>Jurisdiction</th>
<th>Project Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>High Desert Power Project</td>
<td>California Energy Commission</td>
<td>Southern California Edison and other partners planned and constructed a 51.5 km (32 mi) natural gas pipeline that was routed through the project area west of US-395 across to Kramer Hills, continuing north along US-395 to approximately 0.40 km (0.25 mi) south of SR-58 1.6 km (1.0 mi) east of Kramer Junction.</td>
<td>Construction of the project began in 2010.</td>
</tr>
<tr>
<td>-</td>
<td>PG&amp;E Hinkley Groundwater Remediation Project</td>
<td>California Water Quality Control Board</td>
<td>The aim of the project is to restore groundwater quality to background levels of hexavalent chromium, a byproduct that was released from the PG&amp;E Hinkley Compressor Station between 1952 and 1964. Potential cleanup approaches include plume containment via groundwater extraction or clean water injection, plume-wide in-ground treatment of groundwater, or plume-wide aboveground treatment of groundwater.</td>
<td>A Draft EIR was released to the public in August 2012. Construction of the project would take greater than year to complete under all alternatives.</td>
</tr>
<tr>
<td>10</td>
<td>Digital 395</td>
<td>National Telecommunication and Information Administration and California Public Utilities Commission</td>
<td>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 (NDOT) 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.</td>
<td>A Finding of No Significant Impact was issued on the Environmental Assessment prepared for the project in May 2012. Construction is in progress, and is expected to be completed in the summer of 2013.</td>
</tr>
<tr>
<td>11</td>
<td>Recyclable Collection at 12033 Gardiner Street, Boron</td>
<td>Kern County</td>
<td>The applicant is seeking to operate a recyclable collection and storage business, approximately 1.5 miles southwest of the western limit of the project.</td>
<td>The project is in the conditional use permit process.</td>
</tr>
<tr>
<td>12</td>
<td>Metro PCS Cellular Tower, Boron</td>
<td>Kern County</td>
<td>The applicant is seeking to construct a cellular telephone service tower, 1.7 miles northwest of the western limit of the project.</td>
<td>The project is in the conditional use permit process.</td>
</tr>
</tbody>
</table>
The proposed project could have project-level direct or indirect effects on existing land uses, community character/cohesion, relocations, utilities, traffic, visual/aesthetics, cultural resources, hydrology, water quality, geology and soils, paleontological resources, hazardous waste/materials, air quality, construction noise, and biological resources. The potential for cumulatively considerable impacts in these resource areas is discussed below.

### 3.25.2.1 Land Use

The RSA for land use is the area located within one-half mile of the proposed build alternatives and the entire unincorporated community of Boron. This RSA was selected because it includes all reasonably foreseeable projects in the area and encapsulates all varieties of land uses near the project footprint. As discussed in Section 3.1, Land Use, each of the build alternatives would be responsible for converting primarily undeveloped land that is zoned for Resource Conservation (RC) and Rural Living (RL) to transportation uses. The build alternatives would also affect land use at Kramer Junction, with Alternatives 1 and 1A displacing four structures and one structure, respectively, for transportation uses. Effects under Alternative 1 would be substantial adverse, and effects under Alternative 1A would be minor adverse. Alternative 2 would be responsible for displacing gas stations, restaurants, utilities, and other properties at the Junction, which was determined to be a substantial adverse effect. No land use change at Kramer Junction would occur under Alternative 3.

The RSA is characterized by generally undeveloped land that is zoned RC and RL, with some small businesses situated around Kramer Junction and residences in the community of Boron. Based on historical aerial photographs taken in 1995, the developments at Kramer Junction have remained largely unchanged, with only an Arco and AM/PM service station constructed since that time. Neither the build alternatives nor the recently completed and planned projects in the RSA listed in Table 3.25-1 would result in an intensification of land uses beyond what was envisioned in the Land Use Element of the County of San Bernardino General Plan or the County Development
3.25.2.2 Community Character/Cohesion

The RSA for community impacts is the area located within one-half mile of the build alternatives and the entire unincorporated community of Boron. As discussed in Section 3.4, Community Impacts, impacts to businesses could occur due to the potential for through-traffic to be less inclined to stop and bypassing local businesses. In addition, displacements of businesses and other uses would change the character of Kramer Junction. With implementation of measures ECON-1 through ECON-3, CI-1, and CI-2, impacts would be minor adverse for Alternatives 1, 1A, and 3. Due to the extensive displacements that would occur under Alternative 2, however, substantial adverse community impacts would be unavoidable.

All of the projects listed in Table 3.25-1 occur within the RSA for community impacts, except the Boulevard Associates, LLC Solar Plant, the Kern River Gas Transmission Expansion Project, and the SR-58 Hinkley Expressway Project. All of those projects within the RSA, with exception of the US-395 Upgrade project, are small scale and lack physical proximity to residences or businesses. Accordingly, none of the projects listed in the RSA would result in negative impacts on communities other than minor temporary construction effects. The proposed project would result in some adverse economic impacts because some businesses would require relocation. However, each of the related projects would likely result in an increase in employment opportunities, which may help offset any adverse impact resulting from the proposed project. Therefore, Alternatives 1, 1A, 2, and 3 would not contribute to a cumulatively considerable impact to the community in the RSA.

3.25.2.3 Utilities

The RSA for utilities and emergency services is the area located within one-half mile of the build alternatives and the entire unincorporated community of Boron. This RSA is used because the residents and businesses within this area would be the most likely to experience delays or disruptions associated as a result of this and other projects. As discussed in Section 3.5, Utilities/Emergency Services, temporary utility disruptions would result from utility relocations; however, following construction, there would be no long-term adverse effects related to utilities and emergency services. During the construction period, measures UT-1 and TR-1 would minimize effects to utilities and emergency services associated with implementation of the build alternatives.
The planned projects listed in Table 3.25-1 are either small-scale and site-specific or utility infrastructure projects. The small-scale, site-specific projects would not result in permanent impacts related to utilities and emergency services and would be unlikely to have substantial temporary effects. Furthermore, a majority of the related projects in the RSA have already commenced construction. Accordingly, construction of related projects and the proposed project would not occur at the same time, and the temporary disruption of utility service resulting from the proposed project would not contribute cumulatively to an adverse effect. The implementation of UT-1 and TR-1 would ensure that coordination with the utility providers would occur and the effects of the build alternatives would be minimized; consequently, the proposed build alternatives would not contribute to a cumulatively considerable impact.

### 3.25.2.4 Traffic and Transportation/Pedestrian and Bicycle Facilities

The RSA for the project includes the SR-58 mainline from the Kern/San Bernardino County line to approximately 5.5 miles east of the SR-58/US-395 intersection. The traffic analysis for the proposed project is based on future traffic conditions in the year 2039, which accounts for future development in the project area. As a result, the analysis contained in Section 3.6 constitutes the operational cumulative analysis for the project.

In absence of the project, traffic along the mainline and ramps would operate at unacceptable levels of service through 2039. Although temporary traffic disruptions are expected during construction, there is no indication that the other projects within the RSA would result in traffic impacts during their construction. Therefore, the project would not contribute to a cumulative effect during construction. Although construction of the US-395 Upgrade has the potential to result in a significant cumulative impact during construction, there is no timeline for construction of this project, and therefore, it is too speculative to determine whether a cumulatively considerable effect from simultaneous construction of the proposed project with the US-395 Upgrade would occur. The results of the traffic analyses indicate that the mainline and ramps at the proposed SR-58 expressway as well as the new SR-58/US-395 interchange would operate at LOS B or better through 2039. All merge/diverge ramp facilities are also expected to operate at LOS B or better. The proposed project is included in SCAG’s 2013 FTIP as Project 34770, which was adopted by SCAG on September 19, 2012 and found to be conforming by FHWA in December 2012. This project is also included in 2012 RTP, which was found conforming by FHWA and the FTA on June 4, 2012. This project is listed among project 34770. The project is also consistent with the SR-58 Route Concept Report and the US-395 Route Concept Report. Therefore, the proposed project is not anticipated to contribute to permanent cumulative impacts that affect mobility in the project area.

### 3.25.2.5 Visual Resources/Aesthetics

The RSA for cumulative impacts to visual resources would consist of a viewshed extending out one-mile north and south along the 13.3-mile segment of SR-58 located in the Mojave Desert portion of San Bernardino County. The proposed realignment would occur east and west of Kramer Junction—which is the intersection of SR-58 and US-395—commencing just east of the San Bernardino County line (at KP 0.48/PM 0.30), and ending 7.5 miles east of Kramer Junction (at KP 21.2/PM 13.2). Kramer Junction is developed with a small number of highway-oriented
commercial uses, including gas stations and gas station–related convenience stores and restaurants. Abandoned modest residences and commercial buildings are found further east along SR-58. The BNSF railroad tracks run parallel to SR-58 just north of these uses. Further north, the Kramer Junction Solar Electric Generating System power plant occurs along the west side of US-395. South of the commercial uses at Kramer Junction is Caltrans’ Beecher’s Corner Highway Maintenance Station. Most of the development dates from the mid-twentieth century, or the more recent past, and is of commonplace design typical of much of the small-scale, highway-oriented development found across the Mojave Desert in San Bernardino County.

A short distance away from Kramer Junction (within one-third mile) in each direction is open land. Much of the open land south and southwest of Kramer Junction falls within the 470-square-mile Edwards Air Force Base installation. Approximately four to six miles north of Kramer Junction along US-395 are the Boron Air Force Station and the former Boron Air Force Station/Radar Facility. The community of Boron includes small clusters of small businesses, custom-built single-family homes on large lots, and community facilities.

Outside Kramer Junction and community of Boron, the landscape consists of open land typical of the High Desert region. Close-up and mid-frame views are of flat-to-gently rolling land featuring sandy soil dotted with Mojave creosote bush scrub, desert saltbush scrub, rabbit bush scrub, and ruderal vegetation. Views across the project viewshed are framed on the north and south by mountains. These include Mount General, Lynx Cat Mountain, Black Mountain, and distant mountain ridgelines north of existing SR-58. The southern panoramic views are comprised of the Kramer Hills, Iron Mountain, Silver Mountain, Stoddard Mountain, and the ridgeline of the Shadow Mountains. Views of these resources from the 15 key observation points are generally of a high vividness, moderately intact, and moderately unified.

Under Alternatives 1 and 1A, visual changes would occur along the entire project segment. Construction of the project could result in a substantial adverse effect on the quality of the existing visual environment as predominantly natural landscapes are replaced with manmade elements. Under Alternatives 2 and 3, the residents, local businesses, and community facilities at Kramer Junction would experience a deterioration of foreground and mid-frame views compared with the existing views because of the addition of the proposed interchange and roadbed, particularly for adjacent viewers north and south of the proposed alignment. The impact on these viewer groups may be substantially adverse based on the degree of sensitivity of the viewers. With the implementation of standard Caltrans best management practices and proposed mitigation measures identified in Section 3.7.6, the effects/impacts would be reduced but would still be substantial adverse.

The proposed project in conjunction with the other planned projects identified in Table 3.25-1 would add urbanizing elements to a rural area. The two approved solar projects alone would result in the loss of 541 acres of land resulting in the degradation of natural landscapes and open space. Although the individual projects may not result in adverse effects, the loss of substantial open space, vegetation, and natural landscapes caused by recently completed projects and potential impacts due to the proposed project (the addition of hard surfaces, removal of vegetation, etc.), as well as future planned projects could noticeably alter the existing visual character and result in a net loss of existing visual quality without the incorporation of landscape.
design measures. The proposed project includes minimization and mitigation measures in order to reduce potential visual impacts. It is assumed that the County’s design review process would require that other planned and approved projects include mitigation measures to reduce potential visual impacts to the extent feasible. Nonetheless, after mitigation, the proposed project could still result in a cumulatively considerable contribution to adverse cumulative visual effects.

### 3.25.2.6 Cultural Resources

In terms of cumulative impacts analysis, a cultural resource is here defined as an historic property (listed on or eligible for listing on the National Register) or a historical resource that is significant under CEQA (includes resources eligible for the California Register).

The RSA for cultural resources is located in the western Mojave Desert region of San Bernardino County. The assessment of cumulative effects to cultural resources (archaeological sites and built environment resources) considers the direct and indirect impacts of the project on qualifying resources and whether they contribute to cultural resources impacts within a broader cumulative RSA. In this case the RSA is the portion of the Western Mojave Desert lying between the Antelope Valley to the west and the Hinkley Valley to the east. This area, defined largely by the transportation corridors of SR-58 and US-395 remains sparsely populated, with settlements or towns few and far between.

Results of this record search conducted for the present project indicate that previous cultural resource investigations in the area have resulted in the documentation of 185 cultural resources, of which 27 were reported within the boundaries of the project APE. During the course of cultural resource studies for the project, 17 additional built environment and 54 archaeological sites were identified. Based on the results of the archaeological literature and records search, the Archaeological Information Center (AIC) rated the sensitivity of the general area as “high” for prehistoric archaeological resources, historical archaeological resources, and historical “built environment” resources.

The NHPA Section 106 process informs the cumulative impacts process. As discussed in Section 3.8, the preferred alternative has the potential to affect one cultural site. But with the implementation of avoidance measure CR-5, that potential impact would be completely avoided and, therefore, the preferred alternative would have no impact on historic properties or historical resources. Because there are no direct or indirect impacts to historic properties or historical resources as a result of the present project, the project cannot be construed to contribute to a cumulative impact to historical resources.

### 3.25.2.7 Hydrology, Floodplains and Water Quality/Stormwater Runoff

The RSA is the approximately 10 square miles of land that drain to the SR-58 facility within the project limits, located in the hydrologic basin of the Antelope-Fremont Valleys and Coyote-Cuddleback Lakes watersheds. This RSA is appropriate given the absence of watercourses near the project site. The overall Mojave hydrologic basin has a surface area of approximately 4,500 square miles. The nearest watercourse in the area is the Mojave River, which is approximately 15 miles southeast of the proposed project. Most of the Mojave River is subterranean, but flows breach the surface between the cities of Barstow and Victorville.
Due to the RSA, as well as the similarities in the scope and design of Alternatives 1, 1A, 2, and 3, the potential for cumulative impacts under any of the build alternatives would be expected to be indiscernible; impacts are therefore discussed collectively.

The proposed project would permanently increase the area of paved, impermeable surfaces in the project study area by about 130 acres under Alternative 1, 123 acres under Alternative 1A, 317 acres under Alternative 2, and 356 acres under Alternative 3. This increase in impervious area would result in increased pollutant build-up and wash-off; a greater volume and rate of stormwater runoff that could cause or contribute to erosion and off-site pollutant transport. The proposed project would be required to implement post-construction stormwater quality BMPs under the Caltrans and Regional SWMP prepared for compliance with the NPDES Permits. These BMPs, which are designed to handle project runoff, in addition to the implementation of mitigation measures WQ-1 through WQ-6, would sufficiently handle any off-site runoff that may occur and would remove the potential for adverse cumulative effects related to surface runoff and water quality.

The proposed project, in conjunction with other projects, would contribute to an increase in impervious surfaces in the project area, which would result in an increase in stormwater runoff. Existing drainage culverts may not be able to accommodate this additional runoff. The size and location of the floodplain associated with local creeks may change if drainage accommodations are not made. Each project will be required to evaluate specific impacts on local hydrology and flooding and to implement measures to address impacts, if identified. Because the proposed project would replace or install new drainage culverts to ensure adequate hydraulic capacity, operation of the proposed project would not result in flooding. The construction requirements and proposed project operation would remove the potential for substantial cumulative effects related to flooding. In addition, cumulative projects would not contribute to water quality alteration, degradation, or reduction. Therefore, the proposed project, when combined with other projects, would not result in substantial adverse cumulative effects related to hydrology, flooding, and water quality.

3.25.2.8 Geology/Soils/Seismic/Topography

The RSA for geology and soils is 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 alternatives, 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. There are several faults within the RSA, including the Lockhart/Lockhart South fault, located zero to 11 miles away from various portions of the proposed project alternatives. The fault is capable of generating a maximum credible earthquake moment magnitude of 7.25. Additionally, the Helendale fault, located approximately one to 13 miles from various portions of the proposed project alternatives, is capable of generating a maximum credible earthquake moment magnitude of 7.25. The Kramer Hills fault, located approximately two to eight miles from various portions of the proposed project alternatives, is capable of generating a maximum credible earthquake moment magnitude of 6.25.
The proposed project and other related projects in the area could expose people to potential impacts associated with seismic ground shaking. As a result, more people could be affected by geologic hazards. Ground shaking and liquefaction are expected to be the primary hazards to future development. It is expected that the related projects would be constructed in accordance with applicable building codes; local, state, and federal regulations; and standard engineering practices, which, therefore, would reduce the risk of loss, injury, or death due to geologic hazards. The proposed project would adhere to proposed measure GEO-1, and Caltrans guidelines to ensure that project-related impacts would be minor adverse and would not contribute to cumulatively considerable geological impacts.

3.25.2.9 Paleontology

The RSA includes the potentially sensitive units mapped in the 13.9-mile project study area, which include the Quaternary alluvium and Quaternary playa clays of Holocene age and Quaternary older alluvium of Pleistocene age. Existing fossil localities nearby in the same rock units present within the project study area have produced scientifically significant vertebrate paleontological resources. On this basis, the Quaternary older alluvium and the Quaternary clays have high sensitivity or potential to produce scientifically significant fossils. This sensitivity increases with increasing depth below the ground surface.

Paleontological resources are considered to be important if they provide new data on fossil animals, distribution, evolution or other scientifically important information. No fossils were observed during the paleontological reconnaissance of the project site for each build alternative, which is typical since most fossils are subsurface. The areas of greatest potential impact occur east of Kramer Junction in the eastern part of the project (refer to Figures 3.12.1, Paleontological Sensitivity Map East and 3.12-2, Paleontological Sensitivity Map Central). However, one small outcrop of Quaternary clays located west of Kramer Junction also poses a potential impact (refer to Figure 3.12.3, Paleontological Sensitivity Map West).

The abundance of fossils previously found in this general area and their proximity to the proposed project suggest the high paleontological sensitivity of the region. Fossils recovered previously from the project study area include an extinct camel (*Camelops* sp.) and small terrestrial vertebrates. Additional localities are known within a one-mile radius and within ten miles of the project study area. These Pleistocene (1.8 million–11,000 year old) localities have produced a large array of extinct and extant (existing) taxa. The extinct taxa include: mastodon, mammoth, western horse, small horse, yesterday’s camel, llama-like camel and ancient bison.

Paleontological resources are, in general, always undergoing the effects of weathering, tectonic activity, and other formation processes, which put their integrity in a natural gradual state of decline over very large periods of time. Human impacts on paleontological resources have been limited due to a relative lack of development in the area. Nevertheless, any past impacts are permanent.

Other projects that may contribute to cumulative impacts, by possible further environmental degradation, include six of the related projects. The Kern River Gas Transmission Expansion Project; US-395 Upgrade; Lightsource Renewables, LLC Solar Plant; Lightsource Renewables,
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LLC Solar Plant; and the High Desert Power Project are located in the RSA. These projects and the PG&E remediation project will require substantial subsurface excavation. Because paleontological resources are site-specific in nature, Caltrans will implement a Paleontological Mitigation Plan that will require monitoring and collecting resources to minimize adverse impacts in the event construction activities uncover any paleontological resources. With implementation of monitoring and collection measures the proposed project would not substantially contribute to cumulatively adverse impacts.

3.25.2.10 Hazardous Waste/Materials

The Resource Study Area for this section includes an area up to one-half mile from either side of the alternative alignments. The project area is primarily open land with scattered improvements, including gas stations, commercial businesses, an electric substation, railroad line, and utility and piping easements. Residents in the general vicinity of the project are concentrated in rural communities such as Hinkley, approximately 22 miles east of the project area, and Boron, approximately six miles to the west. The RSA for hazardous materials comprises Kramer Junction and the remaining project area as well as the community of Boron, an area in which residents are concentrated and where cumulative impacts would be manifested. All of the projects listed in Table 3.25-1 are within the RSA except the Boulevard Associates, LLC Solar Plant, and SR-58 Hinkley Expressway Project.

The Initial Site Assessment (ISA) reviewed the area of potential effects (i.e., an area up to one-half mile from either side of all project alignments) and identified several potential recognized environmental conditions (RECs). These RECs include service stations, vehicle repair and maintenance facilities, scrap and junkyards, illegally dumped piles of trash, septic system clarifiers and surface impoundments, accidental petroleum releases from transport vehicles, two dry oil wells, an electrical substation and pole-mounted transformers, aerially deposited lead along highways, lead-based paint, and asbestos-containing materials. It has not been confirmed, however, that the potential RECs have affected human health and/or the environment. Therefore, further investigations will be required.

Of the build alternatives evaluated, Alternative 2 appears to have the most RECs associated with it, followed by Alternative 1. Alternative 1A would reduce the number of RECs associated with the Alternative 1 right-of-way at the intersection with US-395 by effectively moving the eastbound off-ramp to the east side of US-395. Although only by a small margin, Alternative 3 still appears to have the fewest RECs associated with it. In conclusion, should Alternative 2 be selected, it could result in the greatest hazardous waste and/or materials impacts of all the build alternatives.

The proposed project, in conjunction with other nearby projects, such as the PG&E Hinkley Groundwater Remediation Project, could expose the public to hazardous waste and/or materials. However, any impacts, either temporary or permanent, would be offset by the project’s avoidance, minimization, and/or mitigation measures. Therefore, the proposed project, when combined with other projects, would not contribute to a substantial cumulative effect related to hazardous materials. Furthermore, adherence by other projects to requirements and mitigation
measures mandated by local, state, and federal regulations would minimize exposure to hazardous waste and/or materials that could affect human health and the environment.

### 3.25.2.11 Air Quality

The Resource Study Area for the project is 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 approximately 24 miles east of the project site at 1301 West Mountain View Street, Barstow. The Barstow station monitors major criteria pollutants, including CO, NO\textsubscript{2}, SO\textsubscript{2}, PM\textsubscript{10}, and O\textsubscript{3}. The closest monitoring station that monitors the remaining pollutant, PM\textsubscript{2.5}, is the Victorville–Park Avenue station (ARB Station No. 36306), located approximately 30 miles south of the project site at 14306 Park Avenue, Victorville.

As shown in Table 3.14-2, both the one-hour and eight-hour O\textsubscript{3} concentrations exceeded state and federal standards during the three-year reporting period, except for the one-hour standard in 2011. PM\textsubscript{10} concentrations also exceeded state standards. CO, NO\textsubscript{2}, and PM\textsubscript{2.5} concentrations remained below state and federal standards during the same three-year reporting period.

The proposed project is listed in the financially constrained 2012–2035 RTP, which considered all other projects within the basin and was found to conform by SCAG on April 4, 2012, and FHWA and FTA made a regional conformity determination on June 4, 2012. The project is also included in SCAG’s financially constrained 2013 FTIP (page 140 of 169). The SCAG FTIP was determined to conform by FHWA and FTA on December 13, 2012. The design concept and scope of the proposed project is consistent with the project description in the 2012–2035 RTP and the 2013 FTIP as well as the “open to traffic” assumptions of SCAG’s regional emissions analysis. As such, it can be concluded that the project’s operational emissions (which include the ozone precursors ROG and NO\textsubscript{X}) meet the transportation conformity requirements imposed by EPA. This accounts for future development in the project area and region as envisioned in local general plans, SCAG projections, amendments, the 2012–2035 RTP, and the roadway improvements listed in the 2013 FTIP. As a result, the analysis contained in Section 3.14, constitutes the operational cumulative analysis for the project. The analysis concluded that the proposed project would not conflict with or obstruct implementation of the applicable air quality management plan, violate any air quality standard, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.

