FINAL

Environmental Impact Statement

Southern California Edison's

West of Devers Upgrade Project

BLM/CA/PL-2015/012+1793

DOI-BLM-CA-060-0015-0021

VOLUME 1

Executive Summary through Section D.9

U.S. Department of the Interior
Bureau of Land Management

July 2016

Note: Volume 3 (Appendices) is not distributed in hardcopy format, but is included on the CD in the front cover pocket of this volume.

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Visit us on the Internet at
www.blm.gov/ca/palmsprings/

In reply refer to:
CACA 055285

July 2016

Dear Reader:

Attached for your review and comment is the Final Environmental Impact Statement (Final EIS) for the West of Devers Upgrade Project for the Bureau of Land Management (BLM) Palm Springs – South Coast Field Office. The BLM prepared this document in accordance with the National Environmental Policy Act of 1969, as amended, the Federal Land Policy and Management Act of 1976, as amended, implementing regulations, the BLM's Land Use Planning Handbook (H-1601-1), and other applicable law and policy.

Southern California Edison Company's (SCE) proposed West of Devers Upgrade Project includes upgrades and removal of approximately 45 miles of existing 220 kV transmission lines within SCE's existing right-of way corridor in incorporated and unincorporated areas of Riverside and San Bernardino Counties. Of the overall 45-mile length of the transmission corridor, approximately 1 mile of the corridor is proposed on BLM-administered public lands and approximately 6 miles would cross the reservation Trust Lands (reservation) of the Morongo Band of Mission Indians. The BLM lands are located east of the City of Banning and west of the City of Desert Hot Springs in Riverside County. The project would be within a designated utility corridor and within an existing Right-of-Way (ROW). In addition to the transmission line improvements, additional infrastructure upgrades would be needed. The Final EIS and supporting information is available on the project website at:

http://www.blm.gov/ca/st/en/fo/palmsprings/transmission/WestOfDeversProject.html.

The BLM encourages the public to provide information and comments pertaining to the analysis presented in the Final EIS. Comments will be accepted for thirty (30) calendar days following the Environmental Protection Agency's (EPA) publication of its Notice of Availability in the *Federal Register*. The BLM can best utilize your comments and resource information submissions if received within the review period.

Comments may be submitted electronically at: blm_ca_west_of_devers@blm.gov. Comments may also be submitted by mail to: Frank McMenimen, Palm Springs/South Coast Field Office, 1201 Bird Center Drive, Palm Springs, CA 92262. To facilitate analysis of comments and information submitted, we strongly encourage you to submit comments in an electronic format.

Your review and comments on the content of this document are critical to the success of this planning effort. If you wish to submit comments on the Final EIS, we request that you make your comments as specific as possible. Comments will be more helpful if they include suggested changes, sources, or methodologies, and reference to a section or page number wherever possible.

Before including your address, phone number, email address, or other personal identifying information in your comment, be advised that your entire comment — including your personal identifying information — may be made publicly available at any time. While you may request in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Copies of the Final EIS have been sent to affected Federal, tribal, state and local government agencies. Copies of the Final EIS are available for publie inspection on the BLM website at:

http://www.blm.gov/ca/st/en/fo/palmsprings/transmission/WestOfDeversProject.html.

Copies of the Final EIS are available for public inspection at BLM Palm Springs-South Coast Field Office, 1201 Bird Center Drive, Palm Springs, CA 92262 and the BLM California Desert District Office, 22835 Calle San Juan De Los Lagos, Moreno Valley, CA 92553.

Thank you for your continued interest in the Final EIS for the West of Devers Upgrade Project. We appreciate the information and suggestions you contribute to the planning process. For additional information or clarification regarding this doeument or the planning process, please contact Frank McMenimen, Project Manager, at the BLM Palm Springs - South Coast Field Office at 760-833-7150, or email fmcmenimen@blm.gov.

Sincerely,

Vicki L Wood

Vicki L. Wood
Acting Field Manager
Bureau of Land Management

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Executive Summary

ES.1 Introduction/Background

On October 25, 2013, Southern California Edison (SCE or "the Applicant") submitted Application A.13-10-020 seeking a Certificate of Public Convenience and Necessity (CPCN) from the California Public Utilities Commission (CPUC) for the West of Devers (WOD) Upgrade Project (Proposed Project or Proposed Action). Because the proposed transmission line would cross approximately 3.5 miles of federal land managed by the Bureau of Land Management (BLM), the project would also require a Right-of-Way (ROW) Grant from the BLM for the portion of the project across BLM-administered land. SCE submitted a ROW Application to the BLM in March 2013. Because a portion of the Proposed Action would cross Trust Land on the Morongo Indian Reservation, the project would also require a ROW grant from the Bureau of Indian Affairs (BIA).

This project is located within two BLM designated transmission corridors, Corridor K and contingent Corridor S of the California Desert Conservation Area Plan, so a plan amendment would not be required. If this project is approved, then the BLM-managed portions of the three sections of BLM-managed land in contingent Corridor S that are a part of this project will be designated as an active corridor.

A Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) was issued by the CPUC, as lead agency under the California Environmental Quality Act (CEQA), and the U.S. Department of the Interior, BLM, under the National Environmental Policy Act (NEPA), to inform the public and to meet the needs of local, State, and federal permitting agencies to consider the Proposed Project as described by SCE (Applicant) and alternatives to the project. The Draft EIR/EIS was released on August 7, 2015 and the public comment period ended on September 22, 2015. Under NEPA, BIA will be a Cooperating Agency.

The CPUC published the Final EIR, a CEQA-only document, on December 11, 2015. At the time, the BLM determined that additional time was needed to complete the Final EIS. Therefore, this document comprises the Final EIS for NEPA compliance only.

BLM Conclusion Regarding Environmentally Preferred Alternative. NEPA encourages lead agencies to make recommendations of the environmentally preferred alternative(s) during EIS preparation and requires specifying the alternative or alternatives that are considered to be environmentally preferable at the time of the Record of Decision (ROD). [BLM Manual H-1790-1, Ch. 9.7.1; 40 CFR 1505.2(b); and Forty Questions 6(a) and 6(b)]. BLM has identified the Environmentally Preferred Alternative to be the Phased Build Alternative (which incorporates the transmission structure locations defined in the Tower Relocation Alternative). The Environmentally Preferred Alternative is illustrated in Figure ES-5, presented at the end of this section. The second preferred alternative would be the combination of the Tower Relocation Alternative, the Iowa Street 66 kV Underground Alternative, and the Proposed Project, for the segments unaffected by these two alternatives. The least environmentally preferred would be the Proposed Project with no modifications.

Conclusion Regarding BLM Agency Preferred Alternative. The Draft EIR/EIS and this Final EIS describe the SCE Proposed Project and three alternatives, which are described in Section C and in more detail in Appendix 5:

- Tower Relocation Alternative
- Iowa Street 66 kV Underground Alternative
- Phased Build Alternative

BLM planning regulations and NEPA regulations allow definition of BLM's Agency Preferred Alternative in either the Draft EIS or the Final EIS (BLM Manual 1790-1, Ch. V(B)(4)(c) and NEPA Section 1502.14(e)). The BLM did not identify an Agency Preferred Alternative in the Draft EIR/EIS. While this section defines BLM's Agency Preferred Alternative, the BLM selected alternative may change before issuance of the Record of Decision.

The Tower Relocation Alternative and the Iowa Street Underground Alternative would not change the transfer capacity of the Proposed Project. They would each reduce environmental impacts in the specific areas around which they would be implemented. Therefore, BLM finds that those two alternatives are preferred over the Proposed Project segments that they would replace.

The Phased Build Alternative is not preferred over the Proposed Project. This alternative, if constructed as specified in the Draft EIR/EIS, would limit transfer capacity to about 3,000 MW when the Proposed Project would provide 4,800 MW of capacity. As shown in Table A-1, there are 4,696 MW of solar energy projects east of the Devers Substation. This indicates that the level of development contemplated by BLM, where BLM has either recently completed or recently begun the review process, would be in excess of the capacity of the Phased Build Alternative. Reviewing the CAISO queue allows a similar conclusion. Although the capacity of the alternative would satisfy the 2,200 MW level of development originally anticipated and shown in Table A-2, Table A-3 shows that at least another 3,100 MW of projects are planned for eastern Riverside County that entered the queue relatively recently.

Given the federal priority to maximize development of renewable energy projects, the larger capacity of the Proposed Project is considered to be important. The Phased Build Alternative would limit the capacity achievable in the corridor to result in a decrease of construction disturbance of about 25 percent in comparison with the Proposed Project. In addition, the Phased Build Alternative would require over 100 interset structures to meet structural requirements along the line segment where the 220 kV structures are retained, which reduces the visual benefit of the alternative that was originally stated in the Draft EIR/EIS.

Construction of the Proposed Project now would also reduce the likelihood of building future phases of the Phased Build Alternative, and this may avoid additional near-term construction disturbances in the corridor.

The Final EIR (published by the CPUC in December 2015) defined the Phased Build Alternative as the CEQA Environmentally Superior Alternative, because that alternative would have less ground disturbance and less severe visual effects. CEQA requires that an EIR define the alternative with least impacts (if that alternative is not the No Project Alternative). However, the CPUC's Administrative Law Judge and the Commissioners will consider other policy issues in the final decision on the West of Devers Upgrade Project.

No Action Alternative. The No Action Alternative includes two transmission system options that are considered to be the most likely actions that would occur in the absence of the Proposed Action or alternatives to the Proposed Project. Both of the two No Action Alternative Options would have more severe environmental impacts than either the Proposed Action or the alternatives considered in this EIS.

ES.1.1 Proposed Project and Historical Background

Description of the Proposed Project

Proposed Project. The Proposed Project would upgrade SCE's existing WOD system in a number of ways. The upgrades to the existing 220 kilovolt (kV) transmission lines would be the most visible components of the project. These upgrades would occur on approximately 30 miles of the Devers–El Casco 220 kV transmission line, 14 miles of the El Casco–San Bernardino line, 43 miles of the Devers–San Bernardino line, 45 miles of the Devers-Vista No. 1 and No. 2 lines, 3.5 miles of the Etiwanda–San Bernardino line, and 3.5 miles of the San Bernardino–Vista line. The Proposed Project would replace or upgrade the existing 220 kV transmission lines and structures between Devers, El Casco, San Bernardino, and Vista Substations to increase the system transfer capacity from 1,600 megawatts (MW) to 4,800 MW (see Figure ES-1, Proposed Project and Project Vicinity). Other components of the Proposed Project include substation equipment upgrades, relocation of 2 miles of 66 kV subtransmission lines and 4 miles of 12 kV distribution lines, and installation of telecommunications lines and equipment for the protection, monitoring, and control of transmission lines and substation equipment.

Morongo Tribal Land. The Proposed Project would cross approximately 8 miles of the Trust Lands (reservation) of the Morongo. SCE and the Morongo entered into a ROW agreement that covers the entire ROW on Morongo lands. Based on the SCE-Morongo ROW agreement, approximately 3 miles of existing WOD ROW would be abandoned and replaced with a new 3-mile alignment nearer Interstate 10. SCE would apply to the BIA for the grant of ROW across the new 3-mile alignment and the Morongo would consent to SCE's application for a new 50-year ROW agreement.

As part of the ROW agreement, on November 27, 2012, SCE entered into a Development and Coordination Agreement (DCA) with Morongo Transmission LLC[1] that provides Morongo Transmission the option to invest up to $400 million at the time of commercial operation in exchange for 30-year lease rights to a pro rata portion of the proposed facilities. SCE has stated that this investment option was a key factor in the negotiation of a new ROW agreement that allows the Proposed Project to be built across the Morongo tribal-trust lands. However, Morongo Transmission's transmission transfer capability rights lease is contingent upon receiving regulatory approvals from the Federal Energy Regulatory Commission (FERC)[2] and the CPUC. Under the terms of the ROW agreement, if FERC and CPUC regulatory approvals are not obtained, the Morongo Tribe would have the right to terminate the ROW agreement.

Therefore, as part of its Application A.13-10-20, SCE has requested an Interim Decision from the CPUC for authority to lease transfer capability rights in a portion of the Proposed Project's upgraded and reconfigured transmission lines to Morongo Transmission. In its Application, SCE stated that approving an Interim Decision early in the process would be important because the ROW agreement is contingent on the CPUC approval of the proposed transaction. Without a ROW agreement, SCE would have to develop a new project that bypasses the Morongo tribal-trust lands. However, in a Prehearing Conference at the CPUC on March 4, 2015, SCE stated that it was no longer requesting an Interim Decision. The terms of the proposed transaction set forth in the DCA and the ROW agreement are included in Appendix J of SCE's Application A.13-10-020 (dated October 25, 2013) and are provided in Appendix 3 to this EIS.

Connected Actions. The BLM has evaluated a range of generation projects to determine whether they are so closely related to the Proposed Project as to be considered "connected actions" under NEPA. Projects that are considered "connected actions" under NEPA (40 C.F.R. 1508.25(a)(l)) include actions that:

(i) are automatically triggered by the proposed action,
(ii) cannot or will not proceed unless the proposed action occurs first or simultaneously, or

1 Morongo Transmission LLC is a venture between the Morongo Band of Mission Indians and Coachella Partners LLC, a Delaware limited liability company formed for the purposes of the Proposed Transaction, for which the Morongo Tribe owns the majority of interest.

2 On May 31, 2013, SCE and Morongo Transmission filed a joint application at FERC pursuant to Section 203 of the Federal Power Act requesting authorization to lease transfer capability in a portion of the WOD-UP by SCE to Morongo Transmission. On September 3, 2013, FERC issued Order Authorizing Disposition of Jurisdictional Facilities, 144 FERC 61,178 (2013) granting SCE's and Morongo Transmission's joint 203 Application, as being consistent with the public interest.

(iii) are interdependent parts of a larger action and depend upon the larger action for their justification.

The second category (ii) is relevant for the generation projects considered to be "connected." The approach to identifying connected actions for the Proposed Project has been driven by an analysis of generator interconnection agreements and transmission studies prepared by the California Independent System Operator (CAISO). A number of proposed solar generation projects appear to depend on the WOD Upgrade Project in order to move to construction and operation, because there currently is inadequate transmission capacity west of Devers Substation.

The following generation projects are analyzed as actions connected to the WOD Project:

- Palen Solar Electric Generating System II, LLC (CAISO Queue 365) – 500 MW Solar Power Tower
- Desert Harvest, LLC (CAISO Queue 643AE) – 150 MW Solar Photovoltaic (PV)
- Project 1: Connecting to Blythe-Eagle Mountain 161 kV line (CAISO Queue 421) – 50 MW Solar PV
- Project 2: Connecting at Red Bluff Substation 230 kV (CAISO Queue 1070) – 250 MW Solar PV
- Project 3: Connecting at Colorado River Substation 230 kV (CAISO Queue 576) – 224 MW Solar PV
- Project 4: Connecting at Colorado River Substation 230 kV (CAISO Queue 970) – 150 MW Solar PV
- Project 5: Connecting at Colorado River Substation 230 kV (CAISO Queue 1071) – 150 MW Solar PV

It is important to note that each of these projects will have its own project-level impact analysis under CEQA and/or NEPA. The analysis presented in this EIS is intended to disclose the range of potential impacts to the public and decision-makers, since construction of the WOD Upgrade Project would make these generation projects more likely to occur.

Historical Background

The history of the Proposed Project begins with a previous proposal by SCE to upgrade the lines in the WOD system. On April 11, 2005, SCE submitted an application (A.05-04-015) to the CPUC for a CPCN for a 500 kV interstate transmission line project, the Devers–Palo Verde No. 2 (DPV2) Project. The DPV2 project included three major components:

- A 500 kV line from the Palo Verde area in Arizona to a new substation near Blythe, California;
- A 500 kV line from the Blythe area substation to Devers Substation; and
- Upgrades to SCE's lower voltage transmission system west of Devers Substation.

The CPUC approved the DPV2 Project in January 2007 in Decision D.07-01-040. The approved DPV2 Project included the SCE proposal except for the West of Devers upgrades, which were replaced by the Devers to Valley 500 kV No. 2 Transmission Line Alternative. The West of Devers upgrades components, proposed by SCE in 2005 as part of the DPV2 Project, could not be approved by the BLM and CPUC because by the time of agency decisions (January 2007), the Morongo Band of Mission Indians had not reached an agreement with SCE on terms of the ROW renewal for the transmission corridor that crossed tribal land.

On May 14, 2008, SCE filed a Petition for Modification (PFM) of the CPCN granted under CPUC Decision D.07-01-040. In the PFM, SCE requested that the CPUC authorize SCE to construct DPV2 facilities in only the California portion of DPV2 and the Midpoint Substation (later re-named as the Colorado River Substation) to be located near Blythe, California. The CPUC approved SCE's PFM on November 20, 2009 in Decision D.09-11-007. The BLM issued its Record of Decision (ROD) approving the project on July 19, 2011. Construction of the modified DPV2 Project began in June 2011 and the new 500 kV transmission lines were energized in September 2013.

ES.1.2 Proposed Project Purpose and Need

SCE Project Objectives

SCE's six stated basic objectives for the Proposed Project are:

1. Allow SCE to meet its obligation to integrate and fully deliver the output of new generation projects located in the Blythe and Desert Center areas that have requested to interconnect to the electrical transmission grid.
2. Consistent with prudent transmission planning, maximize the use of existing transmission line rights-of-way to the extent practicable.
3. Meet project need while minimizing environmental impacts.
4. Facilitate progress toward achieving California's RPS [Renewable Portfolio Standard] goals in a timely and cost-effective manner by SCE and other California utilities.
5. Comply with applicable Reliability Standards and Regional Business Practice developed by NERC [North American Electric Reliability Corporation], WECC [Western Electricity Coordinating Council], and the CAISO; and design and construct the project in conformance with SCE's approved engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects.
6. Construct facilities in a timely and cost-effective manner by minimizing service interruptions to the extent practicable.

BLM and CPUC Project Objectives

Having taken into consideration the six objectives set forth by SCE above, the BLM and CPUC identified three basic project objectives, described as follows:

Basic Project Objective 1: to upgrade the WOD 220 kV transmission lines between Devers, El Casco, Vista, and San Bernardino Substations to increase system deliverability by at least 2,200 MW.

The first Basic Project Objective reflects the aim to provide increased deliverability of electricity, defined in terms of megawatts (MW), for existing and planned generating facilities that are located far from the utility load centers in the Los Angeles basin. Before the Proposed Project was planned, the transmission transfer capability of the WOD 220 kV corridor was limited to approximately 550 MW. Since then, several generators with plans to be online before the Proposed Project's estimated completion date in 2020 requested interconnection to the system. In order to accommodate and deliver the initial group of 5 solar power generation projects that was planned, totaling 2,200 MW (CAISO, 2010), the minimum total capability that would need to be achieved by the Proposed Project or any alternative is 2,750 MW. Accordingly, the first Basic Project Objective is to increase deliverability by at least 2,200 MW.

Basic Project Objective 2: to support achievement of State and federal renewable energy goals.

The second Basic Project Objective is directly related to the first, because the projects that plan to rely on the Proposed Project for delivering electricity to the Los Angeles basin are primarily solar generation projects. Therefore, an increase in the capacity of the WOD transmission lines would directly improve the ability for numerous renewable generation projects to interconnect. Aside from the resources imported via transmission lines from outside of the SCE territory, all of the interconnecting projects are solar powered, as described in SCE's Application and PEA Sections 1.1 and 1.2.

California's renewable energy goals are defined on the CPUC's website (CPUC, 2015):

> *Established in 2002 under Senate Bill 1078, accelerated in 2006 under Senate Bill 107 and expanded in 2011 under Senate Bill 2, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities (IOUs), electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33% of total procurement by 2020.*

The CPUC states that California's three large utilities collectively served 22.7% of their 2013 retail electricity sales with renewable power. The federal government also has prioritized the development of renewable energy, but has not set specific development targets for the country as a whole.

Basic Project Objective 3: to maximize the availability of remaining space in the corridor to the extent practicable, so future use of the corridor for additional transmission line upgrades is not precluded.

This objective reflects the aim to be prudent in the use of land within the existing transmission corridor and to allow adequate space within the ROW for transmission expansion, if needed by SCE in the future. While SCE states that it currently has no specific plans for transmission expansion in the WOD corridor, there are other regional studies that point to the potential for future development. For the purposes of measuring consistency with this objective, 175 feet is used as an acceptable minimum ROW width for a 500 kV double-circuit transmission line.

ES.2 Summary of Public Involvement Activities

ES.2.1 Scoping Process and Ongoing Public Involvement and Consultation

Notices, Meetings, and Scoping Reports

- The CPUC issued the Notice of Preparation (NOP) of an EIR on May 12, 2014, distributing it to the State Clearinghouse, federal, State, regional, and local agencies, elected officials of affected areas, and the general public. The CPUC mailed approximately 13,300 copies of the NOP to federal, State, regional, and local agencies, and elected officials, community and environmental organizations, Native American groups, and property owners. The 30-day public scoping period extended from the issuance of the NOP to June 12, 2014.
- In May 2014, the CPUC held 4 public scoping meetings in three locations to collect input on the scope and content of the Draft EIR/EIS and on alternatives and mitigation measures to consider. Approximately 40 members of the public and representatives from organizations and government agencies attended the meetings.
- The NEPA scoping process began with the publication of the Notice of Intent (NOI) to prepare an EIS on July 1, 2014 in the Federal Register. A notice of Public Scoping Meeting was mailed to all parties on the project mailing list. The 30-day comment period began on July 1, 2014 and extended to July 31, 2014.
- On July 16, 2014, the BLM held a scoping meeting in the City of Banning. Approximately 15 members of the public and representatives from organizations and government agencies attended the meeting.
- The CPUC issued its Scoping Report in July of 2014. The report summarized issues of concern based on 36 written and oral comments from agencies, organizations, and members of the public.
- The BLM Scoping Report was released in October of 2014. The report summarized issues of concern based on 18 written and oral comments from agencies, organizations, and members of the public.

Agency Consultation

During the public scoping period, the EIR/EIS Team contacted 10 affected public officials and tribal government representatives in an effort to provide information about the Proposed Project, the EIR/EIS process, and to consult with them regarding potential concerns or issues. As a result of this initial consultation, two local agencies (City of Redlands and City of Grand Terrance) and representatives of the Morongo Band of Mission Indians expressed interest in a face-to-face meeting with the CPUC and its environmental consultants to learn more about the WOD project.

During the meetings, the CPUC and BLM presented the Proposed Project to the agencies, answered questions, and solicited informal input on any issues and concerns with the project. The CPUC and BLM also provided a project factsheet and identified additional information that the agencies requested regarding the project. This information was provided after the meetings by e-mail and mail to the requesting agencies/tribal government.

Native American Consultation

The BLM and CPUC are involved in ongoing tribal consultations regarding the West of Devers Upgrade Project. As part of the NEPA process, the BLM consults with Indian Tribes on a government-to-government basis in accordance with several authorities, including NEPA, the National Historic Preservation Act (NHPA), the American Indian Religious Freedom Act, and Executive Order 13007. Under Section 106 of the NHPA, the BLM consults with Indian Tribes as part of its responsibilities to identify, evaluate, and resolve adverse effects on historic properties affected by BLM undertakings.

- On June 27, 2013, SCE sent contact letters requesting input on the Proposed Project to tribal representatives that were identified by the Native American Heritage Commission as having an interest in or information about the Proposed Project area.
- On May 20, 2014, the BLM sent letters to 14 tribal government representatives to initiate government-to-government consultation for this project. The letters provided initial notification regarding the project, explained the role of the BLM, and invited the tribal governments to enter into government-to-government consultation.
- On August 22, 2014, the BLM sent follow-up letters to tribal government representatives to provide an update on efforts to identify historic properties that may be affected by the Proposed Project, to provide notification of archaeological site testing, and to reiterate the BLM's invitation and request to engage in government-to-government consultation.
- In May 2015, the BLM sent follow-up letters to tribal government representatives to provide copies of all cultural resource documents prepared for the Proposed Project and an update on cultural resource efforts. The tribes were invited to a consultation meeting to discuss identification of historic properties and potential project effects.
- On June 17, 2015, a meeting was held to present findings of the cultural studies to tribes. It was attended by members of the Agua Caliente Band of Cahuilla Indians, Morongo Band of Mission Indians, Pauma-Yuima Band of Mission Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseno Indians. The BLM requested formal written comments on the evaluation of the cultural resources by July 15, 2015. No comments were received.
- On October 7, 2015, the BLM sent a letter to the State Historic Preservation Office (SHPO), summarizing the Cultural Resources Studies completed and the status of Tribal Consultation. The letter also sought concurrence on the determination that the project would have no adverse effects on historic properties.

Facilitation of Project Information

An e-mail address list was created, and a telephone hotline and Internet site for project information were established. The Internet site was used to post all the public environmental documents (including this EIS) and to announce public meetings. All public notices appeared on the CPUC's project website:

http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm

Throughout the process, the EIS team has been available for questions and comments at (866) 456-0254 or by email at westofdevers@aspeneg.com.

ES.2.2 Areas of Controversy / Public Scoping Issues

A summary of the key issues that were raised during scoping is presented below.

Aesthetics/Visual

Several commenters expressed concern with the height of the new towers and stated that, because of added bulk and height, the towers would be highly visible from residences and public roadways. A number of commenters also suggested that the lines be undergrounded in certain areas to address visual impacts as well as safety concerns. Visual simulations of proposed structures were requested as part of the aesthetics assessment. One commenter requested that the applicant consider the aesthetics of the neighborhood when building towers.