Measures for dust control during construction, as stipulated by Caltrans’ Standard Specifications, Section 7-1.01F (Air Pollution Control), and MDAQMD Rule 403.2 (Fugitive Dust Control), would be implemented to ensure the proposed project does not substantially contribute to cumulative impacts on air quality. Adherence to these regulations by each of the projects in the project vicinity would be required. Cumulative effects, if they occur, would be minor and temporary.
3.25.2.12 Noise

The RSA setting includes rural single-family residential and some commercial land uses (i.e., at the SR-58/US-395 junction) along the alternative alignments. However, the majority of land in the area is undeveloped. Within the RSA, related projects that could contribute to a cumulative effect for noise include the Kramer Junction Solar Electric project (9), the tire service office project (2), Digital 395 (10), the Metro PCS Cellular Tower (12), and the Recyclable Collection project (11). However, because of the nature of these projects, which do not involve heavy construction for long periods of time or operations that contribute substantial noise to the ambient noise environment, it is unlikely that a substantial cumulative effect would result from these projects. SR-58 was determined to be the dominant contributor to noise levels. Based on the Noise Study Report conducted for this project, current noise levels range between 50 dBA and 70 dBA from currently identified noise sources and location of future alternatives. Traffic noise levels are not expected to result in a substantial noise increase (i.e., more than 12 dBA) at any of the representative receptors under the design-year build condition. Traffic noise levels during the design year are not predicted to exceed the land use category E NAC of 72 dBA L_{eq}(h) or the land use category B NAC of 67 dBA L_{eq}(h) at any representative receptor for the build alternatives, except for Alternative 1. Therefore, no noise abatement was warranted or proposed. Under Alternative 1, traffic noise levels during the design-year build condition are predicted to exceed the land use category E NAC of 72 dBA L_{eq}(h) at two receiver locations (Receptors 1a-6 and 1a-9). Noise abatement was not proposed at the affected locations because the affected land uses do not have exterior areas with frequent human use. Furthermore, noise abatement was not proposed because of restricted access to driveways. The proposed project would not contribute to a substantial cumulative effect related to operation noise.

Temporary noise impacts during construction of the project may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans’ Standard Specifications, Section 14-8.02, and, as a result, any temporary impacts would not be adverse. It is expected that other planned and approved projects in the RSA would be required to comply with the local noise ordinance that would limit the hours and days that construction activities can occur; therefore, the proposed project, when combined with other projects, would not result in substantial cumulative effects related to construction noise.

3.25.2.13 Biological Resources

The RSA is located in western San Bernardino County, within the southwestern portion of the Mojave Desert. General habitat for the species analyzed under cumulative impacts encompasses the Mojave Desert region in western San Bernardino County. The combination of extreme temperature ranges and low precipitation rates creates a unique environment for many plants and animals in the region. This unique, sparsely vegetated transition zone between the Sonoran Desert and the Great Basin is known for the diversity of its floral and faunal species and unique corresponding habitat types. The Mojave Desert hosts a number of species that exist nowhere else and is considered to be a biodiversity “hot spot.” Because of the similarities in the scope and design of Alternatives 1 through 3, the potential for cumulative impacts under any of the build alternatives would be expected to be generally indiscernible; impacts are therefore discussed collectively below.
Plant Species

Four species of non-listed special-status plants are present in the biological study area (BSA) for this project: Barstow woolly sunflower, desert cymopterus, Mojave spineflower, and crowned muilla. No threatened or endangered plants are present in the BSA. All four of these species have a geographic distribution that is limited to the southwestern Mojave Desert, and it is this area that was used as the RSA for each of these four species of plants. The quality of suitable habitat present within the BSA ranges from low quality (near the roadway) and moderate to high quality as distance is increased away from existing roadways. It has not been until recent decades, that these four species began receiving special attention by the resource agencies. As development in the southwestern Mojave Desert has increased, habitat for these species has declined. All four species would be directly affected by Alternatives 2 and 3, but only Mojave spineflower and crowned muilla would be directly affected by Alternatives 1 and 1A. It is anticipated that the Boulevard Associates, LLC Solar Plant, Lightsource Renewables, LLC Solar Project, the US-395 Upgrade, Kern River Gas Transmission Expansion Project, High Desert Power Project, PG&E Hinkley Groundwater Remediation Project, Digital 395, and the SR-58 Hinkley Expressway Project, as well as others in the RSA, in combination with the project, would contribute to cumulative impacts that may adversely affect these four species of non-listed rare plants. Impacts would be direct and/or indirect through direct loss of habitat and degradation of habitat. The proposed project would slightly elevate SR-58, which could cause alteration of the local hydrology within the habitat and/or fragmentation of the habitat of these plant species. In addition, freeways are also known to facilitate the introduction of invasive species that could also degrade the habitat of these plants.

The proposed project would directly affect through encroachment between 419.79 and 469.89 acres of habitat for these four species of plants. Although these rare plants are not threatened or endangered, the proposed project in combination with the above identified projects, could make a considerable contribution to a collectively significant impact to each of the four species of plants. However, the proposed compensation for desert tortoise and MGS by the proposed project is the acquisition and preservation in perpetuity of between 1,912 and 2,158 acres of land suitable for desert tortoise and MGS. Barstow woolly sunflower, desert cymopterus, Mojave spineflower, and crowned muilla occur on lands in association with desert tortoise and MGS. The conserved lands chosen for desert tortoise and MGS would compensate for this project’s contribution to the potential cumulative impacts to these plants.

In addition, for the proposed Caltrans projects, rare plant surveys would take place, and if the species is found, appropriate avoidance, minimization, and/or mitigation measures would be implemented. Other non-Caltrans projects that may occur in the RSA would also be required to perform rare plants evaluations/surveys as well, along with avoidance, minimization, and/or mitigation measures if the species have potential to be affected. With implementation of the avoidance, minimization, and/or mitigation measures presented in Section 3.19.4, potential cumulative impacts to these species would be minor adverse. In Section 3.19.4, the avoidance and minimization measures ensure plant populations adjacent to the project footprint would not be directly affected and greatly reduce the potential for indirect effects to occur during construction. The project would conserve in perpetuity between 3 and 5 times the amount of habitat (between 1,912 and 2,158 acres) that would be directly affected by this project. These
plants are not federally or state listed. This amount of compensation would more than compensate for the incremental contribution made to the regional decline of these plant species by the proposed project.

**Threatened and Endangered Species**

Only two listed species are present in the BSA, desert tortoise and MGS. No other threatened or endangered animals are expected and no listed plants are present.

Desert Tortoise. The RSA for this species is the southwestern Mojave Desert. Desert tortoise range has declined due to several factors including: habitat loss due to human-related activities, disease caused by re-introduction efforts and other contamination by humans, illegal collection, road kills, habitat degradation by invasive plants, and predation on tortoises by dogs and juvenile tortoises by ravens. Other factors influencing the Mojave Desert populations of the desert tortoise are described by the “road corridor” or “road-effect zone.” These terms are used to describe the directly surrounding area that is influenced by the road and vehicle traffic along a travel route.

The proposed build alternatives have the potential to affect desert tortoise in several ways: (1) direct loss of habitat, (2) potential mortality events prior to installation of desert tortoise exclusion fencing, and (3) fragmentation of habitat. The habitat that would be affected by the proposed build alternatives is judged to be low to high in quality. The Boulevard Associates, LLC Solar Plant, Lightsource Renewables, LLC Solar Project, the US-395 Upgrade, Kern River Gas Transmission Expansion Project, High Desert Power Project, PG&E Hinkley Groundwater Remediation Project, Digital 395, and the SR-58 Hinkley Expressway Project, as well as others in the RSA, in combination with the project, are expected to contribute to cumulative impacts that may adversely affect the desert tortoise. The above listed projects are expected to contribute to habitat fragmentation in the area either temporarily and/or permanently since they may traverse desert tortoise habitat. Although the proposed project includes the installation of culverts that can be used by wildlife, the project is expected to also contribute to habitat fragmentation. Most if not all of the planned projects identified for the cumulative impacts analysis (as well as other projects in the RSA) most likely have the potential to either directly remove occupied desert tortoise habitat and/or indirectly degrade habitat in adjacent or nearby lands.

For the proposed project, loss of habitat due to paving would be mitigated, with acceptable mitigation efforts determined by USFWS (refer to Section 3.21.4 for details). Potential mortality events via collision with paving equipment would decrease with the installation of desert tortoise exclusion fencing. Exclusion fencing, while beneficial in preventing highway mortality, would most likely prevent interaction of desert tortoise populations (specifically, breeding) on either side of SR-58 along the proposed project alignment. Two additional oversized culverts of a minimum size of 6 feet by 10 feet are proposed, one east and one west of US-395 to increase interactions of tortoises on either side of SR-58 and thus reduce habitat fragmentation. The benefits of fencing SR-58 as part of this project to reduce/eliminate desert tortoise highway mortalities outweigh the concerns for potential habitat fragmentation. With incorporation of the avoidence, minimization, and compensatory measures provided in Section 3.21.4, impacts to desert tortoise by any of the build alternatives would be minor adverse. Between 1,912 and 2,158
acres of land suitable for desert tortoise would be purchased and preserved and managed in perpetuity by the proposed project. This, in combination with the avoidance and minimization measures, would ensure that the proposed project would not considerably contribute to a collectively significant impact to the regional loss of desert tortoise. The project would most likely receive \textit{Not Likely to Jeopardize the Continued Existence} of desert tortoise with implementation of measures \textbf{BIO-22} through \textbf{BIO-30}, \textbf{BIO-34}, and \textbf{BIO-35} and \textit{Adversely Modify} designated critical habitat determinations from USFWS during the Section 7 Consultation under FESA.

\textbf{Mohave Ground Squirrel}. The RSA for this species is the southwestern Mojave Desert. Overall, approximately 10 percent of the MGS habitat—7,691 square miles in the western Mojave Desert—has deteriorated due to development (agricultural, residential, industrial, commercial), with more of that habitat being lost as development spreads rapidly in the southern part of their range. The quality of MGS habitat that would be affected by the project is judged to range from low to moderate.

The proposed project has the potential for impacts on MGS through roadside equipment parking, paving activities, and placement of desert tortoise exclusion fencing. Roadside parking of construction equipment has the potential to affect MGS burrows through soil compaction. Paving activities would have direct impacts to potential MGS habitat. Placement of the desert tortoise exclusion fencing could disturb MGS burrow sites and contribute to habitat fragmentation. The Boulevard Associates, LLC Solar Plant, Lightsource Renewables, LLC Solar Project, the US-395 Upgrade, Kern River Gas Transmission Expansion Project, High Desert Power Project, PG&E Hinkley Groundwater Remediation Project, Digital 395, and the SR-58 Hinkley Expressway Project, as well as others in the RSA, in combination with the project, are expected to contribute to cumulative impacts that may adversely affect the MGS. The above-listed projects are expected to contribute to habitat fragmentation in the area either temporarily and/or permanently since they may traverse desert tortoise habitat. The inclusion of two oversized culverts of a minimum size of 6 feet by 10 feet are proposed (one east and one west of US-395) would increase the interactions of MGS on either side of SR-58 and thus reduce the potential for habitat fragmentation. The realignment of SR-58 would affect potential MGS habitat due to paving activities. Between 1,912 and 2,158 acres of land suitable for MGS (in combination with the desert tortoise compensation discussed above) would be purchased and preserved and managed in perpetuity by the proposed project. This, in combination with the avoidance and minimization measures, would ensure that the proposed project would not considerably contribute to a collectively significant impact to the regional loss of MGS. The proposed measures \textbf{BIO-31} through \textbf{BIO-33}, \textbf{BIO-36}, and \textbf{BIO-37} are described in Section 3.21.4. The project would most likely receive a \textit{Will Not Jeopardize the Continued Existence} of MGS determination from CDFW during the 2081 permit process.

\textbf{Animal Species}

The RSA for the following non-listed special-status animals is the southwestern Mojave Desert. The proposed project has the potential to adversely affect four non-listed special-status animals: burrowing owl, loggerhead shrike, Le Conte’s thrasher, and American badger. Similar to other biological resources in the southwest Mojave Desert, degradation and removal of habitat has
occurred at a large scale over the last several decades due to human development. The habitat for these species in the project BSA ranges from low to moderate in quality and the same level of quality is expected throughout most of the RSA with some areas in the RSA also including high quality habitat for Le Conte’s thrasher, an obligate desert species. The other three species of animals occur across many types of habitats from the coastal slope to the desert and thus, the desert is not prime habitat.

Many of the planned projects in Table 3.25-1 (as well as others in the RSA) have the potential to directly and/or indirectly affect one or more of these animal species and their habitat. The potential for the proposed project to considerably contribute to a collectively significant impact to these four species through direct encroachment and/or indirect degradation of habitat is present. The proposed project would remove between 633.5 and 701.6 acres of potential habitat. However, the proposed project build alternatives contain provisions, including avoidance, minimization, and mitigation measures to be coordinated with CDFW, to offset impacts to these species. The roughly 2,000 acres of habitat for desert tortoise and MGS that would be set aside and conserved and managed in perpetuity would also provide habitat for these four animal species. This level of compensatory mitigation for loss of habitat is more than twice the amount proposed for direct impact by the project. With implementation of proposed measures BIO-14 to BIO-21, identified in Section 3.20.4, the proposed project would not contribute to substantial adverse cumulative impacts to burrowing owl, loggerhead shrike, Le Conte’s thrasher, and American badger.

**Jurisdictional Waters and Wetlands**

The RSA for state jurisdictional streambeds is the watershed of Harper Dry Lake, which is composed of the Antelope-Fremont Valleys and Coyote-Cuddeback Lakes Watersheds. The Antelope-Fremont Valleys watershed extends approximately from Boron to Mojave and south to the Lancaster-Palmdale area. The Coyote-Cuddeback watershed encompasses lands near Kramer Junction and much of the town of Hinkley and the surrounding area. Harper Dry Lake is approximately 13 miles north and east of the BSA. The RSA is located in west-central San Bernardino County within the southwestern portion of the Mojave Desert.

The project area itself is situated within the southern portion of the Mojave Desert, which is typified by highly variable climate extremes. Lowland areas receive on average about five inches of precipitation per year. High temperatures and low precipitation are present during the summer with highs regularly exceeding 100 degrees Fahrenheit. Surface water in the RSA is scarce throughout most of the year due to low precipitation. Surface water flows as flash floods as a result of thunderstorms associated with desert regions. The ephemeral streams located in the BSA are tributary to several unnamed drainages of various sizes, which ultimately drain to Harper Dry Lake. These ephemeral streams are not considered by USACE to be jurisdictional due to their lack of connectivity with interstate waters. Washes in the RSA are not considered to constitute waters of the United States due to their lack of connectivity with Traditional Navigable Waters (drain to Harper Dry Lake). It was determined, however, that they are protected under Section 1600 of the California Fish and Game code and the state Porter-Cologne Water Quality Control Act. Thus, they are under the jurisdiction of CDFW and LRWQCB.
All of the CDFW and LRWQCB jurisdictional streambeds/WoS located within the BSA is considered to be ephemeral and does not support riparian vegetation. This is consistent with surrounding streambeds/WoS in the RSA. The surrounding vegetation around the various streambeds/WoS in the BSA is upland and within the immediate vicinity of Kramer Junction and to the west it is typically dominated by atriplex scrub and desert sink scrub. To the east, as elevations rise, creosote bush scrub becomes the more dominant habitat type. None of these plant communities are thought to be deriving hydrological support from the ephemeral streambeds/WoS located within the BSA. The creek that runs east-west and acts as a collector for most of the drainages within the BSA is unnamed. It is, however, the most prominent of the streambeds/WoS within the BSA and supports the most defined streambed features.

The proposed project would remove up to 4.70 acres of CDFW streambeds and WoS with up to 1.15 acres composed of manmade ditches. Due to the ephemeral nature of features in the BSA and surrounding RSA, water and sediment transport during and shortly after rainfall events would be their primary function, with little to no groundwater recharge. The health of these streambeds/WoS is considered good, particularly the farther away they occur from existing roadways and human development.

The project would not directly contribute to the regional loss of waters of the United States as none are present; however, it would result in impacts to state streambeds and WoS due to the construction of a transportation facility through ephemeral streams regulated by CDFW and LRWQCB. The project would minimize potential impacts to CDFW and LRWQCB waters by installation of culverts where necessary and compensate for the loss of streambeds/WoS through the combined compensation required for desert tortoise and MGS. Mitigation ratios varied for both of these species from 5:1 to 3:1. This land is expected to support desert washes that should offset the impact to CDFW streambeds and WoS for the project. There is no aquatic/riparian vegetation that will require any other additional mitigation. If the mitigation land for desert tortoise and MGS acquired for the project does not include sufficient desert washes, supplementary mitigation may be required by the agencies with jurisdiction over the waters.

Of the projects listed in Table 3.25-1 above, the following are expected to contribute to cumulative impacts that may adversely affect waters by potentially altering the hydrological regime of the region: Boulevard Associates, LLC Solar Plant; Lightsource Renewables, LLC Solar Plant; US-395 Upgrade, Kern River Gas Transmission Expansion Project; High Desert Power Plant; PG&E Groundwater Remediation Project; Digital 395; and SR-58 Hinkley Expressway Project. There may be other projects in the RSA that could also affect or have affected CDFW streambeds and WoS.

As a legal requirement of the Clean Water Act Sections 401 and 404, state Porter-Cologne Water Quality Control Act, and California Fish and Game 1600 code, jurisdictional evaluations/delineations would take place for any project to determine if waters of the United States and state streambeds would be affected. Appropriate avoidance and/or minimization measures would be implemented as needed to ensure protection of federal and/or state jurisdictional features. In addition, these projects would be required to provide compensation that replaces the relevant functions and values at a watershed level under the permitting processes of Sections 401 and 404 of the Clean Water Act and Section 1602 of the State Streambed Alteration
Program if it is determined that Waters of the United States and state streambeds/WoS are affected, respectively. With implementation of proposed measures BIO-1 to BIO-5, identified in Section 3.18.4, to minimize potential impacts, the proposed project would not contribute to substantial adverse cumulative impacts to state streambeds or WoS.

**Invasive Species**

Where human development occurs, there is the potential for the spread or introduction of invasive plants to the lands adjacent to the area developed. Seeds of invasive species can be transported to new areas through a variety of mechanisms including vehicles and animals (e.g., pets, grazing animals). Recurring fires can encourage the establishment of invasive species; so can some forms of routine land maintenance (e.g., discing). The impact invasive species have on native vegetation communities and the plants and animals that reside within these areas are in some circumstances catastrophic. The degree to which invasive species has affected the southwestern Mojave Desert cannot be quantified but is huge. Many times invasive species out compete native species, thus lowering availability of forage to native animals and overall productivity of the natural lands.

The RSA for the invasive species cumulative impacts analysis is the southwestern Mojave Desert. Much of the lands in the RSA have been grazed by livestock and as such have been invaded by invasive nonnative grasses and forbs. In addition, the existing roadways assist invasive plant seed transportation. The quality of natural lands within the RSA range from low to high depending on the biological resource being evaluated. The degree of invasive plant degradation that has occurred within the RSA is estimated to vary from low to high.

Invasive species were found in the BSA of the proposed project and include red brome, cheat grass, ripgut grass, barley, black mustard, Sahara mustard, and Mediterranean grass. These species and more are expected to occur throughout the RSA.

The proposed project and the cumulative projects listed in Table 3.25-1 are each expected to contribute to the spread of invasive plant species. 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 project site, or between work areas within the project site. Without the implementation of protective measures, there is potential for the proposed project to considerably contribute to a collectively significant impact to natural lands through the introduction of invasive species. However, with incorporation of avoidance and minimization measures BIO-43 and BIO-44 presented in Section 3.22.4, and measures AES-4, AES-6, AES-8, and AES-10 provided in Section 3.7.6, the proposed project would not contribute to substantial adverse cumulative impacts to natural lands from invasive species.

**Animal Movement/Habitat Fragmentation**

To evaluate the potential for cumulative impacts to plants and animals by habitat fragmentation, the RSA is the southwestern Mojave Desert. The proposed project has the potential to create
habitat fragmentation to the special-status and non-special status plants and animals that are known to be present or have potential to be present in the RSA. The Boulevard Associates, LLC Solar Plant, Lightsource Renewables, LLC Solar Project, the US-395 Upgrade, Kern River Gas Transmission Expansion Project, High Desert Power Project, PG&E Hinkley Groundwater Remediation Project, Digital 395, and the SR-58 Hinkley Expressway Project (as well as others in the RSA), in combination with the project, are expected to contribute to cumulative impacts that may adversely affect natural lands and associated species through habitat fragmentation. The majority if not all of species in the RSA are adapted to open spaces with little to no obstructions. Resources are scarce due to the harsh hot desert environment and the ability to move as needed or have seeds transported without hindrance is fundamental.

Historically, as human development, in the forms of roads and large-scale developments, has occurred in the RSA, habitat fragmentation has occurred. Linear projects such as roadways can split large expanses of habitat.

The existing storm drainage culverts along SR-58 within the project BSA have been effectively serving as corridors for wildlife such as desert tortoise, MGS, and various small mammals. These culverts provide safe migration corridors and connectivity for wildlife populations across the highway (SR-58) and hence reduce habitat fragmentation. Evidence of successful utilization of the crossings by a kit fox, numerous rodents and other small mammals, and a single desert tortoise was noted during the proposed project studies.

The proposed project would slightly elevate SR-58 and permanent exclusion fencing for desert tortoise would be constructed and maintained. The existing culverts along the roadway would be retained and two oversized culverts, each one east and west of US-395, will be installed in coordination with CDFW as part of the project (measure BIO-1 in Section 3.17.4). These culverts will be a minimum of six feet tall and 10 feet wide. In addition, 1,912 and 2,158 acres of undeveloped land (the desert tortoise and MGS compensation discussed above) would be purchased and preserved and managed in perpetuity by the proposed project. This, in combination with measure BIO-1, would ensure that the proposed project would not considerably contribute to a collectively significant impact to habitat fragmentation.
4.1 Determining Significance under CEQA

The proposed project is a joint project by the California Department of Transportation (Department) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA’s responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (USC) 327. The Department is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to “significantly affect the quality of the human environment.” The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require the Department to identify each “significant effect on the environment” resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

4.2 Discussion of Significance of Impacts

This section discusses the significance of impacts in accordance with CEQA. Please see the appropriate sections in Chapter 3 of this document for a full discussion of the analysis and proposed avoidance, minimization, and mitigation measures.
Table 4-1: CEQA Significance Determination

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<th>CEQA Significance Determination</th>
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<td>Parks and Recreation</td>
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<tr>
<td>Animal Species</td>
<td>Less than Significant with Mitigation</td>
<td>Section 3.20</td>
</tr>
<tr>
<td>Threatened and Endangered Species</td>
<td>Less than Significant with Mitigation</td>
<td>Section 3.21</td>
</tr>
<tr>
<td>Invasive Species</td>
<td>Less than Significant with Mitigation</td>
<td>Section 3.22</td>
</tr>
</tbody>
</table>

Source: CEQA Checklist (Appendix A).

4.2.1 No Impact

A detailed discussion of project effects is provided in Chapter 3, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures, of this document. The following would have no impact on the environment:

- **Coastal Zone.** The proposed project is located more than 85 miles from a coastal zone.
- **Wild and Scenic Rivers.** The project is not in the vicinity of a designated Wild and Scenic River.
- **Parks and Recreation.** All parks and recreational facilities in the study area are within Boron and are located greater than one mile from the westernmost limit of the project. No parks exist within or adjacent to the proposed alignments; therefore, there would be no impacts on parks or recreational facilities.
- **Farmlands and Timberlands.** There are no designated farmlands or timberlands within or adjacent to the proposed project alignments that would be affected or converted as a result of the project.
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- **Mineral Resources.** There are no sites that have been designated as locally important mineral resource recovery sites within or adjacent to the project study area.

- **Natural Landmarks or Landforms.** There are no natural landmarks or landforms that are protected under the National Natural Landmarks Program.

### 4.2.2 Less-than-Significant Effects of the Proposed Project

A detailed discussion of project effects is provided in Chapter 3, “Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures,” of this document. The following resource areas would result in a less-than-significant impact on the environment (without mitigation):

- **Growth.** The pattern and rate of population and housing growth projected to occur under the proposed project would be consistent with that identified in the county of San Bernardino General Plan and SCAG’s 2012 RTP. Furthermore, no new or expanded utilities, housing, or other similar permanent physical changes to the environment would be necessary as an indirect consequence of the proposed project.

- **Energy.** Without the project, fuel consumption is expected to increase due to worsening congestion and delay as a result of the existing deficient capacity conditions. Energy consumption, attributable to the project, would increase slightly under the future build scenario (see Table 3.16-3). In addition, no substantial new energy-consuming features would be introduced with the proposed project. Standard lighting would be installed along the SR-58 ramps under all alternatives but is not expected to result in a high level of energy consumption. Therefore, operation of the proposed build alternatives would result in a less-than-significant impact.

Construction of the proposed project would result in short-term energy consumption related to the manufacture of construction materials, the use of construction equipment, and the use of workers’ motor vehicles during the construction period of the project. However, construction-related energy consumption would be finite and limited and would have an incremental impact on area energy supplies.

- **Public Facilities.** The proposed project would not involve construction of any habitable structures, nor would it increase population growth in the project area that could significantly affect the demand for community facilities and public services. The nearest community facilities are located approximately more than one mile from the westernmost area of the proposed project, and therefore would not result in community facility impacts.

No emergency service providers are headquartered in the study area, so none of the project alternatives would require relocation of emergency facilities. Construction of the project may temporarily hinder traffic flow in the area, resulting in delays in the response times of emergency service providers. However, these effects would be less than significant with the implementation of a transportation management plan, which is standard on Caltrans projects. The proposed project would provide improvement in safety, traffic operations, and congestion, which would likely result in a modest reduction of emergency response times.
• **Utilities and Service Systems.** The proposed project would require the relocation of various above- and underground utilities. However, once project construction is complete and the project is operational, there would be no change to the utility service in the area, with the exception of Alternative 2. This alternative may require SCE to rearrange their power distribution network facilities in the region, depending on where the existing substation is relocated. Mitigation measures that are standard on all Caltrans projects would be implemented to coordinate utility relocations.

• **Noise.** Traffic noise levels are not expected to result in a substantial noise increase (i.e., more than 12 dBA) at any of the representative receptors under the design-year build condition. Traffic noise levels during the design year are not predicted to approach or exceed the land use category E NAC of 72 dBA L_{eq}(h) or the land use category B NAC of 67 dBA L_{eq}(h) at any representative receptor for the build alternatives, except for Alternative 1. Therefore, no noise abatement was warranted or proposed. Under Alternative 1, traffic noise levels during the design-year build condition are predicted to approach or exceed the land use category E NAC of 72 dBA L_{eq}(h) at two receiver locations (Receptors 1a-6 and 1a-9). Noise abatement was considered but is not proposed at the affected locations because the affected land uses do not have exterior areas with frequent human use. Furthermore, noise abatement was considered but is not proposed because of restricted access to driveways.

Temporary noise impacts during construction of the project may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans’ Standard Specifications, Section 14-8.02, and, as a result, any temporary impacts would be less than significant.

The following impacts would result in less-than-significant effects with the incorporation of avoidance, minimization, and/or mitigation measures, as detailed in Chapter 3 of this document.

• **Land Use:** Build Alternatives 1, 1A, and 3 do not involve any project operations that would significantly affect land use and planning. It is anticipated that zoning and land use designation amendments and permanent easements, would occur to accommodate the proposed project.

• **Relocations:** Alternatives 1, 1A, and 2 would result in acquisition and displacement of residential and non-residential properties. Available replacement resources to relocate displacees would be adequate.

• **Community Cohesion/Character:** The increased efficiency of traffic operations due to the proposed project would change the character of Kramer Junction, which currently relies on slower vehicle movement to attract travelers who stop and patronize shops and restaurants. Impacts to businesses are likely under all build alternatives because motorists/truckers/regional travelers would be less likely to stop at Kramer Junction. Speeds on the new facility would be higher (with a design speed of 70 mph), and many travelers may choose not to stop. The displacement of businesses and the construction of a large, urbanizing overpass at Kramer Junction would also change the overall feel of the area. Implementation of avoidance, minimization, and mitigation measures ECON-1 through ECON-3 and CI-1 through CI-4 would reduce bypass and displacement impacts to less than significant for Alternatives 1, 1A, and 3. Because of the extensive displacement that would
occur under Alternative 2, impacts would remain significant, even with the implementation of mitigation measures.

- **Traffic:** The proposed project would result in an improvement in LOS for all three build alternatives. Caltrans will prepare a TMP, which is standard on Caltrans projects, to ensure efficient movement of local and regional traffic during construction. The TMP will detail any projected temporary street closures or expected traffic delays due to construction vehicles using the roadways and will be provided to community agencies prior to project commencement.

- **Cultural Resources:** Caltrans policy is to conduct NHPA Section 106 and CEQA Historical Resources studies concurrently and to use the NHPA Section 106 determinations as the basis of making CEQA conclusions. This combined process is described in Section 3.8.

Prior to circulating the Draft EIR/EIS, Caltrans completed the identification phase of cultural resources studies (i.e., built environment and archaeological) within the APE. In total, the project APE contains 59 cultural resources that were either previously evaluated or required evaluation. These resources are listed in Table 3.8-2 and include 42 archaeological resources and 17 built-environment resources. Of these, Caltrans evaluated the historical significance of 17 built environment properties and eight of the archaeological sites prior to circulating the Draft EIR/EIS. In addition, four archaeological sites were previously determined not eligible for the NRHP and CRHR. The 29 resources have been determined not to be historical resources for the purposes of CEQA.

At the time the Draft EIR/EIS was circulated, there were 30 unevaluated archaeological sites in the APE. The evaluation of the significance of the cultural resources that may be affected by the preferred alternative was conducted after the preferred alternative was identified, but prior to completion of this Final EIR/EIS phase, in order to avoid unnecessary impacts on archaeological sites by disturbing sites under an alternative that may not be selected. Of the nine archaeological sites identified within the preferred alternative, seven were evaluated and determined not eligible. The historic component of an eighth site was evaluated and determined not eligible, and the prehistoric component of this site was assumed eligible for the sake of this undertaking with a finding of “no adverse effect.” One additional site was also assumed eligible for the sake of this undertaking with a finding of “no adverse effect,” as discussed in Section 3.8. With the implementation of avoidance measure CR-5, the preferred alternative will have no affect on cultural resources. In addition, measures 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, and to reduce any potential impact to a less-than-significant level (CR-1 through CR-3, see Section 3.8).

**Hydrology and Floodplains:** The project area is not located in a mapped flood hazard area as defined by FEMA, but it is located in a zone that has been identified as having a possible but undetermined flood hazard. The proposed project would not result in a “significant encroachment” to a floodplain as defined by 23 CFR 650.105. It would not result in the interruption or termination of a transportation facility that is needed for emergency vehicles or that provides the community’s only evacuation route; it would not result in a significant risk to life or property; nor would it result in impacts on natural and beneficial floodplain values. The proposed project would replace or install new drainage facilities to ensure
adequate hydraulic capacity; therefore, operation of the proposed project would not result in flooding. 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. Construction best management practices (BMPs) identified in the SWPPP would minimize the potential for flood impacts during construction. Accordingly, implementation of new drainage facilities would result in a less-than-significant impact related to hydrology and floodplain management.

- **Water Quality:** Widening and realigning SR-58 would increase the amount of impervious surface in the area, which would increase stormwater runoff. Increases in stormwater runoff volume could accelerate soil erosion and increase the transport of pollutants to waterways. The amount of lubricants, sloughed tire and brake material, and other contaminants associated with motorized vehicles and roadways would be similar to existing conditions and would not be expected to have an adverse effect on local water quality. The proposed project would construct drainage facilities so that runoff would not disturb sediment and cut grooves in the soil surface. The existing drainage patterns could potentially be altered by implementation of the proposed project; however, it is unlikely that the change would be substantial enough to cause adverse effects on water quality. Because there are several other locations in the watershed for groundwater recharge, the proposed project’s increase in impervious surface would not result in a considerable loss of groundwater recharge and would not affect groundwater levels. The proposed project would be designed so that the drainage flows into a dirt swale (or similar water quality treatment measure) adjacent to the highway. The dirt swale would act as an infiltration trench to collect runoff, sediment, and trash. Consistent with Caltrans’ NPDES permit and the Construction General Permit, BMPs will be incorporated into the proposed project to reduce the discharge of pollutants during construction and operation to the maximum extent practicable.

The build alternatives would also affect CDFW jurisdictional waters. Proposed impacts on state waters would be considered potentially significant; however, mitigation measures **BIO-2** through **BIO-5**, identified in Section 3.18, Wetlands, would mitigate potential impacts on these water resources. A 1602 Streambed Alteration Agreement with CDFW and a WDR from the LRWQCB pursuant to the state Porter-Cologne Act would be required. Accordingly, with implementation of mitigation measures **BIO-2** through **BIO-5** and BMPs, a less-than-significant impact on water quality would result from the build alternatives.

Build Alternative 2 would require coordination with SCE and the LRWQCB to minimize water quality impacts that could result from rerouting the expressway through the SCE utility substation and wastewater impoundments.

- **Geology and Soils:** Ground shaking is expected to occur at the site due to the predicted magnitude of peak ground accelerations for earthquakes along nearby faults. Landslides are not a major problem because the topography in the site region is subdued. Accordingly, the currently proposed design is favorable for accommodating future ground shaking or surface rupture. Compliance with Caltrans’ procedures regarding seismic design would also minimize any adverse effects related to seismic ground shaking. Seismic design would also meet County requirements for near-source design parameters under the UBC.
The potential for liquefaction during a seismic event is considered minimal to non-existent based on the reported deep groundwater depths. The potential for other geologic hazards related to liquefaction, such as lateral spreading, is also considered minimal to non-existent.

Because of their sandy nature, onsite soils are easily erodible, and erosion could occur during construction. Development of the roadway would cause groundbreaking and vegetation removal during construction. As a result, soil could be exposed to rain and wind, potentially causing accelerated erosion and deposition from the project site. Federal and state jurisdictions require that an approved SWPPP be prepared for projects that involve greater than one acre of disturbance. A SWPPP specifies BMPs that would prevent construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off site into receiving waters. Earthwork in the project area would be performed in accordance with Section 19, Earthwork, of Caltrans’ 2010 Standard Specifications.

Immediate settlement due to the self-weight of the embankment fill and compression is expected to occur during placement of the embankment during construction. It is estimated that subsidence would total approximately one and two-tenths inches. According to the subsurface investigation, secondary settlement from soil collapse under future embankment loading is not anticipated. No adverse effects are anticipated. If any developed properties along any of the proposed alternatives include onsite septic disposal systems, the systems would need to be removed prior to construction. Excavations created during the removal process would be backfilled, with the fill compacted under Caltrans’ supervision.

- **Paleontology:** The project alternatives would traverse areas 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 from the San Bernardino County Museum 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. No fossils were observed during field reconnaissance conducted in April 2009, but this does not preclude their unearthing as a result of project construction. A PMP would be required and would be completed during final project design in order to identify the scientifically sensitive areas that would be affected by construction activities. The impacts that would be discussed in the PMP are anticipated to be less than significant with mitigation, as discussed in Section 3.12.

- **Hazards and Hazardous Materials:** According to the ISA, there are known or suspected hazardous material sources, such as USTs, ASTs, contaminated soil, and an abandoned oil well within the proposed build alignments. There is a potential to encounter PCBs in soils near cracked/stained transformer units and in the railroad right-of-way. Yellow paints more than three years old may exceed hazardous waste criteria under CCR Title 22 and require disposal at a Class I disposal site. Because the traffic striping in the project area is likely older than three years, elevated lead concentrations within the yellow striping paint along the highway may be present. The project would require demolition of buildings of pre-1978 construction; therefore, ACMs should be anticipated during demolition. Implementation of avoidance, minimization, and/or mitigation measures during the construction period, some of
which are standard practice on all Caltrans projects, would ensure that impacts are reduced to a less-than-significant level.

Operation of the improved expressway is not expected to result in the creation of any new health hazards or expose people to potential new health hazards because the proposed project involves improvements to an existing highway only, and the storage of toxic materials or chemicals is not a proposed component of the proposed project. Some vehicles using the highway may contain materials deemed hazardous; however, the project is not anticipated to increase the potential for vehicles carrying hazardous materials to travel in the project area or increase the potential for accidents to occur in the project area. The hazards associated with vehicular transport of hazardous waste are regulated under existing programs and would not be affected by the proposed project.

According to the County of San Bernardino Hazard Overlap Maps, the project site is not within or adjacent to a high fire hazard area. The proposed project would not increase the exposure of people or structures to the risk of loss, injury, or death involving wildland fires.

- **Air Quality:**

  *Air Quality Management Plan:* During construction, the project would comply with all Mojave Desert Air Quality Management District (MDAQMD) Rules and Regulations regarding construction materials and methods identified in the region’s Air Quality Management Plan (AQMP). For example, all site disturbance activities would comply with Rule 403 (Fugitive Dust) requirements for fugitive dust suppression. In addition, the project will implement the Caltrans’ construction requirements specified in Caltrans’ Standard Specifications, Section 7-1.01F (Air Pollution Control). Avoidance, minimization, and/or mitigation measures have been incorporated into the proposed project to ensure that state and federal ambient air quality standards would not be exceeded.

  Long-term emissions from project operations would be part of the region’s mobile source inventory budget, which is managed via the transportation conformity process detailed in Chapter 3 (Regional Conformity). As detailed therein, the proposed project (and related air pollutant emissions) would meet transportation conformity determination requirements. Therefore, all project-related emissions would be accounted for in the regional AQMP.

  *Project-Level Emissions:* With respect to short-term construction emissions, implementation of the exhaust emissions and fugitive dust control measures identified in Chapter 3 would avoid, minimize, and/or mitigate any impacts on air quality during short-term construction.

  Also detailed in the Chapter 3 air quality analysis, project emissions during long-term operations occurring under either Build Alternative would not violate any air quality standard or substantially contribute to any existing or project air quality violation with respect to criteria pollutant or mobile-source air toxics (MSAT) emissions.

  *Sensitive Receptors Exposure:* With respect to the short-term construction emissions discussed in Chapter 3, implementation of the exhaust emissions and fugitive dust control measures identified in Chapter 3 would avoid and/or minimize any impacts on localized air quality during short-term construction. The project would comply with all MDAQMD Rules and Regulations regarding construction materials, VOC content for asphalt pavement, and architectural coatings, as well as fugitive dust control measures (i.e., Rule 403) identified in
the region’s AQMP. As such, sensitive receptors would not be subject to substantial pollutant concentrations during short-term construction.

With respect to long-term operations, project emissions would not result in or contribute to any regional air quality violation. As such, sensitive receptors would not be subject to substantial pollutant concentrations during long-term project operation.

**Odors:** Construction odors resulting from the construction of the proposed project are not likely to affect a substantial number of people due to the fact that construction activities do not usually emit offensive odors. With respect to long-term operations, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project would not include any of the types of uses identified as being associated with odor complaints. As such, no impacts are anticipated.

**Cumulative Impacts:** Per MDAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, the same emissions control requirements imposed on the proposed project (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects Basin-wide that are subject to those same rules and regulations. As such, short-term construction emissions would not be cumulatively considerable.

The MDAQMD approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. As discussed earlier under Air Quality response (a), the proposed project would be consistent with the AQMP, which is intended to bring the MDAB into attainment for all criteria pollutants. As such, project-related emissions would not be considered cumulatively considerable.

- **Biological Resources:**

  **Natural Communities:** Impacts on natural vegetation communities of concern would not occur; none are present in the BSA. All four build alternatives, however, have the potential to disrupt animal movement and cause habitat fragmentation along SR 58. This could affect a number of species and individuals, including desert tortoise and Mohave ground squirrel. These potential impacts are considered to be less than significant with mitigation. Mitigation Measure BIO-1, as discussed in Section 3.17, Natural Communities, would mitigate impacts on wildlife corridors and movement.

  **Wetlands and Other Waters:** Washes in the study area are not considered to constitute waters of the United States because they lack connectivity with Traditional Navigable Waters. However, they are protected under Section 1600 of the California Fish and Game Code and under regulations of the Regional Water Quality Control Board, Region 6. There would be potential permanent effects on CDFW jurisdictional waters, ranging from 3.40 acres to 4.70 acres, depending on alternative selected, requiring a 1600 Permit from CDFW and a waste discharge permit from RWQCB, Lahontan Region. In order to minimize impacts on state streambeds to less than significant, mitigation measures (BIO-1 to BIO-5) identified in Section 3.18, Wetlands, would be implemented.
Plant Species: Barstow wooly sunflower, desert cymopterus, Mojave spineflower, crowned muilla, and Joshua tree would be directly and indirectly affected by the proposed project build alternatives. Potential habitat for these species would also be affected. Mitigation measures (BIO-6 through BIO-13) are proposed to protect the plant species that could be present (Section 3.19, Plant Species) such that potential impacts would be less than significant.

Animal Species: Habitat for the following animal species would be affected by the proposed project: burrowing owl, loggerhead shrike, Le Conte’s thrasher, and American badger. Temporary construction impacts on animal species may occur where habitats are temporarily disturbed during grading or other activities. Measures B-14 through B-21 presented in Section 3.20, Animal Species, would ensure that potential impacts on animal species would be reduced to less than significant.

Threatened and Endangered Species: The proposed project would result in permanent loss of habitat for two threatened and endangered species, the desert tortoise and the Mohave ground squirrel (MGS). The desert tortoise is listed as threatened under the CESA and the FESA due to the decline of population and the threat of habitat destruction. The MGS is listed as threatened under the CESA and is endemic to California, limited to a geographic range in the western Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties. Potential impacts on these species would be significant but mitigable. However, with the implementation of the avoidance, minimization, and mitigation measures listed in Section 3.21, Threatened and Endangered Species, potential impacts to these species would be less than significant with mitigation.

Invasive Species: Measures to minimize the introduction or spread of nonnative species have been proposed as part of the project and include cleaning all equipment and vehicles with water 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 (BIO-26 and BIO-27 in Section 3.22, Invasive Species). Proposed landscaping and erosion control measures will not contain invasive species in the plant selections or seed mixtures. Potential impacts caused by the spread of invasive species would be less than significant with mitigation.

4.2.3 Significant Environmental Effects

As discussed in Section 4.2.2, significant impacts prior to mitigation would occur to land use, displacement and relocation, community character and cohesion, traffic, cultural resources, hydrology and floodplains, water quality, geology and soils, paleontology, hazards and hazardous materials, air quality, and biological resources. Following the implementation of identified avoidance, minimization, and/or mitigation measures, impacts to each of these resource areas would be less than significant.
4.2.4 Unavoidable Significant Environmental Effects

Under all of the proposed build alternatives, with incorporation of the proposed mitigation/minimization/avoidance measures, only visual impacts would remain significant.

- **Visual/Aesthetics:** Under Alternatives 1, 1A, 2, and 3, visual changes would occur along the entire project length. The smallest number of sensitive viewers are present in proximity to Alternatives 1 and 1A; however, all of the proposed build alternatives, without mitigation, would result in significant impacts upon the quality of the existing visual environment as predominantly natural landscapes are replaced with anthropogenic elements. However, the implementation of standard Caltrans project design policies and implementation practices (e.g., use of Context Sensitive Solutions approaches) would reduce the impact, but not to a level that is less than significant (see Avoidance, Minimization, and Mitigation Measures found in Section 3.7.6).

4.2.5 Significant Irreversible Environmental Changes

Uses of any nonrenewable resources during the initial and continued phases of the project may be irreversible because a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary and secondary impacts generally commit future generations to similar uses. The following resources would be converted under Alternatives 1, 1A, and 2: wildlife habitats, homes, businesses, and visual/aesthetics. The following resources would be converted under Alternative 3: wildlife habitats and visual/aesthetics.

4.2.5.1 Mitigation Measures

**Mitigation Measures for Significant Impacts under CEQA**

Documentation supporting the CEQA resource evaluations is provided in Chapter 3, Affected Environment, Environmental Consequences, and Avoidance, Minimization, Mitigation Measures, of this Draft EIR/EIS. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is provided under the appropriate resource headings in Chapter 3.

4.2.6 Cumulative Impacts

With the exception of impacts to visual/aesthetics occurring as a result of implementation of the build alternatives, the project would not result in any cumulatively considerable impacts. See Section 3.25 for a full discussion of cumulative impacts.

4.3 Climate Change

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 ($\text{CO}_2$), methane ($\text{CH}_4$), nitrous oxide ($\text{N}_2\text{O}$), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride ($\text{SF}_6$), HFC-23 (fluoroform), HFC-134a ($\text{s, s, s, 2-tetrafluoroethane}$), 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 of GHG-emitting sources. The dominant GHG emitted is $\text{CO}_2$, 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” refers to a term for reducing GHG emissions 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.\(^2\)

### 4.3.1 Regulatory Setting

#### 4.3.1.1 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.

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

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 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

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\(^1\) [http://climatechange.transportation.org/ghg_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)

\(^2\) [http://www.fhwa.dot.gov/environment/climate_change/mitigation/](http://www.fhwa.dot.gov/environment/climate_change/mitigation/)
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 ten percent by 2020.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: 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.

4.3.1.2 Federal

Although climate change and GHG reduction are 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. 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 outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies

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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.
include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are 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 directs 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.

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 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 make 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 an estimated 960 million metric tons of GHG emissions 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.

### 4.3.1.3 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. 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 to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the 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.

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7 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).

8 The Department’s 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>.
The Department and its parent agency, the California State 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.  

One of the main strategies in the Department’s Climate Action Program to reduce GHG emissions is to make California’s transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0–25 miles per hour [mph]) and speeds over 55 mph; the most severe emissions occur from 0–25 miles per hour (see Figure 4.2 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors, GHG emissions, particularly CO₂, may be reduced.

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8 The Department’s 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>.
The purpose of the proposed project is to alleviate existing and future traffic congestion along SR-58 during peak hours. The proposed project would not generate new vehicular traffic trips since it would not construct new homes or businesses. An estimate of horizon year 2039 AADT, VMT, and peak-hour LOS along the SR-58 project limits is provided below in Table 4-2. As shown therein, the proposed project would result in improved peak-hour LOS during horizon year 2039 under the build alternatives when compared to the No-Build Alternative.

The proposed project has four build alternatives and one No-Build Alternative. In each alternative, the scope of work and the length of the project (13.3 miles) would remain the same. As seen in Table 4-2 traffic volumes (AADT) are the same for the build alternatives and the No-Build alternative, and thus the VMT would remain the same for each proposed build alternative as well as for the No-Build Alternative, because there is no alternative parallel route in the vicinity that would result in more traffic to any alternative. Thus, the calculated VMT for any build alternative would be representative for all other build alternatives and calculated CO₂ emissions using the CT-EMFAC model based on the VMT would be the same for each of the build alternatives. Despite an anticipated increase in VMT, multi-modal transportation options to reduce VMT and congestion were not considered due to the statutory justification explained in Chapter 2, Section 2.2.3.

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Table 4-2. Horizon Year Project Limits, AADT, VMT, and Peak-Hour LOS

<table>
<thead>
<tr>
<th>Development Phase/Project Alternative</th>
<th>AADT Average along Roadway Segment 1</th>
<th>Daily VMT</th>
<th>Peak Hour LOS Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Year 2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>13,820</td>
<td>178,278</td>
<td>D/E</td>
</tr>
<tr>
<td>Opening Year 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No-Build Alternative</td>
<td>17,880</td>
<td>230,652</td>
<td>E</td>
</tr>
<tr>
<td>Build Alternatives</td>
<td>17,880</td>
<td>230,652</td>
<td>A</td>
</tr>
<tr>
<td>Horizon Year 2039</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No-Build Alternative</td>
<td>30,940</td>
<td>399,126</td>
<td>F</td>
</tr>
<tr>
<td>Build Alternatives</td>
<td>30,940</td>
<td>399,126</td>
<td>B</td>
</tr>
</tbody>
</table>

Source: Caltrans 2012f.