Conflicts with Existing Land Uses

Some municipal officials noted that the WOD project could impact their existing plans for development and could impact anticipated road improvement projects. The project crosses the Colorado River Aqueduct, and there was concern that the project could impact the ongoing operation, maintenance, and repair of the aqueduct. The Metropolitan Water District requested that design plans be reviewed and approved by them and that the EIS consider potential impacts to the aqueduct. The California Department of Water Resources noted that permits may be required if any improvements encroach on the Colorado River Aqueduct right-of-way.

The project's potential to impact recreational uses in the Cities of Colton and Grand Terrace were identified as key concerns that should be evaluated in the EIS. The connectivity of recreational areas between the two cities was an issue that city officials requested be evaluated in the EIS. Several commenters raised a concern with the placement of the new towers closer to existing homes and wanted to know why SCE could not place the towers further away from existing residences. One commenter expressed appreciation that the transmission towers would be placed far from the Interstate 10 freeway and not on the hillsides.

Social/Economic

Commenters expressed concern with the project's impact on property values as a result of towers being closer to homes. Commenters expressed concern with security/safety and general wellbeing when living near an electrical transmission corridor.

Fire Risk, EMF, and Other Hazards

Several commenters expressed concern with the potential of the project to increase fire risk and suggested the requirement of mitigation measures such as an emergency response plan and undergrounding of the transmission line. Southern California Gas noted that the project crosses a number of its pipelines and suggested that SCE contact Underground Service Alert prior to excavating in the project area. Several concerns were raised regarding the use of the transmission corridor easement and whether it was safe for recreational or other uses.

CAL FIRE noted that the area has a history of wildfires and requested to be notified of construction activities and suggested that a plan be put in place to coordinate a response to fires if helicopters will be used in construction. Several concerns were raised regarding the safety of the transmission lines especially if they are placed closer to homes and wanted to know if the lines would increase the potential for exposure to EMF with the new towers. One commenter requested that the EIS study the potential health risks associated with transmission towers. One commenter was concerned with what measures would be taken to ensure survival of lines exposed to massive solar flares or terrorist bombs designed to wipe out electrical grids.

Construction-Related (Dust, Noise, Traffic)

Commenters expressed concern with construction dust, especially in high wind areas, and requested that dust suppression measures be included in the EIS. Local agencies also asked about whether SCE would be required to abide by local requirements with regard to construction hours and noise standards. Some city officials were concerned with the potential for damaging local roads and increasing traffic. More information was requested on anticipated truck routes on the different project segments, and there was a request for requiring SCE to coordinate with local agencies on the construction schedule as well as requiring SCE to repair any damage to local roads. Several commenters requested that the EIS consider the impact of road closures and limited access to residences, residential streets, and businesses.

Geology/Slope Stability

In the City of Grand Terrace, the Cities of Colton and Grand Terrace expressed concern regarding towers that are currently on unstable soil and near an area where a deck collapsed due to slope failure. The commenters stated that slope stability and erosion should be addressed.

Biological Resources Issues

The California Department of Fish and Wildlife (CDFW) requested a thorough evaluation of sensitive species and mitigation of impacts to these species in the project area and also asked for the EIS to consider the two Multiple-Species Habitat Conservation Plans that are in place in the project area. Another request was to assess potential impacts to California gnatcatcher and its habitat in Segment 2 and to identify mitigation for habitat impacts. A request was made for the EIS to evaluate the project's impact on common ravens, red-tailed hawks, and golden eagles. In the evaluation of these species, the commenter asked that other issues be taken into consideration, such as global warming.

Other Comments (Curtailment and Other)

Five comment letters (representing nine energy companies) and one commenter at the public scoping meeting addressed curtailment of existing renewable energy production. These commenters expressed concern with SCE curtailing or reducing existing electrical generation for several years while the WOD project is being constructed. They requested compensation for this anticipated curtailment period and requested that this issue be discussed in the EIS. One commenter expressed concern with "piecemealing" and stated that the WOD project alignment is one of the alternatives (Northerly Route) identified and rejected in the El Casco Substation EIR.

ES.2.3 Public Involvement During Comment Period on Draft EIR/EIS

After publication of the Draft EIR/EIS, the following outreach and document distribution efforts were completed:

- **Draft EIR/EIS.** The BLM and CPUC issued the Draft EIR/EIS on August 7, 2015. The document included a detailed analysis of impacts in 20 environmental disciplines, and an evaluation of alternatives to the Proposed Project, including the No Action Alternative. Copies of the full Draft EIR/EIS and Appendices were sent to approximately 40 interested parties and agencies, and to 14 libraries and agency offices used as document repositories. Nearly 200 copies of the Executive Summary and CDs with the text of the Draft EIR/EIS were also sent out. Additional copies of the Executive Summary and of the CDs with the text of the Draft EIR/EIS were distributed at the public workshops in August and September 2015. The public comment period for the Draft EIR/EIS ended on September 22, 2015.
- **Notice of Availability.** A Notice of Availability (NOA) of the Draft EIR/EIS was mailed to nearly 9,900 interested parties, agencies, county and city departments, special districts, property owners, and occupants on or adjacent to SCE's Proposed Project route in August 2015, at the time the Draft EIR/EIS was released. The NOA included information on how to gain access to the Draft EIR/EIS, information on the Proposed Project, the dates, times, and locations for the BLM and CPUC's Informational Workshops and how to comment on the Draft EIR/EIS.
- **Federal Register Notice.** Both BLM and the U.S. Environmental Protection Agency published notices in the Federal Register on August 7, 2015, announcing the availability of the Draft EIR/EIS.
- **Newspaper Notices**, including information on the Draft EIR/EIS, the project website address, and the dates and times of the Informational Workshops and Public Participation Hearings were printed in August 2015 in the following papers: The Press-Enterprise, San Bernardino Sun, Redlands Daily Facts, and The Desert Sun.
- **Public Workshops.** Three public workshops were held in August and September 2015. Approximately 15 members of the public, including representatives of organizations and government agencies were documented in attendance at the public workshops.
- **Project Website.** An Internet site was used to post all the public environmental documents (including the Draft EIR/EIS) and to announce upcoming public meetings.

ES.3 Alternatives

ES.3.1 NEPA Requirements for Alternatives

The alternatives screening and evaluation process in this EIS satisfies all federal requirements. The NEPA requirements for selection of alternatives are described below.

According to the Council on Environmental Quality's (CEQ) NEPA Regulations (40 CFR 1502.14), under NEPA an EIS must present the environmental impacts of the proposed action and alternatives in comparative form, defining the issues and providing a clear basis for choice by decision-makers and the public. As required under 40 CFR 1502.14, the alternatives section shall:

> *(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.*
>
> *(b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.*

(c) Include reasonable alternatives not within the jurisdiction of the lead agency.

(d) Include the alternative of no action.

(e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.

(f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

The CEQ has stated that "[r]easonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense rather than simply desirable from the standpoint of the applicant" (CEQ, 1983).

In addition to the CEQ NEPA regulations, CEQ has issued a variety of general guidance memoranda and reports concerning implementation of NEPA. One of the most frequently cited resources for NEPA practice is CEQ's *Forty Most Asked Questions Concerning CEQ's NEPA Regulations* (Forty Questions). Although a reviewing federal court does not always give the Forty Questions the same deference as it does the CEQ NEPA Regulations, in some situations the Forty Questions have been persuasive to the judiciary. In general, alternatives are discussed in Forty Questions Nos. 1 through 7. Question No. 5b asks if the analysis of the "proposed action" in an EIS is to be treated differently than the analysis of alternatives. The response states:

The degree of analysis devoted to each alternative in the EIS is to be substantially similar to that devoted to the "proposed action." Section 1502.14 is titled "Alternatives, including the proposed action" to reflect such comparable treatment. Section 1502.14(b) specifically requires "substantial treatment" in the EIS of each alternative including the proposed action. This regulation does not dictate an amount of information to be provided but rather, prescribes a level of treatment, which may in turn require varying amounts of information, to enable a reviewer to evaluate and compare alternatives.

Alternatives Screening

Potential alternatives to the Proposed Project were suggested during two scoping periods (May 12 to June 12, 2014 and July 1 to July 31, 2014) by federal, State and local agencies and members of the general public. Other potential alternatives were developed by EIS preparers or presented by SCE in its Proponent's Environmental Assessment (PEA).

In total, the alternatives screening process identified 14 potential alternatives for consideration. These alternatives encompass both the 220 kV and 66 kV lines. They range from minor structure location adjustments within SCE's existing ROW to reduced build alternatives for the 220 kV transmission components.

A reasonable range of alternatives has been considered and evaluated with regard to: (1) whether they would meet most of the basic project objectives; (2) whether they would be feasible considering legal, regulatory, and technical constraints; and (3) whether they have the potential to substantially lessen any of the significant effects of the Proposed Project.

The detailed results of the alternatives screening analysis are contained in Appendix 5 of the EIS (Alternatives Screening Report). A summary description of the alternatives considered and the results of screening are provided below.

ES.3.2 Alternatives Fully Evaluated in the EIS

Three alternatives have been retained for detailed analysis in this EIS as a result of the alternatives screening process:

- Tower Relocation Alternative
- Iowa Street 66 kV Underground Alternative
- Phased Build Alternative

The components of the three alternatives are summarized in Table ES-1. In addition, these alternatives are briefly described in Section C.4 and in greater detail in Appendix 5. The preliminary conclusions generated during the screening process are presented briefly below and each of these alternatives is evaluated within each environmental issue area of Part D of this EIS. The three alternatives are illustrated on Figure ES-2.

Tower Relocation Alternative

Description. The Tower Relocation Alternative would place some proposed towers about 50 feet farther from adjacent residences in Segment 4 (Beaumont and Banning), Segment 5 (East Banning/Morongo), and Segment 6 (Whitewater), where potentially significant visual impacts have been identified for the Proposed Project. In general, the alternative would relocate 25 pairs of structures in Segment 4, one pair of structures in Segment 5, and 4 individual structures in Segment 6 approximately 50 feet to the north of the tower locations under the Proposed Project. The locations of the relocated towers suggested in this alternative are shown on Figure ES-2.

Rationale for Full Analysis. The Tower Relocation Alternative would meet all three basic project objectives and it would be feasible with respect to its constructability, reliability, and legal and regulatory factors. In addition, this alternative would reduce significant visual impacts of the Proposed Project and would reduce construction-related disturbance associated with the upgraded 220 kV lines. This would be accomplished by ensuring that relocated towers would be no closer to residences than the existing structures. Because this alternative would reduce potentially significant impacts of the Proposed Project, it has been retained for full evaluation in this EIS.

Iowa Street 66 kV Underground Alternative

Description. This 1,600-foot underground alternative was developed by the EIS team to eliminate significant visual impacts to residences along Iowa Street in the City of Redlands of the proposed overhead 66 kV San Bernardino–Redlands-Tennessee subtransmission line. In this alternative, the overhead 66 kV subtransmission line would transition to underground just south of the single-lane bridge on Iowa Street, approximately 275 feet north of Orange Avenue. The subtransmission line would travel underground in new conduit in Iowa Street for approximately 1,600 feet before transitioning from underground to overhead on the south side of Barton Road. This underground alternative would replace a length of new overhead subtransmission line that is part of the Proposed Project. The location of this alternative is shown in Figure ES-2.

Rationale for Full Analysis. This alternative would meet the two project objectives applicable to the 66 kV subtransmission line component of the Proposed Project (Basic Project Objectives 1 and 2). In addition, the alternative would eliminate significant visual impacts associated with the new overhead 66 kV subtransmission line. The alternative would be technically feasible, since SCE is already proposing approximately 4,800 feet of underground 66 kV subtransmission line as part of the Proposed Project. During engineering SCE would evaluate existing underground utilities in Iowa Street to determine the specific location of the 66 kV line within the roadway.

Table ES-1. Summary of Alternatives Analyzed

Alternative Name	Description	System Transfer Capacity	Ground Disturbance	Construction Timeframe	Notes about Combining with Other Alternatives
Tower Relocation Alternative	• Locates certain of SCE's proposed transmission structures farther from residences in Segments 4, 5, and 6	4,800 MW (same as Proposed Project)	▪ Similar ground disturbance to Proposed Project.	▪ Requires a few additional months for construction due to additional outages and shoo-flies needed.	▪ This alternative applies to specific locations in Segments 4, 5, and 6 and would be implemented in combination with the Proposed Project in the other areas of those segments, and in all of Segments 1, 2, and 3. ▪ These alternative tower locations are incorporated into the Phased Build Alternative as well
Iowa Street 66 kV Underground Alternative	• Installs 1,600 feet of proposed overhead 66 kV subtransmission line underground within Iowa Street.	4,800 MW (same as Proposed Project)	▪ Additional ground disturbance within roadways from trenching for 1,600 feet and 2 transition structures, as opposed to construction of 9 overhead poles with the Proposed Project.	▪ Requires slightly more time for construction, but this short segment would not affect overall construction timeframe of the project.	▪ This alternative could be combined with either the Proposed Project or with the Tower Relocation Alternative ▪ This alternative may not be combined with the Phased Build Alternative; the 66 kV subtransmission system may or may not be able to be retained in the Phased Build Alternative without being relocated
Phased Build Alternative	▪ Retains existing double-circuit 220 kV transmission structures ▪ Removes the two lines of existing single-circuit 220 kV structures and replaces them with one line of new double-circuit structures ▪ All 220 kV conductors would be Drake 795 ACCR ▪ On Morongo land, 220 kV structures would be relocated and rebuilt as TSPs as defined in SCE-Morongo ROW Agreement ▪ Allows for future phased increases in corridor transmission capacity, as required	3,000 MW	▪ Requires 20 to 25 percent less new structure construction (and associated ground disturbance) in comparison to the Proposed Project	▪ Avoids near-term construction related to removing and re-building all towers, but would result in a need to install a greater number of temporary structures (shoo-flies), which could slow the pace of construction. ▪ SCE has stated that the duration of construction could be similar to that of the Proposed Project	▪ This alternative incorporates the structure relocations defined in the Tower Relocation Alternative ▪ This alternative may eliminate the need for the Iowa Street 66 kV Underground Alternative: SCE's 66 kV system may be able to be retained and may or may not need to be modified as it would in the Proposed Project

Phased Build Alternative

This alternative was developed to avoid most of the environmental impacts associated with removal of the existing double-circuit towers and their replacement with new double-circuit towers, while still allowing import of power from generation projects that the CAISO has determined to be most realistic. This alternative was evaluated through independent power flow modeling to determine whether the alternative would satisfy the CAISO's 2024 Reliability Base Case, which includes the generation that was under construction or had received regulatory approval at the time of CAISO's 2013/2014 transmission planning process[3]

Description. The alternative is derived from the West of Devers System Upgrades portion of the DPV2 project proposed by SCE in 2005. The purpose of this alternative is to reduce construction by retaining as many existing tower structures as possible and installing lighter-weight but higher-performance conductors on the retained towers. The high-performance conductors would maximize power transfer and, with the addition of some interset structures between existing towers, avoid structurally overloading the existing towers.

The Phased Build Alternative would:

- **Remove and replace existing single-circuit towers.** The two sets of existing single-circuit towers would be removed and one set of new double-circuit towers would be constructed to replace the removed towers. The new set of double-circuit towers would be constructed in the locations defined in the Tower Relocation Alternative (see Appendix 5, Section 4.2).
- **Install interset towers where required.** Up to 110 interset structures would be required in Segments 3, 4, and 6. These structures would be needed where the conductor spans between retained towers exceed the strength of existing towers, and at locations where conductor blowout (horizontal conductor sway potentially resulting in insufficient safe horizontal clearance to the adjacent line) could occur.
- **Ensure compliance with the requirements of the Tower Relocation Alternative** (as described in Final EIR Section 4.2). The Phased Build Alternative would retain (and not remove) most existing double-circuit structures near the center of the ROW. Constructing the second line adjacent to the retained structures ensures that no new structure would be located nearer to the edge of the ROW than is currently the case.
- **Retain existing double-circuit towers.** Most of the existing double-circuit towers would be retained.
- **Install high-capacity conductors on all four circuits.** Both the new and existing 220 kV double-circuit towers would have the "795 Drake" Aluminum Conductor Composite Reinforced (ACCR) installed, with the exception of Segment 1, where only two of the existing four circuits would be modified.
- **Either retain or relocate the existing 66 kV circuits.** Based on final design, if the 66 kV circuits are required to be relocated, the Iowa Street 66 kV Underground Alternative would be preferred in that portion of the project. If the 66 kV circuits are not relocated, there would be no need to implement the Iowa Street 66 kV Underground Alternative.

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[3] The Phased Build Alternative would have capacity for all the generation included in the CAISO 2024 Reliability Base Case (see EIR/EIS Appendix 5 (Alternatives Screening Report), Attachment 2, pages 5-6 and Table A4). This scenario includes 3,754 MW of Total Generation On-line and 6,901 MW of Total Generation Capacity, as well as the power flow on the system resulting from import of 1,400 MW from the Imperial Irrigation District into the Los Angeles Basin.

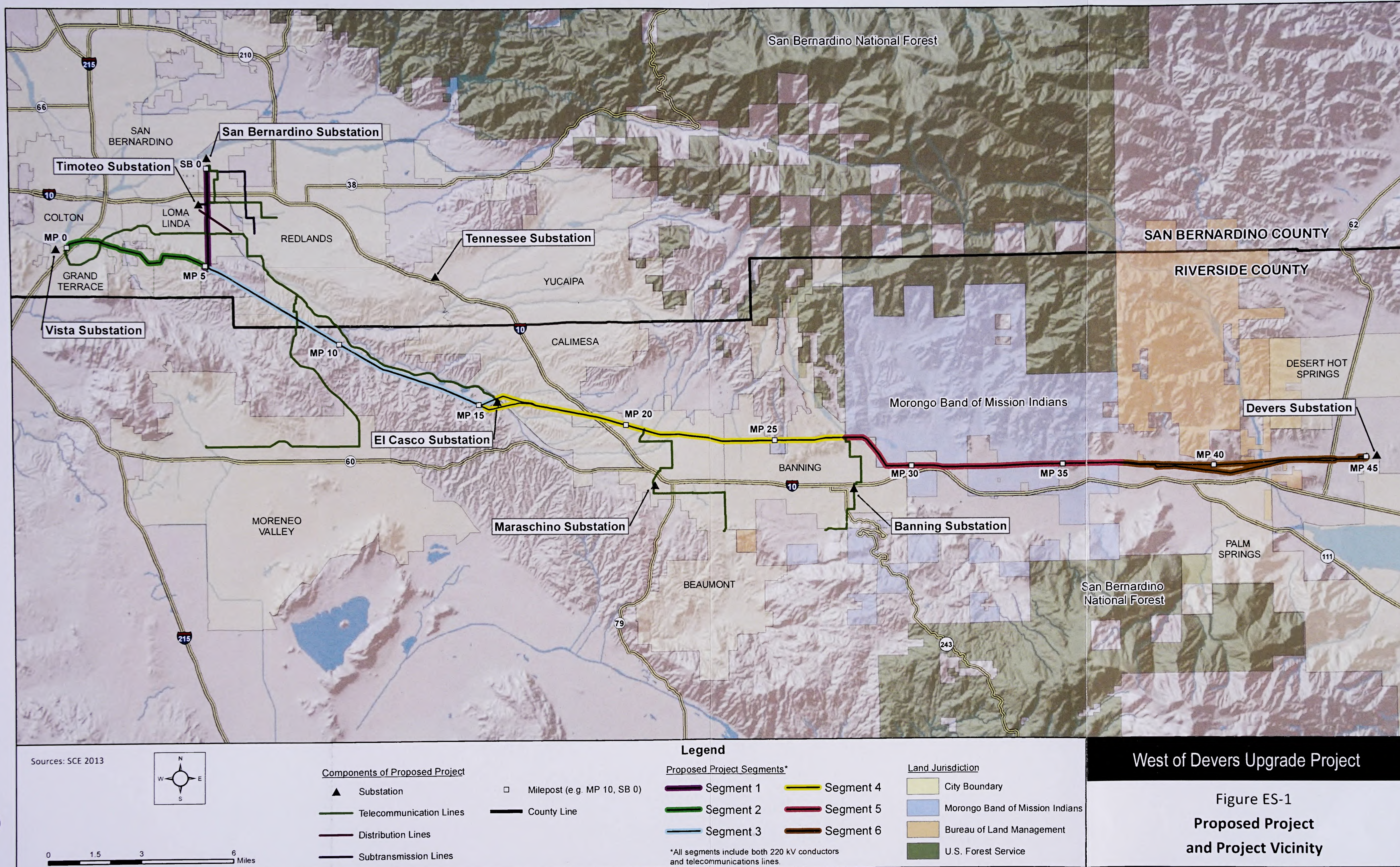
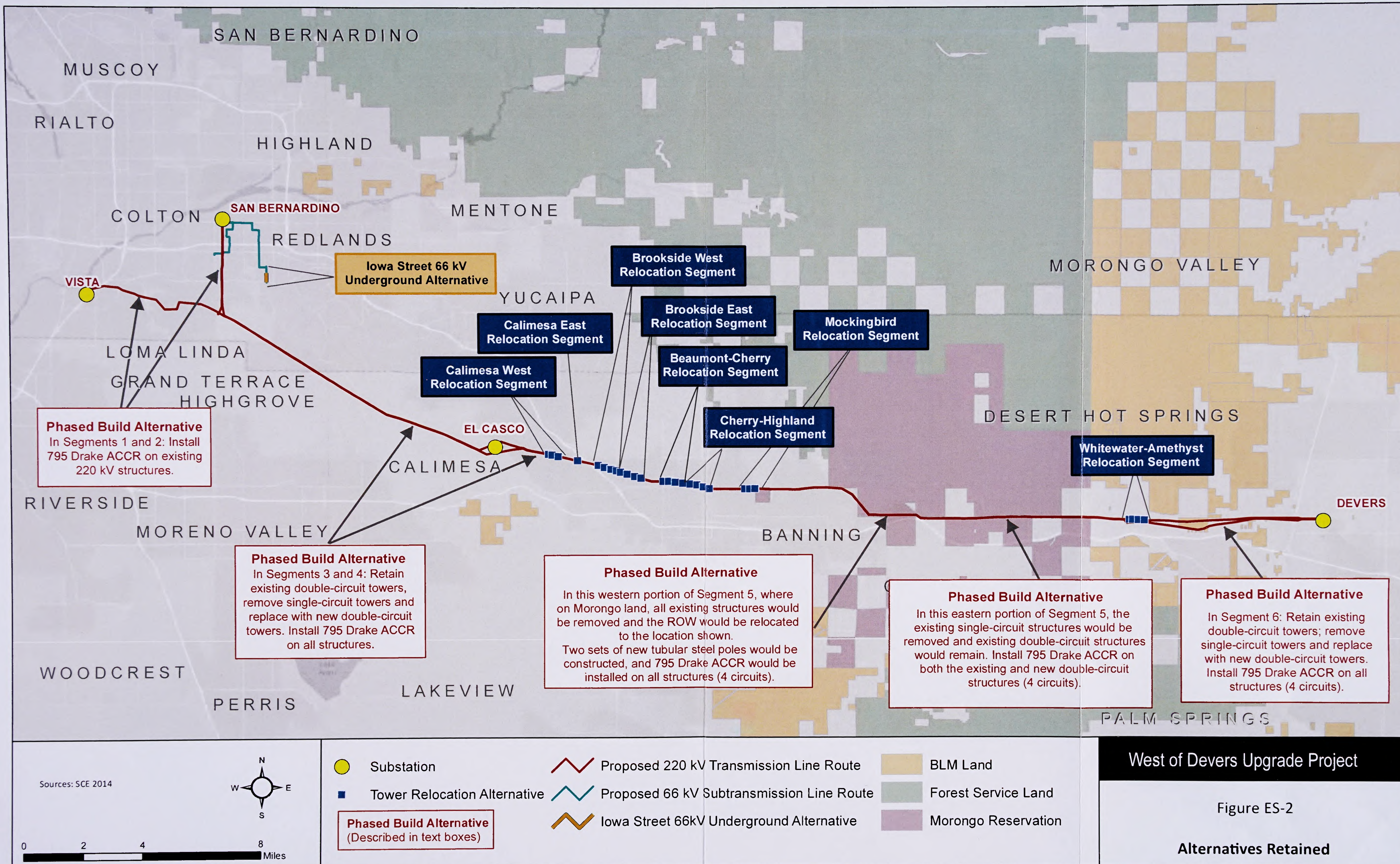


Figure ES-1
Proposed Project and Project Vicinity


SAN BERNARDINO
MUSCOY
RIALTO
HIGHLAND
COLTON
SAN BERNARDINO
MENTONE
REDLANDS
Iowa Street 66 kV Underground Alternative
VISTA
YUCAIPA
Brookside West Relocation Segment
Brookside East Relocation Segment
Calimesa East Relocation Segment
Mockingbird Relocation Segment
MORONGO VALLEY
LOMA LINDA
Calimesa West Relocation Segment
Beaumont-Cherry Relocation Segment
GRAND TERRACE
HIGHGROVE
Cherry-Highland Relocation Segment
DESERT HOT SPRINGS
Phased Build Alternative
In Segments 1 and 2: Install 795 Drake ACCR on existing 220 kV structures.
EL CASCO
CALIMESA
Whitewater-Amethyst Relocation Segment
RIVERSIDE
DEVERS
MORENO VALLEY
BANNING
Phased Build Alternative
In Segments 3 and 4: Retain existing double-circuit towers, remove single-circuit towers and replace with new double-circuit towers. Install 795 Drake ACCR on all structures.
Phased Build Alternative
In this western portion of Segment 5, where on Morongo land, all existing structures would be removed and the ROW would be relocated to the location shown.
Two sets of new tubular steel poles would be constructed, and 795 Drake ACCR would be installed on all structures (4 circuits).
Phased Build Alternative
In this eastern portion of Segment 5, the existing single-circuit structures would be removed and existing double-circuit structures would remain. Install 795 Drake ACCR on both the existing and new double-circuit structures (4 circuits).
Phased Build Alternative
In Segment 6: Retain existing double-circuit towers; remove single-circuit towers and replace with new double-circuit towers. Install 795 Drake ACCR on all structures (4 circuits).
WOODCREST
PERRIS
LAKEVIEW
PALM SPRINGS
Sources: SCE 2014
N
W
E
S
0
2
4
8
Miles
Substation
Tower Relocation Alternative
Phased Build Alternative (Described in text boxes)
Proposed 220 kV Transmission Line Route
Proposed 66 kV Subtransmission Line Route
Iowa Street 66kV Underground Alternative
BLM Land
Forest Service Land
Morongo Reservation
West of Devers Upgrade Project
Figure ES-2
Alternatives Retained

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- **Allow for future capacity expansion within the existing corridor** with several optional future phases. These future phases would be implemented as generation projects become certain and additional capacity is clearly required. Because the Phased Build Alternative would accommodate projects now defined in the CAISO's 2024 Reliability Base Case, it may be 10 years before additional upgrades are needed. The future phases could include:
  - Reconductoring the newly constructed 220 kV structures with higher capacity conductors;
  - If required, based on assessment of structure strength with added interset structures, replacing some of the retained 220 kV structures with new, stronger 220 kV structures in order to carry different heavier, higher capacity conductors;
  - Installing a single- or double-circuit 500 kV or 220 kV line in the vacant space remaining in the ROW.

The components of this alternative are shown on Figure Ap.5-5b.

In Segment 5, the Phased Build Alternative structures on Morongo land would look exactly like those of the Proposed Project, and would incorporate the Morongo relocation of a part of the ROW and the use of tubular steel poles. While the Morongo Band has a conditional contractual right to terminate its ROW Agreement with SCE, the Phased Build Alternative appears to be preliminarily feasible considering legal and regulatory factors, because it currently is uncertain whether the Morongo Band may or will exercise that right, and particularly because on Morongo lands the alternative is entirely consistent with the Project (as defined in Exhibit A to the Development and Coordination Agreement [DCA]). Although the alternative is designed to meet the same project objectives as the Project described in the ROW Agreement and DCA, and the tower structures would be exactly the same as SCE's Proposed Project on Reservation lands, comments from the Morongo Band assert that this alternative may be legally infeasible given the right of the Morongo Band to terminate the ROW Agreement if the SCE does not secure approvals by January 1, 2017 for the project described in the DCA (which arguably differs from the Phased Build Alternative in the tower locations off the Morongo Band lands, but is wholly consistent on Morongo Band lands). That termination right, however, has not been exercised and thus no such legal infeasibility currently exists. If that right is properly and timely exercised by the Morongo Band in the future, no transmission upgrades could be constructed across the Reservation absent the subsequent execution of a replacement ROW Agreement.

The Phased Build Alternative would use a composite reinforced conductor in an appropriate size to allow import from all generation projects that are reasonably foreseeable (i.e., included in the CAISO's 2024 Reliability Base Case, as well as allowing import of an additional 1,400 MW from the Imperial Valley). A high-performance conductor weighs less and has lower thermal expansion than the SCE-standard ACSR conductor. This would result in less sag than the ACSR conductor for an equivalent strength and durability. Therefore, using an alternative conductor would satisfy the basic project objectives while also avoiding the need to rebuild all existing double-circuit towers in the corridor.

Two options for the Phased Build Alternative in Segment 5 are presented:

- **Phased Build Alternative Option 1** in which all Segment 5 towers (not just the approximately 60 percent on Morongo land) would be removed and replaced with the Proposed Project tubular steel pole and double-circuit lattice steel tower structures. This option would ensure that no future tower construction would occur in Segment 5; but there would be future construction activity related to reconductoring from Drake 795 to 1590 kcmil conductors.
- **Phased Build Alternative Option 2** would have the Proposed Project's structures and 1590 kcmil conductor installed in all of Segment 5, eliminating all possible future effects on Morongo lands.

Rationale for Full Analysis. The Phased Build Alternative is retained for analysis because it would reduce the environmental impacts of the Proposed Project by reducing the amount of construction disturbance by 20 percent to 25 percent. While it would require construction of up to 110 interset structures, this alternative would retain nearly all existing 220 kV double-circuit structures, thereby reducing the amount of tower deconstruction needed and reducing the number of new towers and poles that would be constructed. It would achieve all three Basic Project Objectives. In addition, this alternative is technically feasible, based on data provided by SCE to the EIS team through formal data requests. The alternative conductor type has been proven and is in use by other utilities.

ES.3.3 Alternatives Eliminated From Further Consideration

This EIS presents two categories of alternatives eliminated from consideration. Some alternatives required detailed screening in order to determine whether they should be eliminated. Other alternatives were eliminated after preliminary screening because they clearly did not meet project objectives or were infeasible. These alternatives that were assessed and eliminated are listed below. .

Alternatives Eliminated After Detailed Screening

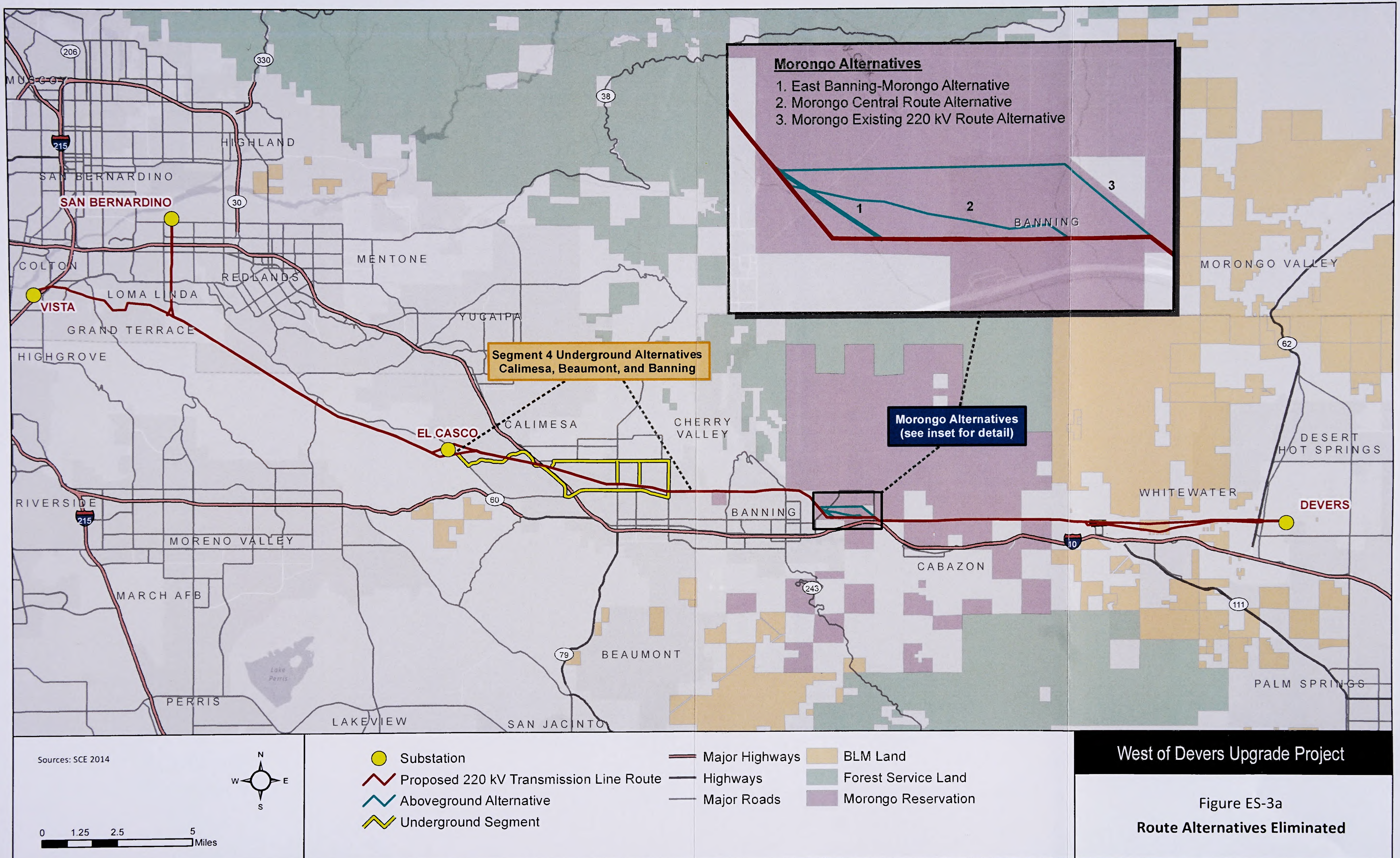
The 12 alternatives discussed below were evaluated in the Draft EIR/EIS for their potential to meet CEQA and NEPA requirements, but ultimately were eliminated from consideration in the EIS. A more detailed description of each alternative and the rationale for its consideration and elimination is presented in EIS Appendix 5, Alternatives Screening Report. Figures ES-3a and ES-3b show the locations of the alternatives eliminated after detailed screening.

500 kV Towers Alternative

Description. The 500 kV Towers Alternative anticipates a future 500 kV line being developed in the ROW, and would erect structures near the center of the ROW now for use at 220 kV that would be suitable for future use at 500 kV. In contrast to the pairs of 220 kV towers of the Proposed Project, the outer set of towers (i.e., neared edge of ROW) in this alternative would be 220 kV towers, and the set nearer the center of the ROW would be 500 kV structures. Initially, the lines on both structures would be energized at 220 kV, but eventually the 500 kV structure would be energized at 500 kV. This alternative would allow the future 500 kV line to be farther from the edge of the ROW in Segments 2, 3, 4, and 6, between the Devers Substation and the Vista Substation. The 500 kV structure line in this alternative would be located at least 75 feet from the edge of the ROW in the areas where the ROW is split. At some future time when 500 kV service becomes needed in addition to the existing 220 kV service, SCE would presumably construct another set of double-circuit 220 kV towers on the opposite side of the ROW from the initial 220 kV towers, and use the 500 kV towers for a 500 kV circuit.

This alternative would not facilitate adding 500 kV service through Segment 1 (San Bernardino Substation to San Bernardino Junction) where the potential for blow-out (swinging) of lines past the edge of the ROW would preclude using taller and wider-spaced structures.

Similarly, this alternative would not change the proposal for Segment 5 on the Morongo Reservation, where only the Proposed Project has been approved by the Morongo Tribe in a ROW Agreement with SCE (see EIS Appendix 3). This alternative would proceed on the Morongo Reservation only if it were recommended and approved by the Morongo Band of Mission Indians, and a new ROW Agreement would need to be issued in order for it to move forward. Since the Morongo Tribe has not approved 500 kV service at this time, this alternative is not being contemplated for Segment 5. In the future, 500 kV structures would be constructed in Segment 5 to connect to the 500 kV structures at the western and eastern ends of the reservation. If the Morongo Tribe does not approve construction of a 500 kV line across tribal land in the future, a route around the reservation would need to be constructed.



West of Devers Upgrade Project

Figure ES-3a
Route Alternatives Eliminated

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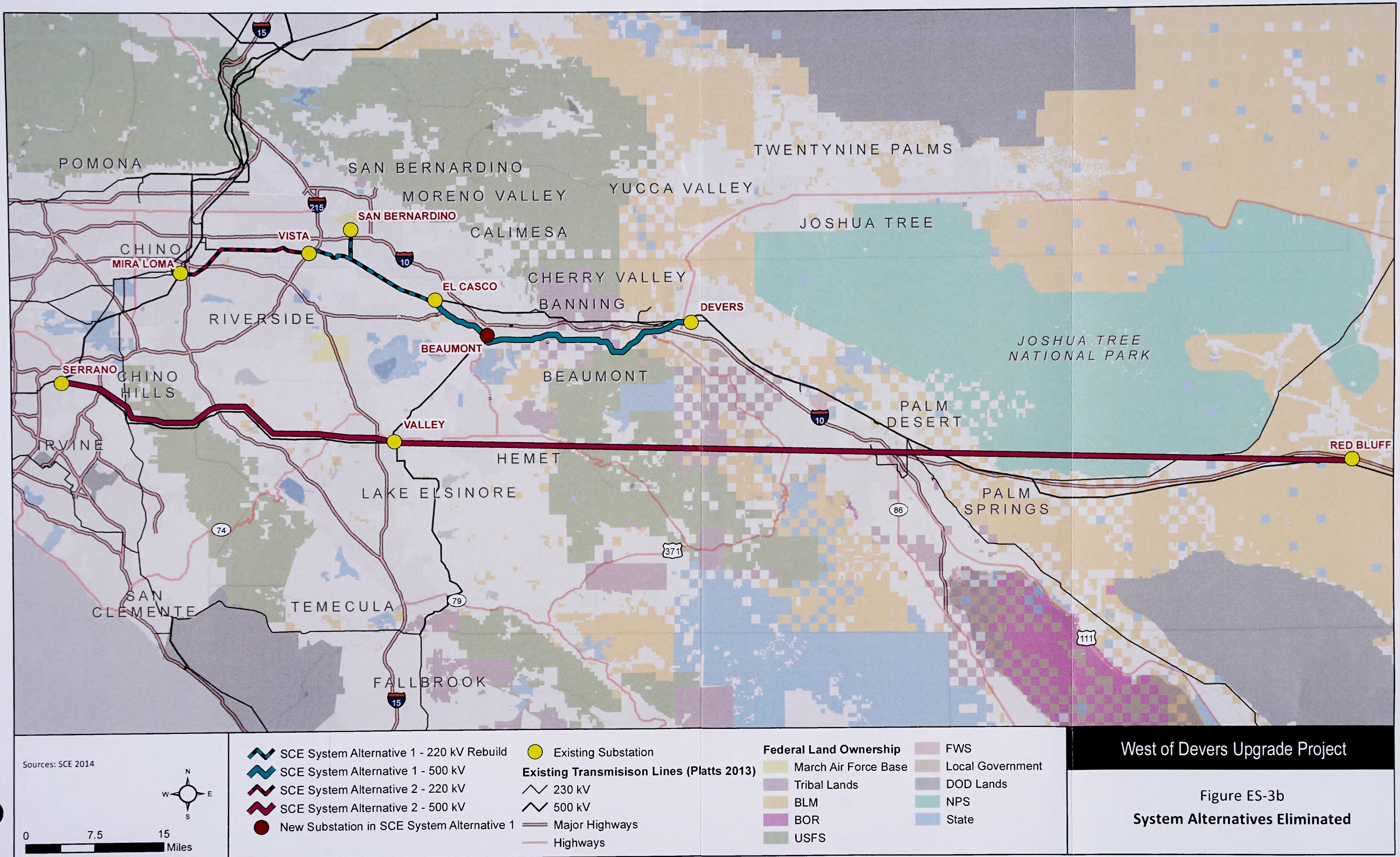


Figure ES-3b
System Alternatives Eliminated

In Segment 2 (Vista Substation to San Bernardino Junction), existing lower-voltage (115 kV) circuits would need to be relocated to allow placement of the 500 kV structures in the widest portions of the ROW, and existing 220 kV structures in the northern portion of the ROW would need to be retained and used by the relocated lower-voltage circuits.

Rationale for Elimination. This alternative meets all three project objectives. Installation of 500 kV structures and operation at 500 kV in the future would require a new agreement from the Morongo Tribe to be legally feasible. If the Morongo Tribe were to not approve a 500 kV line when it is needed in the future, then it would not be legally feasible to construct a 500 kV line across tribal land. Therefore, SCE would have to construct a 500 kV route around the reservation, which also does not appear to be feasible given the land ownership, land designations, and terrain in the area.

Segment 4 Underground Alternatives in Calimesa, Beaumont, and Banning

Description. Three underground route options have been considered to reduce visual impacts to residences in these areas.

- **Underground in Transmission Corridor.** Within the vicinity of residences in the Cities of Calimesa, Beaumont, and Banning, the transmission line would transition from overhead to underground and would be installed underground within SCE's existing ROW.
- **Underground North of Transmission Corridor (Beaumont).** This underground route option would transition from overhead to underground at North Deodar Drive near MP 19.2. From there the route would travel north in North Deodar Drive to Brookside Avenue where it would turn east and be installed within Brookside Avenue. At Beaumont Avenue, Cherry Avenue or Highland Springs Avenue the route would turn south within the roadway until it rejoins the proposed transmission corridor. At this point, the line would transition from underground to overhead within the transmission corridor on the eastern side of Beaumont Avenue, Cherry Avenue or Highland Springs Avenue.
- **Underground South of Transmission Corridor (Calimesa and Beaumont).** The alternative route option would transition from overhead to underground near MP 16.0. It would travel southeast in Oak Valley Parkway, east in Palmer Drive and east then southeast in Desert Lawn Drive to Oak Valley Parkway. From Oak Valley Parkway, the lines would be horizontally directional drilled for 800 to 1,200 feet to cross under I-10 to the east. The route would continue for 3.3 miles in Oak Valley Parkway to Highland Springs Avenue. At Highland Springs Avenue the route would turn north for 0.2 miles until it would rejoin the proposed transmission corridor and would transition from underground to overhead just east of Highland Springs Road (MP 23.3).
- Two separate alignments of concrete duct banks would need to be installed in continuous trenches at least 8 feet wide, and underground vaults would be required approximately every 1,500 feet, in order to place the four 220 kV circuits in Segment 4 underground.
- Once the alternative is energized, SCE would remove the conductors from the existing overhead towers and may choose to remove the existing towers, but retain its ROW for future use, or have the towers remain in place for other uses within the ROW.

Rationale for Elimination. This alternative would meet most project objectives and would be feasible considering technical, legal, and regulatory factors. Undergrounding the proposed 220 kV lines would reduce or avoid visual impacts, but it would result in much more severe construction impacts related to dust, ground disturbance, and traffic and would cross by two schools. Maintenance and repair times would also be increased. Furthermore, this segment of the ROW for the Proposed Project is 400 feet wide. Therefore, there is room within the ROW to modify proposed above-ground structure locations to reduce impacts to residences, as has been considered under the Tower Relocation Alternative (see Section C.4.1), which would reduce the significant visual impacts in this area without creating new impacts of its own

Segment 5 Morongo Central Route Alternative (original PEA Proposed Route)

Description. This alternative was proposed by SCE in its PEA (PEA Section 2.2.1.1; SCE, 2013). The Segment 5 Morongo Central Route Alternative would depart from the Proposed Project immediately west of the Morongo Reservation at North Hathaway Street (MP 27.4). The alternative route would continue to the southeast on a diagonal route, south of the existing transmission corridor and approximately 500 to 1,500 feet north of the currently proposed route, for approximately 3 miles. It would rejoin the Proposed Project west of Malki Road on the Morongo Reservation land. The alternative route would be approximately 0.13 miles shorter than the Proposed Project.

Rationale for Elimination. This alternative would meet most of the stated project objectives and would be feasible, considering technical and regulatory factors. However, this alternative is highly unlikely to be legally feasible, based on the Morongo Tribe's stated preference for and approval of the proposed southern route and given that the Tribe's approval of this alternative in lieu of the Proposed Project would be required.

Segment 5 Morongo Existing 220 kV Route Alternative (Existing ROW)

Description. Under this alternative, SCE's proposed 220 kV transmission upgrades would occur within the existing transmission corridor and SCE's ROW would not be relocated on the Morongo Reservation, as proposed. The Segment 5 Morongo Existing 220 kV Route Alternative would depart from the Proposed Project immediately west of the Morongo Reservation at North Hathaway Street (MP 27.4). The alternative route would continue to the southeast then east for 1.6 miles before turning southeast on a diagonal to rejoin the Proposed Project west of Malki Road on the Morongo Reservation land. The alternative route would be approximately the same length as the Proposed Project.

Rationale for Elimination. This alternative would meet most of the stated project objectives and would be feasible considering technical and regulatory factors. However, based on the Morongo Tribe's stated preference for and approval of the proposed southern route and given that the Tribe's approval of this alternative would be required, this alternative is highly unlikely to be legally feasible.

East Banning/Morongo Alternative

Description. This alternative was developed by the EIS Team to reduce significant visual impacts of the new tubular steel poles (TSPs) to residences on North Hathaway Street and North Evans Street in the City of Banning. The existing lattice towers are located 2,500 feet away from these residences. The proposed towers would be 1,700 feet away and, at the Morongo Tribe's request, would be TSPs, which have greater bulk and would be much more visible than lattice towers.

This 0.6-mile alternative would replace 0.7 miles of the proposed route and would involve moving the TSPs farther from residences. The alternative would begin at approximately Milepost 28.8 where the route would diverge from the Proposed Project by continuing in a southeast direction to the east and north of the proposed route. The alternative would continue in a straight line rejoin the Proposed Project at MP 29.5 after the proposed route would turn from southeast to east on Morongo land.

Rationale for Elimination. This alternative would meet most of the stated project objectives and would be feasible considering technical and regulatory factors. However, given the stated preference and approval by the Morongo Tribe for the proposed southern route and given that approval of this alternative by the Morongo Tribe would be required; this alternative is highly unlikely to be legally feasible.

Devers-Beaumont 500 kV Alternative (SCE System Alternative 1)

Description. This alternative was proposed by SCE in its PEA as System Alternative 1, New 500/220 kV Substation and New 500 and 220 kV Transmission Lines (PEA Section 2.1.2.2; SCE, 2013). This alternative would include removal of approximately 30 miles of existing 220 kV lines and structures in the WOD corridor between Devers and El Casco Substations, which would eliminate impacts of the existing transmission lines and the Proposed Project to the Morongo Tribe and the cities and communities from Beaumont to the eastern end of the project.

The Devers-Beaumont 500 kV Alternative would require construction of a new 500/220 kV substation near the City of Beaumont, a new 500 kV transmission line in new and existing ROW between Devers Substation and the new 500/220 kV substation, four new 220 kV transmission lines in a new ROW between the new 500/220 kV substation and the existing WOD corridor, and upgrades to the existing WOD 220 kV transmission lines and associated existing substations between El Casco, San Bernardino, and Vista Substations. The Devers-Beaumont 500 kV Alternative would also require acquisition of property to construct a new 500/220 kV substation near the City of Beaumont. Finally, the Devers-Beaumont 500 kV Alternative would require construction of upgrades to the existing 220 kV transmission lines between the El Casco, San Bernardino, and Vista Substations. Specific components of this alternative are described in Appendix 5 of this EIS.

Rationale for Elimination. This alternative would meet most project objectives and has the potential to be technically feasible. If the route were proposed through the Potrero Area of Critical Environmental Concern (ACEC) and the San Jacinto Wilderness, the regulatory and legal feasibility of this alternative would be highly questionable. In addition, construction of a new corridor and 500 kV/220 kV substation in the developed areas of Banning and Beaumont would create construction disturbance and greater visual impacts to residences and sensitive receptors in these areas without providing any environmental advantages over the Proposed Project.

Red Bluff-Valley-Serrano 500 kV Alternative (SCE System Alternative 2)

Description. This alternative was proposed by SCE in its PEA as System Alternative 2, New 500 kV Transmission Line (PEA Section 2.1.2.3; SCE, 2013). Under the Red Bluff-Valley-Serrano 500 kV Alternative, a new 500 kV transmission line would be constructed on new ROW between the existing Red Bluff, Valley, and Serrano Substations. The alternative would also require reconfiguration of the existing 220 kV circuits between El Casco, Vista, and San Bernardino Substations. Finally, the Red Bluff-Valley-Serrano 500 kV Alternative would require construction of 220 kV transmission line between Mira Loma and Vista Substations, and would require upgrades to Serrano Substation to increase the substation transfer capability. Specific components of this alternative are described in Appendix 5 of this EIS.

Rationale for Elimination. This alternative would meet most project objectives and has the potential to be technically feasible. If the route were proposed through the Potrero ACEC and the San Jacinto Wilderness, the regulatory and legal feasibility of this alternative would be highly questionable. In addition, construction of new, much longer corridors especially in the developed areas of the Inland Empire would create greater construction disturbance and visual impacts to residences and sensitive receptors in these areas without providing any environmental advantages over the Proposed Project.

Reduced Build Alternative Option 1

Description. This alternative was developed to consider the feasibility of the West of Devers project as proposed in 2005 under the DPV2 project. The alternative would reduce the impacts of the Proposed Project by retaining the existing double-circuit towers rather than removing and rebuilding them. This alternative is similar to the project proposed by SCE in the 2005 West of Devers System Upgrades and analyzed as the Proposed Project in the DPV2 EIR/EIS (CPUC and BLM, 2006). In this option:

- The two sets of existing single-circuit towers would be removed and one set of new double-circuit towers would replace those towers; and,
- The existing double-circuit towers would be retained and reconductored, with double-bundled 1033.5 kcmil ACSR. Reconductoring the 40 miles of existing double-circuit towers would involve tower replacement and strengthening for 60 percent of existing structures (SCE, 2015).

When compared with the Proposed Project, each of the four circuits would consist of smaller double-bundled 1033.5 kcmil ACSR (2B-1033 ACSR) for their entire length, which was SCE's design for the corridor in 2005.

Rationale for Elimination. The Reduced Build Alternative Option 1 meets all three Basic Project Objectives and is technically and legally feasible. It would achieve Basic Project Objective 1 (exceeding 2,200 MW of increased deliverability) and would result in a corridor system rating of about 3,400 MW. As a result, it would also meet the goal of supporting renewable energy goals because it supports increased import of renewable generation projects from the area east of the Devers Substation. The alternative would also provide adequate space for future transmission expansion within the corridor.