Using the CT-EMFAC emissions inventory compilation model, CO₂ emissions that would occur as a result of vehicular travel along the SR-58 project limits were estimated under Build and No-Build conditions (i.e., VMT and travel speed). As shown in Table 4-3, CO₂ emissions are anticipated to marginally increase at opening and horizon years for the project under the Build condition when compared to No-Build. The light increase in the CO₂ emissions is attributed to higher vehicle speed and reduced congestion. The CO₂ emissions from traveling vehicles increases beyond speeds of 55 mph. See Figure 4.2.

In addition, as shown above in Table 4-2, the build alternatives would reduce congestion and improve LOS. Relieving congestion by enhancing operations and improving travel times in high-congestion travel corridors would lead, in general, to reductions in GHG emissions.

Table 4-3. Existing and Future Year Tons per Day CO₂ Emissions

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Daily CO₂ (Greenhouse) Gas Emissions (U.S. tons per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing Condition 2010</td>
</tr>
<tr>
<td></td>
<td>No-Build</td>
</tr>
<tr>
<td>On SR-58, from the Kern County line (post mile [PM] R143.5) to US-395 (PM R5.4) and continuing further 7.5 miles east of US-395 to PM R12.9 along SR-58</td>
<td>117.98</td>
</tr>
</tbody>
</table>

Source: Caltrans’ District 8 Model Run performed on July 25, 2012: CT-EMFAC output sheets are provided in Appendix A of the Air Quality Technical Study.

The proposed project Build condition would contribute almost 0.41 percent or 1.19 tons of excess CO₂ per day over the No-Build condition at horizon year 2039 and 170.85 tons of CO₂ per day over the baseline.
**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. Section 3.14, Air Quality, of this Final EIR/EIS identifies specifications and measures included in the project to address construction emissions occurring over the approximately 28-month construction period.

**Limitations and Uncertainties with Modeling**

**EMFAC**

Although EMFAC can calculate CO₂ emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO₂ emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study, brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle’s CO₂ emissions during a typical urban trip. Current emission-factor models are insensitive to the distribution of such modal events (i.e., cruise, acceleration, deceleration, and idling) in the operation of a vehicle and instead estimate emissions by average trip speed. This limitation creates an uncertainty in the model’s results when compared to the estimated emissions of the various alternatives with baseline in an attempt to determine impacts. Although work by EPA and the CARB is underway on modal-emission models, neither agency has yet approved a modal emissions model that can be used to conduct this more accurate modeling.

CARB is currently not using EMFAC to create its inventory of greenhouse gas emissions. It is unclear why the CARB has made this decision. Their website only states:

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REVISION: Both the EMFAC and OFFROAD Models develop CO₂ and CH₄ [methane] emission estimates; however, they are not currently used as the basis for [CARB’s] official [greenhouse gas] inventory which is based on fuel usage information. . . However, ARB is working towards reconciling the emission estimates from the fuel usage approach and the models.11
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11 http://www.arb.ca.gov/msei/offroad.htm
Other Variables

With the current science, project-level analysis of greenhouse gas emissions has limitations. Although a greenhouse gas analysis is included for this project, there are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed project and would thus dramatically change the projected CO₂ emissions.

First, vehicle fuel economy is increasing. The EPA’s annual report, “Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012,” which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy has improved each year beginning in 2005, and is now at a record high. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003 and subsequently began setting increasingly higher fuel economy standards for future vehicle model years. The EPA estimates that light duty fuel economy rose by 16% from 2007 to 2012. Table 4-4 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025 as available from the National Highway Traffic Safety Administration for the 2012–2016 and 2017–2025 CAFE Standards.

Table 4-4. Average Required Fuel Economy (mpg)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger Cars</td>
<td>33.3</td>
<td>34.2</td>
<td>34.9</td>
<td>36.2</td>
<td>37.8</td>
<td>41.1–41.6</td>
<td>44.2–44.8</td>
<td>55.3–56.2</td>
</tr>
<tr>
<td>Light Trucks</td>
<td>25.4</td>
<td>26.6</td>
<td>26.6</td>
<td>27.5</td>
<td>28.8</td>
<td>29.6–30.0</td>
<td>30.6–31.2</td>
<td>39.3–40.3</td>
</tr>
<tr>
<td>Combined</td>
<td>29.7</td>
<td>30.5</td>
<td>31.3</td>
<td>32.6</td>
<td>34.1</td>
<td>36.1–36.5</td>
<td>38.3–38.9</td>
<td>48.7–49.7</td>
</tr>
</tbody>
</table>


Second, near zero carbon vehicles will come into the market during the design life of this project. According to the 2013 Annual Energy Outlook (AEO2013):

“LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case.”

The greater percentage of alternative fuel vehicles on the road in the future will reduce overall GHG emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California has recently adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in title 17, California Code of Regulations, Sections

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12 http://www.epa.gov/oms/fetrends.htm
Chapter 4. California Environmental Quality Act Evaluation

95480-95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

Lastly, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, “Effects of Gasoline Prices on Driving Behavior and Vehicle Market,”\textsuperscript{14} the Congressional Budget Office found the following results based on data collected from California: 1) freeway motorists adjust to higher gas prices by making fewer trips and driving more slowly; 2) the market share of sports utility vehicles is declining; and 3) the average prices for larger, less-fuel-efficient models declined from 2003 to 2008 as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel efficient vehicles. More recent reports from the Energy Information Agency\textsuperscript{15} and Bureau of Economic Analysis\textsuperscript{16} also show slowing re-growth of vehicle sales in the years since its dramatic drop in 2009 due to the Great Recession as gasoline prices continue to climb to $4 per gallon and beyond.

**Limitations and Uncertainties with Impact Assessment**

Taken from p. 5-22 of the National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012), Figure 4.3 illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:

“Moss and Schneider (2000) characterize the ‘cascade of uncertainty’ in climate change simulations Figure 4.3). As indicated in Figure 4.3, the emission estimates used in this EIS have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources […] Although the uncertainty bands broaden with each successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood.”\textsuperscript{17}

\textsuperscript{14}http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf
\textsuperscript{15}http://www.eia.gov/oiaf/aeo/tablebrowser/aeo_query_server/?event=ehExcel.getFile&study=AEO2013&region=0-0&cases=ref2013-d102312a&table=114-AEO2013&yearFilter=0
\textsuperscript{16}Historical Vehicle Sales: www.bea.gov/national/xls/gap_hist.xls
\textsuperscript{17}http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf. page 5-22
Much of the uncertainty in assessing an individual project’s impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO$_2$ emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of CO$_2$ equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons CO$_2$ from 2000 to 2030, which represents an increase of between 25 and 90%.

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of greenhouse gas emissions, rather than causing “new” greenhouse gas emissions. It is difficult to assess the extent to which any project level increase in CO$_2$ emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

**CEQA Conclusion**

As discussed above, both the future with project and future no build show increases in CO$_2$ emissions over the existing levels; the future build CO$_2$ emissions are higher than the future no build emissions. In addition, as discussed above, there are also limitations with EMFAC and with assessing what a given CO$_2$ emissions increase means for climate change. Therefore, it is

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Caltrans’ determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project’s direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. 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 the 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 Former 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 CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 4.4: 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 also 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 on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the 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 4-4 summarizes the Department and statewide efforts that it is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).
Table 4-5: Climate Change/CO₂ Reduction Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Program</th>
<th>Partnership</th>
<th>Method/Process</th>
<th>Estimated CO₂ Savings Million Metric Tons (MMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lead</td>
<td>Agency</td>
<td>2010</td>
</tr>
<tr>
<td>Smart Land Use</td>
<td>Intergovernmental Review (IGR)</td>
<td>Caltrans</td>
<td>Local governments</td>
<td>Review and seek to mitigate development proposals</td>
</tr>
<tr>
<td>Planning Grants</td>
<td>Caltrans</td>
<td>Local and regional agencies and other stakeholders</td>
<td>Competitive selection process</td>
<td>Not Estimated</td>
</tr>
<tr>
<td>Regional Plans and Blueprint Planning</td>
<td>Regional Agencies</td>
<td>Caltrans</td>
<td>Regional plans and application process</td>
<td>0.975</td>
</tr>
<tr>
<td>Operational Improvements and Intelligent Transportation System (ITS) Deployment</td>
<td>Strategic Growth Plan</td>
<td>Caltrans</td>
<td>Regions</td>
<td>State ITS; Congestion Management Plan</td>
</tr>
<tr>
<td>Mainstream Energy &amp; GHG into Plans and Projects</td>
<td>Office of Policy Analysis and Research; Division of Environmental Analysis</td>
<td>Interdepartmental effort</td>
<td>Policy establishment, guidelines, technical assistance</td>
<td>Not Estimated</td>
</tr>
<tr>
<td>Educational and Information Program</td>
<td>Office of Policy Analysis and Research</td>
<td>Interdepartmental, Cal EPA, ARB, CEC</td>
<td>Analytical report, data collection, publication, workshops, outreach</td>
<td>Not Estimated</td>
</tr>
<tr>
<td>Fleet Greening and Fuel Diversification</td>
<td>Division of Equipment</td>
<td>Department of General Services</td>
<td>Fleet Replacement B20, B100</td>
<td>0.0045</td>
</tr>
<tr>
<td>Non-Vehicular Conservation Measures</td>
<td>Energy Conservation Program</td>
<td>Green Action Team</td>
<td>Energy Conservation Opportunities</td>
<td>0.117</td>
</tr>
<tr>
<td>Portland Cement</td>
<td>Office of Rigid Pavement</td>
<td>Cement and Construction Industries</td>
<td>2.5% limestone cement mix 25% fly ash cement mix &gt; 50% fly ash/slag mix</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>2.72</td>
</tr>
</tbody>
</table>

Source: Caltrans 2006.
Notes: MMT = million metric tons; CEC = Commission for Environmental Cooperation; BT&H = Business, Transportation, and Housing.
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)\(^\text{19}\) 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:

1. The Department and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS commonly comprise electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.

2. Landscaping reduces surface warming and through photosynthesis, decreases CO\(_2\). The project proposes planting in the intersection slopes and drainage channels, and seeding in areas next to frontage roads. Plants will vary in size, making sure that views are not obstructed.

3. The project would incorporate the use of energy-efficient lighting along proposed ramps. LED bulbs installed by Caltrans have reduced energy associated with traffic signal lighting by about 80 percent from traditional incandescent traffic signals. This also helps reduce the project’s CO\(_2\) emissions. Indirect emissions from electricity use will continue to decline in the future as policies such as the state’s renewable portfolio standards implemented.

4. According to the Department’s Standard Specification Provisions, idling time for lane closure during construction is restricted to ten minutes in each direction; in addition, the contractor must comply with MDAQMD rules, ordinances, and regulations in regards to air quality restrictions.

**Adaption 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.

\(^{19}\) http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml
At the federal level, the Climate Change Adaptation Task Force, co-chaired by the 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\textsuperscript{20}, 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.

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)\textsuperscript{21}, 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\textsuperscript{22} to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

\begin{itemize}
\item \textsuperscript{20} \url{http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation}
\item \textsuperscript{21} \url{http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF}
\item \textsuperscript{22} Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future (2012) is available at: \url{http://www.nap.edu/catalog.php?record_id=13389}.
\end{itemize}
• 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.

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 (NOP) as of the date of the EO S-13-08, and/or are programmed for construction funding through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project has been programmed for construction within the 2008 through 2013 time period. Therefore, no further analysis related to adaptive strategies is required for the proposed project.

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 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.

**Mitigation Measures for Significant Impacts under CEQA**

There are no significant impacts listed above; therefore, no mitigation measures are required.
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Chapter 5. 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 determine the scope of environmental documentation and the level of analysis required and identify potential impacts and mitigation measures as well as related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including project development team meetings, interagency coordination meetings, interagency consultation, scoping meetings, and public outreach meetings. This chapter summarizes the results of Caltrans’ efforts to identify, address, and resolve project-related issues through early and continuing coordination.

5.1 Early Coordination

5.1.1 Coordination and Consultation Background

Coordination between Caltrans and representatives of the applicable regulatory agencies has been ongoing since the mid-1980s. As the project developed, input from various agencies has guided the choice of alternatives. The selected alternative will allow Caltrans to construct the project with the least amount of environmental damage possible while still meeting the goals of the purpose and need outlined in this document. Many Caltrans and agency employees have commented on the proposed project through the various stages of development. The following timeline highlights key points in the development process:

- **1980** – The 16th Senatorial District and 34th Assembly District presented a resolution that asked Caltrans to “expeditiously proceed” with widening SR-58.
- **Mid-1980s** – A State Transportation Improvement Plan (STIP) adopted by the California Transportation Commission (CTC) designated a segment of SR-58 as a study area for a four-lane highway.
- **January 2002** – Caltrans sponsored a public information meeting at the Roadhouse Restaurant at Kramer Junction regarding the proposed four-lane expressway project.

5.1.2 Interagency Coordination and Consultation

5.1.2.1 Biological Resources: Coordination and Consultation

Section 7 coordination and consultation under the Federal Endangered Species Act (FESA) has occurred with the U.S. Fish and Wildlife Service (USFWS) due to the presence of habitat for desert tortoise and a federal nexus. Coordination and consultation has also occurred with California Department of Fish and Wildlife (CDFW) for a 2081 Incidental Take Permit Authorization under the California Endangered Species Act (CESA) for desert tortoise and Mohave ground squirrel (MGS). Below is a list of project coordination milestones with USFWS and CDFW:

- May 24, 2001—CDFW was contacted in order to discuss a 2081 permit for project impacts to the desert tortoise and MGS. As discussed, a Section 7 consultation would take place with...
USFWS for desert tortoise, and a 2081 application would be submitted for desert tortoise and MGS.

- July 11, 2001—Caltrans held a meeting with the Bureau of Land Management and CDFW at the Bureau of Land Management office in Barstow to discuss the proposed action, measures to minimize harm to the desert tortoise, and any future projects in the project vicinity. The Kern River Expansion Project and the High Desert Power Project were two projects identified during this meeting, both of which have since been completed. It was recommended that wildlife crossings and permanent tortoise fencing be included in project mitigation as two protective measures.

- July 18, 2001—Conversation with CDFW to discuss future projects within the vicinity.

- August 21, 2001—the Bureau of Land Management and CDFW were contacted to discuss mitigation of private lands versus public (Bureau of Land Management) lands in Category I habitat. Further investigations were required by the Bureau of Land Management, and a referral to CDFW was issued. It was pointed out by CDFW that private and public lands were to be mitigated similarly, in accordance with the California Statewide Desert Tortoise Policy approved by both the Bureau of Land Management and CDFW.

- August 22, 2001—E-mail from CDFW to discuss mitigation for public versus private land. Various telephone conversations also took place between Caltrans, USFWS, and CDFW.

- September 24, 2001—USFWS and CDFW were contacted to discuss conservation ratios and distribution of compensation lands.

- 2002–2008—Coordination with agencies put on hold due to funding.

- January 21, 2009—A coordination meeting between Caltrans representatives and USFWS representatives took place to assess potential impacts of the project and discuss appropriate avoidance, minimization, and mitigation measures. USFWS requested the installation of permanent desert tortoise fencing only within the Desert Wildlife Management Area (DWMA). USFWS did not object to Caltrans’ decision of assuming the presence of desert tortoise within the project limits, and no additional desert tortoise surveys are required for this project. Follow-up phone conferences and e-mail correspondence took place to discuss mitigation and other measures for this project.

- February 2, 2009—A coordination meeting was held with CDFW representatives. CDFW requested 5:1 mitigation ratios for the entire length of the project, including the non-DWMA area. A follow-up discussion for rare plants was set once the rare plant surveys were completed. CDFW also requested permanent desert tortoise fencing along the entire length of the project. CDFW did not object to Caltrans’ decision of assuming the presence of desert tortoise and MGS within the project limits, and no additional surveys are required. Follow-up phone conferences and e-mail took place to discuss mitigation and other measures for this project.

- July 10, 2012—An updated species list was obtained from USFWS.

- December 25, 2013—A biological assessment was submitted on December 25, 2013 to USFWS. The biological opinion is ongoing and is expected to be received by May 15, 2014.
5.1.2.2 Native American and Section 106 Coordination

Consultation with interested parties, including Native American groups and historical organizations, was conducted beginning in 2007. Native American coordination was conducted through the following correspondence:

- The Native American Heritage Commission (NAHC) was contacted by letter on July 6, 2007, requesting information regarding sacred lands and a list of Native American organizations/individuals to contact.

- The NAHC response was received on November 15, 2007, stating that the Sacred Lands Files did not indicate the presence of any Native American cultural resources identified in the immediate project area and providing a list of organizations/individuals with knowledge of the project area to be contacted.

- In December 2007, after reviewing project information, Caltrans’ District 8 Native American Coordinator ultimately decided that ten individuals/organizations should be contacted.

- On January 8, 2008, letters were sent to representatives of the ten Native American tribes/organizations in accordance with the list of organizations/individuals received from the NAHC and Caltrans’ District 8 Native American Coordinator recommendations. Table 5-1 provides a list of individuals who were contacted from applicable Native American organizations.

- As of January 28, 2008, Caltrans had not received any written responses or telephone contacts from these Native American representatives. Therefore, Caltrans initiated follow-up telephone contacts with these ten individuals/organizations previously contacted by letter. A second attempt was made to contact these individuals/organizations on January 30, 2008.

- Mr. John Valenzuela (San Fernando Band of Mission Indians) responded on April 2, 2008, stating that he would like to be contacted prior to project construction. He also recommended that an archaeological and Native American monitor be present during project-related ground disturbance.

- On April 4, 2008, Mr. Charles Cook (Tehachapi Indian Tribe) responded and reiterated the concerns expressed by Mr. Valenzuela on April 2, 2008.

To date, no other Native American responses have been received.

Table 5-1: Native American Contact Information

<table>
<thead>
<tr>
<th>Contact Person</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael Tsosie/Ginger Scott</td>
<td>Colorado River Reservation</td>
</tr>
<tr>
<td>Dean Mike/Darrell Mike</td>
<td>Twenty-Nine Palms Band of Mission Indians</td>
</tr>
<tr>
<td>Charles Wood</td>
<td>Chemehuevi Tribe</td>
</tr>
<tr>
<td>Ron Wermuth</td>
<td>Tubatulabal/Kawaiisu/Koso/Yukuts Tribe</td>
</tr>
<tr>
<td>Charlie Cook</td>
<td>Tehachapi Indian Tribe</td>
</tr>
<tr>
<td>John Valenzuela</td>
<td>San Fernando Band of Mission Indians</td>
</tr>
<tr>
<td>Linda Otero</td>
<td>AhaMaKav Cultural Society, Fort Mojave Indian Tribe</td>
</tr>
<tr>
<td>Britt Wilson/Michael Contreras</td>
<td>Morongo Band of Mission Indians</td>
</tr>
</tbody>
</table>
Consultation with historical organizations was conducted through the following correspondence:


- C. John Di Pol, Vice-Resident of the Upper Mojave Desert Historical Society, responded in writing on January 17, 2008, and identified two “sites” along the project APE: the “southern terminal of the Randsburg Railroad located about mid-point between Highway 395 and the town of Boron, and the “Kramer Cemetery.” Both of these resources were identified during the cultural resources survey (see Archaeological Study Report [ASR], Historic Property Survey Report [HPSR] Attachment B).

No other responses have been received as of the date of this report.

Additional coordination with the following agencies also occurred during the NHPA Section 106 Process:

- U.S. Bureau of Land Management
- State Historic Preservation Officer (ongoing)

5.1.2.3 Cooperating Agencies

The following agencies are serving as cooperating agencies:

- U.S. Bureau of Land Management
- U.S. Department of Defense, Edwards Air Force Base

5.1.2.4 Participating Agencies

The following agencies are participating agencies:

- U.S. Bureau of Land Management
- U.S. Department of Defense, Edwards Air Force Base
- U.S. Environmental Protection Agency
- Muroc Joint Unified School District
- U.S. Fish and Wildlife Service
- California Department of Fish and Wildlife
5.1.3 Notice of Intent and Notice of Preparation

Notice of Intent (NOI) and Notice of Preparation (NOP) letters were sent out on May 10, 2007, and May 7, 2007, respectively, explaining the purpose and need for the proposed project and identifying the range of alternatives. The NOI and NOP mailings included elected officials as well as local, state, and federal agencies with jurisdiction over or discretionary approval rights within the project corridor.

5.1.4 23 USC 139 Process

The proposed project followed the Section 6002 process under SAFETEA-LU, which deals with Efficient Environmental Review. Caltrans continued the coordination process upon passage of Moving Ahead for Progress in the 21st Century (MAP-21), which replaced SAFETEA-LU. The 23 USC 139 process refers to the Section 6002 process initiated under SAFETEA-LU and the continuation of coordination under MAP-21. As part of the requirements of the 23 USC 139 process, various agencies, city and county departments were invited to become involved in the project as cooperating, and/or participating agencies, as applicable. Following the initial invitations to agencies sent in 2007, an additional invitation was sent out in 2010 to increase the response rate. After consideration of the responses to the invitation letters, interagency review roles were established and included as part of the Coordination Plan, which was sent to the agencies in 2013, along with the project purpose/need and study methodologies. A summary of the consultation and coordination process is provided below.

All of the cooperating and participating agencies were asked to comment on key components of the EIR/EIS prior to public circulation.

**Caltrans, District 8 (Role: NEPA and CEQA Lead Agency)**

- December 12, 2007: Invitations sent to Cooperating/Participating Agencies
- January 8, 2008: Held a Cooperating/Participating Agency meeting with Bureau of Land Management
- January 28, 2009: Held a Cooperating/Participating Agency meeting with Edwards Air Force Base
- June 9, 2009: Invitations sent for Cooperating/Participating Agencies
- June 15, 2010: Invitations sent for Cooperating/Participating Agencies
- February 1, 2013: Letters were mailed to cooperating and participating agencies requesting review of and comment on the draft purpose and need, the alternatives under study, and the Coordination Plan.

**U.S. Bureau of Land Management (Role: Cooperating Agency)**

- December 12, 2007: Invitation sent to the Bureau of Land Management Barstow office requesting the agency’s involvement as a cooperating and/or participating agency; a written response was received.
January 8, 2008: The Bureau of Land Management Barstow office sent a letter to Caltrans, District 8, agreeing to become a cooperating agency.

U.S. Department of Defense, Edwards Air Force Base (Role: Cooperating Agency)
- December 12, 2007: Invitation sent to Edwards Air Force Base requesting the agency’s involvement as a cooperating and/or participating agency; a written response was not received.
- February 4, 2009: Invitation sent to Edwards Air Force Base requesting the agency’s involvement as a cooperating and/or participating agency; a written response was not received.
- June 9, 2009: Invitation sent to Edwards Air Force Base requesting the agency’s involvement as a cooperating and/or participating agency;
- July 6, 2009: An email from the Edwards Air Force Base responded that the invitations must be sent to Air Force Staff, not Edwards Air Force Base.
- November 17, 2009: Edwards Air Force Base sent a letter to Caltrans, District 8, agreeing to become a cooperating agency.

U.S. Environmental Protection Agency (Role: Participating Agency)
- December 12, 2007: Invitation sent to the U.S. Environmental Protection Agency (EPA) Region IX San Francisco office requesting the agency’s involvement as a cooperating and/or participating agency.
- December 13, 2007: The EPA Region IX San Francisco office sent a letter to Caltrans, District 8, agreeing to become a participating agency, but declining the role as a cooperating agency.

Muroc Joint Unified School District (Role: Participating Agency)
- June 15, 2010: Invitation sent to the Muroc Joint Unified School District requesting the agency’s involvement as a participating agency.
- July 6, 2010: Muroc Joint Unified School District sent a letter to Caltrans, District 8, agreeing to become a participating agency.

In the previous noticing effort, additional participating or cooperating/participating agency invitation letters were sent to all agencies listed in Table 5-2.
Table 5-2. Agency Invitation Letters

<table>
<thead>
<tr>
<th>Agency Name</th>
<th>Region/Office</th>
<th>Date of Letter</th>
<th>Role</th>
<th>Agency Acceptance Letter Received</th>
<th>Additional Coordination</th>
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<tbody>
<tr>
<td>U.S. Army Corps of Engineers</td>
<td>Los Angeles District</td>
<td>December 12, 2007</td>
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<tr>
<td>U.S. Environmental Protection Agency</td>
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<td>December 12, 2007</td>
<td>Participating Agency</td>
<td>December 13, 2007</td>
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<tr>
<td>U.S. Fish and Wildlife</td>
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<td>December 12, 2007</td>
<td>N/A</td>
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<td>Department of Fish and Wildlife</td>
<td>Inland Empire</td>
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<td>N/A</td>
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<td>Mojave Desert Air Quality Management</td>
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<td>December 12, 2007</td>
<td>N/A</td>
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<tr>
<td>Office of Planning and Research, State Clearinghouse</td>
<td></td>
<td>June 9, 2009</td>
<td>N/A</td>
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<tr>
<td>California Transportation Commission</td>
<td></td>
<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<tr>
<td>Cal/EPA, Department of Toxic Substances Control</td>
<td>Chatsworth Office</td>
<td>June 9, 2009</td>
<td>N/A</td>
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<tr>
<td>Cal/EPA, Department of Toxic Substances Control</td>
<td>Sacramento Office</td>
<td>June 9, 2009</td>
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<tr>
<td>California Department of Water Resources</td>
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<td>June 9, 2009</td>
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<td>California Air Resources Board</td>
<td>Sacramento Office</td>
<td>June 15, 2010</td>
<td>N/A</td>
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<tr>
<td>California State Lands Commission</td>
<td>Sacramento Office</td>
<td>June 9, 2009</td>
<td>N/A</td>
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<td>California Department of Conservation</td>
<td>Sacramento Office</td>
<td>June 9, 2009</td>
<td>N/A</td>
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<td>California Department of Conservation</td>
<td>Los Angeles Office</td>
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<td>California Geological Survey</td>
<td>Sacramento Office</td>
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<td>N/A</td>
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<td>California Highway Patrol</td>
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<td>California Highway Patrol</td>
<td>Barstow Office</td>
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<td>N/A</td>
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<td>California Office of Historic Preservation</td>
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<td>Native American Heritage Commission</td>
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<td>N/A</td>
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<td>California Public Utilities Commission: Rail Crossings Engineering Section</td>
<td>Consumer Protection and Safety Division</td>
<td>December 12, 2007</td>
<td>N/A</td>
<td>No reply</td>
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<td>California Regional Water Quality Control Board</td>
<td>Lahontan Region 6</td>
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<td>Assembly Member Wilmer Amina Carter</td>
<td>District 62</td>
<td>December 12, 2007</td>
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<td>No reply</td>
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<td>San Bernardino Associated Governments</td>
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<td>June 9, 2009</td>
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<td>Southern California Association of Governments</td>
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<td>Kern Council of Governments</td>
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<td>South Coast Air Quality Management District</td>
<td>San Bernardino Office</td>
<td>June 15, 2010</td>
<td>N/A</td>
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<td>County of San Bernardino Office</td>
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<td>June 9, 2009</td>
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<td>County of San Bernardino Environmental Health Services</td>
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<td>June 9, 2009</td>
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<td>County of San Bernardino Public Works Department</td>
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<td>June 9, 2009</td>
<td>N/A</td>
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<td>County of San Bernardino Flood Control District</td>
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<td>County of San Bernardino Transportation Planning Division</td>
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<td>County of San Bernardino Land Use Services Department</td>
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<td>June 9, 2009</td>
<td>N/A</td>
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<tr>
<td>County of San Bernardino Solid Waste Management Division</td>
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<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<tr>
<td>County of San Bernardino Superintendent of Schools</td>
<td></td>
<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<tr>
<td>County of San Bernardino Library Administration</td>
<td></td>
<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<td>County of San Bernardino Fire Department</td>
<td>Administrative Headquarters</td>
<td>June 9, 2009</td>
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<td>Agency Name</td>
<td>Region/Office</td>
<td>Date of Letter</td>
<td>Role</td>
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<td>County of San Bernardino Sheriff's Department</td>
<td>Central Station</td>
<td>June 9, 2009</td>
<td>N/A</td>
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<td>County of San Bernardino Government Center</td>
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<td>June 9, 2009</td>
<td>N/A</td>
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<td>County of San Bernardino Special Districts Department</td>
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<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<td>Kern County Auditor/Controller/County Clerk</td>
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<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<td>Kern County Environmental Health Services</td>
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<td>June 9, 2009</td>
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<td>Kern County Resource Management Agency</td>
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<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<td>Kern County Roads Department</td>
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<td>June 9, 2009</td>
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<td>Kern County Superintendent of Schools</td>
<td></td>
<td>June 15, 2010</td>
<td>N/A</td>
<td>No reply</td>
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<td>Kern County Library</td>
<td>Administration</td>
<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<td>Kern County Library</td>
<td>Boron Branch</td>
<td>June 9, 2009</td>
<td>N/A</td>
<td>No reply</td>
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<td>Kern County Fire Department</td>
<td>Administration</td>
<td>June 9, 2009</td>
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<td>Kern County Fire Department</td>
<td>Station No. 17</td>
<td>June 9, 2009</td>
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<td>City Manager</td>
<td>June 9, 2009</td>
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<td>City of Tehachapi</td>
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<td>June 9, 2009</td>
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<td>Agency Name</td>
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<td>Role</td>
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<td>Additional Coordination</td>
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<td>County Development Director</td>
<td>June 15, 2010</td>
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### 5.1.5 Permits, Reviews and Approvals

The following permits, reviews, and approvals are anticipated prior to project construction:

- U.S. Fish and Wildlife Service—Section 7 consultation for threatened and endangered species and review and comment on Section 404 permit;
- California Department of Fish and Wildlife—Section 1602 agreement for streambed alternation and Section 2081 agreement for threatened and endangered species;
- Bureau of Land Management—Encroachment permits, if and when deemed necessary;
- U.S. Department of Defense (DOD)—Encroachment permit, if and when deemed necessary;
- California Public Utilities Commission (CPUC)—Approval for grade separation over the Burlington Northern Santa Fe railway;
- Regional Water Quality Control Board (RWQCB)—Waste Discharge Requirements for impacts on state waters; and
- State Water Resources Control Board (SWRCB)—Coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity (Construction General Permit, 99-08-DWQ).

### 5.2 Scoping Process

#### 5.2.1 Notification of Scoping

As part of the current CEQA/NEPA process, a scoping meeting is required as part of the preparation of an EIR/EIS. A Notice of Preparation (NOP), regarding preparation of the EIR, and a Notice of Intent (NOI), regarding preparation of an EIS, were advertised to the public and mailed to elected officials and local, state, and federal agencies with jurisdiction over or discretionary approval rights within the project corridor in May 2007. The NOI was published in the Federal Register on May 10, 2007, and the NOP was received and accepted by the State Clearinghouse on May 7, 2007.
5.2.2 June 2007 Public Scoping Meeting

A scoping meeting notice, intended for the general public and other relevant entities, was distributed to notify people of the project, to invite their comments on the project and EIS/EIR process, and to invite them to a public scoping meeting being held for the project on June 21, 2007. The meeting was held from 4:00 p.m. to 7:00 p.m. at the Roadhouse Restaurant, located at 6158 SR-58, Kramer Junction, California. The scoping meeting had an open-house format. In addition, several display boards were set up to describe the project purpose and need, background, alternatives, and more. Caltrans staff members were available to answer questions and discuss the project. There were approximately 50 members of the public in attendance, 17 of whom stated that they were from the Boron/Kramer Junction area. Notices for the public scoping meeting were also placed in local newspapers.

The scoping meeting notice was mailed approximately one month prior to the June 21, 2007, meeting to a project database of approximately 4,000 individuals. The mailing list included property occupants, owners, and absentee owners within a half-mile of the project area as obtained through a database search prepared by Spectrum Mailing Lists in April 2007 and based on assessor’s parcel numbers and post office boxes. Additionally, the mailing list included elected and appointed local officials, state representatives and senators, the congressional delegation for the area, key stakeholders, neighborhood and civic organizations, property owners, and individuals who had attended previous meetings or otherwise asked to be informed about the project.

5.2.3 Agency and Public Scoping Comments Received

The scoping period was May 11, 2007, to July 20, 2007. Comments were received from the time when the NOI, NOP, and scoping notice were distributed in early May 2007 through July 2007. Comments were accepted through July 20, 2007.

A total of 97 comments were received from the public and resource agencies. All comments have been considered and incorporated, as appropriate, into preliminary engineering plans and the EIR/EIS. All alignments suggested by the community at the June 21, 2007, scoping meeting were evaluated with respect to engineering, cost, and environmental implications.

The public provided input by writing comments on comment cards at the scoping meeting. General observations and concerns expressed by the public pertaining to the SR-58 Kramer Junction Expressway Project included the following:

- Traffic congestion along SR-58,
- Safety concerns and accidents on SR-58,
- Low-income and minority populations in Boron and community investment, and
- Business displacements and property acquisitions.

Overall, comments received during the scoping process were favorable and supportive of the project because of the safety benefits afforded by the proposed improvements.
5.3 Additional Project Coordination and Public Outreach

5.3.1 Public Outreach

5.3.1.1 January 2002 Public Information Meeting

On January 15, 2002, Caltrans sponsored a public information meeting for the four-lane expressway project on SR-58 at Kramer Junction. The meeting was held at the Roadhouse Restaurant in Kramer Junction, San Bernardino County, California. Invitations to the meeting were sent to property owners, interested parties, and public officials. Additionally, a notice about the upcoming meeting was published in the Mojave Desert News on December 27, 2001, and on January 10, 2002.

The purpose of the public information meeting was to provide information to the public regarding the design of the four-lane expressway project. Informational display boards were located around the meeting room, and Caltrans representatives were available to discuss the displays, answer questions, and receive public input.

Upon arriving, attendees were asked to sign in so that an attendance record could be maintained. Their addresses were subsequently added to the project mailing list. Each attendee received a project fact sheet and a comment card and was invited to walk around the room and view the displays. Attendees were encouraged to fill out the comment cards at the meeting or submit them by mail by January 31, 2002.

A total of 56 people signed the attendance sheet.

A public information meeting summary report was issued by Caltrans and the U.S. Department of Transportation in 2002.

5.3.1.2 August 2013 Public Hearing

A public hearing was held Tuesday, August 6, 2013 in a meeting room at the Roadhouse Restaurant (6158 State Route 58, Kramer Junction, CA 93516). The purpose of the hearing was to provide an opportunity for interested community members to submit comments on the Draft EIR/EIS.

Public notification for the hearing included: mailing of the public hearing notice, publication of display and internet advertisements in local newspapers, and posting of the public hearing date and location on the project website. A total of 61 property owners, residents, and business tenants within 500 feet of the proposed alternative alignments and 51 agencies and elected officials received a public hearing meeting notice. Table 5-3 documents the display advertisements.
Table 5-3: Newspaper Advertisements

<table>
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<tr>
<th>Publication</th>
<th>Advertising Run Date(s)</th>
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<tr>
<td>Desert Dispatch</td>
<td>July 5, 2013 and July 30, 2013</td>
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<tr>
<td>Daily Press</td>
<td>July 5, 2013 and July 30, 2013</td>
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<td>Antelope Valley Press</td>
<td>July 5, 2013 and July 30, 2013</td>
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<td>The Sun</td>
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<td>El Mojave (Spanish language)</td>
<td>July 6, 2013 and July 27, 2013</td>
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<td>Daily Press Internet Ads</td>
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<td>Source: Record of Public Hearing, 2013</td>
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</table>

The public hearing was attended by 21 community members.

Comment cards were distributed at the public hearing, where meeting attendees could provide comments on the project and the Draft EIR/EIS. Written and verbal comments and questions collected at the public hearing are included in Section 5.4. The deadline for submitting public comments was Monday, August 19, 2013.

5.3.2 Project Development Team

At the inception of project planning, a Project Development Team (PDT) was established to direct the course of engineering and environmental studies for the project. The purpose of the PDT was to:

- Develop a set of alternatives that met the purpose, need, and scope of the project;
- Assess the engineering, environmental, social, and economic aspects of the proposed project alternatives and develop and evaluate measures to mitigate impacts of the project;
- Ensure that local agency, state, and federal requirements are met;
- Establish and conduct a program of community and interagency coordination to communicate project issues; and
- Prepare recommendations regarding the selection of a preferred alternative.

The PDT included representatives from the following agencies as well as consultants at some point during project development:

- Caltrans, District 8, including project management and staff from the disciplines of Communications, Design, Hydraulics, Right of Way, Environmental, Biology, Traffic Operations, and Transportation Planning;
- San Bernardino Associated Governments (SANBAG);
- City of Barstow;
- County of San Bernardino; and
- ICF International (consultant).
5.3.3 Notice of Intent and Notice of Preparation

Copies of the NOI and NOP are included below. In addition, this chapter contains the Notice of Availability (NOA) of the Draft EIS from the Federal Register and the public hearing notice in English and Spanish.

5.3.4 Correspondence Related to the Section 6002 Process (now “Moving Ahead for Progress in the 21st Century – MAP-21, 23 USC 139”)

A sample letter of the 6002 process is included below.

5.3.5 Other Agency Correspondence

There are no other agency correspondence letters at this time.
Notice of Intent and Notice of Preparation

DEPARTMENT OF TRANSPORTATION
Federal Highway Administration

Environmental Impact Statement: San Bernardino County, CA

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of Intent.

SUMMARY: The FHWA is issuing this notice to advise the public of its intent to prepare an Environmental Impact Statement (EIS) for the proposed widening and realignment of State Route 58 (SR-58) Kramer Junction Expressway from two to four lanes located between the Kern/San Bernardino County line and a point 12.5 miles east on SR-58 in San Bernardino County, California. This will be a gap closure project.

FOR FURTHER INFORMATION CONTACT: Tay Duan, Senior Project Development Engineer, Federal Highway Administration, 880 South Figueroa, Suite 1550, Los Angeles, CA 90017. Telephone: (213) 292-3494. Marie Petry, California Department of Transportation District 8, 494 W. Fourth Street, San Bernardino, CA 92401. Telephone: (909) 383-6379.

SUPPLEMENTARY INFORMATION: The FHWA, in cooperation with the California Department of Transportation, will prepare an EIS for the proposed widening and realignment of SR-58 Kramer Junction Expressway in San Bernardino County, California. This 13-mile long project would take place entirely within San Bernardino County and is centered on the Kramer Junction where SR-58 intersects US-395 west of the City of Barstow. This section of SR-58 is currently a nonstandard two-lane highway between a four-lane freeway to the west and a four-lane expressway to the east. The proposed project would close this gap. The existing two-lane segment includes an at-grade signalized intersection at SR-58/US-395 (Kramer Junction), an at-grade railroad crossing of Burlington Northern Santa Fe (BNSF) railroad west of that intersection, and numerous uncontrolled at-grade driveways and street access points. There is also an at-grade railroad crossing on US-395 north of the SR-58/US-395 intersection that slows traffic and contributes to accidents when traffic backs up during train crossings. SR-58 is a major east-west transportation corridor with a high percentage of truck traffic transporting goods in and out of the state. The purpose of this project is to provide for increased capacity of the project for increased travel demand and safety improvements.

The alternatives described above will be further refined through efforts conducted under the National Environmental Policy Act (40 CFR parts 1500-1508, and 23 CFR part 771), the 1990 Clean Air Act Amendments, section 404 of the Clean Water Act, Executive Order 12968 regarding environmental justice, the National Historic Preservation Act, the Endangered Species Act, the section 4(f) of the U.S. Department of Transportation Act, and other federal environmental protection laws, regulations, policies, and executive orders. The EIS will incorporate comments from the public scoping process as well as analysis in technical studies. Other alternatives suggested during scoping process would be considered during the development of the EIS. The EIS will consider any additional reasonable alternatives identified during scoping process.

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to private organizations and citizens who previously have expressed, or are known to have, an interest in this project. Location and details of the public scoping meeting for the proposed project will be advertised in local newspapers and other media and will be hosted by the California Department of Transportation, District 8.

Catalog of Federal Domestic Assistance Program Number 20.205, Highway Research, Planning and Construction. The regulations implementing Executive Order 13272 regarding intergovernmental consultation Federal programs and activities apply to this program.


Maisy Khalid,
Director, Project Development & Environment, California Division, Federal Highway Administration.

FRR Doc. E7–6339 Filed 5–9–07; 8:45 and
BILLING CODE 4910–22–P

Final Environmental Impact Report/Environmental Impact Statement
State Route 58 Kramer Junction Expressway Project
public scoping meeting for the proposed project will be advertised in local newspapers and other media and will be hosted by the California Department of Transportation, District 8. (Catalog of Federal Domestic Assistance Program Number 20.305, Highway Research, Planning and Construction. The regulations implementing Executive Order 13572 regarding intergovernmental consultation Federal programs and activities apply to this program.)

Issued On May 2, 2007.

Maior Khaleed,
Director, Project Development & Environment, California Division, Federal Highway Administration
[FR Doc. E7-9640 Filed 5-9-07; 8:45 am]
BILLING CODE 4110-12-P

DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

Notice of Application for Approval of Discontinuance or Modification of a Railroad Signal System or Relief From the Requirements of Title 49 Code of Federal Regulations Part 236

Pursuant to Title 49 Code of Federal Regulations (CFR) part 235 and 49 U.S.C. 20502(a), the following railroad has petitioned the Federal Railroad Administration (FRA) seeking approval for the discontinuance or modification of the signal system or relief from the requirements of 49 CFR part 236 as detailed below.

[Docket Number FRA–2007–27762]

Applicant: Canadian National Railway Company, Mr. Timothy R., Luhm, Senior Manager of S&C, Southern Region, Chicago Division, 17941 Ashland Avenue, Homewood, Illinois 60430.

The Canadian National Railway Company (CN) seeks approval of the permanent discontinuance and removal of the automatic block signal (ABS) system on Track Numbers 3 and 4, from Milepost 15.06 to Milepost 20.25, on the Chicago Division, Chicago Subdivision, between Riverdale and Harvey, Illinois. The ABS system was suspended on August 14, 2001, due to a derailment.

The reason given for the proposed change is that the ABS system impedes train operations on Track Numbers 3 and 4. Due to the congestion in the area from the intermodal facility, GTW, Harvey Yard, HSB, CSS, and Cook County Lumber, cars are continually stored and interchanged in this area.

Any interested party desiring to protest the granting of an application shall set forth specifically the grounds upon which the protest is made, including a concise statement of the interest of the party in the proceeding. Additionally, one copy of the protest shall be furnished to the applicant at the address listed above.

All communications concerning this proceeding should be identified by docket number FRA–2007–27762 and may be submitted by one of the following methods:

- Web site: http://dnsc.dot.gov/
- Fax: 202–493–2251;
- Mail: Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL–401, Washington, DC 20590–0001;
- Hand Delivery: Room PL–401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m. Monday through Friday, except Federal holidays.

Communications received within 45 days of the date of this notice will be considered by FRA before final action is taken. Comments received after that date will be considered as far as practicable. All written communications concerning these proceedings are available for inspection and copying on the internet at the docket facility’s Web site at http://dnsc.dot.gov.

FRA wishes to inform all potential commenters that anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT’s complete Privacy Act Statement in the Federal Register published on April 11, 2000 (Volume 65, Number 76, Pages 19477–78) or you may visit http://dnsc.dot.gov.

FRA expects to be able to determine these matters without an oral hearing. However, if a specific request for an oral hearing is accompanied by a showing that the party is unable to adequately present its or her position in a written statement, an application may be set for public hearing.

Issued in Washington, DC, on May 2, 2007.

Grady C. Coflin, Jr.
Deputy Associate Administrator for Safety
Standards and Program Development
[FR Doc. E7–9640 Filed 5–9–07; 8:45 am]
BILLING CODE 4110–06–P

DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

Notice of Application for Approval of Discontinuance or Modification of a Railroad Signal System or Relief From the Requirements of Title 49 Code of Federal Regulations Part 236

Pursuant to Title 49 Code of Federal Regulations (CFR) parts 235 and 49 U.S.C. 20502(a), the following railroad has petitioned the Federal Railroad Administration (FRA) seeking approval for the discontinuance or modification of the signal system or relief from the requirements of 49 CFR part 236 as detailed below.

[Docket Number FRA–2007–27767]

Applicant: Marquette Rail, LLC, Mr. Ronald J. Davis, Roadmaster, 5530 West First Street, Grand Rapids, Michigan 49543.

Marquette Rail, LLC seeks approval of the proposed discontinuance and removal of the interlocked signal system on the Manistee River moveable bridge, Milepost CBA 113.5, on the Manistee Subdivision near Manistee, Michigan. The proposed changes include the permanent elimination of the two controlled signals, the replacement of the power-operated switches at the derail locations with hand throw switches, and the display of permanent red signals.

The reason given for the proposed changes is to eliminate the costly upkeep and maintenance of the equipment and place a person on the site to visually inspect the operation of all equipment each time a train crosses.

Any interested party desiring to protest the granting of an application shall set forth specifically the grounds upon which the protest is made, including a concise statement of the interest of the party in the proceeding. Additionally, one copy of the protest shall be furnished to the applicant at the address listed above.

All communications concerning this proceeding should be identified by Docket Number FRA–2007–27767 and may be submitted by one of the following methods:

- Web site: http://dnsc.dot.gov/
- Fax: 202–493–2251;
- Mail: Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL–401, Washington, DC 20590–0001;
- Hand Delivery: Room PL–401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC 20590–0001.
NOTICE OF PREPARATION

To: AGENCIES, ORGANIZATIONS, AND INTERESTED PARTIES
From: California Department of Transportation, District 8
464 W. 4th Street, 6th Floor, MS 821
San Bernardino, CA 92401-1400

Subject: Notice of Preparation of a Draft Environmental Impact Report
Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15062(a), 15103, 15375

Project Title: State Route 58 Kramer Junction Expressway Project

Project Location: State Route 58 (SR-58) in San Bernardino County, California, between the Kern/San Bernardino County line and a point 12.9 miles east. The project would take place entirely within San Bernardino County and is centered on Kramer Junction, where SR-58 intersects with US-395 west of the City of Barstow (Attachment A).

Project Description: The proposed project would involve widening and realignment of SR-58 Kramer Junction Expressway from two to four lanes. This will be a gap closure project (Attachment B).

This notice is to inform you that the California Department of Transportation District 8 will be the lead agency and will prepare a joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the project identified above. Your participation as a responsible agency is requested in the preparation and review of this document.

We need to know the views of your agency as to the scope and content of the environmental information that is germane to your agency’s statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR/EIS prepared by our agency when considering your permit or other approval for the project.

The project location, project description, and potential environmental effects of the proposed action are described in Attachments A, B, and C.

Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but not later than 30 days after receipt of this notice.

Please direct your response to Marie Petry (Telephone 909/383-6379) at the address shown above. Please provide us with the name for a contact person in your agency.