However, the Reduced Build Alternative Option 1 is eliminated because the double-bundled 1033.5 kcmil conductors proposed in 2005 could not now be safely supported on these towers given SCE's updated wind loading criteria. The required replacement of 60 percent of existing towers would not substantially avoid or reduce the environmental impacts of the Proposed Project.

Reduced Build Alternative Option 2a

Description. The Reduced Build Alternative Option 2a was developed to maximize the conventional conductor size that could be installed on the new and existing towers, while minimizing the need for new construction in Segments 3 through 6. Reduced Build Option 2a would reuse the existing double-circuit towers to the extent feasible, reconductoring them with a two-conductor bundle of 1033.5 kcmil ACSR (as proposed in 2005), and install one set of new double-circuit towers with 2B-1590 ACSR, as in the Proposed Project. Specific components and configuration of this alternative are described in Section 5.10 in Appendix 5 of this EIS.

Rationale for Elimination. The Reduced Build Alternative Option 2a would meet all three Basic Project Objectives and is technically and legally feasible. It would achieve Basic Project Objective 1 (exceeding 2,200 MW of increased deliverability), resulting in a corridor system rating of about 3,400 MW. As a result, it would also meet the goal of supporting renewable energy goals because it supports increased import of renewable generation projects from the area east of the Devers Substation. The alternative would also meet Basic Project Objective 3, providing adequate space for future transmission expansion within the corridor.

It is eliminated from detailed analysis because the requirement to rebuild 60 percent of existing structures results in it being unlikely to avoid or eliminate the significant environmental impacts of the Proposed Project.

Reduced Build Alternative Option 2b

Description. The Reduced Build Alternative Option 2b was developed to maximize the size of conventional conductors that could be installed on the new and existing towers while still staying within SCE's new wind loading guidelines. Reduced Build Alternative Option 2b would retain the existing conductors on existing double-circuit towers without modification, and install one set of new double-circuit towers with 2B-1590 ACSR, as in the Proposed Project.

Rationale for Elimination. The Reduced Build Alternative Option 2b would not achieve Basic Project Objective 1 due to the small conductor size on the retained double-circuit towers. This alternative would result in a corridor system rating of about 2,300 MW. As a result, it would only partially meet Basic Project Objective 2, supporting renewable energy goals. Reduced Build Alternative Option 2b would meet Basic Project Objective 3, providing adequate space for future transmission expansion within the corridor.

The alternative is feasible, and it has the potential to reduce the environmental impacts of the Proposed Project. It is eliminated from detailed analysis because it would not meet the first two Basic Project Objectives.

High-Performance Conductor Alternative

Description. This alternative was developed to evaluate the potential use of 4 circuits of double-bundled high-performance conductors of a similar size to SCE's proposed ACSR conductors. The High-Performance Conductor Alternative would upgrade the 220 kV corridor by replacing the existing towers as proposed and installing aluminum conductor composite reinforced (ACCR) or aluminum conductor composite core (ACCC) conductors instead of the proposed ACSR conductors. The conductors in this alternative would be double-bundled conductors of comparable physical size to those in the Proposed Project. The alternative conductor for the four primary circuits in this case would be 2B-1590 Lapwing ACCR, which would be capable of achieving 158% of Proposed Project electrical capacity. When compared with construction of the Proposed Project, which would upgrade the existing 220 kV transmission lines to carry 5,168 MW under normal conditions (with all lines in service) for the four primary circuits combined, this alternative would carry 8,163 MW.

Rationale for Elimination. The High-Performance Conductor Alternative is eliminated from detailed analysis because, like the Proposed Project, it would require replacement of all towers; therefore, it would be unlikely to reduce or avoid any project-related impacts. Additionally, it would incur higher costs than the Proposed Project without having any potential to avoid or substantially lessen the environmental impacts of the Proposed Project.

Retain WOD Interim Facility Alternative

This alternative was suggested in a comment on the Draft EIR/EIS by the CPUC's Office of Ratepayer Advocates (ORA). ORA requested evaluation of a smaller capacity alternative than those retained for analysis (Section C.4). ORA believes there is no need for system capacity in California to justify a major transmission expansion to increase the pool of capacity resources.

Description. This alternative would retain the existing SCE 220 kV system between Devers Substation and the Vista and San Bernardino Substations, with no removal or upgrades to existing transmission circuits. However, rather than removing the WOD Interim Facility as proposed by SCE, this facility would remain in place. As described in Section B.1.1, the West of Devers Interim Project was constructed in response to requests from several generators for interconnection earlier than the Proposed Project's estimated completion date in 2020. Therefore, SCE constructed the interim facility, which added approximately 1,050 MW of additional transfer capability, yielding a total of approximately 1,600 MW of capability for the WOD 220 kV corridor. This facility is located in a separately fenced yard, just west of the Devers Substation.

ORA suggests that this alternative would also include the 3-mile transmission line relocation defined by the Morongo Band in the area just west of the Outlet Mall, where the existing ROW would be relocated to the south, paralleling the I-10 freeway. This relocation includes installation of tubular steel poles rather than lattice towers in some locations.

Rationale for Elimination. The Retain WOD Interim Facility Alternative is eliminated from detailed analysis because it would not meet any project objectives. While it would eliminate short-term construction impacts, it would create the need for increased system maintenance.

Alternatives Eliminated After Preliminary Screening

The following 2 potential alternatives were eliminated after a preliminary alternatives screening process. These routes are illustrated on Figure ES-3c.

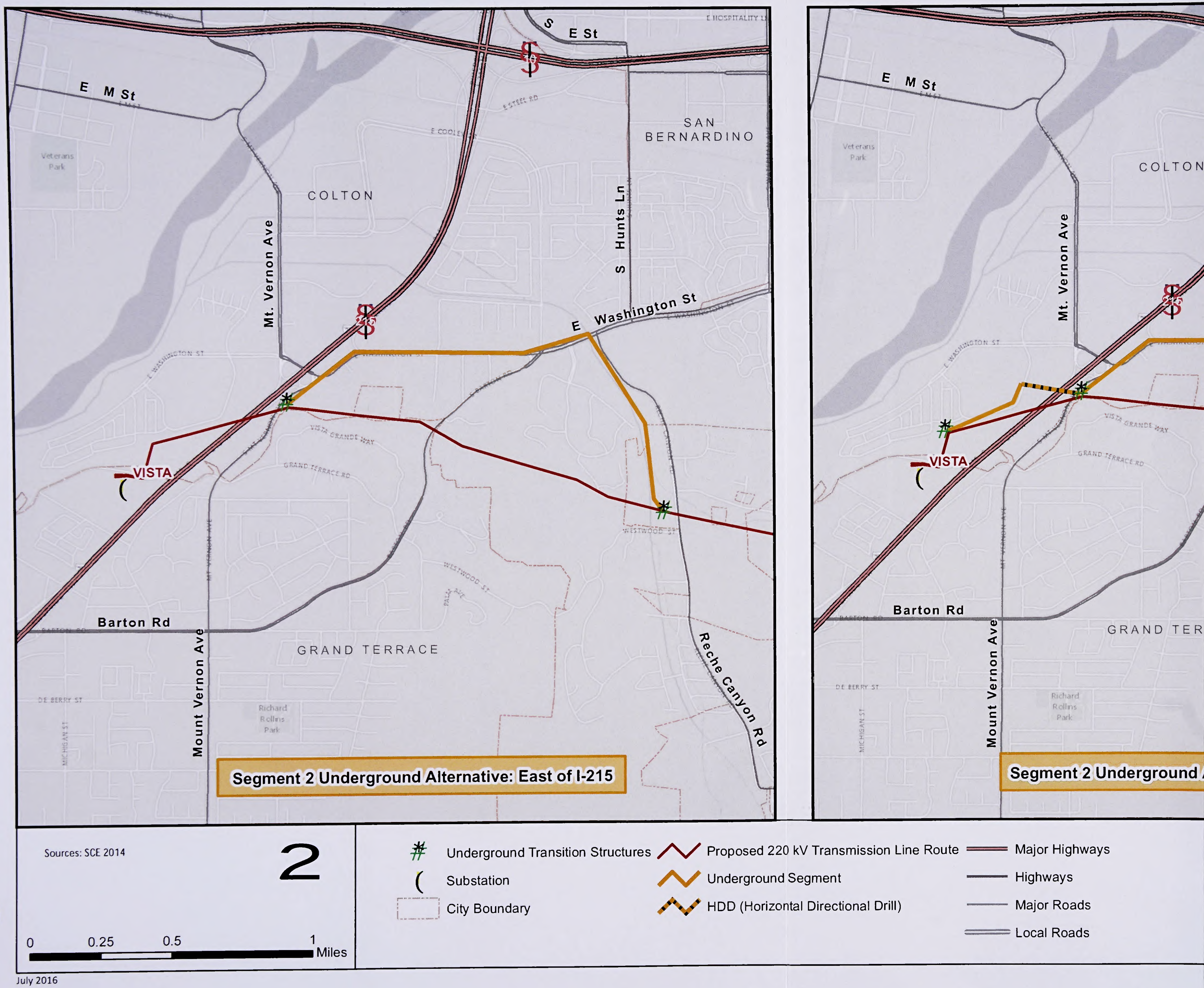
- **Segment 2 Underground Alternative: East of I-215.** This 1.9-mile underground alternative was considered by the EIS team, because of the potential for replacement towers in the City of Colton to degrade views from residential properties in the City of Grand Terrace. During 2014, SCE revised its preliminary design to require only minor modifications of these towers, rather than tower replacement. Therefore, the incremental visual change with the Proposed Project would be small and no significant and unmitigable impacts have been identified in this area. Because no significant impacts have been identified along this segment of the Proposed Project, which is a CEQA requirement for alternatives (see Section ES.3.1, NEPA Requirements for Alternatives), and because underground construction would create much greater traffic and ground disturbance impacts and would increase maintenance and repair times, this alternative has been eliminated from further analysis.
- **Segment 2 Underground Alternative: East of Vista Substation.** This 2.5-mile underground alternative is similar to the Segment 2 Underground Alternative: East of I-215 (see above), but would continue underground crossing under I-215 as a 800- to 1,200-foot horizontal directional drill to the base of the hill north-northeast of Vista Substation. Similar to the Segment 2 Underground Alternative: East of I-215, development of an alternative in this area would not avoid or substantially lessen any significant effects of the Proposed Project. Because no significant impacts have been identified along this segment of the Proposed Project and because underground construction would create much greater traffic and ground disturbance impacts and would increase maintenance and repair times, this alternative has been eliminated from further analysis.

ES.3.4 No Action Alternative

If the Proposed Project or an alternative were not approved, certain events would occur to address the basic project needs. The West of Devers corridor through Morongo land is subject to a recently negotiated agreement. Because it is not known whether the SCE-Morongo ROW agreement could be renegotiated in the absence of the Proposed Project, two options for the No Action Alternative are defined that assume no new agreement. The two options are considered to be the most likely actions if the Proposed Project or an alternative does not proceed and Morongo land is not available for a ROW. Each is described below.

No Action Alternative Option 1

SCE states that in the absence of a new agreement with the Morongo, it would propose to construct an alternative transmission system upgrade. SCE states that the alternative transmission system upgrade that is most likely would be the alternative SCE identified in its PEA as "System Alternative 1," which would include a new Devers-to-Beaumont 500 kV system (SCE, 2014; Response to ALT-6). No Action Alternative Option 1 is based on SCE's description, but is modified slightly to account for land use or engineering constraints identified by the EIS team.



West of Devers Upgrade Project

Figure ES-3c
Alternatives Considered
but Not Screened for EIR/EIS Analysis

The EIS team completed power flow studies on this No Action Alternative Option 1, and found that it would function in a manner similar to the Proposed Project, and would create no system constraints (see EIS Appendix 5, Attachment 2). This option would include removal of all SCE facilities from Morongo land and development of an alternate transmission path from the Devers Substation to the El Casco Substation that would not require use of any Morongo land. This option is illustrated on Figure ES-4a.

The major components of No Action Alternative Option 1 would include:

- **Removal of existing 220 kV SCE transmission facilities** between the Devers Substation and the El Casco Substation, on Morongo land and on private land
- **Removal of the WOD Interim Project,** which currently directs power flowing from Devers into the Devers-Valley system to avoid overloading existing WOD circuits.
- **Devers Substation to Beaumont Substation:** SCE would construct a new 500 kV transmission line between Devers Substation and a new Beaumont Substation. The route is assumed to follow the easternmost 25 miles of the existing Devers-Valley corridor, which currently holds 2 single-circuit 500 kV lines. A portion of this new third circuit in the corridor would have to be installed on double-circuit 500 kV towers due to ROW width constraints at some locations.
- **Beaumont Substation:** South and west of Beaumont, SCE would acquire property rights for and construct a new 40-acre 500/220 kV substation in the vicinity of Beaumont Avenue (Highway 79) and Laird Road. The new 500 kV circuit from Devers would terminate at the Beaumont Substation, and the existing Devers–Valley 500 kV No. 2 transmission line would loop into the new substation as well. Four circuits of 220 kV line would exit the substation to the north.
- **Beaumont Substation to El Casco Substation:** Approximately 1.5 miles north of the Beaumont Substation, the new 220 kV lines would reach the existing SCE 115 kV El Casco transmission line, and would follow that corridor for 7 miles to the El Casco Substation. SCE would have to acquire approximately 7 miles of new ROW (assumed to be adjacent to the existing El Casco line), and construct two new double-circuit 220 kV transmission lines from the new Beaumont Substation to the existing El Casco Substation and the 220 kV lines extending northwest from there.

No Action Alternative Option 2

No Action Alternative Option 2 would provide a 500 kV line between Valley and Serrano Substations. Option 2 was defined because power flow modeling identified that there is currently available capacity in the Devers-Valley No. 1 and No. 2 500 kV lines. At present, this capacity cannot be well used because the existing transmission system is constrained west of the Valley Substation. There are the two 500 kV lines into Valley Substation from Devers but only one 500 kV circuit from Valley to Serrano Substation in Orange County. The power flows related to Option 2 were studied in detail by the EIS team (see EIS Appendix 5, Attachment 2 (Power Flow Analysis)).

Unlike No Action Alternative Option 1, No Action Alternative Option 2 would not require construction of a new 500 kV line between Devers and Beaumont, a new Beaumont Substation, or 4 new 220 kV lines to El Casco. This option is illustrated on Figure ES-4b, and is described as follows:

- **No Major Upgrades to 220 kV System West of Devers.** The SCE WOD 220 kV system would be retained unchanged from the current system (4 circuits with current capacity; no removal of single-circuit towers; no construction of new towers). Except, as defined in the approved SCE-Morongo ROW agreement, the 220 kV segment between the Outlet Mall and the eastern border of the City of Banning would move south from its current location to be adjacent to I-10 and would be installed on new tubular steel poles (TSPs).

- **Retain the WOD Interim Project.** Just west of the Devers Substation, SCE has installed series reactors on the four existing 220 kV transmission lines that extend west of Devers Substation and a Special Protection System (SPS) to prevent overloading on the WOD transmission lines. This equipment would be retained in No Action Alternative Option 2.
- **No upgrades to 500 kV Devers-Valley System and no new substation.** The existing Devers-Valley No. 1 and No. 2 circuits currently operate well below capacity, as shown in the power flow modeling attached to Appendix 5 (Alternatives Screening Report, Attachment 2). Additional power could be delivered to Valley Substation through these lines by making improvements west of the Valley Substation. As shown in modeled Case 2 (CAISO 2024 Reliability Base Case with an added 1,400 MW imported from the Imperial Irrigation District), each Devers-Valley 500 kV circuit would use only 44% of its capacity, leaving over 2,000 MW available.
- **New 500 kV Line from Valley to Serrano Substation.** A new single-circuit 500 kV transmission line would be constructed along approximately 40.4 miles of existing transmission corridor from SCE's Valley Substation in the City of Romoland to SCE's Serrano Substation in the City of Orange. The existing Valley-Serrano No. 1 transmission line, constructed in 1986, occupies this corridor. The route includes about 9 miles within Cleveland National Forest, in a designated utility corridor where construction would have to be completed via helicopter. Equipment upgrades would be required at the Valley and Serrano Substations to accommodate this option.

ES.4 Summary of Impacts

ES.4.1 Introduction

This section summarizes the environmental impacts of the Proposed Project and alternatives. For each resource area, the analysis first presents a summary of impacts for the Proposed Project and the solar projects (the "connected actions") likely to be constructed if the Proposed Project is completed. The severity of those impacts is described, as well as recommended mitigation measures that would reduce the severity of the impacts. Next, the analysis presents a summary of impacts for each alternative to the Proposed Project, including the No Action Alternative.

ES.4.2 Agriculture

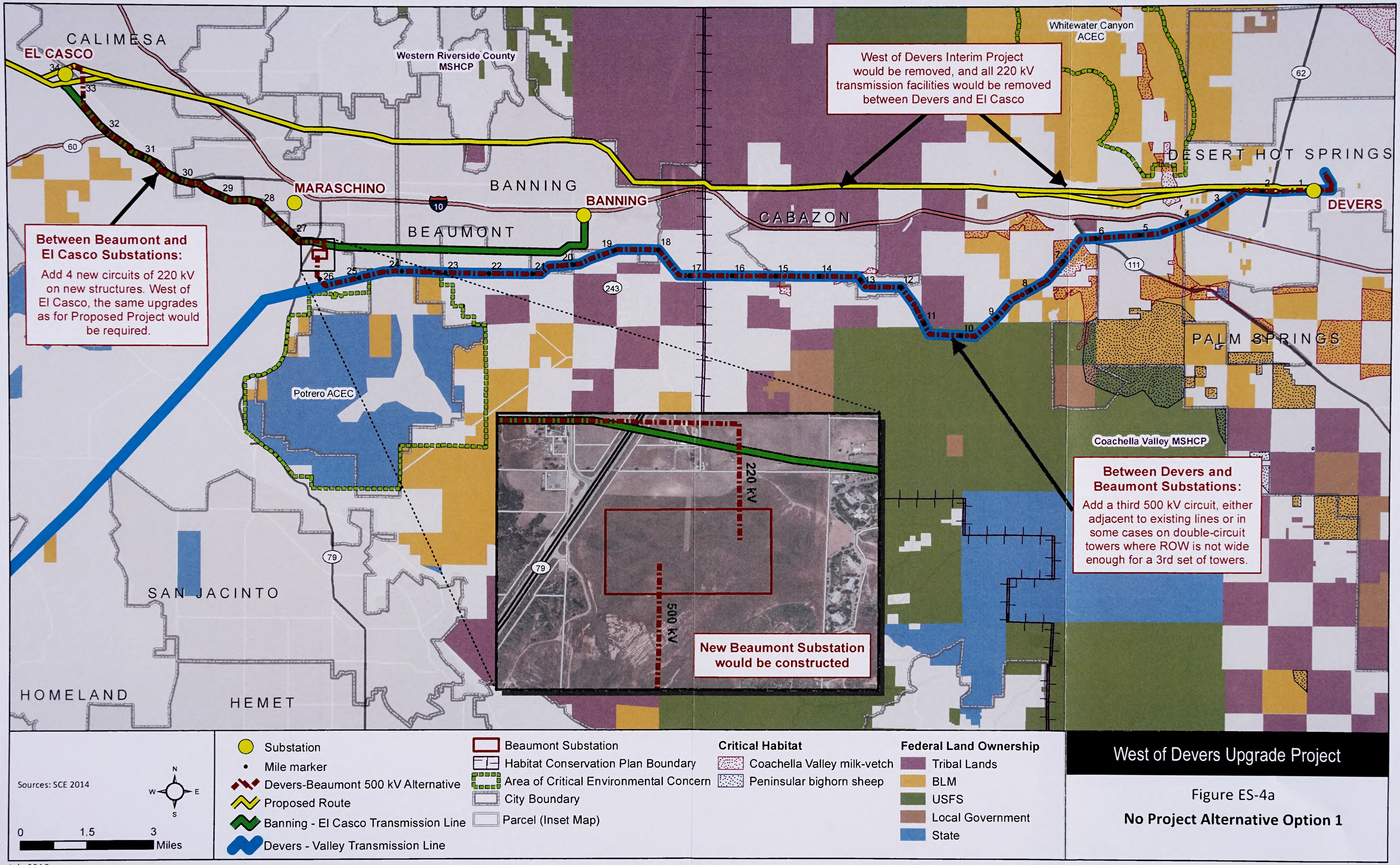
This analysis considers the potential for the Proposed Project and the alternatives to convert Important Farmland to non-agricultural use, conflict with existing zoning for agricultural use, or create other changes in the existing environment that would impair the use of agricultural land.

ES.4.2.1 Effects of the Proposed Project on Agriculture

Proposed Project. Construction and operation of the Proposed Project would result in minor adverse effects to agriculture, including:

- Permanent conversion of 3.5 acres of designated Important Farmland to non-agricultural use
- Temporary disturbance of 31.6 acres of Important Farmland

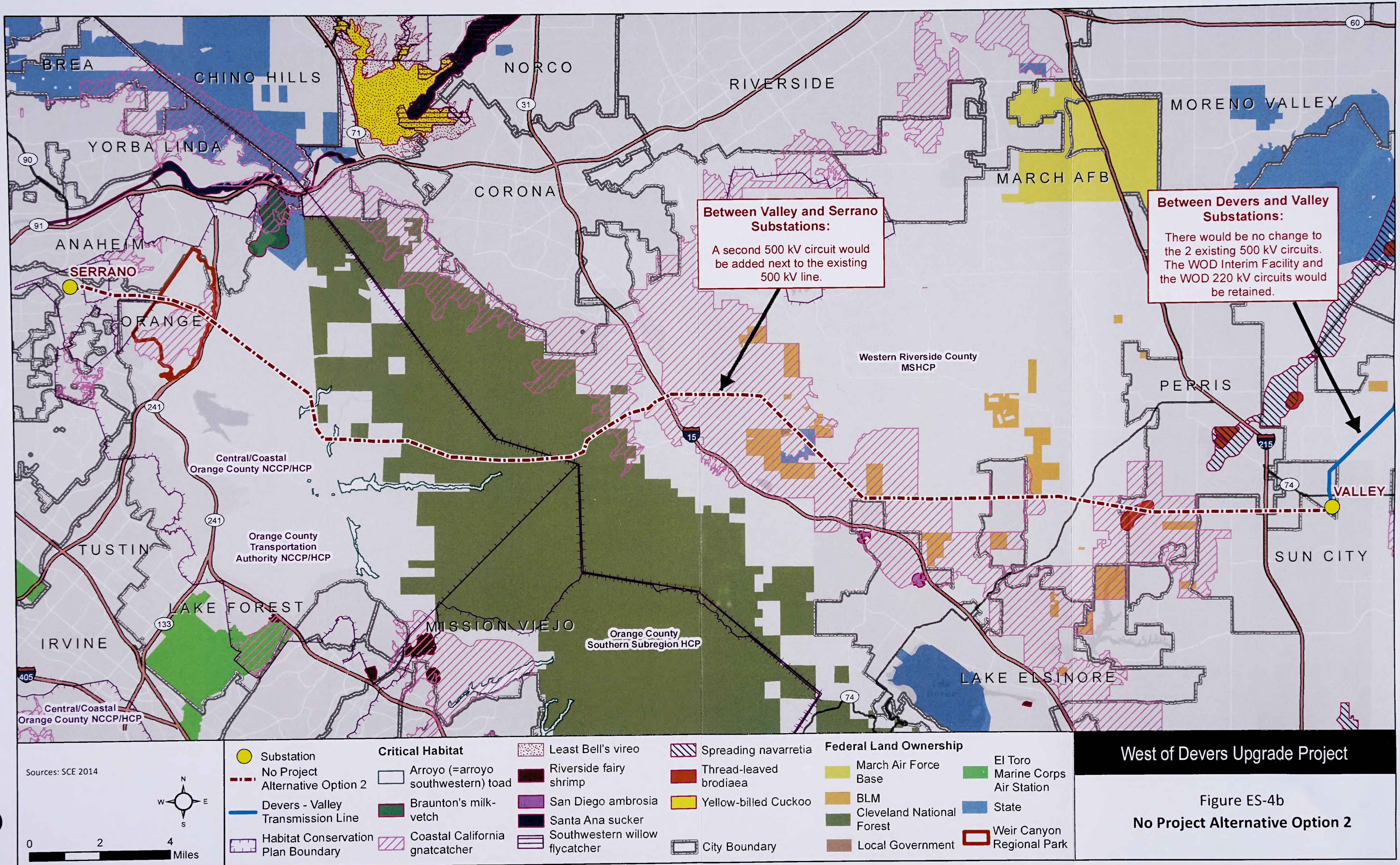
The severity of the temporary adverse effect on Important Farmland would be reduced through implementation of mitigation measures that would control fugitive dust and off-road equipment emissions; require the preparation of plans for construction notification, hazardous materials management, and soil management; and identify pesticide and herbicide contamination.



West of Devers Upgrade Project

Figure ES-4a

No Project Alternative Option 1



West of Devers Upgrade Project

Figure ES-4b
No Project Alternative Option 2

Connected Actions. Construction and operation of utility-scale solar projects in the Blythe and Desert Center areas would:

- Result in the conversion of a substantial number of acres of Important Farmland to non-agricultural uses, especially in the Blythe area
- Disturb existing agricultural operations, due primarily to dust from construction activities

Due to the large potential adverse effects of the solar projects on agricultural land, it is likely that solar project developers would be required to implement permanent agricultural conservation easements or participate in an agricultural land mitigation program.

ES.4.2.2 Effects of Alternatives on Agriculture

Tower Relocation Alternative. Construction and operation of this alternative with its relocated towers in Segments 4 and 6 would result in the same adverse effects on agriculture as would the Proposed Project.