Date 5/7/07  Signature Marie Petry
Title Senior Environmental Planner
Sample Letter (Cooperating and Participating Agencies): 6002 Process

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

RICHARD G. BROOKS, Governor

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENVIRONMENTAL PLANNING
464 WEST FOURTH STREET, MS 1222
SAN BERNARDINO, CA 92401-1400
MAIN (909) 383-4561
DIRECT (909) 388-7725
FAX (909) 388-7046
TTY 711
www.dot.ca.gov/dist8

February 1, 2013

Name
Address
Address
Address
Address

Dear Name:

Subject: Coordination regarding the Methodology for California Department of Transportation’s State Route 58 Kramer Junction Expressway Project in San Bernardino County, California

The California Department of Transportation (Department) is initiating an Environmental Impact Statement (EIS) for the proposed State Route 58 Kramer Junction Expressway Project in San Bernardino County, California. As the lead agency, the Department invited all federal, state, tribal, regional and local government agencies that may have an interest in the project or project vicinity to be participating agencies. On December 13, 2007, the agency accepted the Department’s invitation to be a participating agency, as well as respectfully declined the invitation as cooperative agency, in the Kramer Junction Expressway Project.

As a participating agency, the agency is provided a 30-day period to review the methodology of the environmental process, the project’s purpose and need, as well as comment on the Moving Ahead for Progress in the 21st Century (MAP-21) Coordination Plan which includes a list of agencies, their roles and responsibilities. Please mail any comments or questions by March 01, 2013.

The Department annotated EIS/EIR Outline, developed in cooperation with FHWA, provides guidance regarding the organization and layout of a combined Environmental Impact Statement/Environmental Impact Report. The outline incorporates all of CEQ’s requirements for compliance with NEPA as well as CEQA EIR requirements. The annotated outline also includes standard language for particular topics, standard graphics, and tips for analyses. All EIS/EIR documents prepared for projects on the State Highway System are to follow this outline. Use of this outline will ensure a document that meets
State Route 58 Kramer Junction Expressway Project Coordination Agreement
Page 2

FHWA and Department standards, and it will facilitate speedier project review. The Environmental Handbook, Volume I, Chapter 37, Preparing Joint NEPA/CEQA Documentation describes how the analyses and documentation are presented to comply with both requirements. Please refer to the Environmental Handbook, Volume I, Chapter 37, Preparing Joint NEPA/CEQA Documentation at the following web address: http://www2.dot.ca.gov/ser/vol1/sec6/ch37/joint/chap37.htm.

When preparing a NEPA Environmental Impact Statement (EIS) the key concerns include the following chapters and discussions:

1. Proposed Project: Purpose/Need
2. Project Alternatives
3. Land Use
4. Community Impacts/Growth
5. Utilities/Emergency Services
6. Traffic and Transportation/ Pedestrian and Bicycle Facilities
7. Visual Aesthetics
8. Cultural Resources
9. Hydrology and Floodplain
10. Water Quality and Stormwater Runoff
11. Geology
12. Paleontology
13. Hazardous Waste/Materials
14. Air Quality
15. Noise
16. Energy
17. Natural Communities
18. Wetlands and Other Waters
19. Plant Species
20. Animal Species
21. Threatened/Endangered Species
22. Invasive Species
23. Relationship between Local Short Term Uses of the Human Environment and Enhancement of Productivity
24. Irreversible and Irretrievable Commitments of Resources that would be involved in this project

After preparing a Draft Environmental Impact Statement the process continues to the Draft EIS circulation which includes public distribution, comments, and consideration of comments received. Then, the Final Environmental Impact Statement (FEIS) is prepared. FHWA has provided detailed regulations (23 CFR 771.125) and guidance (Technical Advisory T 6640.8A) on the preparation and circulation of an FEIS. The EIR/EIS annotated outline and the NEPA-only GIS outline meet all the FHWA requirements. An FEIS is prepared after comments on the DEIS have been received and reviewed. At a minimum, an FEIS must include the previous comments received and the lead agency’s response. The FEIS also must identify the preferred alternative, discuss the basis for preferring it, and evaluate all reasonable alternatives considered. It must summarize the public involvement process and describe the mitigation measures that are to be incorporated into the proposed action. The FEIS also should document compliance with all applicable environmental laws and Executive Orders.

The FEIS must be available to the public during a 30-day period of circulation prior to the agency taking any action on the project. FHWA regulations state that the FEIS must be made available to the public and transmitted to agencies no later than the time the Notice of Availability is filed with EPA for publication in the Federal Register. After preparing an FEIS, and at the time the Department makes a decision to select a project alternative, the Department must also prepare a Record of Decision (ROD) explaining its course of action (40 CFR 1505.2). The ROD represents the final decision regarding the project.
State Route 58 Kramer Junction Expressway Project Coordination Agreement
Page 3

If you have questions or comments, or would like to discuss the State Route 58 Kramer Junction Expressway Project in more detail, please contact Kurt Heidelberg, Senior Environmental Planner, at (909) 388-7028 or email (kurt.heidelberg@dot.ca.gov), whichever is most convenient.

Sincerely,

DAVID BRICKER
Deputy District Director
Environmental Planning

Enclosures (3)
Chapter 5. Comments and Coordination

Notice of Availability (Federal Register)

The Commission encourages electronic submission of protests and interventions in lieu of paper, using the FERC Online links at http://www.ferc.gov. To facilitate electronic service, persons with Internet access who will eFile a document and/or be listed as a contact for an intervenor must create and validate an eRegistration account using the eRegistration link. Select the eFiling link to log on and submit the intervention or protest.

Persons unable to file electronically should submit an original and 5 copies of the intervention or protest to the Federal Energy Regulatory Commission, 888 First Street NE., Washington, DC 20426.

The filings in the above-referenced proceeding(s) are accessible in the Commission’s eLibrary system by clicking on the appropriate link in the above list. They are also available for review in the Commission’s Public Reference Room in Washington, DC. There is an eSubscription link on the Web site that enables subscribers to receive e-mail notification when a document is added to a subscribed docket(s). For assistance with any FERC Online service, please email FERCinfoOnlineSupport@ferc.gov or call (866) 208-3670 (toll free). For TTY, call (202) 502-0659.

Dated: June 20, 2013.
Nathaniel J. Davis, Sr.,
Deputy Secretary.

[FR Doc. 2013-16118 Filed 7-3-13; 8:45 am]
BILLING CODE 6717-01-P

DEPARTMENT OF ENERGY
Federal Energy Regulatory Commission
[Docket No. ER13-1816-000]
Sustaining Power Solutions LLC; Supplemental Notice That Initial Market-Based Rate Filing Includes Request for Blanket Section 204 Authorization

This is a supplemental notice in the above-referenced proceeding of Sustaining Power Solutions LLC’s application for market-based rate authority, with an accompanying rate schedule, noting that such application includes a request for blanket authorization, under 18 CFR part 34, of future issuances of securities and assumptions of liability.

Any person desiring to intervene or to protest should file with the Federal Energy Regulatory Commission, 888 First Street NE., Washington, DC 20426, in accordance with Rules 211 and 214 of the Commission’s Rules of Practice and Procedure (18 CFR 385.211 and 385.214). Anyone filing a motion to intervene or protest must serve a copy of that document on the Applicant.

Notice is hereby given that the deadline for filing protests with regard to the applicant’s request for blanket authorization, under 18 CFR part 34, of future issuances of securities and assumptions of liability is July 18, 2013.

ENVIORMENTAL PROTECTION AGENCY

[FR-FRL-9009-9]
Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (206) 564-7146 or http://www.epa.gov/compliance/nea/.


Notice

Section 306(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA’s comment letters on EISs are available at: http://www.epa.gov/compliance/nea/eisdata.html.

EIS No. 20130166, Final EIS, WAPA, CO, Gypsum Pumping Plant


EIS No. 201301167, Final EIS, BB, CA, San Luis Reservoir State Recreation Area Resource Management Plan/General Plan, Review Period Ends: 08/05/2013, Contact: Dave Wooley 550-407-5049

EIS No. 201301188, Final EIS, BLM, NV, Adobor Pipeline Project, Proposed Natural Gas Pipeline Facilities, Contact: Mark Mackiewicz 435-636-3016

End U.S. Department of the Interior’s Bureau of Land Management (BLM) has adopted the Federal Energy Regulatory Commission’s FEIS # 201100001, filed 01/07/2010 and appeared in the FR 01/15/2010. The BLM was a cooperating agency for the above project. Recirculation of the FEIS is not necessary under Section 1506.3(c) of the CEQ Regulations.

EIS No. 20130119, Final EIS, GSA, NY, Public Sale of Plum Island, Review Period Ends: 08/05/2013, Contact: John Dugan 617-585-5709

EIS No. 20130198, Final EIS, BLM, NV, Hollister Underground Mine Project, Review Period Ends: 08/05/2013, Contact: Janice Stadelman 775-753-0346

EIS No. 20130191, Final EIS, BLM, CA, Casa Diablo IV Geothermal Development Project, Review Period Ends: 08/05/2013, Contact: Colleen Reinhart 760-672-5024

EIS No. 20130192, Final EIS, NOAA, WA, Final Davenport River NERR Feasibility Study and Restoration Plan, Review Period Ends: 08/05/2013, Contact: Rebecca Hoff 206-526-4676

EIS No. 20130196, Draft EIS, CALTRANS, CA, State Route 58 (SR-58) Kramer Junction Expressway Project, Comment Period Ends: 08/19/2013, Contact: Kurt Heidbold 999-306-7028

EIS No. 20130194, Draft EIS, USFS, OR, Fox Canyon Cluster Allotment Management Plans, Comment Period Ends: 08/19/2013, Contact: Jeff Marzol 541-416-6911

EIS No. 20130195, Draft EIS, USCG, FL, Proposed New Bridge across the Manatee River, Comment Period Ends: 08/19/2013, Contact: Randall Overton 395-415-6736

EIS No. 20130196, Draft EIS, BR, CA, Shasta Lake Water Resources Investigation, Comment Period Ends: 09/30/2013, Contact: Katrina Chow 916-078-5687
Public Notice for Draft EIR/EIS and Public Hearing (English)

**Public Notice**

**Draft Environmental Impact Report/Environmental Impact Statement available for Route 58**

**Announcement of Open Forum Public Hearing**

State Route 58 Kramer Junction Expressway Project

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**Public Notice**

**Draft Environmental Impact Report/Environmental Impact Statement available for Route 58**

**Announcement of Open Forum Public Hearing**

State Route 58 Kramer Junction Expressway Project

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**WHAT'S BEING PLANNED**

The California Department of Transportation (CALTRANS) is proposing to realign and widen a 13.3-mile segment of State Route 58 (SR-58) from 0.4 miles west of the Kern County/San Bernardino County line to a point that is approximately 7.5 miles (PM R12.9) east of United States Route 395 (US-395), from a two-lane conventional highway to a four-lane expressway, and construct a railroad grade separation and an interchange at the SR-58/US-395 Junction. Alternatives 1 and 1A would construct the expressway to the north of the existing SR-58. Alternative 2 would be located adjacent to the existing alignment, and Alternative 3 would be located to the south of the existing SR-58. Each of the build alternatives would have similar impacts with the exception of Alternative 2, which is anticipated to result in greater community impacts due to relocations.

Typical cross sections of the proposed SR-58 facility would consist of an approximately 400-foot right-of-way, 100-foot median, 10-foot outside shoulders, and 5-foot inside shoulders. The 0.4-mile segment of US-395 adjacent to SR-58 would be widened from two lanes to four lanes plus a left-turn lane. Lanes would be 12 feet wide with 8-foot outside shoulders on a proposed 100-foot right-of-way. Dual crossing structures (one for eastbound vehicles and the other for westbound vehicles) would grade-separate mainline SR-58 traffic from US-395 and would be 151 feet in length and have a total height of 30 feet. The interchange ramps from SR-58 would have a single merge/diverge lane that transitions to two 12-foot lanes at the connection to US-395. Stop signs would be installed at the termini of off-ramps. An additional set of dual crossing structures would grade-separate mainline SR-58 traffic from the BNSF railroad line and would have a maximum length of 611 feet and a height of 21.5 feet.

Project-level air quality conformity analysis shows that the project will conform to the State Implementation Plan, including localized impact analysis with interagency consultation for particulate matter (PM10) required by 40 CFR 93.116 and 93.123. This project is not considered a Project of Concern regarding particulate matter (PM10) as defined in 40 CFR 93.123(b)(1). The project is listed in a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP).

Significant environmental effects could occur in the following areas: community character/cohesion, relocations, land use, utilities and service systems, traffic, visual/aesthetic resources, cultural resources, hydrology and floodplains, water quality, geology/soils/seismic/topography, paleontology, hazardous waste/materials, air quality, noise and vibration, and biological resources. Following implementation of mitigation measures, it is anticipated that only impacts on visual/aesthetic resources would remain significant.

**WHY THIS AD?**

CALTRANS has studied the effects this project may have on the environment. Our studies show it will significantly affect the quality of the environment. The report that explains why is called an Environmental Impact Report/Environmental Impact Statement. This notice is to tell you of the preparation of the Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS) and of its availability for you to read.

A hearing will be held to give you an opportunity to talk about certain design features of the project with CALTRANS.
Chapter 5. Comments and Coordination

staff before the final design is selected, and to also provide an opportunity to ask questions regarding the planned schedule for this proposed project, including the tentative schedules for the purchase of land for right of way as well as for construction. CALTRANS staff will be available to explain the Department’s relocation assistance for residents and businesses moved by the project.

**WHAT’S AVAILABLE?**
You can look at a copy of the DEIR/EIS as well as the supporting Technical Studies, at the Boron Branch Library, located at 20657 20 Male Team Road in Boron, CA 92316 (posted hours of operation for the Boron Branch Library as of June 18, 2013: Wednesday, 11 a.m. - 6 p.m. and Friday, 11 a.m. - 6 p.m.).

In addition, a copy will be available at the Barstow Branch Library, located at 304 E. Buena Vista Street in Barstow, CA 92311 (posted hours of operation for the Barstow Branch Library as of June 18, 2013: Monday through Wednesday 11 a.m. - 7 p.m., Thursday 10 a.m. - 6 p.m. and Saturday 9 a.m. - 5 p.m. this library is closed on Fridays and Sundays). You can also look at or obtain a CD copy of the DEIR/EIS at the CALTRANS District 8 Office, located in the City of San Bernardino, at 464 W. Fourth Street CA 92401, on weekdays from 8:00 a.m. to 4:00 p.m. Copies of the Technical Studies are also available as well as maps and other information.

Additionally, the DEIR/EIS may be downloaded from Caltrans District 8’s website at: http://www.dot.ca.gov/dist8/projects/san_bernardino/sr58/kramerjunction/index.htm

**WHERE YOU COME IN**
Have the potential impacts been addressed? Do you have information that should be included? Your comments will be part of the public record. If you wish to make a comment on the DEIR/EIS or regarding the proposed project in general, you may submit your written comments until August 19, 2013, to:

Kurt Heidelberg
Senior Environmental Planner
Division of Environmental Planning
464 W. 4th Street, MS 820
San Bernardino, California 92401-1400
or via email: kurt.heidelberg@dot.ca.gov

Please use “SR-58 Kramer Junction Expressway Project” in the subject line. Comments regarding the DEIR/EIS may be submitted in person at the Open Forum Public Hearing on August 6, 2013.

**WHEN AND WHERE**
The Open Forum Public Hearing will be held on:
Tuesday, August 6, from 5:00 p.m. to 8:00 p.m.
at the Roadhouse Restaurant, located at 6158 State Route 58, Kramer Junction, CA 93516.

**CONTACT**
Individuals who require special accommodation (American Sign Language interpreter, accessible seating, documentation in alternate formats, etc.) are requested to contact at least three days prior to the public hearing date; the District 8 Office of Public Affairs at (866) 383-4631, or TDD users may contact the California Relay Service at 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.

For more information about this study or any transportation matter, contact Kurt Heidelberg at CALTRANS District 8 at (909)-388-7028.

EA 08-34770 (PN 080000616)
Public Notice for Draft EIR/EIS and Public Hearing (Spanish)

AVISO PÚBLICO

Reporte/Declaración Preliminar de Impactos al Medio Ambiente
Disponible para la Ruta Estatal 58
Anuncio de Audiencia Pública con Foro Abierto

Proyecto de la Intersección de la Ruta Estatal 58 en Kramer

LO QUE SE ESTÁ PLANEANDO

El Departamento de Transporte de California (CALTRANS) propone realinear y ampliar un segmento de 13.3 millas de la Ruta Estatal 58 (SR-58) desde 0.4 millas al oeste de la línea entre el Condado de Kern y el Condado de San Bernardino hasta un punto que está aproximadamente 7.5 millas (PM R12.9) al este del cruce con la Ruta 395 (US-395), de una carretera convenencional de dos carriles a una autopista de cuatro carriles y construir una separación a desnivel con la vía de ferrocarril y un intercambio en la intersección SR-58/US-395. Las Alternativas 1 y 1A construirían la autopista al norte de la actual SR-58; la Alternativa 2 estaría ubicada entre el alcance actual y la Alternativa 3 estaría ubicada al sur del actual alcance de la SR-58. Cada una de las alternativas de construcción tendría impactos similares, a excepción de la alternativa 2 que se anticipa tendría mayores impactos en la comunidad debido a las reubicaciones.

Las secciones transversales típicas de la propuesta para la SR-58 consistirían en aproximadamente 400 pies en ancho para la vía pública, una línea divisoria de 100 pies, y hombros exteriores de 10 pies y de 5 pies en el interior. El segmento de 0.3 millas de la US-395 junto a la SR-58 sería ampliado de dos a cuatro carriles más un carril para girar a la izquierda. Los carriles en este segmento serían de 12 pies de ancho con hombros exteriores de 8 pies para un total de 100 pies de vía pública. Estructuras de doble sentido (una para los vehículos en dirección este y la otra para los vehículos en dirección oeste) separarían de nivel el tráfico de la SR-58 del de la US-395 y sería 151 pies de largo, con la rampa de conexión desde la SR-58 tendría un solo carril de unión/separación, las cuales serían una transición a dos carriles de 12 pies con la conexión a la US-395. Señales de alto serían instaladas al final de las rampas de salida. Una serie adicional de estructuras de crucé, de doble sentido, separarían de nivel el tráfico de la SR-58 del ferrocarril BNSF y tendrían una longitud máxima de 61.1 pies y una altura de 21.5 pies.

Análisis de conformidad a nivel del proyecto muestra que el proyecto estaría en conformidad con el Plan de Implementación del Estado, incluyendo análisis de impacto localizado en consulta entre agencias sobre las partículas de materia (PM10) exigido por las leyes federales 40 CFR 93.116 y 93.123. Este proyecto no se considera un Proyecto de Preocupación en cuanto a la Calidad de Aire con respecto a las partículas de materia (PM10) como lo define el 40 CFR 93.116 y la 93.123(b)(1). El proyecto está identificado en el Plan Regional de Transporte (RTP) conforme a la Ley para Aire Limpio, al igual que en el Programa de Mejoramiento de Transporte (TIP).

Efectos significativos al medio ambiente podrían ocurrir en las siguientes áreas: características de la comunidad, reubicaciones, uso de tierras, servicios públicos y sistemas de servicios, tráfico, recursos visuales/estéticos, recursos culturales, hidráulica y terrenos inundables, calidad del agua, geología/suelos/sistema sísmico/topografía, paleontología, desechos peligrosos, calidad del aire, ruido y vibración, y a recursos biológicos. Después de incorporar medidas de mitigación, se anticipa que sólo los impactos a recursos visuales/estéticos seguirían siendo significativos.

CALTRANS ha estudiado los efectos que este proyecto puede tener en el medio ambiente. Nuestros estudios muestran que el proyecto afectará significativamente la calidad del medio ambiente. El reporte que explica el por qué, se llama Reporte de Impacto Ambiental/Declaración de Impacto Ambiental. Este aviso es para informarle acerca de la preparación del Borrador del Reporte de Impacto Ambiental/Declaración de Impacto Ambiental (DEIR/EIS, por sus
siglas en inglés) y de su disponibilidad para que usted lo lea.

Se realizará una audiencia para darle a usted la oportunidad de hablar sobre ciertas características del diseño del proyecto con el personal de CALTRANS antes de que el diseño final sea seleccionado y también para poder darle la oportunidad de hacer preguntas sobre el calendario planeado para este proyecto propuesto, incluyendo las fechas aproximadas tanto para la compra de terrenos para la vía pública al igual que para la construcción. Empleados de CALTRANS estarán disponibles para explicar la ayuda de reubicación proporcionada para residentes y empresas ubicadas a causa del proyecto.

| LO QUÉ HAY DISponible | Usted puede ver una copia del DEIR/EIS, al igual que los estudios técnicos en los cuales se basa tal reporte, en la biblioteca Boron Branch Library, ubicada en el 26967 20 Male Team Road en Boron, CA 93536 (horas de operación de la biblioteca Boron Branch Library a partir del 18 de junio de 2013: Miércoles, 11 a.m. - 6 p.m. y viernes, 11 a.m. - 6 p.m.).
Adicionalmente, habrá disponible una copia en la biblioteca Barstow Branch Library, ubicada en el 304 E. Bonsa Vista Street en Barstow, CA 92311 (horas de operación de la biblioteca Barstow Branch Library desde el 18 de junio de 2013: De lunes a miércoles 11 a.m. - 7 p.m., jueves 10 a.m. - 6 p.m. y sábado 9 a.m. - 5 p.m. Esta biblioteca está cerrada los viernes y domingos). Usted puede ver u obtener una copia en CD del DEIR/EIS en la oficina de CALTRANS Distrito 8, ubicada en la Ciudad de San Bernardino, en el 464 W. Fourth Street, CA 92401, entre semana desde las 8:00 a.m. hasta las 4:00 p.m. Copias de los estudios técnicos también están disponibles, al igual que mapas y otra información. Adicionalmente, el DEIR/EIS puede ser descargado del sitio web de CALTRANS Distrito 8 en http://www.dot.ca.gov/dist8/projects/san_bernardino/58 Kramer Junction/index.htm|

| CÓMO USTED PUEDE PARTICIPAR | ¿Se han tratado los impactos potenciales? ¿Tiene usted información que debería ser incluida? Sus comentarios serán parte del registro público. Si desea hacer un comentario sobre el reporte DEIR/EIS o sobre el proyecto propuesto en general, puede enviar sus comentarios por escrito hasta el 19 de agosto de 2013 a:
Kurt Heidelberg
Senior Environmental Planner
California Department of Transportation
Division of Environmental Planning
464 W. 4th Street, MS 820
San Bernardino, California 92401-1400
o por correo electrónico a: kurt.heidelberg@dot.ca.gov
Por favor use “SR-58 Kramer Expressway Project” en la línea de asunto del correo electrónico. Comentarios sobre el reporte DEIR/EIS pueden ser sometidos en persona en la Audiencia Pública con Foro Abierto, el 6 de agosto de 2013.

| CUÁNDO Y DONDE | La Audiencia Pública con Foro Abierto será:
El martes 6 de agosto de 2013 de 5:00 p.m. a 8:00 p.m.
En el restaurante Roadhouse Restaurant, ubicado en el 6158 State Route 58, Kramer Junction, CA 93516.

| CONTACTO | Las personas que requieran comodidades especiales (intérprete de American Sign Language, asientos accesibles, documentación en formatos alternativos, etc.) pueden ponerse en contacto con el 29 de días antes de la fecha de la audiencia pública con la Oficina de Relaciones Públicas del Distrito 8 al: 4861 388-4651. Usuarios de TDD pueden ponerse en contacto con el California Relay Service línea de TDD al: 1-800-735-2929 (TTY a Voz), 1-800-735-2922 (Voz a TTY), 1-800-854-7784 (Dece o para Voz a Voz) o marcar el 711.
Para más información sobre este estudio o sobre cualquier otro asunto de transporte, contacte a Kurt Heidelberg en el Distrito 8 de CALTRANS al (909) 388-7028.

EA 08-34770 (PN 080000006515)
5.4 Comments and Responses to Comments on Draft EIR/EIS

The Draft EIR/EIS public circulation period extended from July 5, 2013 through August 19, 2013. A Public Hearing was held on Tuesday, August 6, 2013 at the Roadhouse Restaurant, located at 6158 State Route 58, Kramer Junction, CA 95316 from 5:00 p.m. to 8:00 p.m.