Iowa Street 66 kV Underground Alternative. The installation of 1,600 feet of the proposed overhead subtransmission line underground would not directly affect agricultural lands or reduce an effect of the replaced segment of the Proposed Project on agricultural lands. The increased ground disturbance would increase indirect adverse effects on adjacent agriculture due to the increased emission of dust.

Phased Build Alternative. Construction of this alternative would result in less ground disturbance and a decreased emission of dust. Therefore, indirect adverse effects on adjacent agriculture would be reduced. Direct adverse effects to agriculture, including the conversion of Important Farmland, would be the same as in the Proposed Project.

No Action Alternative Option 1. No Williamson Act lands are traversed by this alternative. The transmission line from Devers Substation to Beaumont Substation would traverse 3.7 acres of Grazing Land and Farmland of Local Importance. The 40-acre site for the proposed new Beaumont Substation is located on grassland that is designated as Farmland of Local Importance. This alternative would not result in a substantial loss of Important Farmland or agricultural productivity.

No Action Alternative Option 2. No Williamson Act lands are traversed by this alternative. The route traverses approximately 5 miles of Important Farmland and 13.5 miles of Grazing Land. Due to the small permanent footprint associated with transmission structures, this alternative would not result in a substantial loss of Important Farmland or agricultural productivity. This route requires no construction along the Devers-Valley corridor or along the West of Devers corridor, and no new substation would be required.

ES.4.3 Air Quality

The analysis of impacts to air quality considers whether the Proposed Project or alternatives would be inconsistent with the current approved Air Quality Management Plan or exceed the federal General Conformity Rule applicability thresholds. Emissions are also evaluated against local, state, and federal air pollutant thresholds. Finally, the analysis considers whether project emissions would expose a substantial number of people to objectionable odors or expose sensitive populations to substantial pollutant concentrations.

ES.4.3.1 Effects of the Proposed Project on Air Quality

Proposed Project. Construction and operation of the Proposed Project would result in several adverse effects to air quality, including:

- Generation of dust and vehicle exhaust emissions
- Emission of toxic air contaminants
- Exceedance of South Coast Air Quality Management District (SCAQMD) thresholds for daily construction emissions of several criteria pollutants

Implementation of mitigation measures to control fugitive dust, helicopter emissions, and off-road equipment emissions would reduce the severity of these adverse effects. However, even with implementation of mitigation, the adverse effect related to the exceedance of regional and local air quality thresholds would remain substantial.

Connected Actions. Construction and operation of several potential future solar projects would:

- Emit criteria pollutants and toxic air contaminants
- Likely exceed federal and State thresholds in some instances

Implementation of typical mitigation measures to reduce pollutant emissions, including control of fugitive dust and equipment emissions would reduce the severity of this adverse effect, although thresholds may be exceeded even with mitigation.

ES.4.3.2 Effects of Alternatives on Air Quality

Tower Relocation Alternative. This alternative would result in an overall increase in dust and exhaust emissions because the relocated towers could extend the construction timeframe by as much as one year. Relocation of towers would not cause a greater exceedance of any additional air quality thresholds compared to the Proposed Project. Implementation of the mitigation measures described above for the Proposed Project would reduce the severity of this adverse effect, but the adverse effect would remain substantial.

Iowa Street 66 kV Underground Alternative. Construction of the underground subtransmission line would increase the generation of dust and exhaust emissions compared to the Proposed Project. This alternative would not exceed any additional air quality thresholds compared to the Proposed Project. Implementation of the mitigation measures described above for the Proposed Project would reduce the severity of this adverse effect. However, even with implementation of mitigation, this adverse effect would remain substantial.

Phased Build Alternative. This alternative would retain the existing set of double-circuit towers and therefore would require less ground disturbance and less construction activity. Dust and exhaust emissions would be decreased. Air quality pollutant emissions would not exceed any additional thresholds. Even with the reduction in dust and exhaust emissions and implementation of the mitigation measures described above for the Proposed Project, this adverse effect would remain substantial.

No Action Alternative Option 1. Air quality impacts for this alternative would be similar to those described for the Proposed Project, including exhaust emissions from vehicle and equipment use and fugitive dust from ground disturbance. Mitigation measures, such control of fugitive dust, control of off-road equipment emissions, and control of helicopter emissions, would reduce these adverse effects, but they would likely remain substantial.

No Action Alternative Option 2. Emissions of air quality contaminants for this alternative would occur within the South Coast Air District and would be similar to those described for the Proposed Project. Impact severity and typical mitigation measures would be similar to those of Option 1.

ES.4.4 Biological Resources – Vegetation

The vegetation impact analysis evaluates whether the Proposed Project or alternatives would adversely affect sensitive or special-status species, riparian habitat, wetlands, or other sensitive natural communities. Project activities are also evaluated for conflicts with habitat conservation plans and local policies or ordinances that protect biological resources.

ES.4.4.1 Effects of the Proposed Project on Vegetation

Proposed Project. Construction and operation of the Proposed Project would result in adverse effects to vegetation and habitat, including:

- Removal of existing vegetation and habitat, including wetlands, riparian habitat, and vegetation and habitat that may support special-status plants or animals
- Indirect adverse effects to surrounding vegetation and habitat through project-related dust, interruption of windblown sand transport, interruption of surface flows and water or sediment supply to downstream habitat, and the introduction or spread of invasive species
- Degradation of jurisdictional waters that could adversely affect downstream wetlands or riparian habitat
- Potential direct and indirect adverse effects to listed or special-status plants, including the Coachella Valley milk-vetch
- Potential conflicts with applicable Multiple Species Habitat Conservation Plans (MSHCPs)

Adverse effects to vegetation communities would be reduced through implementation of mitigation that would require biological monitoring and reporting, preparation and implementation of a worker environmental awareness program, minimization of native vegetation and habitat loss, restoration or revegetation of temporary disturbance areas, control of fugitive dust, control of off-road equipment emissions, implementation of an erosion control plan and demonstration of compliance with water quality permits, compensation for permanent habitat loss, preparation and implementation of an integrated weed management plan, and minimization of impacts for jurisdictional waters and wetlands. If the Applicant does not obtain Participating Special Entity status for the applicable MSHCPs, recommended mitigation would require preparation and submittal to BLM and CPUC for review and approval an analysis equivalent to the Western Riverside and Coachella Valley MSHCP Consistency Analyses.

Connected Actions. Construction and operation of the potential future solar projects could:

- Cause permanent vegetation and habitat removal or degradation for project facilities and access, and temporary removal or degradation for temporary project work and access areas
- Cause indirect degradation of vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds
- Adversely affect jurisdictional waters and downstream habitat
- Adversely affect native vegetation and special-status plants
- Potentially conflict with applicable MSHCPs, BLM cactus salvage requirements, or other local policies (e.g., tree protection ordinances)

These adverse effects can be minimized through mitigation, including: on-site measures to restrict disturbance to authorized work areas, revegetation of temporarily disturbed areas, participation in an applicable MSHCP, habitat acquisition and protection, weed management, fugitive dust control, implementation of compensatory mitigation for effects on sand transport, avoidance and minimization of impacts to jurisdictional waters, avoidance of special-status plants, and compensation for direct effects to special-status plants.

ES.4.4.2 Effects of Alternatives on Vegetation

Tower Relocation Alternative. The adverse effect on vegetation and habitat due to land clearing for this alternative would be similar to the Proposed Project. There may be minor differences in total acreages of habitat types impacted, but they would not exceed the amounts previously analyzed for the Proposed Project. The construction timeframe in this alternative would be extended by as much as one year which would result in additional dust and invasive weed impacts.

Iowa Street 66 kV Underground Alternative. This underground segment would be within or immediately adjacent to an existing paved street (Iowa Street) and would not require any land clearing. No direct adverse effects to vegetation or habitat would occur in this alternative. Trenching and underground construction would involve more extensive ground disturbance and create additional construction-related dust compared to the Proposed Project, which would increase the severity of the indirect adverse effect on surrounding vegetation. This alternative would not affect sand transport, surface water flow, jurisdictional waters, or wetlands. The underground segment is not within the planning area of any Conservation Plan.

Phased Build Alternative. The existing double-circuit set of towers would be retained in this alternative, which would result in less ground disturbance and less overall construction activity. All of the same direct and indirect adverse effects that would occur in the Proposed Project would also occur in this alternative, and all of the same mitigation measures that are described above would be required. However, the severity of all of the construction-related adverse effects to vegetation and habitat would be reduced substantially.

No Action Alternative Option 1. This alternative is located in the Coachella Valley and Western Riverside MSHCPs. One listed plant species, the Coachella Valley milk-vetch, is known to occur within the ROW for this alternative. Five other listed plant species have a high to moderate potential to occur along the route. Land clearance for construction of this alternative could result in the disturbance or loss of native vegetation communities. Mitigation measures such as conducting surveys for listed plant species, preparation and implementation of a Habitat Restoration/Compensation Plan, and implementation of control measures for invasive and noxious weeds would reduce the severity of this adverse effect.

No Action Alternative Option 2. The eastern portion of the corridor is located within the Western Riverside County MSHCP. The western portion of the route is located in the Central/Coastal Orange County and Orange County Transportation Authority Natural Community Conservation Planning (NCCP)/Habitat Conservation Plan (HCP) areas. Fifteen special-status plant species (including 3 federally listed threatened or endangered species) have been documented to occur in or near the existing corridor. The disturbance or loss of native vegetation communities would result from the construction of this alternative. Recommended mitigation measures would be the same as in Option 1.

ES.4.5 Biological Resources – Wildlife

The analysis of impacts to wildlife considers whether the Proposed Project or alternatives would adversely affect sensitive or special-status species, riparian habitat, wetlands, or other sensitive natural communities. Project activities are also evaluated for their potential to interfere with fish or wildlife movement, migratory wildlife corridors, or native wildlife nursery sites. Finally, the analysis considers whether project activities would conflict with any local policies or ordinances that protect biological resources or conflict with habitat conservation plans.

ES.4.5.1 Effects of the Proposed Project on Wildlife

Proposed Project. Adverse effects on wildlife from construction and operation of the Proposed Project include:

- Disturbance from noise and vibration, lighting, dust, and vehicle traffic which could interfere with breeding or foraging activities or alter movement patterns
- Loss or degradation of habitat, destruction of burrows or nests, displacement of more mobile species, and mortality of individuals
- Introduction and spread of invasive species that may compete with native species and cause habitat degradation or reduction of available food sources
- Increased predation due to certain habitat alterations
- Potential direct and indirect adverse effects to federally or state-listed threatened or endangered species, including four species documented during pre-construction surveys: desert tortoise, least Bell's vireo, Stephens' kangaroo rat, and Swainson's hawk
- Injury or mortality of large birds during operation due to collision or electrocution

These adverse effects would be reduced through implementation of mitigation described above for vegetation as well as mitigation to conduct pre-construction biological resources surveys, ensure wildlife impact avoidance and minimization, prepare and implement a nesting bird management plan, implement a raven management plan, implement surveys and avoidance measures for threatened or endangered species, and evaluate bird collision risk and implement APLIC design guidelines that would minimize the risk of collision and electrocution.

Connected Actions. Construction and operation of the future solar projects could:

- Adversely affect a suite of wildlife species similar to those occurring in the easternmost segment of the Proposed Project (Segment 6), including the desert tortoise
- Result in the potential take of federally or state listed threatened or endangered wildlife (e.g., desert tortoise and golden eagle)
- Result in injury or mortality of birds through "lake effect" hazards, solar flux hazards, collision, or electrocution
- Restrict wildlife movement and biological connectivity, including for the desert tortoise

These adverse effects can be minimized or avoided by implementing a series of measures to minimize and mitigate impacts, such as biological monitoring and reporting, worker training, offset for habitat loss, and wildlife specific measures similar to those described above in the Proposed Project. Federal incidental take authorization would require mitigation or conservation measures to avoid jeopardizing the listed species, while state authorization would require that adverse impacts to the listed species are "fully mitigated." Adverse effects to golden eagles, if any, may be reduced through a project-specific Eagle Conservation Plan, developed in coordination with the USFWS. If project design presents an electrocution hazard, this would be reduced by implementing APLIC design standards so that energized components are separated far enough to prevent electrocution. Adverse effects to wildlife movement could be reduced through long-term set-aside and management of comparable open space within the same region.

ES.4.5.2 Effects of Alternatives on Wildlife

Tower Relocation Alternative. Under the Tower Relocation Alternative, the minor adjustment to the location of affected towers would not increase the amount of project-related disturbance compared to the Proposed Project. However, the longer construction timeframe would extend the duration of project-related disturbances, including localized short-term hindrance of movement by resident or migratory wildlife. Adverse effects to wildlife would be reduced through recommended mitigation described above for the Proposed Project.

Iowa Street 66 kV Underground Alternative. The alternative would create additional ground disturbance and construction-related traffic and noise during the construction phase, as compared to the equivalent Proposed Project segment. The installation of an underground line would also require more time to construct than an equivalent length of overhead line. Adverse effects from construction-related wildlife disturbance would be reduced through implementation of mitigation described above in the Proposed Project. Because this alternative would place an approximately 1,600-foot segment of subtransmission line underground, the collision and electrocution hazard to birds would be reduced somewhat.

Phased Build Alternative. Adverse effects to wildlife would be reduced due to the reduction in construction activity and ground disturbance. The potential for loss of special-status species and their habitat would be similarly reduced in this alternative. Interruptions to wildlife movement and collision and electrocution risks for birds would be similar to the Proposed Project during both construction and operation of this alternative. These adverse effects would be reduced through implementation of mitigation described above for the Proposed Project.

No Action Alternative Option 1. This alternative is located in the Coachella Valley and Western Riverside MSHCPs. Several special-status species (including invertebrates, reptiles, birds, and mammals) have been documented along this alternative route or have a high to moderate potential to occur in the area. Construction of this alternative could lead to the direct loss of small mammals, reptiles, and other less mobile species that could occur in the undeveloped areas along the alignment as well as the temporary loss of breeding and foraging habitat for wildlife. The removal of habitat or other disturbance during the bird breeding season would likely result in the displacement of breeding birds and the abandonment of active nests. Mitigation measures, such as conducting species-focused surveys and biological monitoring during construction and implementation of a Habitat Restoration/Compensation Plan, would reduce the severity of these adverse effects.

No Action Alternative Option 2. The eastern portion of the corridor is located within the Western Riverside County MSHCP. The western portion of the route is located in the Central/Coastal Orange County and Orange County Transportation Authority NCCP/HCP areas. Eighteen special-status wildlife species (including 4 federally listed threatened or endangered species) have been documented to occur in or near this alternative route. The same as in Option 1, construction of this alternative could lead to the loss or disturbance of these species. Recommended mitigation measures would be the same as in Option 1. This option would require no construction along the Devers-Valley or West of Devers corridors, and no new substation would be required.

ES.4.6 Climate Change

The impact evaluation for climate change analyzes the generation of greenhouse gas emissions and conflicts with applicable plans, policies, or regulations for reducing the emissions of greenhouse gases that would result from construction and operation of the Proposed Project and alternatives. Also, this analysis evaluates whether greenhouse gas emissions from project construction activities would exceed the South Coast Air Quality Management District significance threshold.

ES.4.6.1 Effects of the Proposed Project on Climate Change

Proposed Project. Construction of the Proposed Project, including the removal of existing transmission line facilities, would:

- Generate greenhouse gas emissions from vehicles and equipment for 36 to 48 months
- Generally lead to a reduction in greenhouse gas emissions due to the increased transmission capacity for renewable energy from the southeastern California desert to the Los Angeles basin

The overall levels of greenhouse gas emissions caused during construction and operations would be adverse, but they would not occur at levels requiring reporting or at levels exceeding any established threshold. No mitigation is required.

Connected Actions. Construction and operation of several potential future solar projects would:

- Emit greenhouse gases from off-road equipment and on-road construction and maintenance vehicles
- Replace or offset greenhouse gas emissions from existing fossil fuel-fired power plants providing generation to California

The future solar projects would contribute to the continued reduction of greenhouse gas emissions in the interconnected California and western United States electricity systems. No mitigation is required.

ES.4.6.2 Effects of Alternatives on Climate Change

Tower Relocation Alternative. This alternative would result in an overall increase in greenhouse gas emissions because the relocated towers could extend the construction timeframe by as much as one year. However, even with the extended timeframe the greenhouse gas emissions for this alternative would not exceed any applicable threshold or conflict with any applicable management plan.

Iowa Street 66 kV Underground Alternative. The intensity and duration of construction activity would be increased for this approximately 1,600-foot segment of underground subtransmission line compared to the Proposed Project, which would slightly increase the amount of greenhouse gas emissions. However, greenhouse gas emissions for this alternative would not exceed any applicable threshold or conflict with any applicable management plan.

Phased Build Alternative. This alternative would require less construction activity and would generate less greenhouse gas emissions from vehicles and construction equipment. The amortized greenhouse gas emissions from construction of this alternative would be lower than those of the Proposed Project and would be below any applicable threshold. This alternative would not conflict with any greenhouse gas management plan, policy, or regulation and no mitigation is required.

No Action Alternative Option 1. Construction of this alternative would involve impacts on greenhouse gas similar to those that would occur in the Proposed Project or project alternatives. The overall levels of greenhouse gas emissions caused during construction, operation, and maintenance would be adverse, but they would not occur at levels requiring reporting or at levels exceeding any established threshold.

No Action Alternative Option 2. The use of construction vehicles and equipment (including helicopters) would result in greenhouse gas emissions similar to those that would occur in the Proposed Project. However, greenhouse gas emissions would be slightly increased compared to those in the Proposed Project due to the need for extensive helicopter use for construction in rugged terrain, including within the Cleveland National Forest. The same as for the Proposed Project and the other alternatives, greenhouse gas emissions would not occur at levels requiring reporting or at levels exceeding any established threshold.

ES.4.7 Cultural Resources

The cultural resources impact analysis considers whether the Proposed Project or alternatives would adversely affect known historic properties or unknown, buried resources. These unknown resources include prehistoric and historical archaeological sites and buried Native American human remains.

ES.4.7.1 Effects of the Proposed Project on Cultural Resources

Proposed Project. Project-related ground disturbance, including vegetation removal, grading, trenching, boring, and excavation could result in:

- Direct adverse effects to known historic properties, historical resources, or previously unknown, buried archaeological sites and human remains
- Indirect adverse effects from inadvertent or malicious vandalism or unauthorized collection of cultural resources near project activity

These adverse effects would be reduced with implementation of mitigation measures to avoid environmentally sensitive areas, train construction personnel about cultural resources, conduct construction monitoring, develop a Cultural Resources Treatment Plan, and properly treat previously unidentified cultural resources and human remains. However, even with implementation of mitigation, this adverse effect would remain substantial.

Connected Actions. The potential future solar projects in the Desert Center and Blythe areas would involve extensive ground disturbance that could:

- Adversely affect known historic properties, historical resources, or previously unknown archaeological sites and human remains
- Lead to inadvertent or malicious vandalism or unauthorized collection of cultural resources within or near solar project development

Implementation of mitigation similar to that described above would reduce the severity of these adverse effects, but adverse effects on previously unknown cultural resources would remain substantial.

ES.4.7.2 Effects of Alternatives on Cultural Resources

Tower Relocation Alternative. The relocated towers in Segments 4 and 6 would not result in an adverse effect to known historic properties, as no known eligible cultural resources are located near those towers. Excavation and site preparation for construction of the relocated towers could disturb or destroy previously unidentified, buried archaeological resources or human remains, which would be a substantial adverse effect even with implementation of the mitigation described above.

Iowa Street 66 kV Underground Alternative. The approximately 1,600-foot segment of underground subtransmission line in this alternative is not located near a known historic property and no adverse effect to an eligible cultural resource would occur in this alternative. The greater amount of excavation and trenching would increase the probability that a previously unknown archaeological site or human remains would be disturbed or destroyed. Even with implementation of recommended mitigation, this adverse effect would remain substantial.

Phased Build Alternative. Although ground disturbance would be reduced substantially in this alternative, the same historic properties and eligible cultural resources could be adversely affected as in the Proposed Project. Indirect adverse effects to cultural resources could occur through inadvertent or malicious vandalism or unauthorized collection. The reduction in ground disturbance would result in a lower risk of disturbance or destruction of previously unknown buried cultural resources, including buried Native American human remains. However, even with implementation of the mitigation described above in the Proposed Project, this adverse effect would remain substantial.

No Action Alternative Option 1. Known and undiscovered cultural resources may occur along the transmission ROW and at the Beaumont Substation site. Also, unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains may be encountered. Mitigation measures to reduce the severity of these impacts would include avoiding culturally sensitive areas, developing a Cultural Resource Management Plan, training construction personnel regarding applicable laws and regulations, conducting monitoring during construction, and properly treating human remains. However, even with implementation of the mitigation, adverse effects would remain substantial.

No Action Alternative Option 2. Although this alternative would construct a 500 kV circuit within an existing transmission corridor, both known and undiscovered cultural resources may be encountered. Excavation for construction of transmission tower foundations and other subsurface disturbance could damage or destroy unknown buried prehistoric and historical archaeological sites or buried Native American human remains. The disturbance or destruction of Native American human remains would be a substantial adverse effect. Mitigation similar to that described in the Proposed Project would be required to reduce the severity of these impacts. However, as with Option 1 above, even with implementation of the mitigation, adverse effects would remain substantial.

ES.4.8 Socioeconomics and Environmental Justice

The socioeconomics and environmental justice impact analysis considers whether the Proposed Project or alternatives would result in a substantial increase in population growth, displace a substantial amount of people or existing housing, or disproportionately affect minority or low-income populations.

ES.4.8.1 Effects of the Proposed Project on Socioeconomics and Environmental Justice

Proposed Project. Construction of the Proposed Project would:

- Not displace any existing housing or people or result in a perceptible change in property values overall
- Not disproportionately affect minority or low-income populations
- Result in a positive effect on wages and public revenue

All of the Proposed Project's adverse effects related to socioeconomics and environmental justice would be minor and no mitigation is required.

Connected Actions. The potential future solar projects would:

- Result in a minor amount of population growth and would not displace a substantial amount of people or housing
- Not disproportionately affect minority or low-income populations or substantially reduce property values
- Result in a positive effect on wages and public revenue

The solar projects would not result in substantial adverse effects related to socioeconomics and environmental justice and no mitigation is required.

ES.4.8.2 Effects of Alternatives on Socioeconomics and Environmental Justice

Tower Relocation Alternative. This alternative would not displace any people or existing housing. The relocation of several towers in Segments 4 and 6 would not increase the number of workers required compared to the Proposed Project or result in a substantial increase in population growth. The relocated towers would not disproportionally affect minority or low-income populations, nor would they noticeably affect property values. This alternative would have the same positive effect on wages and public revenue as the Proposed Project.

Iowa Street 66 kV Underground Alternative. Undergrounding a segment of the 66 kV transmission line in Iowa Street would have no effect on population growth and would not displace any people or existing housing. The underground segment along Iowa Street under this alternative is not located in a census tract that meets the environmental justice criteria for minority or poverty-level populations of concern. Placing lines underground near some residences may have a nominal positive effect on value, but this is impossible to accurately assess or measure.

Phased Build Alternative. Due to the reduced number of new towers that would be constructed, this alternative would require fewer construction workers and may shorten the construction period. No people or housing would be displaced, and this alternative would not induce substantial population growth. This alternative would affect the same census tracts as the Proposed Project and would not disproportionately affect minority or low-income populations. No measurable effects to property values would occur. Due to the reduction in construction activities and workers, this alternative would have a slightly smaller positive effect on wages and public revenue compared to the Proposed Project.

No Action Alternative Option 1. The alignment for this alternative would pass through the low-income community of Cabazon, and along the southern border of Banning and Beaumont. The addition of a third 500 kV circuit in these areas could present environmental justice concerns. The Beaumont Substation site is in an area with low population density. Other socioeconomic effects, such as positive effects on wages and public revenues, would be similar to those that would occur under the Proposed Project.

No Action Alternative Option 2. The new 500 kV circuit would be constructed along 40.4 miles of an existing transmission corridor and would not physically divide an established community. Most of the surrounding land is sparsely populated, with the exception of the western and eastern ends of the corridor. This alternative would not result in a substantial amount of population growth nor would it displace a substantial amount of people or housing. Due to the mostly unpopulated nature of this corridor, adverse effects are not expected to fall disproportionately on minority or low-income populations. Positive effects on wages and public revenue are expected to occur. Unlike Option 1, this route requires no construction along the Devers-Valley or West of Devers corridors, and no new substation would be required.

ES.4.9 Geology and Soils

The geology and soils impact evaluation analyzes the potential for surface fault rupture, groundshaking, landslides, liquefaction, or problematic soils (such as expansive or corrosive soils) to damage structures or components of the Proposed Project or alternatives. Project activities are also evaluated for their potential to trigger or accelerate erosion or slope failure (including landslides).

ES.4.9.1 Effects of the Proposed Project on Geology and Soils

Proposed Project. Project facilities would be subject to several seismic and geologic hazards, including:

- Surface fault rupture at crossings of active and potentially active faults, strong groundshaking, and earthquake-triggered landslides
- Damage from expansive or corrosive soils

Also, project-related construction activities could accelerate erosion or trigger slope instability, including landslides. These adverse effects would be reduced through the completion of a fault evaluation study and the minimization of project structures within active fault zones, the completion of geotechnical surveys for landslides and protection against slope instability, implementation of an erosion control plan, restoration and revegetation of temporary disturbance areas, and design-level geotechnical studies to identify the presence of problematic soils and recommend the modification of structure foundations as needed.

Connected Actions. The solar project facilities could be damaged or project construction workers could be harmed by:

- Surface fault rupture of active and potentially active faults
- Problematic soils, including expansive and corrosive soils

Solar project development could trigger or accelerate erosion, which could be substantial due to the large number of acres that would be disturbed for these projects. These adverse effects would be minimized through implementation of project-specific design recommendations in pre-construction geotechnical investigations, compliance with building code regulations, implementation of a Storm Water Pollution Prevention Plan, and implementation of project mitigation, such as erosion control plans.

ES.4.9.2 Effects of Alternatives on Geology and Soils

Tower Relocation Alternative. The relocated structures would be underlain by the same soil types, and would be subject to the same risk of damage by surface fault rupture, strong groundshaking, landslides, liquefaction, and problematic soils as the Proposed Project structures. The ground disturbance associated with the relocated structures would not result in more substantial erosion or a greater potential to trigger landslides than would occur with the Proposed Project towers. Compliance with existing regulations and implementation of mitigation described above would minimize these adverse effects.

Iowa Street 66 kV Underground Alternative. No active or potentially active faults are located along or near the underground segment of subtransmission line, and there would be no risk from surface fault rupture. The underground subtransmission line would not be subject to damage from groundshaking, landslides, or liquefaction. Although this alternative would involve a greater amount of ground disturbance than the Proposed Project structures that it would replace, it would be located in level terrain and would not trigger landslides or substantially accelerate erosion. The underground subtransmission line would be located on the same soil type as the Proposed Project structures that it would be replacing, and would be subject to the same problematic soils. The adverse effects of problematic soils would be reduced through mitigation to assess soil characteristics and modify the underground structures as necessary.

Phased Build Alternative. The structures in this alternative would be located in the same seismically active area as the Proposed Project structures, would be built on the same soil types, and would be subject to the same risk of damage by surface fault rupture, strong groundshaking, landslides, liquefaction, and problematic soils. This alternative would reduce the amount of ground disturbance compared to the Proposed Project, and consequently would reduce the potential to cause or accelerate erosion, siltation, or landslides. Implementation of mitigation described above in the Proposed Project and compliance with existing regulations would reduce the severity of adverse effects.

No Action Alternative Option 1. Most of the route does not cross areas identified as existing landslide areas; however portions of the route located on moderate to steep slopes could be damaged by landslides, rock avalanches, and rockfalls. Active and potentially active faults intersect the route. Generally, liquefaction is not considered a potential hazard due to the generally deep water table along the ROW, although pockets of locally elevated groundwater may be encountered. Impacts from geologic hazards and adverse soil conditions can be address by such measures as requiring geotechnical surveys for landslides and slope stability, minimizing structures in fault zones, minimizing ground surface disturbance, and requiring runoff and erosion control.

No Action Alternative Option 2. Just west of the Temescal Wash, the route crosses two adjacent Earthquake Fault Zones of Required Investigation, the Corona South and Lake Matthews fault zones. This area is also subject to liquefaction. The corridor passes through several mapped landslide hazard zones in the Peralta Hills. In addition, potential unmapped landslide hazards may exist along the route where it passes through steep terrain in the foothills surrounding Steele Peak and Estelle Mountain and in the Cleveland National Forest. Impacts from geologic hazards and adverse soil conditions can be addressed by the same mitigation measures described in Option 1.

ES.4.10 Hazards and Hazardous Materials

The analysis of impacts related to hazards and hazardous materials considers whether the Proposed Project or alternatives would harm the public, project workers, or the environment through the improper handling, storage, or accidental release of hazardous materials. The analysis also considers the potential for project construction to mobilize contaminants (including pesticides, herbicides, and other toxic materials) through ground disturbing activities, including grading and excavation.

ES.4.10.1 Effects of the Proposed Project on Hazards and Hazardous Materials

Proposed Project. Construction, operations, and maintenance activities for the Proposed Project could result in:

- Worker exposure or contamination of soil or water resources through accidental releases of hazardous materials or the disturbance and mobilization of unanticipated soil contamination

These adverse effects would be reduced through development and implementation of a Storm Water Pollution Prevention Plan, a Spill Prevention, Control, and Countermeasures Plan, a hazardous material and waste management plan, and a soil management plan and soil testing to identify residual herbicides, pesticides, and other contaminants.

Connected Actions. The potential future solar projects could result in:

- Worker exposure or contamination of soil or water resources through accidental releases of hazardous materials or the disturbance and mobilization of unanticipated soil contamination
- The introduction of other hazardous materials that may be present in photovoltaic solar panels, including cadmium telluride, selenium, and arsenic
- Disturbance of unexploded ordnance in the Desert Center area

These adverse effects would be minimized through the development and implementation of plans to control polluted stormwater, contain and cleanup accidental spills and leaks, properly handle, store, and dispose of hazardous materials, and protect workers from exposure to hazardous materials. Also, preconstruction environmental site assessments would identify existing hazardous materials or deem the sites safe to disturb.

ES.4.10.2 Effects of Alternatives on Hazards and Hazardous Materials

Tower Relocation Alternative. The risk of harm to the public, project workers, or the environment through the accidental release of hazardous materials or the mobilization of existing contaminants would be the same for this alternative as for the Proposed Project. All of the mitigation described in the Proposed Project above would also be required in this alternative.

Iowa Street 66 kV Underground Alternative. Construction activity for this approximately 1,600-foot segment of underground subtransmission line would be more intense compared to construction of the overhead poles that it would replace, but this alternative would not result in an increased use of hazardous materials, nor would hazardous materials be handled or stored differently compared to the Proposed Project. The underground subtransmission line is located adjacent to agricultural activities. The likelihod of encountering soil that is contaminated by residual pesticides and herbicides is increased for this alternative due to the increased amount of ground disturbance. The recommended mitigation described for the Proposed Project would also be required in this alternative.

Phased Build Alternative. Although less construction would occur overall, the risk of harm to the public, project workers, or the environment through the accidental release of hazardous materials for this alternative would be similar to the Proposed Project because the same hazardous materials would be used and the risk of spill or accidental release would remain. With fewer areas of ground disturbance under the Phased Build Alternative, there would be fewer opportunities to mobilize existing contaminants (including residual pesticides or herbicides) that may be present in the soil. Implementation of the mitigation described above in the Proposed Project would reduce the severity of these adverse effects.

No Action Alternative Option 1. Ground disturbance on or near sites of known previous hazardous materials storage or spills may encounter contaminated soil and groundwater. Also, unreported spills or illegal dumping may have occurred, leading to the unanticipated discovery of contamination. In agricultural areas, lands with residual herbicide or pesticide may be encountered. In addition, during project construction, hazardous materials (including fuels, lubricants, solvents, and similar materials) may be stored, used, and spilled. Implementation of hazardous materials and waste management plans would reduce the severity of these impacts. A soil management plan would address the unanticipated discovery of contamination, and soil testing for pesticide and herbicide contamination in agricultural areas would serve to address the issue of residuals in the soil.

No Action Alternative Option 2. The same as in the Proposed Project and the other alternatives, contaminated soils or groundwater may be encountered or mobilized through ground disturbance on or near sites of known previous hazardous materials storage or spills. Also, unanticipated discovery or mobilization of hazardous materials or residual pesticides and herbicides may occur during ground disturbance. In addition, during project construction, hazardous materials may be stored, used, and spilled. Recommended mitigation measures would be the same as in Option 1.

ES.4.11 Land Use and BLM Realty

The land use and BLM realty impact analysis considers whether the Proposed Project or alternatives would disrupt an established or recently approved land use.

ES.4.11.1 Effects of the Proposed Project on Land Use and BLM Realty

Proposed Project. Construction of the Proposed Project would:

- Generally occur within an existing utility corridor and would not physically divide an existing community
- Result in minor adverse effects to established recreational and agricultural land uses during construction
- Create temporary nuisance impacts (noise, traffic, visibility of activities)

Effects on existing land uses during operations and maintenance would be temporary and would involve very minimal disruption. The preparation of a construction notification plan and implementation of applicable mitigation measures for agriculture, noise, recreation, transportation and traffic, and visual resources would reduce this adverse effect.

Connected Actions. Solar project activities would affect land uses and BLM lands throughout the Desert Center and Blythe Areas. Undeveloped desert land is the dominant characteristic of land uses surrounding the future solar projects. However, in areas where existing land uses occur (such as rural residences, agricultural production, or recreational resources), construction of the solar projects would adversely affect those land uses through the introduction of temporary impacts (e.g., noise, traffic, visibility of activities). These adverse effects would be reduced through preparation of construction notification plans and through mitigation to reduce the effects of noise, traffic, and visibility such as that described in the analysis for those resources.

ES.4.11.2 Effects of Alternatives on Land Use and BLM Realty

Tower Relocation Alternative. Compared to the Proposed Project, construction of this alternative would have slightly greater adverse effects on existing land uses through the creation of temporary nuisance (e.g., noise, traffic, visibility of construction) due to the extended construction timeframe. No existing community would be physically divided. These adverse effects would be reduced through implementation of recommended mitigation described above.

Iowa Street 66 kV Underground Alternative. Temporary nuisance during construction (e.g., noise, traffic, visibility of construction) would be slightly greater for nearby residents in this alternative than in the Proposed Project due to the increased amount of ground disturbance. This section of subtransmission line would be located underground and would not physical divide an existing community. Recommended mitigation described above would reduce this adverse effect.

Phased Build Alternative. No existing community would be physically divided by this alternative. Temporary construction nuisance (e.g., noise, traffic, visibility of construction) would be reduced in severity due to the reduction in construction activity and ground disturbance. The mitigation described above in the Proposed Project would further reduce this adverse effect.

No Action Alternative Option 1. Much of the land surrounding this alternative is open space and recreation areas, with concentrations of residential, agricultural, and commercial/industrial uses. The Devers-Valley corridor crosses the community of Cabazon, where a third circuit of 500 kV line would be required. Leaving Devers Substation, the route crosses private land and BLM-managed public lands, before entering the Santa Rosa and San Jacinto National Monument and National Forest lands. Adding a new line or circuit in the Devers-Valley corridor would require a Special Use authorization from the USDA Forest Service where it would be on National Forest System lands. Construction disturbance to nearby land uses, particularly residential uses, would require notices to residents and businesses of construction plans and coordination of schedules with public and community facilities. Dust abatement and time of day limitations on work and noise levels may be required.

No Action Alternative Option 2. The new 500 kV transmission line would be constructed adjacent to an existing transmission line for approximately 40.4 miles. Much of the land is open space and recreation areas, with concentrations of residential land uses at the eastern and western ends of the corridor. Agricultural uses are concentrated in the Perris Valley. Adding a new line or circuit in the existing corridor would require a Special Use authorization from the USDA Forest Service where it would be on National Forest System lands. In addition to temporarily eliminating some recreational and agricultural land uses in the project corridor, construction of this alternative would have adverse effects on existing land uses through increasing the amount of activity along the ROW and creating temporary nuisance impacts (e.g., noise, traffic, visibility of construction). These impacts would be reduced by the preparation of a construction notification plan as well as mitigation measures identified for other specific resource topics, including agriculture, noise, recreation, and traffic. This route requires no construction along the Devers-Valley or West of Devers corridors, and no new substation would be required. As a result, fewer sensitive land uses would likely be affected than with Option 1.

ES.4.12 Mineral Resources

This analysis evaluates the potential for known mineral resources to be rendered inaccessible by construction or operation of the Proposed Project or alternatives.

ES.4.12.1 Effects of the Proposed Project on Mineral Resources

Proposed Project. Segment 5 crosses an active sand and gravel quarry operated by Robertson's Ready Mix at the northeastern edge of the City of Banning. Project construction could potentially interfere with daily ongoing mining operations at the quarry. Construction impacts to known mineral resources would be temporary and would not result in the loss of availability of those resources. Implementation of mitigation that would require coordination with quarry operators would reduce the severity of this adverse effect.

Connected Actions. There are no known mineral resource designations or active mineral operations in the project areas of the known solar projects. However, the USGS's MRDS does show present and past producers throughout the areas surrounding the confidential projects. Therefore, construction and operation activities associated with the confidential projects could interfere with active mining activities. This adverse effect would be reduced through mitigation that would require coordination with quarry operators or parties with mineral claims.

ES.4.12.2 Effects of Alternatives on Mineral Resources

Tower Relocation Alternative. None of the relocated towers would be located in an area containing active mining operations. Also, the continuing operational presence of the relocated towers would not render known mineral resources inaccessible.

Iowa Street 66 kV Underground Alternative. The underground portion of the subtransmission line would not be located in an area containing active mining operations. Also, the continuing operational presence of the underground line would not render known mineral resources inaccessible.

Phased Build Alternative. Construction activities for this alternative would occur within an active sand and gravel quarry operated by Robertson's Ready Mix at the northeastern edge of the City of Banning. Although the existing double-circuit structures would be retained, two sets of existing single-circuit structures would be removed and replaced with one set of double-circuit structures. Disruptions to existing mining operations would be reduced compared to the Proposed Project, but would still be an adverse effect requiring the same mitigation described above. The continuing operational presence of transmission structures in this alternative would not render known mineral resources inaccessible.

No Action Alternative Option 1. No actively mined mineral resources were identified along this alternative route. Because of the relatively small footprint of individual transmission poles or towers, construction of this alternative would have minimal effect on mineral resources and their availability in the future.

No Action Alternative Option 2. The USGS Mineral Resources Data System shows the presence of mineral resources throughout the lands surrounding the alternative route. Typical mineral resource deposits in the region include aggregate such as sand and gravel. There are no active mining sites within the existing ROW, but several active mining operations are located near the corridor. Because the new 500 kV circuit would be constructed mostly within an existing ROW, it is not anticipated that any of the nearby mining operations would be interrupted during either construction or operation of this alternative. The permanent footprint of the new transmission structures would be small and dispersed along the length of the route, and construction and operation of this alternative would not preclude the long-term availability of mineral resources.

ES.4.13 Noise

The analysis of impacts related to noise considers whether construction of the Proposed Project or alternatives would substantially disturb sensitive receptors, violate local rules, standards, or ordinances, or cause groundborne vibration. Operation and maintenance of the project is evaluated for its potential to increase ambient noise levels due to corona noise or routine inspection and maintenance activities.

ES.4.13.1 Effects of the Proposed Project on Noise

Proposed Project. Noise adverse effects from construction and operation of the Proposed Project include:

- Disturbance of sensitive receptors located within 1,400 feet of active construction
- Exceedance of ambient noise levels and potential violations of local standards due to helicopter overflights and nighttime work
- Minor adverse effects from construction-related vibration
- Corona noise during project operation

The severity of these adverse effects would be reduced through implementation of mitigation to implement a helicopter noise control strategy and best management practices for construction noise. However, the adverse effects from construction noise would remain substantial.

Connected Actions. Construction of the future solar projects would result in adverse noise effects, including:

- Disturbance of nearby sensitive receptors from construction equipment and vehicles
- Potential violations of daytime noise standards

Typical mitigation requirements to reduce temporary noise during construction include implementing best management practices similar to those identified in the Proposed Project and obtaining variances from the applicable jurisdiction when noise levels or work hours are not in compliance with applicable ordinances, regulations, and standards.

ES.4.13.2 Effects of Alternatives on Noise

Tower Relocation Alternative. The adjustment to the location of the relocated towers would reduce the severity of the substantial adverse noise effect for the nearest sensitive receptors. However, during construction of the relocated towers ambient noise levels would be increased by more than 5 dBA Leq, which represents a substantial adverse effect. Although this alternative would decrease noise levels for several sensitive receptors, the extended construction timeframe for this alternative (up to one year longer than the Proposed Project) would increase the duration of this adverse effect, although it would not be continuous throughout the construction period. The adjustment to the location of the relocated towers would reduce the severity of the operational adverse noise effect due to corona noise for the nearest sensitive receptors. Noise impacts related to construction of this alternative would remain significant even with implementation of recommended mitigation.

Iowa Street 66 kV Underground Alternative. Construction of this short underground subtransmission segment would slightly increase the severity of the substantial adverse noise effect and the severity of groundborne vibration for the nearest sensitive receptors due to the increased ground disturbance, including trenching. For sensitive receptors nearest to this alternative, the corona noise would be eliminated because the conductors would be entirely buried for that 1,600-foot segment. Noise impacts related to construction of this alternative would remain significant even with implementation of recommended mitigation.

Phased Build Alternative. Structures in this alternative would be located further from the edge of the ROW compared to the Proposed Project. In these locations, the severity of the substantial adverse noise effect for the nearest sensitive receptors would be reduced. However, ambient noise levels would be increased by more than 5 dBA Leq, which represents a substantial adverse effect. Operational adverse effects from corona noise would be reduced due to the placement of transmission lines further from the edge of the ROW. Even with implementation of recommended mitigation, noise impacts related to construction of this alternative would remain significant.

No Action Alternative Option 1. Noise is a concern to nearby sensitive receptors, land uses such as residences, school, nursing homes, parks and hospitals. This alternative route passes through the community of Cabazon and adjacent to residential areas in Banning and Beaumont. The route passes through noise-sensitive natural and wilderness areas, where visitors expect quiet conditions. Compliance with noise ordinances and conditions imposed by agencies having land use jurisdiction would help ensure that this impact is addressed. In areas of sensitivity, time-of-day restrictions on construction would reduce impacts. Use of heavy equipment and helicopters is inherently noisy, but the impacts are short duration, occurring only during active construction and not constantly.

No Action Alternative Option 2. Noise associated with construction of this alternative could disturb nearby sensitive receptors, including residential areas, schools, hospitals, day care centers, campgrounds, and other outdoor recreation areas. Areas that are particularly sensitive to increases in noise levels include the Lake Mathews–Estelle Mountain Reserve and the Cleveland National Forest. Construction noise would exceed ambient noise levels and could violate local noise standards for nearby receptors. Recommended mitigation measures would be the same as in Option 1. This route requires no construction along the Devers-Valley or West of Devers corridors, and no new substation would be required.

ES.4.14 Paleontological Resources

This analysis considers whether the destruction or disturbance of significant paleontological resources would result from construction of the Proposed Project or alternatives.

ES.4.14.1 Effects of the Proposed Project on Paleontological Resources

Proposed Project. Construction of the Proposed Project has the potential to:

- Destroy valuable paleontological resources, including those within 50 identified vertebrate fossil localities within or near the Proposed Project area

Mitigation measures to minimize or avoid impacts to paleontological resources include conducting an inventory of significant paleontological resources, developing a paleontological resource mitigation and monitoring plan, training construction personnel to recognize and protect paleontological resources, monitoring construction for those resources, reporting monitoring efforts and any discoveries, and properly curating any paleontological finds.

Connected Actions. Construction-related ground disturbances as a result of development of the solar projects in the Desert Center and Blythe areas could result in adverse impacts to paleontological resources, including:

- Disturbance, damage, or destruction of a significant fossil or paleontological site
- Destruction of a unique geologic feature associated with a paleontological site

Should paleontological resources be discovered during construction-related activities associated with the solar projects, they would be subject to legal requirements designed to protect them similar to the mitigation measures described in the Proposed Project. Implementation of mitigation similar to that described in the Proposed Project would minimize any adverse impacts to paleontological resources.

ES.4.14.2 Effects of Alternatives on Paleontological Resources

Tower Relocation Alternative. The relocated towers would not increase the risk of disturbance or destruction of significant paleontological resources compared to the Proposed Project. The same mitigation that is described in the Proposed Project would apply to this alternative, and implementation of this mitigation would minimize or avoid adverse effects to paleontological resources.

Iowa Street 66 kV Underground Alternative. This alternative would increase the amount of subsurface disturbance compared to the Proposed Project, which would increase slightly the risk of disturbance or destruction of significant paleontological resources. The same mitigation that is described in the Proposed Project would apply to this alternative, and implementation of this mitigation would minimize or avoid adverse effects to paleontological resources.

Phased Build Alternative. Construction activity and the associated ground disturbance would be reduced, which would decrease the risk of damage to or destruction of significant paleontological resources. However, the same as in the Proposed Project, construction within areas of moderate to high fossil yield has the potential to destroy valuable resources. Implementation of mitigation described above is required to reduce the severity of this adverse effect.

No Action Alternative Option 1. Portions of the 500 kV alignment (including within the San Timoteo Formation) are located within areas of high paleontological sensitivity. Ground disturbance and installation of foundations in these and other areas could encounter undiscovered paleontological resources. Provisions for discovery and treatment of significant fossil remains would reduce adverse effects to these resources through implementation of mitigation measures requiring inventory of paleontological resources, developing and implementing a Paleontological Monitoring and Treatment Plan, and training construction personnel to be aware of resources.

No Action Alternative Option 2. This route passes through several paleontologically sensitive areas, including the Perris Valley and the alluvium surrounding Temescal Wash. Ground disturbance, such as installation of transmission tower foundations, could encounter undiscovered paleontological resources. Recommended mitigation measures would be the same as in Option 1.

ES.4.15 Recreation

This evaluation analyzes whether the Proposed Project or alternatives would temporarily reduce access and visitation to recreation areas, permanently preclude recreational activities, or change the character of a recreation area such that its recreational value would be diminished.

ES.4.15.1 Effects of the Proposed Project on Recreation

Proposed Project. Construction of the Proposed Project would result in:

- Temporary disturbances from noise, dust, and traffic that would diminish the value of nearby recreational facilities
- Temporary closures of recreation areas

Recommended mitigation would reduce the severity of this adverse effect by ensuring that the construction timeframe avoids heavy recreational use periods and by identifying alternative areas for recreation to provide the users recreational options throughout the construction period.

Connected Actions. Construction and operation of the future solar projects could result in:

- Temporary conflicts with access to recreation areas during construction
- Temporary disturbances from noise, dust, and traffic that would diminish the value of nearby recreational facilities
- Introduction of energy infrastructure into a natural and undeveloped landscape that is characterized by its scenic resources

Mitigation measures similar to those described above and in the visual resources analysis would reduce the severity of these adverse effects. However, the long-term adverse effects to the recreational value of the surrounding resources would remain substantial. While BLM-managed recreational opportunities are dispersed across the Desert Center and Blythe areas, any construction of solar generation across BLM lands would require the agency's review and approval, and possible conflicts with recreational resources would occur only with concurrence of the BLM.

ES.4.15.2 Effects of Alternatives on Recreation

Tower Relocation Alternative. Construction of this alternative would result in temporary disturbances from noise, dust, and traffic that would diminish the value of recreational facilities on and near the ROW. Several nearby recreational facilities would be directly or indirectly disturbed by construction of the relocated towers, including temporary closure of several facilities. The direct and indirect adverse effects under this alternative would be greater due to the extended construction timeframe for this alternative, which would be up to one year longer than the Proposed Project. These adverse effects would be reduced through implementation of recommended mitigation described in the Proposed Project.

Iowa Street 66 kV Underground Alternative. The underground subtransmission line portion of this alternative is not located on or within any recreational facilities. The nearest recreational facility, Brookside

Park, is located approximately 0.25 miles to the southeast. Recreational use of this park would be temporarily disturbed by construction of the underground subtransmission line due to noise, dust, and traffic. However, this adverse effect would be minor.

Phased Build Alternative. Like the Proposed Project structures, several of the new and existing reconductored structures would be located near or on recreational facilities. Due to the reduction in construction activities, the severity of disturbances to recreational facilities (including noise, dust, traffic, and temporary closures) would be reduced. Development and operation of this alternative would not substantially change the character of any nearby recreation area or permanently preclude recreational activities. Implementation of the recommended mitigation described above would ensure that the potential adverse effects related to disruption of recreational access or visitation would be minor.

No Action Alternative Option 1. The 500 kV line between Devers Substation and Beaumont would cross over the Pacific Crest National Scenic Trail (PCT) and would pass through Santa Rosa and San Jacinto Mountains National Monument, San Bernardino Nation Forest, and the San Jacinto Wilderness Area. Near the Beaumont Substation the line would traverse by the Potrero ACEC, a designated wildlife habitat managed by the BLM. Recreational use of open space and conservation habitat in the Norton Younglove Preserve occurs for about 2 miles along this alternative route near Highway 60. Users of the public lands through which the Option 1 corridor passes could be temporarily affected during construction. For example, temporary detours may be required where the line would cross the PCT. Coordinating construction scheduling with public and community facilities would reduce this impact.

No Action Alternative Option 2. Construction activities for this No Action Alternative would create a number of temporary disturbances that would diminish the value of affected areas, including parks, open space/preserves, and backcountry within the Cleveland National Forest (CNF). The noise, dust, and traffic generated during construction would negatively affect a visitor's enjoyment of these recreation areas so the public may be less likely to visit these resources during project construction. In certain instances, for reasons of safety, access to some areas or facilities might be temporarily prohibited. The siting of new structures adjacent to existing structures would avoid the creation of new barriers to recreational uses. Coordinating construction scheduling with public and community facilities would reduce the severity of these impacts.

ES.4.16 Transportation and Traffic

The impact analysis of transportation and traffic considers whether the Proposed Project or alternatives would require the temporary closure of travel lanes or roadways, result in unacceptable levels of service on roadways or the short-term elimination of parking spaces, conflict with planned transportation projects, damage roads, temporarily disrupt rail traffic or operations, or disturb or endanger public safety and wildlife through helicopter use. Project operations are evaluated for their potential to affect aviation safety and activities at public airports.

ES.4.16.1 Effects of the Proposed Project on Transportation and Traffic

Proposed Project. Transportation and traffic adverse effects from construction and operation of the Proposed Project would include:

- Increased traffic volumes on the local and regional road network
- Temporary road or lane closures for conductor stringing and underground subtransmission and telecommunications installation

- Delays and blockages for emergency service vehicles, rail service, public transportation, bicycles, and pedestrians
- Restricted access to adjacent properties and short-term elimination of parking spaces
- Physical damage or deterioration of road surfaces
- Nuisance and safety concerns from helicopter overflights and disruption of local aviation activities due to new transmission structures or tall construction equipment

Mitigation measures that would reduce the severity of these adverse effects include requirements to prepare construction transportation and traffic control plans, obtain encroachment permits, restrict lane closures, minimize disruption of bus and transit service, ensure pedestrian and bicycle safety, provide access to property, repair damage to roadways, prepare a final helicopter use plan, ensure compliance with FAA regulations, notify the public of short-term parking elimination, and prepare a construction notification plan.