Comments on the project were received from federal, state, and local agencies, as well as from individuals. The comments addressed concerns regarding air quality, transportation/traffic, cultural resources, stormwater, and public access.

Table 5-4 lists the agencies, organizations, and persons who commented on the Draft EIR/EIS during the public circulation period.

<table>
<thead>
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### Chapter 5. Comments and Coordination

#### Final Environmental Impact Report/Environmental Impact Statement

**State Route 58 Kramer Junction Expressway Project**

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Response to Comment A-1


United States Department of the Interior
OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Pacific Southwest Region
333 Bush Street, Suite 515
San Francisco, CA 94104

Filed Electronically
15 August 2013

Kurt Heidelberg
Senior Environmental Planner
California Department of Transportation
464 W. 4th Street
San Bernardino, CA 92401-1400

Subject: Draft Environmental Impact Statement for the Proposed Widening and Re-alignment of SR-58 Kramer Junction Expressway, San Bernardino County, CA

Dear Mr. Heidelberg:

The Department of the Interior has received and reviewed the subject document and has no comments to offer.

Thank you for the opportunity to review this project.

Sincerely,

[Signature]

Patricia Anderson Porter
Regional Environmental Officer

cc:
Director, OEPC
OEPC Staff Contact: Dave Sire
Chapter 5. Comments and Coordination

Letter B: Edwards Air Force Base

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**Response to Comment B-1**

Figure 1.1 is only intended to show the regional vicinity. A new Figure 1.3 has been included in Chapter 1 to show the boundaries of Edwards Air Force Base within the project limits.

**Response to Comment B-2**

Figure 1.2 is only intended to show the general project location. A new Figure 1.3 has been included to show the boundaries of Edwards Air Force Base within the project limits.

**Response to Comment B-3**

The genus has been changed to *Xerospermophilus* as requested.

**Response to Comment B-4**

All instances of Air Force Flight Test Center have been changed to Air Force Test Center as requested.

**Response to Comment B-5**

Figure 3.19-1 through Figure 3.21-1 are focused on biological resources in the project location. A new Figure 1.3 has been included to show the boundaries of Edwards Air Force Base within the project limits.

**Response to Comment B-6**

Critical Habitat that would be affected will be mitigated at a 5:1 ratio. Land that will be affected that is not designated critical habitat will be mitigated at a 3:1 or 5:1 ratio depending on habitat suitability for the desert tortoise. Please see Table 3.21-2 in Section 3.21 for the impact areas and mitigation ratios.

**Response to Comment B-7**

Biological surveys have been conducted on portions of Edwards Air Force Base through which the alignment of the Preferred Alternative (Alternative 1A) would pass. If additional surveys are warranted, Caltrans will coordinate with Edwards Air Force Base accordingly.

Communications between Caltrans Cultural Studies and Edwards Air Force Base.
Chapter 5. Comments and Coordination

Response to Comment B-8

The language has been removed as requested and clarification has been added that the six remaining, previously recorded resources located on Edwards Air Force Base were adequately documented in reports provided by Edwards Air Force Base cultural resources staff.

Response to Comment B-9

Communications between Caltrans Cultural Studies and Edwards Air Force Base are ongoing. Cultural surveys will be carried out on portions of Edwards Air Force Base, and Caltrans will coordinate with Base representatives as necessary.

Response to Comment B-10

Both permits have been added to Table S-1 as requested.

Response to Comment B-11

The cumulative impacts entry of Table S-2 has been revised for consistency with Section 3.25, Cumulative Impacts. No changes to the findings of Section 3.25 have been made, but Table S-2 has been revised to accurately reflect the cumulative impacts analysis.

Response to Comment B-12

A statement has been added that specifies that one Edwards Air Force Base parcel would be partially acquired under the Preferred Alternative (Alternative 1A). Approximately 28 acres of the 105-acre parcel would be used for the Alternative 1A alignment.

Response to Comment B-13

A statement has been added that specifies that one Edwards Air Force Base parcel would be acquired under the Preferred Alternative (Alternative 1A). In Section 3.4, Community Impacts, Section 3.4.2.3 has also been revised to discuss the Edwards Air Force Base parcel acquisition. Approximately 28 acres of the 105-acre parcel would be required for the implementation of Base are ongoing. Cultural surveys will be carried out on portions of Edwards Air Force Base, and Caltrans will coordinate with Base representatives as necessary.
Alternative 1A.

Response to Comment B-14

Both permits have been added to Table 2-2 as requested.
Chapter 5. Comments and Coordination

Letter C: U.S. Environmental Protection Agency, Environmental Review Office

Response to Comment C-1

Caltrans has noted EPA’s Lack of Objections (LO) finding.

Response to Comment C-2

The locations of West Boron Elementary School and Boron High School, however, are 1.25 and 3 miles west of the Kramer Junction project limits (Kern/San Bernardino county line). Given the distance of the schools from the westernmost project limits, the project would not adversely impact air quality at these locations. The purpose of the project is to reduce the existing traffic congestion on the two-lane State Route-58, which would improve air quality in the local area. Furthermore, particulate matter (PM) increases would not be attributable to project implementation, as the Preferred Alternative (Alternative 1A) would not be responsible for the generation of new vehicle trips. Caltrans will consider EPA recommendations related to sensitive receptors for future roadway improvement projects, as appropriate.

While significant impacts that could not be fully mitigated were determined under Alternative 2, Alternative 1A was identified as the Preferred Alternative. Impacts related to community cohesion under the Preferred Alternative (Alternative 1A) were determined not to be substantially adverse with implementation of measures ECON-1 through ECON-3, CI-3, and CI-4, as discussed in Section 3.4.
Although 6 years have passed since the initial public scoping efforts for the project were undertaken, renewed community engagement occurred in conjunction with the release of the Draft EIR/EIS for public review and comment. As mentioned above, a Public Hearing was held at the Roadhouse Restaurant at Kramer Junction on August 6, 2013. Notices of the hearing and the availability of the Draft EIR/EIS were published in local newspapers (English- and Spanish-language publications) as well as provided directly to individuals who had previously participated in scoping meetings.

Community engagement efforts have been summarized in Chapter 5 of the Draft EIR/EIS and have been updated to reflect recent community engagement efforts for the Final EIR/EIS. The public’s involvement has been summarized in the Final EIR/EIS by including the public comments received, as well as Caltrans’ responses. This Final EIR/EIS has also identified the Preferred Alternative and discussed the basis for its identification.

Response to Comment C-4

With respect to your comments about hazardous waste and materials evaluation, once Caltrans acquires the properties needed for this project, the right-of-way demolition team will have asbestos, lead-based paint, and polychlorinated biphenyl (PCB) testing performed within the structures prior to demolition. The right-of-way demolition contractor will do the testing, removal, and disposal of any hazardous materials that may be encountered during the process. Caltrans will refer the construction contractor to website and the latest information on PCB.
Chapter 5. Comments and Coordination

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objectives)
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes in the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would be able to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)
The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative. EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unacceptable)
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unacceptable from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unacceptable impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

Category "1" (Adaptable)
EPA believes the draft EIS adequately sets forth the environmental impacts of the preferred alternative and those of the alternative reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category "2" (Insufficient Information)
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analysis, or discussion should be included in the final EIS.

Category "3" (Inadequate)
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analysis, or discussion are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 320 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

Letter D: Native American Heritage Commission

Response to Comment D-1

A cultural resources literature and records search of the general project area was first conducted on June 4, 2007, at the San Bernardino Archaeological Information Center (SBAIC). An updated records search at the SBAIC was completed February 29, 2012. For purposes of this investigation, the general project location was defined as a one-mile radius surrounding the project Area of Potential Effect (APE) as described in Section 3.8.2, Affected Environment, of Chapter 3.8, Cultural Resources, in the Final EIR/EIS. The intent is to keep the specific locations of sensitive areas confidential. No specific locations were revealed during subsequent consultation with the Native Americans on the NAHC list of recommended contacts. Therefore, no mitigation measures addressing identified sensitive sites are necessary.
Response to Comment D-2

Consistent with professional standards and practices, only limited information regarding individual archaeological sites that would be available to the general public is included in documents such as the Final EIR/EIS. As demonstrated on pages 3.8-1 and 3.8-9 of Chapter 3.8, Cultural Resources, the information provided on the cited archaeological site is limited.

Response to Comment D-3

In total, the project APE contains 59 cultural resources that were previously evaluated or required evaluation. These include 42 archaeological resources and 17 built-environment resources. The remaining cultural resources within the APE, consisting of 29 isolated archaeological artifacts and the remaining heavily modified or recently constructed built-environment resource, were determined to have minimal potential for significance and were exempted from evaluation in accordance with Attachment 4 of the Section 106 Programmatic Agreement (PA). All seventeen of the built-environment resources and eight of the archaeological resources were evaluated and determined not eligible for the National Register of Historic Places (NRHP) as a result of the current study, and are also not considered historical resources under CEQA because they do not meet the California Register of Historical Resources (CRHR) criteria. The State Historic Preservation Officer (SHPO) concurred with these determinations on April 3, 2013. In addition, four of the identified archaeological sites were previously determined not eligible for the NRHP and CRHR with previous SHPO concurrence.

The intensive archaeological survey of the APE was carried out between February 4 and February 10, 2002, and June 6 and November 14, 2007. As a result of the cultural resources field survey of the project APE, 54 new archaeological resources, including 31 archaeological sites and 23 isolated artifacts, were identified. Initial built-environment field surveys were conducted in November and December 2007, with follow-up in November and December 2012. Seventeen built-environment resources were identified within the project’s APE and recorded and evaluated. The built environment resources include 10 linear resources—seven late nineteenth- and early twentieth-century road segments, two former...
Chapter 5. Comments and Coordination

Native American Contacts
San Bernardino County
July 9, 2013

<table>
<thead>
<tr>
<th>Ramona Band of Cahuilla Mission Indians</th>
</tr>
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<tbody>
<tr>
<td>Joseph Hamilton, Chairman</td>
</tr>
<tr>
<td>P.O. Box 301670, Cahuilla Anza, CA 92539</td>
</tr>
<tr>
<td><a href="mailto:admin@ramonatrib.com">admin@ramonatrib.com</a></td>
</tr>
<tr>
<td>(951) 763-4105 Fax</td>
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<table>
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<tr>
<td>Carla Rodriguez, Chairwoman</td>
</tr>
<tr>
<td>26990 Community Center Drive, Serrano</td>
</tr>
<tr>
<td>Highland, CA 92546 (909) 864-8933</td>
</tr>
<tr>
<td>(909) 864-3724 FAX</td>
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<tr>
<td>(909) 864-3370 FAX</td>
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<tr>
<td>Edward Smith, Chairperson</td>
</tr>
<tr>
<td>P.O. Box 976, Chemehuenei</td>
</tr>
<tr>
<td>Chemehuenei Valley, CA 92363 (760) 858-4301</td>
</tr>
<tr>
<td>(760) 859-5460 Fax</td>
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<tr>
<td>Timothy Williams, Chairperson</td>
</tr>
<tr>
<td>500 Merriman Ave, Mojave Needles, CA 92363</td>
</tr>
<tr>
<td>(760) 629-4591</td>
</tr>
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<td>(760) 629-5767 Fax</td>
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<td>P.O. Box 221838, Tataviam</td>
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<td>Mojave Valley, CA 91322</td>
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<tr>
<td>(661) 753-6903 Office</td>
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<tr>
<td>(760) 685-0555 Cell</td>
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<th>AhaMakEw Cultural Society, Fort Mojave</th>
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<tr>
<td>Linda Otero, Director</td>
</tr>
<tr>
<td>P.O. Box 5990, Mojave</td>
</tr>
<tr>
<td>Mohave Valley, AZ 86440</td>
</tr>
<tr>
<td>(928) 768-4475</td>
</tr>
<tr>
<td><a href="mailto:LindaOtero@fortmojave.com">LindaOtero@fortmojave.com</a></td>
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<td>(928) 768-7996 Fax</td>
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| Atchison, Topeka & Santa Fe railroad segments, and a segment of the Southern Sierras “Tower Line” transmission line—and seven properties containing buildings or groups of buildings. |

**Response to Comment D-4**

Any additional archaeological inventory sites will be coordinated with NAHC and include a professional report and records search with field survey, if necessary.

Consultation was conducted in compliance with all applicable state and federal laws. The consultation with interested parties, including Native American groups and historical organizations, began in 2007. A request was made to the NAHC for a search of the Sacred Lands File on July 6, 2007. The NAHC responded on November 15, 2007, stating that a search of the Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate project area. A list of 12 Native American individuals/organizations was provided by the NAHC for additional consultation in regards to Native American cultural resources or project-related concerns. The Caltrans District 8 Native American Coordinator ultimately decided that 10 individuals/organizations should be contacted. Native American correspondence related to the proposed project can be found in Attachment H of the HPSR and is summarized in the ASR (HPSR Attachment B). In addition, four local historical societies and preservation groups were contacted on December 27, 2007, to elicit comments or concerns regarding the proposed project.

As discussed in Chapter 3.8, Cultural Resources, of the Final EIR/EIS on page 3.8-9, the appropriate process for the identification and evaluation of accidentally discovered archaeological resources, pursuant to California Health and Safety Code Section 7050.5 and CEQA 15064.5(f), will be followed. A certified archaeologist and a culturally affiliated Native American with knowledge in cultural resources will monitor all ground disturbing activities. If human remains are discovered during construction, the applicable provisions of State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 will be followed. 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. This commitment can also be referenced in the Environmental Commitment Record in Appendix G.
Response to Comment Letter E
The commenter confirmed receiving the Draft EIR/EIS, but did not provide any comments.
### Chapter 5. Comments and Coordination

#### Final Environmental Impact Report/Environmental Impact Statement

**State Route 58 Kramer Junction Expressway Project**

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Letter F: California Public Utilities Commission

Response to Comment F-1

The project will be conducted in compliance with all federal and Commission rules and regulations.

The results of the Traffic Study Report, which are discussed in Chapter 1, were completed on September 30, 2010. There is no expected volume increase within the project Opening Year of 2019 and Horizon Year of 2039. The traffic volume is expected to be reduced at the intersection.

The pedestrian circulation patterns and destinations are located to the north of the project vicinity and no modification will be required to the existing facility or its existing safety features.
Chapter 5. Comments and Coordination

Response to Comment F-2
The project will be conducted in compliance with all federal and Commission rules and regulations.

Response to Comment F-3
When the State Route 58 Kramer Junction Expressway is clearly defined and prior to submission of a Formal Application, Caltrans will contact Rail Crossings Engineering Section staff to arrange a meeting with Commission staff to discuss safety issues at any proposed locations. Please refer to Appendix G, Environmental Commitments Record.

Response to Comment F-4
If there is any modification (including closure) required of the existing rail crossing, the Commission’s GO 88-B authorization process will be followed. Please refer to Appendix G, Environmental Commitments Record.
Chapter 5. Comments and Coordination

Response to Comment F-5

The preferred alternative will include dual crossing structures that would grade separate the mainline SR-58 traffic from the BNSF railroad line. The eastbound crossing structure would be 611 feet in length and the westbound structure would be 558 feet in length. The structures would leave a 30-foot horizontal clearance and 21.5-foot vertical clearance for trains. The crossing structure over the BNSF railroad line would be located 2.5 miles to the east of Kramer Junction.

Response to Comment F-6

With the exception of the proposed SR-58 crossing structure over the BNSF rail line approximately 2.5 miles east of Kramer Junction, the Preferred Alternative (Alternative 1A) would not affect the rail line. Based on the Traffic Study Report for 2019–2039, there is no expected increase in vehicular traffic attributable to the proposed project. The US-395 crossing at the BNSF rail line would continue to be at-grade. Following project implementation, the proposed SR-58 Expressway would operate to the north of the BNSF rail line instead of south of the rail line, as is the case with the existing SR-58 highway. No project-related impacts on the existing US-395/BNSF crossing would occur.
Letter G: County of San Bernardino Department of Public Works

Response to Comment G-1

The segment of the existing SR-58 between approximately PM T0.44 to PM R8.1 would be relinquished to the County of San Bernardino. A cul-de-sac would be constructed at each end of the relinquished segment. The cul-de-sac at the western end is proposed to be constructed at approximately PM T1.3 inside Assessor’s Parcel Number (APN) 049811103, and the one at the east end would be constructed at approximately PM R7.9 inside APN 049213101. Both cul-de-sacs in conjunction with the proposed relinquished segment of SR-58 would facilitate property access for existing parcel owners.

The proposed location of the cul-de-sac at PM T1.3 was selected to maintain access to APNs 049823250, 049823251, and 049823200, which are partially developed, consisting of small businesses and residences. In addition, the owner of one of the biggest undeveloped parcels (APN 049811103) will have traffic connectivity and access to public roads along with the rest of the community and public. The other cul-de-sac’s location (PM R7.9) was determined by considering the access to existing public roads for all the APN owners in the vicinity. This cul-de-sac would be constructed in a location that would not affect or land-lock APNs along the existing SR-58 segment for this project.

The west end of the proposed relinquished segment of SR-58 between approximately PM T0.44 and PM T1.3 would be obliterated and vacated. A small segment at the east end approximately between PM 7.9 and PM 8.1 would be obliterated and vacated to establish logical termini of the relinquished segment.

Those who access properties from the existing SR-58 would continue to access it from the same roadway, although cul-de-sacs would be constructed to the west and east and the roadway would become a local roadway under the jurisdiction of the County of San Bernardino. Those seeking access to the realigned SR-58 expressway would use interchanges at Boron Avenue or US-395, or could access the facility directly on the eastern end of the project (to the east of PM 9.0).
<table>
<thead>
<tr>
<th><strong>Response to Comment G-2</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of Alternative 1A would not result in a loss of access to any parcels in the vicinity of the alignment. The locations of the cul-de-sacs along the existing SR-58 have been identified in order to prevent such losses in access.</td>
</tr>
</tbody>
</table>
Chapter 5. Comments and Coordination

Response to Comment H-1

Caltrans acknowledges the Mojave Desert Air Quality Management District’s support of the Kramer Junction Expressway Project.

The impacts on air quality from construction would be short-term in duration and, therefore, would not result in significant/adverse or long-term effects. Implementation of measures AQ-1 and AQ-2 would reduce and minimize any air quality impacts resulting from construction activities.

Letter H: Mojave Desert Air Quality Management District

July 8, 2013

Kurt Heidelberg, Senior Environmental Planner
California Department of Transportation
Division of Environmental Planning
464 W. Fourth Street, 6th Floor MS 820
San Bernardino, CA 92401-1400

Subject: State Route 58 (SR-58) Kramer Junction Expressway Project DEIR/EIS

Dear Mr. Heidelberg:

The Mojave Desert Air Quality Management District (MDAQMD) has received the Draft Environmental Impact Report/Environmental Impact Statement for the State Route 58 (SR-58) Kramer Junction Expressway Project. The proposed Project would realign and widen a 13.3-mile segment of SR-58 from 0.4 miles west of the Kern County/San Bernardino County line to a point that is approximately 7.5 miles east of United States Route 395, from a two-lane conventional highway to a four-lane expressway; and construct a railroad grade separation and an interchange at the SR-58/US-395 Junction.

The District concurs that the proposed mitigation measures for Air Quality (AQ-1 and AQ-2) represent feasible mitigation. The District has no additional comments at this time.

Thank you for the opportunity to review this planning document. If you have any questions regarding this letter, please contact me at (760) 245-1661, extension 6726, or Tracy Walters at extension 6122.

Sincerely,

Alan J. De Salvo
Supervising Air Quality Engineer

ATD IV
CAL Trans SR 58 Kramer Junction Expressway
Chapter 5. Comments and Coordination

Letter I: Lahontan Regional Water Quality

August 15, 2013

Kurt Heidelberg, Senior Environmental Planner
California Department of Transportation
464 W. 4th Street, 6th Floor MS 920
San Bernardino, CA 92401-1400
Email: kurt.heidelberg@dot.ca.gov

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT FOR THE STATE ROUTE 58 KRAMER JUNCTION EXPRESSWAY PROJECT, SAN BERNARDINO COUNTY, STATE CLEARINGHOUSE NO. 2007051051

California Regional Water Quality Control Board, Lahontan Region (Water Board) staff received the Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the above referenced project (Project) on July 5, 2013. The Draft EIR/EIS was prepared by the California Department of Transportation (Caltrans) and submitted in compliance with provisions of the California Environmental Quality Act (CEQA).

Water Board staff, acting as a responsible agency, is providing these comments to specify the scope and content of the environmental information germane to our statutory responsibilities pursuant to CEQA Guidelines, California Code of Regulations, title 14, section 15096. Based on our review of the Draft EIR/EIS, best management practices (BMPs) that effectively treat post-construction stormwater runoff should be included as part of the Project. We encourage Caltrans to consider our comments and value our mission to protect waters of the State and maintain water quality in the Lahontan Region.

Project Description

The proposed Project will realign and widen a portion of State Highway 58 (SR-58) from a conventional two-lane highway to a four-lane expressway. The Project will cover 13.3 miles of SR-58 starting 0.4 miles west of the Kern County/San Bernardino County line to 7.5 miles east of US Route 395 (US-395). The Project will provide traffic relief for future demand, reduce maintenance costs, and improve level of service. The Draft EIR/EIS presents five alternatives for Project design with each discussing potential impacts to hydrology and water quality as well as mitigation measures to reduce impacts to a less than significant level. The selection of the preferred alternative will be done following the comment period.
Response to Comment I-1

The Preferred Alternative (Alternative 1A) will achieve the goal of low impact development through the use of Design Pollution Prevention per Section 2.4.1 of the Caltrans Storm Water Quality Handbooks-Project Planning and Design Guide (May 2010). Design Pollution Prevention best management practices (BMPs) are permanent measures to reduce pollution discharges (e.g., reduce erosion, manage nonstormwater discharges) after construction is completed. Specifically, the Design Pollution Prevention BMPs include consideration of downstream effects related to potentially increased flow, preservation of existing vegetation, concentrated flow conveyance systems, and slope/surface protection systems. The existing vegetation will be mowed and duff will be collected and reapplied in order to re-establish the vegetation after construction. Soil stabilization will be done according to the requirements of National Pollution Discharge Elimination System (NPDES) General Construction Stormwater Permit, Order 2009-0009-DWQ (as amended).

Response to Comment I-2

As stated in Section 3.9.3 and 3.10.3, implementation of the project would not substantially alter hydrological function such that recharge, runoff patterns, or upstream or downstream water quality would be affected in an adverse way. A hydro-modification evaluation/analysis, in addition to hydrologic/hydraulic study, would be performed during the design phase of this project.

Response to Comment I-3

The project will be designed in compliance with Order No. 2012-0011-DWQ NPDES NO. CAS000003 Statewide Storm Water Permit Waste Discharge Requirements for Caltrans. The proposed project will comply with all applicable water quality standards and prohibitions, including provisions of the Basin Plan.

Response to Comment I-4

The relevant requirements are covered under Section 13-Water Pollution Control of the 2010 Standard Specifications and
Chapter 5. Comments and Coordination

Mr. Heidelberg - 3 - August 15, 2013

4. We request that construction staging areas be sited in upland areas outside stream channels and other surface waters on or around the Project site. Buffer areas should be identified and exclusion fencing used to protect the water resources and prevent unauthorized vehicles or equipment from entering or otherwise disturbing stream channels. Construction equipment should use existing roadways to the extent feasible.

5. All temporary impacts should be restored (recontoured and revegetated) to match pre-Project conditions. Monitoring and maintenance for a period of no less than three years should be performed to ensure the success of the restored areas.

6. All mitigation measures proposed for the protection of surface waters should present evidence that the mitigation addresses all potentially affected beneficial uses. Mitigation measures that focus only on habitat functions and that do not address other beneficial uses of water, for example, are not adequate.

7. Section 3.9.3.1, Permanent Impacts, indicates that thirteen natural drainages will be affected by implementation of the proposed Project, and that new drainage facilities would be included to improve on-site drainage. However, the section also states that culverts are proposed at 11 locations. Please explain the improvements that would be needed at all drainage locations.