Connected Actions. Although connected solar projects are in rural or remote locations, their construction could result in:

- Brief road or lane closures and restricted access to adjacent properties during construction
- Damage to local roadways

Implementation of typical mitigation, such as a construction transportation plan, coordination with regional transportation management agencies, and requirements to repair damage to roadways would reduce these adverse effects.

ES.4.16.2 Effects of Alternatives on Transportation and Traffic

Tower Relocation Alternative. The tower relocations under this alternative would occur within the existing right-of-way and would not directly affect any roadways. No additional road or travel lane closures would be required by the relocation. The use of and potential damage to roadways in the project area would be the same under both the Proposed Project and the Tower Relocation Alternative. No public parking spaces would be affected by the tower relocations. Helicopters may be used for construction of the relocated towers, and preparation of a final helicopter use plan would be required.

Iowa Street 66 kV Underground Alternative. Undergrounding a segment of the 66 kV line in Iowa Street would increase the total amount of roadway affected by road or lane closures, as compared to the Proposed Project. Construction in Iowa Street is expected to temporarily close one lane; a similar lane closure would be likely during installation of poles and conductor under the Proposed Project, but would be shorter in duration. Trenching to install the underground segment would damage the road surface, and recommended mitigation would require the Applicant to repair the road to its previous condition. Use of helicopters along the Iowa Street portion of the project is not anticipated.

Phased Build Alternative. This alternative would reduce the amount of construction activity compared to the Proposed Project, and consequently would reduce the number and duration of road or travel lane closures, the amount of peak-hour trip generation by workers, and the potential to damage roadways. Conflicts with planned transportation projects, disruptions to rail service, and the short-term elimination of parking spaces would be minor. Nuisance and public safety hazards from helicopter use would be reduced due to construction of fewer new towers. Adverse effects to aviation safety from the operational presence of structures would be the same as in the Proposed Project and would remain minor. Implementation of the mitigation measures described above for the Proposed Project would be required to reduce the severity of these adverse effects.

No Action Alternative Option 1. This alternative primarily would traverse remote and rural areas south of Interstate 10. The area has relatively few local roads and highways. There would be little or no opportunity for disrupting train and transit routes. During stringing operations across roads and highways, traffic would be controlled. Construction of remote sections of the transmission line likely would involve use of helicopters, as was the case in construction of the Devers-Valley No. 2 500 kV line. To minimize impacts, a traffic control plan, transportation plan, and helicopter use plan would be needed. Also, coordination with Caltrans, local roads departments, transit service providers, and rail roads would be needed to ensure minimal disruption.

No Action Alternative Option 2. With the exception of the urban areas in the Perris Valley at the eastern end of the route and the City of Orange at the western end of the route, this corridor traverses mostly rural and sparsely populated land. The Option 2 corridor crosses two interstate highways and two state routes. There would be little or no opportunity for disrupting train and transit routes. During stringing operations across roads and highways, traffic would be controlled. Most of the route would be in or adjacent to the existing ROW, and would likely use existing access roads. Recommended mitigation measures would be the same as for Option 1.

ES.4.17 Utilities and Public Services

This analysis considers whether there would be an increase in the need for public services and utilities, a disruption of existing pipelines and utility systems, or a collocation accident due to construction and operation of the Proposed Project or alternatives.

ES.4.17.1 Effects of the Proposed Project on Utilities and Public Services

Proposed Project. Construction of the proposed transmission line would:

- Temporarily increase the need for public services and utilities, including police protection, fire protection, schools, parks, water, and solid waste disposal
- Result in increased response times for emergency services due to road closures and construction traffic
- Increase the risk of a collocation accident with existing pipelines and utility lines

Recommended mitigation measures to reduce the severity of these adverse effects include the use of non-potable water for construction, preparation and implementation of a fire management plan, preparation of traffic control plans, coordination with pipeline and utility owners in the project vicinity, and installation of cathodic protection where necessary.

Connected Actions. Construction and operation of the future solar projects could:

- Require expanded fire protection services
- Result in accidental disruptions to existing underground utilities

Implementation of mitigation similar to that described for the Proposed Project above would reduce the severity of this adverse effect, including preparation and implementation of a fire management and protection plan, payment of impact fees for fire services, notification prior to subsurface excavation, identification of existing subsurface utilities, and coordination with utility owners.

ES.4.17.2 Effects of Alternatives on Utilities and Public Services

Tower Relocation Alternative. The minor adjustment to the location of the relocated towers would not increase the need for public services and utilities or the disruption to existing pipelines and utility systems compared to the Proposed Project, nor would the relocated towers increase the likelihood of a collocation accident. Implementation of the recommended mitigation described above in the Proposed Project would reduce the severity of the adverse effects on utilities and public services.

Iowa Street 66 kV Underground Alternative. The underground subtransmission line would not increase the need for public services and utilities compared to the Proposed Project. This alternative would increase the amount of subsurface disturbance compared to the Proposed Project, which would increase slightly the risk of disruption to existing pipelines and other underground utility systems. Implementation of the recommended mitigation described above in the Proposed Project would reduce the severity of this adverse effect.

Phased Build Alternative. This alternative would reduce the amount of construction activity, and consequently would reduce the need for public services and utilities compared to the Proposed Project, especially water needed for dust control during construction. This alternative would reduce the amount of subsurface disturbance, and therefore would reduce the potential to cause a disruption to existing pipelines and utility systems. Because fewer transmission lines would be replaced in this alternative compared to the Proposed Project, the potential for a collocation accident would be reduced slightly. Implementation of the recommended mitigation described above would reduce the severity of the adverse effects on utilities and public services.

No Action Alternative Option 1. This alternative would be located approximately 3 miles south of the Proposed Project alignment. This location would pass fewer sensitive receptors such as schools and hospitals than the Proposed Project. The types of utilities that would be potentially affected and the potential impacts to them would be similar to those for the Proposed Project, or would be fewer, as much of the route is in undeveloped land. Compliance with California Government Code requirements for identification of subsurface utilities would address impacts to utilities below ground. Similarly, this alternative would have similar levels of service needs (fire, public safety, and medical) as the Proposed Project, and would have comparable water and landfill demands. The use of or need for schools, parks, and other community assets would be similar as well.

No Action Alternative Option 2. The majority of the route is located in a very high fire hazard safety zone, and construction of this alternative would result in an increased potential risk of fire and an increased need for emergency services. Construction of this alternative would require a limited amount of accommodations for workers during construction, and it is unlikely that these individuals would trigger any additional demand for public schools or parks because of the temporary nature of their work. Construction and operation of this alternative would not require the expansion of or construction of new facilities for wastewater, stormwater drainage, or municipal water supply systems. Other public facilities, including hospitals and landfills, have sufficient capacity to accommodate both construction and operation of the new 500 kV circuit. Underground utilities including natural gas pipelines could be disrupted during ground disturbance associated with construction of this alternative. Compliance with California Government Code requirements for identification of subsurface utilities would address impacts to utilities below ground.

ES.4.18 Visual Resources

This analysis considers whether the Proposed Project or alternatives would result in adverse visual effects during construction due to the presence of construction equipment, vehicles, materials, workforce, nighttime lighting, and increased traffic. Also, construction activities are evaluated for their potential to result in visual contrast due to vegetation removal, land scarring and establishment of graveled surfaces, painting or marking of natural features, and the presence of fugitive dust, waste, and trash. Finally, the long-term presence of project structures and lighting are evaluated for their potential to degrade the existing visual character or quality of the landscape.

ES.4.18.1 Effects of the Proposed Project on Visual Resources

Proposed Project. Construction of the Proposed Project would cause both temporary and long-term adverse effects on visual resources. In Segment 6, many of these impacts would be inconsistent with the BLM's VRM Class II Management Objective. Temporary adverse effects to visual resources include the following:

- Visual contrast and degradation of the construction sites and surrounding landscapes due to the presence of construction equipment, materials, and workforce
- Visual contrast at and near construction sites from dust clouds and improperly discarded trash and food-related waste
- Adverse night lighting visual effects during construction

The severity of these temporary adverse effects on visual resources would be reduced through implementation of mitigation measures to screen construction activities from view, control fugitive dust, control trash and food-related waste at all construction sites, and minimize night lighting at project facilities.

Long-term adverse effects to visual resources include the following:

- Long-term visual contrast in color, line, and texture resulting from the removal of vegetation and construction of access roads and retaining walls
- Long-term adverse visual effects from the presence of Proposed Project transmission structures resulting in visual changes at certain public viewing locations, lighting and marker balls required by the Federal Aviation Administration, and nighttime lighting

The severity of these long-term adverse visual effects would be reduced through implementation of mitigation measures to minimize vegetation removal and ground disturbance, restore or revegetate temporary disturbance areas, reduce color contrast of retaining walls, land scars, and graveled surfaces, minimize in-line views of retaining walls and land scars, prohibit construction marking of natural features, minimize night lighting at project facilities, minimize visual contrast in project design, and treat structure surfaces to reduce glare and visual contrast.

Connected Actions. Construction of the future solar projects would cause temporary visual contrast and degradation of the construction sites and yards, staging areas, and surrounding landscapes due to the presence of equipment, vehicles, materials, workforce, and, potentially, night lighting. With implementation of mitigation to screen construction activities from view and minimize night lighting at project facilities, this adverse effect would be minor. Substantial adverse visual effects would occur for the solar projects in the Desert Center area (including the Palen Solar Power Project), especially when viewed from the surrounding mountains, wilderness areas, and Joshua Tree National Park. Minor adverse visual effects would occur for the solar projects in the Blythe area. Mitigation to minimize visual contrast in project design and treat structure surfaces would reduce the severity of these adverse visual effects, though they would remain substantial in the Desert Center area.

ES.4.18.2 Effects of Alternatives on Visual Resources

Tower Relocation Alternative. In this alternative, the significant visual impacts from the long-term presence of project structures in portions of Segments 4 and 6 would be reduced to less than significant levels by moving the towers farther from residences.

Iowa Street 66 kV Underground Alternative. This alternative would place an approximately 1,600-foot section of subtransmission line underground rather than above ground on poles, which would eliminate the visual resource adverse effects that would occur in the Proposed Project along Iowa Street. While construction of the Iowa Street Underground Alternative would cause temporary visual effects due to the presence of equipment and workforce, most long-term visual resource impacts would be eliminated. The visual resource impacts identified in this alternative would be less than significant with implementation of the recommended mitigation.

Phased Build Alternative. In this alternative, the significant visual impacts from the long-term presence of project structures in portions of Segments 4 and 6 would be reduced to less than significant levels by moving the towers farther from residences. All other adverse visual effects would be similar to the Proposed Project or less severe due to the reduction in construction activity and ground disturbance, and the retention of existing double-circuit structures having surfaces that have dulled over time.

No Action Alternative Option 1. In locations where new double-circuit 500 kV towers would be needed, these may be taller than the existing 500 kV structures that would remain and may not aligned with them. Potential impacts associated with construction of this alternative include the visibility of construction activities and equipment as well as long-term visibility of land scars in arid and semi-arid landscapes. Once installed, the transmission line would introduce contrasting structure color and result in skylining of structures as viewed from locations where the sky would be the backdrop to the structure. The visual impacts of a new line would require application of mitigation such as the use of methods to reduce land scaring and contrast with the natural landscape texture and color, coloring structural steel to reduce its contrast and reflectance, locating structures to minimize skylining and reduce view blockage, and aligning new structures with existing structures.

No Action Alternative Option 2. Construction activities for this alternative would result in temporary but substantial visual contrast from the presence of construction equipment and vehicles and from dust clouds. Visual contrast could also result from vegetation clearance and land scarring for new and improved access roads. For residents nearest to the ROW, the resulting visual contrast from the presence of the new transmission structures would be high. The resulting visual contrast from the new 500 kV circuit would also be high in remote and visually sensitive areas such as the Lake Mathews-Estelle Mountain Reserve and the Cleveland National Forest. The use of helicopters for construction and the minimization of new or improved access roads in these natural areas would reduce the visual contrast resulting from ground disturbance. Once installed, the transmission line would introduce new structural contrast for nearby viewers. Recommended mitigation measures would be similar to those described in the Proposed Project. This route requires no construction along the Devers-Valley or West of Devers corridors, and no new substation would be required.

ES.4.19 Water Resources and Hydrology

The water resources and hydrology analysis evaluates whether the Proposed Project or alternatives would deplete groundwater supplies or interfere with groundwater recharge, cause erosion, siltation, or flood damage, or degrade water quality or violate a water quality standard or waste discharge requirement.

ES.4.19.1 Effects of the Proposed Project on Water Resources and Hydrology

Proposed Project. Construction of the Proposed Project would:

- Require a substantial amount of water for dust control, soil conditioning, and revegetation
- Require dewatering of shallow groundwater, if encountered
- Result in erosion of disturbed areas during rainfall events

- Alter drainage patterns and result in minor local increases in runoff rate and volume
- Potentially pollute surface waters or groundwater through accidental releases of hazardous materials

Recommended mitigation to reduce the severity of these adverse effects includes the use of non-potable water for dust control and soil compaction whenever feasible, development of an erosion control plan and demonstration of compliance with water quality permits, and implementation of flood, erosion, and scour protection for aboveground and belowground improvements.

Connected Actions. Construction and operation of the future solar projects would:

- Require groundwater extraction, in some cases from basins that are already in an overdraft condition
- Accelerate erosion and sedimentation through ground disturbance
- Place structures in floodplains and potentially divert flood waters or be subject to flood damage
- Potentially pollute surface waters or groundwater through accidental releases of hazardous materials

The severity of these adverse effects would be reduced through implementation of mitigation measures that would require monitoring of drawdown and groundwater overdraft conditions, the provision of alternative sources of water from outside of the basin, drought water management and water conservation programs, development of an erosion control plan and demonstration of compliance with water quality permits, and implementation of flood, erosion, and scour protection for aboveground and belowground improvements.

ES.4.19.2 Effects of Alternatives on Water Resources and Hydrology

Tower Relocation Alternative. The minor adjustment to the location of the relocated towers would not increase the amount of construction water that would be required compared to the Proposed Project. The relocated structures would not result in more substantial erosion or an increase in impervious area compared to the Proposed Project. None of the relocated towers would be sited within known floodplains, and therefore would not result in increased diversion or obstruction of flood flows. The relocated towers would not result in an increased risk of water pollution from of hazardous materials. Implementation of mitigation described above would ensure that these adverse effects remain minor.

Iowa Street 66 kV Underground Alternative. More extensive dewatering may be required for the underground portion of this alternative compared to the Proposed Project due to locally elevated groundwater levels that may be encountered near Morey Arroyo and its associated floodplain. Any dewatering that would be required for installation of the underground line would be temporary and minor, and would not deplete groundwater supplies. Trenching for the underground line would involve more substantial ground disturbance than the foundation excavations for the towers that it would replace, but this disturbance would be temporary and would not occur in an area of high erosion risk. This alternative would involve a greater amount of subsurface disturbance than the Proposed Project, which would increase the risk of hazardous materials infiltrating into the groundwater basin. However, this increased risk of groundwater contamination would be temporary and very minor. The recommended mitigation described above in the Proposed Project would reduce these adverse effects.

Phased Build Alternative. Water demand for dust suppression would be reduced due to the reduction in construction activity and ground disturbance. The reduction in construction activity and ground disturbance also would reduce the potential to trigger erosion and sedimentation, the potential need for dewatering, and the risk of water quality degradation through the accidental release of hazardous materials. Like the Proposed Project, some of the new transmission structures would be located in floodplains and could divert or obstruct flood flows. Implementation of recommended mitigation described above would reduce the severity of these adverse effects.

No Action Alternative Option 1. Groundwater in the area of this alternative is deep; therefore, groundwater quality degradation is not likely. The route between Devers and Beaumont Substations is particularly sensitive to erosion and sedimentation because of the steep terrain crossed along the lower elevations of the San Jacinto Mountains south of I-10. Construction of this alternative could affect water quality through soil erosion and sedimentation as well as through the spill of harmful materials used during constructions, such as fuels, lubricants, and solvents. Measures to reduce or prevent impacts include implementation of a Storm Water Pollution and Prevention Plan, a Spill Prevention, Countermeasure, and Control Plan, a hazardous materials management and emergency response plan, training of workers, construction monitoring, revegetation of disturbed areas, and installation of permanent erosion control structures as needed.

No Action Alternative Option 2. Groundwater along this alternative route is generally encountered below the depth of excavation for transmission structures and no required dewatering is expected. Water would be required during construction of this alternative for dust suppression and soil conditioning, but this water demand would be temporary and is not expected to substantially deplete groundwater resources. Mitigation measures such as groundwater monitoring, the use of non-potable water, and the importation of water from outside of the basin would reduce the severity of adverse effects to groundwater levels. Construction and operation of this alternative could lead to water quality degradation or the violation of water quality standards through accelerated erosion and sedimentation or the accidental release of hazardous materials. Portions of the new 500 kV route would be located within 100-year floodplains. Transmission structures that are sited in floodplains would be designed to minimize the diversion of flood flows and damage or collapse from scour. Recommended mitigation measures would be the same as in Option 1.

ES.4.20 Wildland Fire

The analysis of impacts related to wildland fire considers whether construction of the Proposed Project or alternatives would increase the probability of a wildland fire or result in a vegetation fuel mix that increases ignition potential and rate of fire spread. The operational presence of project structures is evaluated for the potential to increase the probability of a wildland fire or interfere with fire suppression efforts.

ES.4.20.1 Effects of the Proposed Project on Wildland Fire

Proposed Project. Construction activities have the potential to:

- Ignite wildland fires through sparks or heat from welding, vehicles parked on dry grass, or improperly discarded smoking materials
- Increase the risk of fire ignition or spread through the introduction of invasive or weedy vegetation

Recommended mitigation to reduce these adverse effects includes preparation and implementation of a fire management plan, a worker environmental awareness program, and an integrated weed management plan.

Connected Actions. For connected actions in the Desert Center and Blythe areas, the increased risk of wildland fire would be minor because of sparse vegetation cover. Mitigation measures to address increased wildfire risks during construction and operation of the facilities are expected to be required by the agencies approving those projects. These would be tailored to the nature of the project and local conditions. This would ensure that adverse effects would be minor.

ES.4.20.2 Effects of Alternatives on Wildland Fire

Tower Relocation Alternative. The relocated structures would be located in the same area and same fire environment as the Proposed Project structures and would be subject to the same risk of increased probability of wildland fire from ignition sources such as sparks from welding or metal striking metal or stone, parking vehicles over dry vegetation, and improperly discarding smoking materials. The same mitigation described above would be required.

Iowa Street 66 kV Underground Alternative. Undergrounding the 66 kV line in Iowa Street would not increase the probability of a wildland fire or create obstructions to fire suppression efforts. The underground line would be in a street and would not result in a vegetation fuel mix that increases ignition potential and rate of fire spread.

Phased Build Alternative. The new and existing reconductored structures would be located in the same corridor and same fire environment as the Proposed Project structures and would be subject to the same risk of increased probability of wildland fire from construction-related ignition sources. However, due to the decreased amount of construction activity, this risk of starting a fire would be reduced. For various locations along the West of Devers corridor, structures in this alternative would be located farther from the edge of the ROW compared to the Proposed Project. In these locations, obstructions to fire suppression efforts for adjacent residences would be reduced slightly. The reduction in ground disturbance would lower the probability of colonization by fire-prone invasive vegetation. The recommended mitigation described above would reduce the severity of these adverse effects.

No Action Alternative Option 1. Large portions of this alternative route are located within High to Very High fire hazard severity zones. Ignition sources related to construction and operation of this alternative have a very high potential to ignite a wildfire in the rugged and often dry land surrounding the corridor. Similar to the Proposed Project, construction of this alternative would require mitigation to reduce fire risks by implementing a comprehensive fire management plan that would require appropriate adequate fire suppression equipment at construction sites, establish fire-prevention protocols for high risk activities such as welding, ban smoking and open flames, require training of workers in fire prevention, prohibit parking outside of designated areas, and restrict work on Red Flag days.

No Action Alternative Option 2. With the exception of the Perris Valley at the eastern end of this alternative, the entire route is located on land that has a Very High fire hazard severity classification. Ignition sources related to construction and operation of this alternative have a high potential to ignite a wildfire in the rugged and often dry land surrounding the corridor. Recommended mitigation measures would be the same as in the Proposed Project.

ES.4.21 Electrical Interference and Safety

The electrical interference and safety evaluation analyzes whether the Proposed Project or alternatives would interfere with radio, television, communications, electronic equipment, or cardiac pacemakers. Project components are also evaluated for their potential to create public hazards through induced currents or shocks.

ES.4.21.1 Effects of the Proposed Project on Electrical Interference and Safety

Proposed Project. Construction and operation of the Proposed Project could:

- Cause localized and temporary disruptions to radio, television, communications, or electronic equipment
- Expose workers or the public to potential hazards, including shock, through induced currents on conducting objects near the transmission line
- Cause electrical interference with cardiac pacemakers

These adverse effects would be minimized through implementation of mitigation that would limit the conductor surface gradient, require documentation and resolution of electronic interference complaints, and require the implementation of grounding measures. Electrical interference with modern cardiac pacemakers is not a substantial threat to public health because most modern pacemakers are designed to revert to a fixed-rate pacing mode, which is life-sustaining.

Connected Actions. Adverse effects related to electrical interference and safety generally apply to high-voltage transmission lines and would not apply to the future solar projects except along generation tie lines. The remote location of these projects and their gen-tie lines makes these impacts unlikely.

ES.4.21.2 Effects of Alternatives on Electrical Interference and Safety

Tower Relocation Alternative. The nominal change in distance from the edge of the ROW for the relocated towers is not expected to substantially alter (increase or decrease) the effects of the transmission line with regard to electric interference, although the risk of electric interference would be reduced very slightly for the nearest residents. This alternative would not increase the risk of hazards to the public through project-induced currents or shocks, nor would it increase the risk of interference with cardiac pacemakers. The mitigation described above in the Proposed Project would reduce the severity of these adverse effects.

Iowa Street 66 kV Underground Alternative. This short underground segment would decrease slightly the effects of the subtransmission line with regard to electric interference, project-induced currents or shocks, and the risk of interference with cardiac pacemakers. Still, the mitigation described above would be required.

Phased Build Alternative. In the locations where the structures in this alternative would be farther from the edge of the ROW than the Proposed Project structures, the potential for project-induced electrical interference would be reduced. Hazards associated with project-induced currents and interference with cardiac pacemakers would be substantially the same as in the Proposed Project. The same mitigation measures would be required to reduce the severity of these adverse effects.

No Action Alternative Option 1. Development of a 500 kV transmission line from Devers to a new Beaumont Substation and the 220 kV lines from Beaumont to El Casco Substation would cause changes in power line field strength at the edge of the ROWs. This could cause interference with radio, television, communications or electronic equipment and induce currents or shocks that would be hazards. The function of some pacemakers could be altered by exposure to electric fields that would be generated in the immediate vicinity of the new 500 kV circuit. Electrical interference with modern cardiac pacemakers is not a substantial threat to public health because most modern pacemakers are designed to revert to a fixed-rate pacing mode, which is life-sustaining. Mitigation measures include limiting the conductor surface gradient as part of the design and construction process, documenting and resolving individual complaints of interference; and implementing grounding measures within and near the ROW.

No Action Alternative Option 2. This alternative would construct a second 500 kV circuit mostly within an existing ROW between Valley and Serrano Substations. Operation of this new circuit would cause changes in the power line field strength at the edge of the ROW. These changes could cause the same electrical interference and hazards as described in Option 1. Recommended mitigation measures would be the same as in the Proposed Project.

ES.5 Cumulative Scenario and Impacts

ES.5.1 NEPA Requirements for Cumulative Impact Analyses

NEPA identifies three types of potential impacts: direct, indirect, and cumulative. "Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7). Under NEPA, both context and intensity are considered in the cumulative analysis. One consideration when considering intensity is whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts (40 CFR §1508.27(b)(7)).

ES.5.2 Cumulative Projects

In general the study area for cumulative projects is a three-mile radius around project features. However, each discipline's analysis may consider a larger or smaller area appropriate to the potential for impacts to combine. A list of reasonably foreseeable projects that could contribute to the cumulative scenario has been assembled and evaluated. It is presented in EIS Section E. Collectively, these projects represent known and anticipated activities that may occur in the project vicinity and that have the potential to contribute to a cumulative impact. Most of the projects in the cumulative scenario are located in developed or developing areas in Riverside and San Bernardino Counties, California. Because the West of Devers Upgrade Project would be linear with occasional nodal facilities along it length, most of the projects do not interact with the Proposed Project along its entire route. Many projects in the cumulative scenario are limited in their geographic extent. Others are linear projects that would overlap with segments of the West of Devers Upgrade Project. Projects in the cumulative scenario are more or less relevant based on their proximity to the Proposed Project and, therefore, to the potential for cumulative interactions.