8. Figure 2.1a, Sheets 1-9, does not show locations for proposed drainages. Please include the drainage locations, where appropriate, in the Final EIR/EIS.

9. Table 3.1-3: Recently Completed and Planned Land Uses in the Project Vicinity, describes the draft EIR for PS&E Cleanup released in August 2012. Please note that the Final EIR was certified by the Water Board on July 17, 2013, in Resolution No. R6V-2013-0060.

10. Section 3.13.2.3, Environmental Regulatory Agency Inquiries, incorrectly lists the Lahontan Region as Region 8. Please note that the Lahontan Region is Region 6.

Permitting Requirements

A number of activities associated with the proposed Project appear to have the potential to impact waters of the State and, therefore, may require permits issued by either the State Water Resources Control Board (State Water Board) or Lahontan Water Board. The required permits may include:

11. Streambed alteration and/or discharge of fill material to a surface water may require a CWA, section 401 water quality certification for impacts to federal waters (waters of the U.S.), or dredge and fill waste discharge requirements for impacts to non-federal waters, both issued by the Lahontan Water Board.

Construction Site Management Practices Manual. Both documents are part of the Contract. Additionally, the Contractor will prepare a Storm Water Pollution Prevention Plan (SWPPP), which will address the requirements of all applicable Construction BMPs, including construction staging areas. For specific measures regarding the construction staging areas and equipment refer to WQ-6, WQ-7, and WQ-8 in Section 3.10, Water Quality: Avoidance, Mitigation, and/or Minimization Measures.

Response to Comment I-5

All temporary impacts will be restored (re-contoured) to match pre-project conditions. The temporary impacts, as well as monitoring and maintenance, will be done in accordance with initial site stabilization and in accordance with the requirements of NPDES General Construction Stormwater Permit, Order 2009-0009-DWQ (as amended). After a Notice of Termination is submitted and Caltrans accepts the construction, the responsibility for maintaining the facility within Caltrans right-of-way will be transferred to the Highway Maintenance Division. As stated in Chapter E of the Caltrans Maintenance Manual, it is policy that “plantings should be grown to achieve healthy, mature plants. Thereafter, maintenance operations should be limited to those necessary to maintain a healthy planting” (p. E-5, Caltrans 2013). As such, landscaping would be established and maintained.

Response to Comment I-6

Caltrans requirements compel compliance with the Regional Water Quality Control Board Basin Plan, Stormwater Management Plans, and the Lahontan Regional Water Quality Control Board, and BMPs have been identified accordingly. Measures WQ-1 through WQ-5 have been listed in the Avoidance, Minimization, and Mitigation measures of Section 3.10 and the Environmental Commitment Record in Appendix G, and will be incorporated to address any potentially affected beneficial uses. For clarification, measures WQ-1 through WQ-5 are measures for avoidance and minimization, not mitigation of significant impacts.
Chapter 5. Comments and Coordination

Response to Comment I-7

The improvements that will be needed are preliminary inlet and outlet drainage devices for conveyance of water. As stated in Section 3.9.3.1, culverts would be constructed at 13 locations along the alignment (including at least one oversized culvert on each side of US-395) and would capture runoff from drainage areas surrounding the project footprint. Detailed information about the improvements would not occur until final design.

Response to Comment I-8

The locations for proposed drainages will be updated based on the hydrological study prepared for the project’s final design phase. Detailed information about the improvements would not occur until final design.

Response to Comment I-9

It is noted that the Final EIR for the PGE Cleanup was certified by the Water Board on July 17, 2013 in Resolution No. R6V-2013-0060. This information has been included in the recently completed and Planned Uses in the Project Vicinity in Table 3.1-3 on page 3.1-4.

Response to Comment I-10

The text of Section 3.13.2.3 has been revised to provide the correct region number as requested.

Response to Comment I-11

The project will apply for a CWA Section 401 Water Quality Certification and dredge and fill waste discharge requirements.

Response to Comment I-12

The Preferred Alternative (Alternative 1A) would disturb greater than 1 acre. Therefore, Caltrans will obtain a Construction General Permit (Order No. 2009-0009-DWQ) for the project. In addition, Caltrans is covered under the Caltrans NPDES Statewide Stormwater Permit (Order No. 2012-0011-DWQ), which regulates all discharges from Caltrans MS4s and maintenance facilities. The project will also implement construction Best Management Practices (BMPs) and other
measures and as part of Caltrans’ Storm Water Management Plan.

**Response to Comment I-13**

Caltrans will apply for an NPDES Permit for Limited Threat Discharges to Surface Waters, as necessary.

**Response to Comment I-14**

Comment noted. Caltrans staff will consult with Water Board staff as necessary to achieve compliance.

**Response to Comment I-15**

Comment noted. BMPs for water quality are identified in Section 3.10.4. In addition to the Caltrans Standard project features, Standard Practice BMPs, Stormwater Pollution Prevention Plan BMPs, and the Statewide National Pollutant Discharge Elimination System permit provisions, measures WQ-1 through WQ-5 in Section 3.10.4 discuss the project planning and design guide for project impacts. For clarification, measures WQ-1 through WQ-5 are measures for avoidance and minimization, not mitigation of significant impacts.
After reviewing public comments submitted, Caltrans has identified Alternative 1A as the Preferred Alternative. As part of the Preferred Alternative, a cul-de-sac would be constructed along the existing SR-58 to the west of the subject property on Highway 58 in order to maintain vehicle access to the property. Access from the subject property to the realigned SR-58 expressway would occur via Boron Avenue to the west or US-395 to the east.

Response to Comment 1-1

Comment Card 1: Dave Delahousie

STATE ROUTE 58 KRAMER JUNCTION PROJECT
August 6, 2013 • Roadhouse Restaurant

Name: Dave Delahousie Phone: Date: 8-6-13

Address: Phone: Date: 8-6-13

Affiliation: Property Owner Email: Phone: Date: 8-6-13

Comments: My property address is 18647 Hwy 58, Benton, Ca. Alternative 1A will impact the access road to my property. The Boron Airport is what could be the plan to give me additional access? The

Comments on the Project may be submitted during the Open Forum Public Hearing, emailed to ikert.huelsenberg@dot.ca.gov, or submitted by mailing this postcard.

Comments are due by August 19, 2013. ☑ I request to be on the Project Mailing List.

Meeting Accommodations:
+ How did you hear about this open forum public hearing or project? ☑
+ If you are limited in your ability to communicate in English, were your communication needs adequately met? ☑ Yes ☑ No ☑ Not Applicable
+ If you were in need of a reasonable accommodation at this meeting as a result of a disability, were your accommodation needs adequately met? ☑ Yes ☑ No ☑ Not Applicable
+ If you checked No to either of the two questions above, please explain below how your needs could be better met in the future:

To accommodate persons with disabilities, this card will be made available in alternate formats upon request.
Chapter 5. Comments and Coordination

Comment Card 2: Dennis Darr

August 6, 2013 • Roadhouse Restaurant

Name: Dennis Darr  Phone: [Redacted]  Date: 9/3/13

Address: [Redacted]

Affiliation: Property owner

Comments:

Option 1B is the route least damaging to our property. Our family has been property owners/business owners since 1944. Our children operate care on after us. I strongly object to Options 2A and 2B, they would end our family enterprises.

Response to Comment 2-1

After reviewing public comments submitted, Caltrans has identified Alternative 1A as the Preferred Alternative.
Chapter 5. Comments and Coordination

Comment Card 3: James Darr

Response to Comment 3-1

After reviewing public comments submitted, Caltrans has identified Alternative 1A as the Preferred Alternative.
Chapter 5. Comments and Coordination

Comment Card 4: Kramer Darr

Response to Comment 4-1

After reviewing public comments submitted, Caltrans has identified Alternative 1A as the Preferred Alternative.
After reviewing public comments submitted, Caltrans has identified Alternative 1A as the Preferred Alternative.
Comment Card 6: Robbie Kibel

From: Robbie  
To: Robbie. candice.Kibel  
Cc: robby.Kibel. boron. KACOT  
Subject: SR-58 Kramer Junction Land Acquisition  
Date: Wednesday, August 07, 2013 8:33:46 PM

August 7, 2013
Candice Hughes
Environmental Studies "A"  
Caltrans-County Building (6th Floor #620)  
644 W. 4th Street  
San Bernardino, CA 92401

Ms. Candice Hughes:

Two lots I own in Boron, CA are located in San Bernardino County lot  and APN lot .

The third lot I own in Kern County, is lot # APN lot and fronts the North side 20 Mule Team Rd. It also has electric pole on the property. It is across the street from railroad track.

I appreciated your responding to my concern on the three lots I own. Yes, I took your advice and printed out the Alternatives 1, 1A, 2 and 3, and enjoyed reviewing all three alternatives.

For now, I will file my information on SR-58 Kramer Junction Land Acquisition, in my pending personal files. When I find out which route Caltrans decides on, then I should ask if and how that will affect my properties...but until that time is decided, I don’t know what I should ask.

I have an original map on Borax Acres Kramer Borate District San Bernardino County California that has been in my family since 1941. I made a copy of this map I am sending you, as I found it most interesting. The back side gives a history of Boron.

Thank you.
Comment Card 7: Irl Peterson

Response to Comment 7-1

After reviewing public comments submitted, Caltrans has identified Alternative 1A as the Preferred Alternative, the cost of which is $191,325,000. Please refer to Table S-2 in the Summary chapter of the Final EIR/EIS for more information about the breakdown of the cost including construction, right-of-way, and utilities. Ten members of the Caltrans project development team attended the Public Hearing, which was held instead of a formal hearing with a speaker in order to generate more input.
Chapter 5. Comments and Coordination

Comment Card 8: Charlene Sims

Based on additional analysis, a traffic signal is proposed at the SR-58 eastbound off-ramp and a stop sign is proposed at the SR-58 westbound ramps for the opening year 2019. For 2039 conditions, a traffic signal would be installed at the westbound ramps intersection. For both 2019 and 2039 conditions, the westbound and eastbound ramps would operate at level of service B, which is free-flowing without delays. For more information, please see the revised Chapter 1 and Section 3.6 of the Final EIR/EIS.

As part of the Preferred Alternative, the segment of the existing SR-58 between approximately PM T0.44 to PM R8.1 would be relinquished to the County of San Bernardino, and cul-de-sacs would be constructed at each end of the relinquished segment at PM T1.3 and PM R7.9. The existing SR-58 would continue to operate as a local roadway under the jurisdiction of the County of San Bernardino between these cul-de-sacs following the completion of construction. As such, it would be possible for one to travel between Boron and US-395 along Twenty Mule Team Road and the portion of the existing SR-58 facility that would be relinquished to the County without accessing the proposed SR-58 expressway.
Comment Card 9: Sylvia Uselton

STATE ROUTE 58 KRAMER JUNCTION PROJECT
August 6, 2013 - Roadhouse Restaurant

Name: Sylvia Uselton  Phone: 
Address: 
Affiliation: Friends of property parcel

Comments: Why spend $352 million. Just stupid!!!

Response to Comment 9-1

After reviewing public comments submitted, Caltrans has identified Alternative 1A as the Preferred Alternative, the cost of which is $191,325,000. Please refer to Table S-2 in the Summary chapter of the Final EIR/EIS for more information about the breakdown of the cost including construction, right-of-way, and utilities.
Response to Comment 10-1

Based on additional analysis conducted after the release of the Draft EIR/EIS, a traffic signal is proposed at the SR-58 eastbound off-ramp and a stop sign is proposed at the SR-58 westbound ramps for the opening year 2019. For 2039 conditions, a traffic signal would be installed at the westbound ramps intersection. For both 2019 and 2039 conditions, the westbound and eastbound ramps would operate at level of service B, which is free-flowing without delays. For more information, please see the revised Chapter 1 and Section 3.6 of the Final EIR/EIS.
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Chapter 6  List of Preparers

6.1 California Department of Transportation (Caltrans)

Kurt Heidelberg; BS, Mathematics, Virginia Commonwealth University; MS, Computer Science, Virginia Commonwealth University; MA, Anthropology (Archaeology), University of California, Riverside; Branch Chief, Environmental Studies “D,” DEIR Senior Environmental Planner; 20 years of experience in environmental planning.

Candice Hughes; BA, Geography; MA, Education. Environmental Planner Generalist.

Tony Louka; Senior Transportation Engineer, Caltrans Environmental Engineering.

Rodrigo Panganiban; Transportation Engineer/Civil, Caltrans Environmental Engineering.

Hoang B. Pham; Transportation Engineer/Civil, Caltrans Environmental Engineering.

Meenu Chandan; Transportation Engineer (Noise), Caltrans Environmental Engineering.

Edison Jaffery; Transportation Engineer/Civil, Caltrans Environmental Engineering.

Rosanna Roa; Caltrans Environmental Engineering, Hazardous Waste Coordinator; 21 years of experience.

Roy King, R.C.E.; MS, Water Resources Engineering, California State University, Fullerton; BS, Civil Engineering, University of Wyoming; 13 years of experience in Caltrans’ Hydraulics Division, 10 years of experience in Caltrans’ Construction Division; 25 years of experience in various private and overseas engineering firms and government agencies.

Scott Quinnell; Senior Environmental Planner, Branch Chief Biological Studies/Permits.

Gabrielle Duff; MA, Archaeology, University of California, Riverside; BA, Anthropology, University of California, Santa Barbara; Senior Environmental Planner, Cultural/Paleontology Review Lead; 15 years of experience in cultural resources management.

Andrew Walters; BA, History, University of California, Davis; MA, Public History, California State University, Sacramento; Cultural Studies Associate Environmental Planner/Principal Architectural Historian; 12 years of experience.

Theresa Sasis; Office Chief, Traffic Operations.

Jane Pham; Transportation Engineering /Civil, Traffic Operations.

Mark Roberts; Senior Transportation Planner, Traffic Operations.
Aung M. Naing; Transportation Engineer/Civil, Division of Planning, District 8.

Joseph Shaer, Transportation Planning, Division of Planning, District 8.

William Pan, PE; MS, Civil Engineering, Rutgers – The State University of New Jersey; BS, Civil Engineering, National Central University, Taiwan; California Professional Engineer #74056; Engineer – District Office of Stormwater Quality, Water Quality Review; 6 years of experience in Caltrans NPDES compliance, 25 years of experience in civil engineering, stormwater, soil erosion/sediment control, and hydraulic study, analysis, design, and permit compliance.

Kyle Myrick; BS, Geography; MS, Environmental Science; Desert Tortoise Surveying, Monitoring, and Handling Certification; Environmental Planner/Biologist, Biological Studies/Permits; 5 years of GIS experience.

Bahram Karimi; BSC, Geology; MSC, Geology; PhD, Groundwater Quality (in progress); Associate Environmental Planner, Paleontologist; 10 years of experience.

Miriam Bishop; Landscape Associate, Division of Landscape Architecture.

Darin Cooke; Public Information Officer, District 8.

Philip Havins; Public Information Officer, District 8.

6.2 Consultants

6.2.1 ICF International (Draft and Final EIR/EIS Preparation Lead)

Brian Calvert; MEP, Master of Environmental Planning, Arizona State University; BA, Geography and Regional Science, The George Washington University; Project Director, DEIR/DEIS QA/QC; 16 years of experience in environmental consulting.

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Mari Piantka; BA, Environmental Studies (emphasis in environmental law, environmental and urban planning, and CEQA compliance), University of California at Santa Barbara; Project Manager, DEIR/DEIS Coordinator; 16 years of experience in environmental planning.

Rusty Whisman; MA, Urban Planning, University of California, Los Angeles; BA, Social Ecology, University of California, Irvine; Environmental Planner, Community Impact Assessment, Relocation Impact Statement, DEIR/DEIS preparation; 3 years of experience in environmental planning.
Tanya Jones; BA, Environmental Analysis and Design, University of California, Irvine; Environmental Planner, DEIR/DEIS Preparation; 5 years of experience in environmental consulting.

Namrata Cariapa; MA, Geography and Geographical Information Systems, California State University, Northridge; MA, Geography, University of Cambridge, England, United Kingdom; BA, Geography, University of Cambridge, England, United Kingdom; BA, Economics, University of Mumbai, Sophia College, Mumbai, India; Environmental Planner, DEIR/DEIS preparation; 6 years of experience in environmental planning.

Tricia Campbell; BA, Biology, California State University, Long Beach; Senior Biologist, DEIR/DEIS preparation; 23 years of experience as a biologist.

Peter Hardie; MESM, Environmental Science and Management, University of California, Santa Barbara; BA, Environmental Science, Rollins College; Noise Analyst, DEIR/DEIS preparation; 8 years of experience in environmental consulting.

Matt McFalls; MS, Geography, San Diego State University; BA, Public Administration, San Diego State University; Environmental Planner, DEIR/DEIS preparation; 5 years of experience in environmental consulting.

Daniela Sanaryan; BA, Environmental Analysis and Design, University of California, Irvine; Senior Environmental Planner, DEIR/DEIS Preparation; 12 years of experience in environmental consulting.

Mario Anaya; BA, Global Studies (minor in Urban and Regional Studies), University of California, Los Angeles; Environmental Planner, Community Impact Assessment, DEIR/DEIS Preparation; 5 years of experience in environmental consulting.

Elizabeth Irvin; BA, English, University of California, Irvine; Lead Technical Editor; 14 years of experience in environmental consulting.

Mindy Farnsworth; BA, English Language, Brigham Young University; Technical Editor; 8 years of experience in editing, 7 of which are in environmental consulting.

John Mathias; BA, Communications, California State University, Northridge; MFA Program in Professional Writing, University of California; Technical Editor; 19 years of experience in editing, 9 of which are in environmental consulting.

Kenneth Cherry; Coursework complete for MA in Rhetoric: the Teaching of Writing, Contemporary American Literature, San Diego State University; BA, English, San Diego State University; Technical Editor; 22 years of experience in writing and editing, 6 of which are in environmental consulting.

Jenelle Mountain-Castro; Publication Specialist/Formatting, 9 years of experience in environmental consulting.
## Chapter 7. Distribution List

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| Dianne Feinstein  | 750 "B" Street, Suite 1030  |
| US Senator  | San Diego, CA 92101  |
| Kevin McCarthy  | Bakersfield District Office  |
| Congressman District 23  | 4100 Empire Drive, Suite 150  |
|  | Bakersfield, CA 93309  |
| Paul Cook  | 14955 Dale Evans Parkway  |
| US Congress, District 8  | Apple Valley Town Hall  |
|  | Apple Valley, CA 92307  |
| Carl Benz  | U.S. Fish and Wildlife Service  |
|  | Ventura Fish and Wildlife Office  |
|  | 2493 Portola Rd, Suite B  |
|  | Ventura, CA 93003  |
| Edythe Seehafer  | U.S. Bureau of Land Management  |
| Environmental Coordinator  | Barstow Field Office  |
|  | 2601 Barstow Road  |
|  | Barstow, CA 92311  |
| Spencer MacNeil  | U.S. Army Corps of Engineers  |
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|  | Ventura, CA 93001  |
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|  | Washington, DC 20460  |
| Jeff Scott  | Environmental Protection Agency  |
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|  | San Francisco, CA 94105  |
| Deputy Administrator  | Office of Environmental Policy and Compliance  |
|  | Department of the Interior  |
|  | Main Interior Building, MS 2462  |
|  | 1849 “C” Street, NW  |
|  | Washington, DC 20240  |
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|  | 1200 New Jersey Avenue, SE  |
|  | Washington, DC 20590  |
| Office of the Secretary  | U.S. Department of Agriculture  |
|  | 1400 Independence Ave., S.W.  |
|  | Washington, D.C. 20250  |
| Area Conservationist  | Natural Resources Conservation Service  |
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| Holly Shiralipour  | USDA Victorville Service Center  |
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## Chapter 7. Distribution List

<table>
<thead>
<tr>
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<th>Title and Affiliation</th>
<th>Address</th>
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<td>State of California Department of Water Resources</td>
<td>P.O. Box 942836, Room 1115 Sacramento, CA 94236</td>
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<td>California Department of Conservation State Mining &amp; Geology Board</td>
<td>801 K Street, Suite 2015 Sacramento, CA 95814</td>
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<tr>
<td>David Elms</td>
<td>State of California Department of Fish and Wildlife</td>
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<td>Gunther Moskat, Sr. Environmental Planner</td>
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<td>Milford Wayne Donaldson, State Historic Preservation Officer</td>
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<td>1416 Ninth Street , Room 1442 P.O. Box 942896 Sacramento, CA 95814</td>
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<td>Paul D. Thayer, Executive Director</td>
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<td>Clerk of the Board</td>
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<td>Administrator</td>
<td>California Highway Patrol</td>
<td>300 E Mountain View St Barstow, CA 92311-2887</td>
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### Chapter 7. Distribution List

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<td>John Barna</td>
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<td>Larry Myers</td>
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### REGIONAL / LOCAL

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<tr>
<td>Gerry Newcombe</td>
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<td>825 East 3rd Street</td>
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<tr>
<td>Assemblyman Phil Wyman</td>
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<td>Cari Thomas</td>
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<td>State Senator</td>
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<td>Jerry Lewis</td>
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<td>Robert A. Lovingood</td>
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### Chapter 7. Distribution List

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<td>Superintendent</td>
<td>Muroc Unified School District 17100 Foothill Avenue North Edwards, CA 93523-3533</td>
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<tr>
<td>Raymond Wolfe</td>
<td>Executive Director</td>
<td>San Bernardino Associated Governments 1170 West 3rd Street San Bernardino, CA 92410-1715</td>
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<tr>
<td>Alan J. De Salvio</td>
<td>Supervising Air Quality Engineer</td>
<td>Mojave Desert Air Quality Management District 14306 Park Ave Victorville, CA 92392</td>
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<tr>
<td>Brendon Biggs</td>
<td>Planning Chief</td>
<td>County of San Bernardino Transportation Department 825 East Third Street San Bernardino, CA 92415-0835</td>
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<tr>
<td>Mike Plaziak</td>
<td>Supervising Engineering Geologist</td>
<td>California Regional Water Quality Control Board Lahontan Region 6 14440 Civic Drive, Suite 200 Victorville, CA 92392</td>
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### PROPERTY OWNERS/COMMUNITY MEMBERS

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<td>Paul Ng</td>
<td>049823215</td>
<td>1209 S Morengo Avenue Alhambra, CA 91803</td>
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<td>Ken Englert</td>
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<td>Balakhanee Mansour</td>
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<td>1702 Lynn Street Huntington Beach, CA 92649</td>
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<td>Christine Rich</td>
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<td>Barbara L Mattas</td>
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<td>James J. Kastris,</td>
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<td>Kathleen Alvord</td>
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<td>Gwenneth Howard Sloat</td>
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<td>Joseph Williams</td>
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## UTILITIES & RAILROADS

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<td>Jose Moreno-Jimenez</td>
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<td>Time Warner Cable 1881 West Main Street Barstow, CA 92311</td>
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<td>Verizon General Correspondence PO Box 6600 Hayden, ID 83835</td>
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<td>Sprint KSOPHT0101-Z4300 6391 Sprint Parkway Overland Park, KS 66251-4300</td>
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<td>Southwest Gas Corporation, Corporate Office 5241 Spring Mountain Road Las Vegas, NV 89150-0002</td>
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<td>Southwest Gas Corporation Southern California Division 13471 Mariposa Road Victorville, CA 92395-5315</td>
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<td>Mojave Pipeline Company Western Pipelines P.O. Box 1087 Colorado Springs, CO 80944</td>
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<td>El Paso Natural Gas Company Western Pipelines P.O. Box 1087 Colorado Springs, CO 80944</td>
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<td>Representative</td>
<td>Burlington Northern Santa Fe Railway 740 E. Carnegie San Bernardino, CA 92408</td>
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Chapter 8 References

8.1 Printed References


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Chapter 8. References


8.2 Personal Communications

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