The following two linear projects are described in more detail in Section E:

- **North-South Pipeline.** The CPUC determined in September 2014 that it would act as CEQA lead agency for environmental review of the proposed North-South Pipeline Project, which is the subject of an application filed in December 2013 by SoCalGas and SDG&E (Application A.13-12-013). As proposed, the alignment and construction activities would intersect and run parallel to portions of the West of Devers corridor, particularly near Segments 1, 2, and 3. The North-South Pipeline Project would be a pipeline interconnection capable of transporting 800 million cubic feet of natural gas per day.
- **Future 500 kV Transmission Line in WOD Corridor.** In most of Segments 3 through 6 (San Timoteo Canyon to Devers Substation), SCE has designed the Proposed Project to be located very near one edge of its existing ROW, retaining as much as 200 feet of vacant space in the ROW to allow for future expansion of its transmission system. While SCE states that it currently has no specific plans for transmission expansion in the WOD corridor, there are other regional studies that point to the potential for future development. The BLM and CPUC have determined that a future 500 kV transmission line in the WOD corridor is reasonably foreseeable, and therefore should be evaluated as a cumulative project in this EIS. The line would be built in SCE's existing ROW and include about 40 miles of the 45-mile project ROW. The future 500 kV line could be single-circuit or double-circuit; for the purpose of this study, it is assumed to be a double-circuit line. The endpoints could be at future facilities developed within or near the existing Devers Substation and SCE's Rancho Vista Substation near Etiwanda, in Rancho Cucamonga.

Five additional projects are listed in the "Regional Projects" category because they are energy projects relevant to the Proposed Project. These projects would not require construction of the Proposed Project in order to operate, but their impacts could combine with those of the Proposed Project. In general, these projects are located too far east of the Proposed Project for impacts to combine, but in some disciplines a cumulative effect would occur.

ES.5.3 Cumulative Impacts of the Proposed Project and Alternatives

Proposed Project

A detailed analysis of the cumulative effects of the Proposed Project is presented in EIS Section E (Cumulative Scenario and Impacts), including discussion for each of 20 disciplines. Following is a summary of the cumulative effects found to be most severe:

- **Air Quality.** Construction and operation of the Proposed Project would result in emissions of air quality pollutants that would combine with the emissions from construction and operation of other projects in the cumulative analysis study area. This would result in air quality pollutant emissions that would exceed regional and localized thresholds. Implementation of mitigation measures to control fugitive dust, control off-road equipment emissions, and control helicopter emissions would reduce the severity of this adverse effect. However, even with implementation of mitigation, the cumulative emissions would exceed regional and localized thresholds.
- **Noise.** Construction activities associated with the Proposed Project would create temporary elevated noise levels that could affect nearby sensitive receptors. These include residences, schools, community parks, and other recreational uses. Where construction activities for the Proposed Project and other projects in the cumulative analysis study area overlap both geographically and temporally, the temporarily elevated noise levels would disturb nearby sensitive receptors. The cumulative elevated noise levels would also exceed some local noise ordinance thresholds. Mitigation measures requiring implementation of best management practices for construction noise and a helicopter noise control strategy would reduce the cumulative noise levels. However, even with implementation of mitigation, the cumulative noise levels would disturb sensitive receptors and exceed local noise thresholds at some locations.
- **Visual Resources.** Construction of the Proposed Project would result in visual contrast due to vegetation removal. The removal would appear prominent from some viewing locations and would violate BLM's visual resource management objectives. Construction of the cumulative projects would also result in visual contrast due to vegetation removal. This would combine with the Proposed Project to result in a visually degraded landscape. Mitigation measures to minimize vegetation removal and ground disturbance and restore or revegetate temporary disturbance areas would reduce the severity of this adverse effect. However, the visual contrast would remain prominent. The long-term presence of Proposed Project structures would result in negatively perceived landscape changes. The long-term presence of structures associated with the cumulative projects would also result in perceived landscape degradation. Mitigation measures to treat structure surfaces and design project structures to blend into the landscape would reduce the severity of this adverse effect, but long-term degradation of the landscape would persist.

Alternatives

All of the retained alternatives are located in the same ROW as the Proposed Project and would involve similar types of construction activities. The same list of cumulative projects that could potentially combine with the Proposed Project to result in a cumulative adverse effect would also apply to each of the retained alternatives. Therefore, the cumulative analysis for the Proposed Project would also apply to each of the alternatives, and the adverse cumulative effects that are described for the Proposed Project would also occur with each of the alternatives.

ES.6 Summary Comparison of the Proposed Project and Alternatives

This section summarizes and compares the environmental advantages and disadvantages of the Proposed Project and the alternatives evaluated in this Final EIS. This comparison is based on the assessment of environmental impacts of the Proposed Project and each alternative, as identified in Final EIS Sections D, E, and F. The methodology used for comparing alternatives is described in Section ES.6.1. Under NEPA an "agency preferred" alternative is designated. In the Final EIS, Section ES.6.2 identifies the agency preferred alternative, based on comparison of each alternative with the Proposed Project. Section ES.6.3 presents a comparison of the No Action Alternative with the alternative that is determined in Section ES.6.2 to be environmentally preferred.

Under NEPA the EIS should identify the environmentally preferable alternative from a range of alternatives considered if one exists at the draft stage. Commenters from other agencies and the public are also encouraged to address this question. In addition, the BLM NEPA Handbook (H-1790-1, Chapter 5.B.2.b) requires identification of an agency preferred alternative in the Final EIS, if not defined in the Draft EIS.

ES.6.1 Methodology for Alternatives Comparison

The methodology used to compare alternatives in this EIS consists of 3 steps:

- **Step 1: Identification of Alternatives.** An alternatives screening process was used to identify a number of potential alternatives to the Proposed Project and to identify those to be carried forward for analysis in the EIS. A No Action Alternative was also identified.
- **Step 2: Determination of Environmental Impacts.** The environmental impacts of the Proposed Project and alternatives are identified in EIS Sections D, E, and F, including the potential impacts from the construction and operation of transmission lines, subtransmission lines, distribution lines, telecommunications, and substation upgrades, and potential connected actions.
- **Step 3: Comparison of Proposed Project with Alternatives.** The environmental impacts of the Proposed Project were compared to those of each alternative to determine the environmentally preferred alternative. The environmentally preferred alternative was then compared to the No Action Alternative.

Determining an environmentally preferred alternative requires balancing many environmental factors. In order to identify the environmentally preferred alternative, the most important impacts in each issue area were identified and compared. Although this EIS identifies an environmentally preferred alternative, it is possible that the ultimate decision-makers could balance the importance of each impact area differently and reach a different conclusion.

ES.6.2 Environmentally Preferred Alternative

The characteristics of the three retained alternatives are summarized in Table ES-1 in Section ES.3 above. The alternatives would be in the same ROW as the Proposed Project.

The **Tower Relocation Alternative** is preferred over the Proposed Project because it would result in a less severe visual impact in Segments 4, 5, and 6 by relocating various tower pairs approximately 50 feet north of the project's proposed tower locations. By shifting structures farther away from the closest residences, the Tower Relocation Alternative would result in structure placements within the ROW that would appear more similar to the existing structure locations. As a result, when viewed from residential locations along the south side of the ROW the Tower Relocation Alternative would cause less incremental visual contrast, structure prominence, and view blockage compared to the Proposed Project. The Tower Relocation Alternative would also reduce construction-related disturbance associated with the upgraded 220 kV lines by ensuring that relocated towers would be no closer to residences than the existing structures.

The **Iowa Street 66 kV Underground Alternative** is preferred over the Proposed Project's 66 kV overhead segment. Although an underground segment would have greater ground disturbance and traffic impacts and a longer construction time, it would eliminate the long-term significant and unmitigable visual impacts associated with a new overhead 66 kV subtransmission line along Iowa Street, adjacent to the Cottage Lane residential subdivision in Redlands.

The **Phased Build Alternative** is preferred over the Proposed Project because it would reduce construction impacts by eliminating the need to remove and reconstruct most of the existing double-circuit 220 kV. It would also reduce operational impacts, by reducing the visual impacts of the Proposed Project due to the location of new structures closer to the center of the ROW, and the implementation of the Tower Relocation Alternative as part of this alternative.

BLM Conclusion Regarding Environmentally Preferred Alternative

NEPA encourages lead agencies to make recommendations of the Environmentally Preferred Alternative(s) during EIS preparation and requires specifying the alternative or alternatives that are considered to be environmentally preferable at the time of the Record of Decision. This is ordinarily the alternative that causes the least damage to the biological and physical environment and best protects, preserves and enhances the resources that are present [BLM Manual H-1790-1, Ch. 9.7.1; 40 CFR 1505.2(b); and Forty Questions 6(a) and 6(b)].

The Environmentally Preferred Alternative would be the Phased Build Alternative (which incorporates the structure locations defined in the Tower Relocation Alternative). The Environmentally Preferred Alternative is illustrated in Final EIS Figure Ap5-5a. If the 66 kV relocation is found to be required with the Phased Build Alternative, the Iowa Street Underground Alterative would also be included with the Environmentally Preferred Alternative.

The second preferred alternative would be the combination of the Tower Relocation Alternative, the Iowa Street 66 kV Underground Alternative, and the Proposed Project for the segments otherwise unaffected by those two alternatives. The least environmentally preferred would be the Proposed Project with no modifications.

BLM Conclusion Regarding Agency Preferred Alternative

BLM planning regulations allow definition of BLM's Agency Preferred alternative in either the Draft EIS or the Final EIS (BLM Manual 1790-1, Ch. V(B)(4)(c)). Following analysis of public comments on the Draft EIS/EIR and further internal review of the Draft EIS/EIR and the level of renewable energy development expected by BLM, BLM has selected the Proposed Project with implementation of the Tower Relocation Alternative and the Iowa Street Underground Alternative. These alternatives would not change the transfer capacity of the Proposed Project and they would each reduce environmental impacts in the specific areas around which they would be implemented. Therefore, BLM finds that those two alternatives are preferred over the Proposed Project segments that they would replace.

The Phased Build Alternative is not preferred over the Proposed Project. This alternative, if constructed as specified in the Draft EIR/EIS, would limit transfer capacity to about 3,000 MW when the Proposed Project would provide 4,800 MW of capacity. Construction of the Proposed Project now would also reduce the likelihood of building future phases of the Phased Build Alternative, and this may avoid additional near-term construction disturbances in the corridor. See Section ES.1 (Introduction/Background) for additional discussion regarding BLM's identification of the Agency Preferred Alternative.

ES.6.3 Comparison of the Environmentally Preferred Alternative with the No Action Alternative

As described in Section ES.3.4, the EIS considers two No Action Alternative options. In the following discussion, the likely impacts of each are compared with the impacts of the Proposed Project.

Comparison of No Action Alternative Option 1 with Proposed Project

The environmental impacts of the No Action Alternative are presented in Section D for each environmental discipline. Impacts would primarily result from construction of a new Beaumont Substation, construction of a third 500 kV circuit between Devers and Beaumont Substation, in addition to the existing Devers-Valley No. 1 and No. 2 lines in this corridor, and construction of 4 220 kV circuits between Beaumont and El Casco Substation. The most severe impacts would be from the 500 kV line:

- **Visual Resources.** The 500 kV line would cross the Pacific Crest Trail, pass through the San Jacinto and Santa Rosa National Monument, and pass through the San Bernardino National Forest within a designated wilderness area (in a transmission corridor). On Forest lands, the new circuit would have to be installed on newly constructed double-circuit towers (after removal of one existing single-circuit tower), which would be highly visible due to their height. In addition, the additional circuit would pass through the community of Cabazon, and the Cities of Banning and Beaumont.
- **Biological Resources.** The route passes through sensitive desert, mountain, and inland environments, with potential to affect listed plants, Peninsular bighorn sheep, and Stephens' kangaroo rat, as well as other species.
- **Land Use and Recreation.** As described for visual resources, the new line would be highly visible in several valuable recreation areas. In addition, the proximity of both construction activities and the new circuit itself, to existing residences, would result in significant impacts to sensitive receptors between Cabazon and Beaumont.

Additional significant impacts to visual and biological resources would result from the construction and operation of the new 40-acre Beaumont Substation, just southeast of the city of Beaumont.

In conclusion, No Action Alternative Option 1 would create impacts between Devers and El Casco that would be substantially more severe than those of the Proposed Project between these two points

Comparison of No Action Alternative Option 2 with Proposed Project

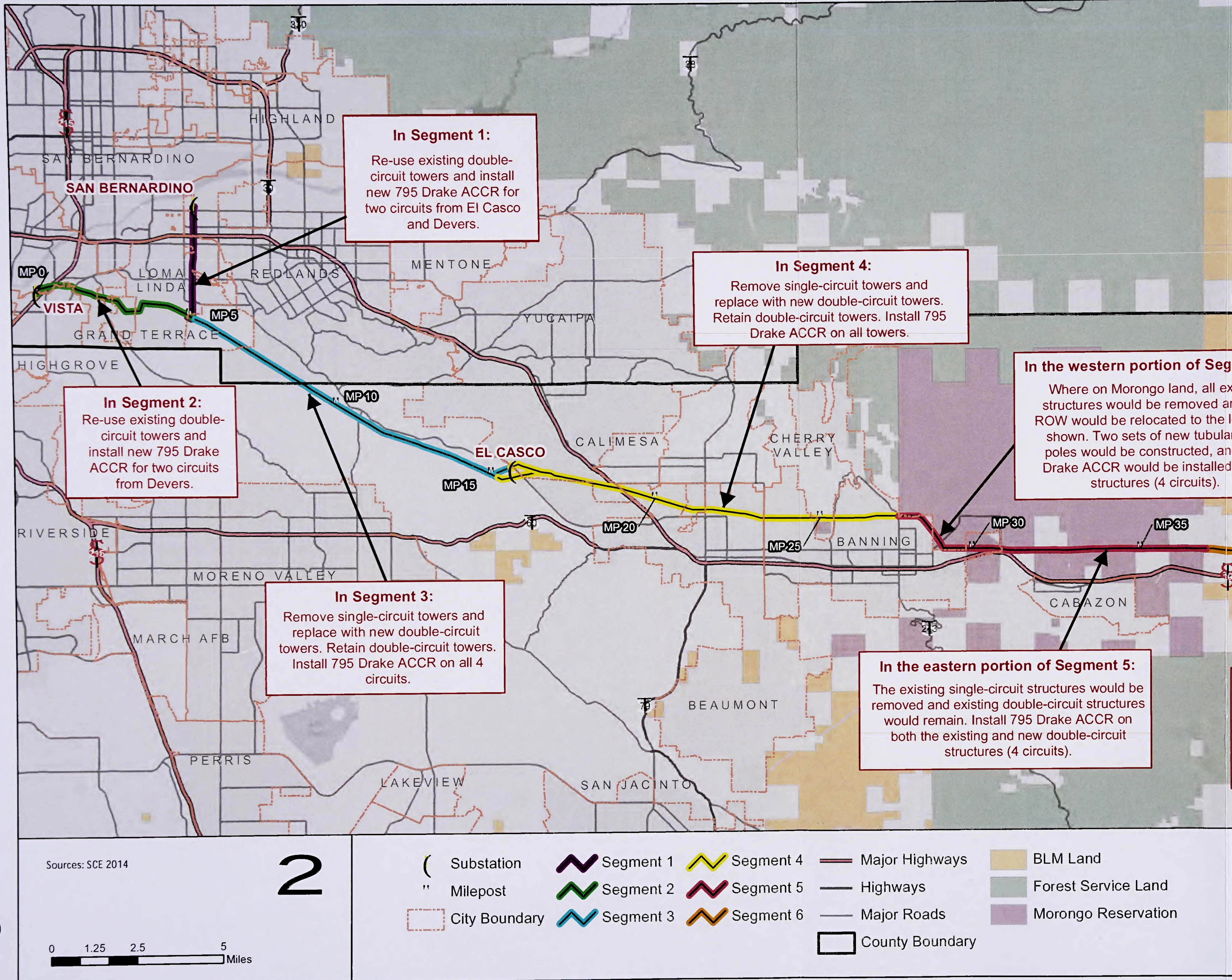
The environmental impacts of No Action Alternative Option 2 are presented in Section D for each environmental discipline. Impacts of this option would primarily result from the need to construct a second 500 kV circuit adjacent to the Valley-Serrano No. 1 line. There would be no new impacts between the Devers and Valley Substations. Impacts of this option would occur only between the Valley Substation and Serrano Substation. The most severe impacts would be the following:

- **Visual Resources.** The new 500 kV line would cross a number of parks and recreational areas. On Forest lands, the line would have to be installed on new single-circuit towers. While one circuit already exists in the utility corridor, this area is remote and undeveloped, and the addition of a second high-voltage line would be highly visible. In addition, the new line would pass through Weir Canyon Regional Park, the community of Romoland, and the City of Orange, where visibility of a new 500 kV circuit would likely be significant.
- **Biological Resources.** The route passes through sensitive mountain and inland environments, with potential to affect listed plants, birds, and Stephens' kangaroo rat, as well as other species and their habitats.
- **Land Use and Recreation.** As described for visual resources, the new line would be highly visible in several important recreation areas. In addition, the proximity of both construction activities and the new circuit itself to existing residences would result in significant impacts to sensitive receptors in both Riverside County and the City of Orange.

In conclusion, No Action Alternative Option 2 would create impacts substantially more severe than those of the Proposed Project.

Conclusion Regarding No Action Alternatives

The No Action Alternatives are transmission system options considered to be likely to occur in the absence of the Proposed Project. Both of the No Action Alternatives would require construction of new 500 kV transmission systems and new or upgraded 500/220 kV substations. As a result, both of the No Action Alternative options would have more severe environmental impacts than either the Proposed Project or the alternatives considered in this EIS.



West of Devers Upgrade Project

Figure ES-5

Environmentally Superior Alternative

Table ES-2. Summary of Significant Unmitigable Impacts for the Proposed Project

Impact	Mitigation Measure (if any)
Air Quality	
Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants	**MM AQ-1a:** Control fugitive dust **MM AQ-1b:** Control off-road equipment emissions **MM AQ-1c:** Control helicopter emissions
Cultural Resources	
Impact CL-2: Construction, operation and maintenance, and restoration would cause an adverse change to unknown buried prehistoric and historical archaeological sites or buried Native American human remains	**MM CL-2a:** Treat previously unidentified cultural resources **MM CL-2b:** Properly treat human remains **MM CL-1d:** Conduct construction monitoring
Noise	
Impact N-1: Construction noise could substantially disturb sensitive receptors or violate local rules, standards, and/or ordinances	**MM N-1a:** Implement best management practices for construction noise **MM N-1b:** Implement a helicopter noise control strategy
Visual Resources	
Impact VR-2: Construction would result in visual contrast due to vegetation removal	**MM VR-2a:** Minimize vegetation removal and ground disturbance **MM VEG-1d:** Restore or revegetate temporary disturbance areas
Impact VR-8: Long-term presence of the project would result in landscape changes that degrade existing visual character or quality	**MM VR-8a:** Minimize visual contrast in project design **MM VR-9a:** Treat structure surfaces

Table ES-3. Summary of Significant but Mitigable Impacts and Mitigation for the Proposed Project

Impact	Mitigation Measure(s)
Agriculture	
Impact AG-3: Project would involve changes in the existing environment which would impair the use of agricultural land	**MM AG-3a:** Establish agreement and coordinate construction activities with agricultural landowners **MM AQ-1a:** Control fugitive dust **MM AQ-1b:** Control off-road equipment emissions **MM LU-2a:** Prepare construction notification plan **MM HH-1a:** Prepare a hazardous materials and waste management plan **MM HH-2a:** Prepare a soil management plan **MM HH-3a:** Identify pesticide/herbicide contamination
Biological Resources – Vegetation	
Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats	**MM VEG-1a:** Conduct biological monitoring and reporting **MM VEG-1b:** Prepare and implement a Worker Environmental Awareness Program (WEAP) **MM VEG-1c:** Minimize native vegetation and habitat loss **MM VEG-1d:** Restore or revegetate temporary disturbance areas **MM VEG-1e:** Compensate for permanent habitat loss
Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds	**MM VEG-2a:** Prepare and implement an Integrated Weed Management Plan **MM VEG-1d:** Restore or revegetate temporary disturbance areas **MM VEG-1e:** Compensate for permanent habitat loss **MM VEG-3a:** Minimize impacts and ensure no net loss for jurisdictional waters and wetlands **MM AQ-1a:** Control fugitive dust **MM AQ-1b:** Control off-road equipment emissions **MM WR-2a:** Implement an Erosion Control Plan and demonstrate compliance with water quality permits
Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality	**MM VEG-3a:** Minimize impacts and ensure no net loss for jurisdictional waters and wetlands **MM VEG-1d:** Restore or revegetate temporary disturbance areas **MM VEG-1e:** Compensate for permanent habitat loss **MM WR-2a:** Implement an Erosion Control Plan and demonstrate compliance with water quality permits
Impact VEG-4: Construction, operations, and maintenance activities could cause direct or indirect loss of listed and special-status plants and direct or indirect effects to habitat for listed and special-status plants	**MM VEG-4a:** Minimize and mitigate impacts to special-status plants **MM VEG-1a:** Conduct biological monitoring and reporting **MM VEG-1b:** Prepare and implement a Worker Environmental Awareness Program (WEAP) **MM VEG-1c:** Minimize native vegetation and habitat loss **MM VEG-1d:** Restore or revegetate temporary disturbance areas **MM VEG-1e:** Compensate for permanent habitat loss **MM VEG-2a:** Prepare and implement an Integrated Weed Management Plan
Impact VEG-5: Construction, operations, and maintenance activities may conflict with local policies or ordinances protecting biological resources, Habitat Conservation Plans, Natural Communities Conservation Plans, Multiple Species Habitat Conservation Plans, or other approved local, regional, state, or federal conservation plans	**MM VEG-5a:** Comply with local tree removal or resource protection policies **MM VEG-5b:** Ensure MSHCP equivalency and consistency

Table ES-3. Summary of Significant but Mitigable Impacts and Mitigation for the Proposed Project

Impact	Mitigation Measure(s)
Biological Resources – Wildlife	
Impact WIL-1: Noise, lighting, vehicle traffic on access roads, and other project-related disturbance during construction, operations, and maintenance would affect wildlife including nesting birds, eggs, or chicks occupying surrounding vegetation and habitat, and could cause territory abandonment, behavioral changes, wildlife injury, or mortality	**MM WIL-1a:** Conduct pre-construction biological resources surveys **MM WIL-1b:** Ensure wildlife impact avoidance and minimization **MM WIL-1c:** Prepare and implement a Nesting Bird Management Plan **MM VEG-1a:** Conduct biological monitoring and reporting **MM VEG-1b:** Prepare and implement a Worker Environmental Awareness Program (WEAP) **MM VEG-1c:** Minimize native vegetation and habitat loss **MM VEG-1d:** Restore or revegetate temporary disturbance areas **MM VEG-1e:** Compensate for permanent habitat loss **MM VEG-2a:** Prepare and implement an Integrated Weed Management Plan
Impact WIL-2: Construction, restoration, operations, and maintenance activities could cause direct or indirect loss of listed and special-status wildlife and direct or indirect effects to habitat for listed and special-status wildlife	**MM WIL-2a:** Conduct desert tortoise surveys, monitoring, and avoidance **MM WIL-2b:** Prepare and implement raven monitoring, management, and control plan **MM WIL-2c:** Conduct surveys and avoidance for threatened or endangered riparian birds **MM WIL-2d:** Conduct surveys and avoidance for Stephens' kangaroo rat **MM WIL-2e:** Conduct surveys and avoidance for coastal California gnatcatcher **MM WIL-2f:** Conduct surveys and avoidance for golden eagle **MM WIL-2g:** Conduct surveys and avoidance for burrowing owl **MM WIL-2h:** Conduct surveys and avoidance for special-status herpetofauna **MM WIL-2i:** Conduct surveys and avoidance for bats **MM WIL-2j:** Conduct surveys and avoidance for special-status small mammals **MM WIL-2k:** Conduct surveys and avoidance for American badger, ringtail, and desert kit fox **MM WIL-1a:** Conduct pre-construction biological resources surveys **MM WIL-1b:** Ensure wildlife impact avoidance and minimization **MM WIL-1c:** Prepare and Implement a Nesting Bird Management Plan **MM VEG-1a:** Conduct biological monitoring and reporting **MM VEG-1b:** Prepare and implement a Worker Environmental Awareness Program (WEAP) **MM VEG-1c:** Minimize native vegetation and habitat loss **MM VEG-1d:** Restore or revegetate temporary disturbance areas **MM VEG-1e:** Compensate for permanent habitat loss **MM VEG-2a:** Prepare and implement an Integrated Weed Management Plan
Impact WIL-3: Transmission lines would present a collision or electrocution hazard to birds, including special-status birds	**MM WIL-3a:** Evaluate bird collision risk and implement APLIC design guidelines
Cultural Resources	
Impact CL-1: Construction, operation and maintenance, and restoration would cause an adverse change to known historic properties	**MM CL-1a:** Avoid environmentally sensitive areas **MM CL-1b:** Develop Cultural Resource Management Plan (CRMP) **MM CL-1c:** Train construction personnel **MM CL-1d:** Conduct construction monitoring

Table ES-3. Summary of Significant but Mitigable Impacts and Mitigation for the Proposed Project

Impact	Mitigation Measure(s)
Geology and Soils	
Impact G-1: Project structures could be damaged by surface fault rupture at crossings of active and potentially active faults	**MM G-1a:** Conduct fault evaluation study and minimize project structures within active fault zones
Impact G-2: Project structures could be damaged by seismically induced groundshaking and/or ground failures, such as landslides and liquefaction-related phenomena, exposing people or structures to hazards	**MM G-2a:** Conduct geological surveys for landslides and unstable slopes
Impact G-3: Erosion could be triggered or accelerated due to construction activities	**MM WR-2a:** Implement an erosion control plan and demonstrate compliance with water quality permits **MM VEG-1d:** Restore or revegetate temporary disturbance areas
Impact G-4: Slope Instability, such as landslides, could be triggered or accelerated due to construction activities	**MM G-2a:** Conduct geotechnical surveys for landslides and unstable slopes
Impact G-5: Project structures could be damaged by problematic soils exposing people or structures to hazards	**MM G-5a:** Assess soil characteristics to aid in appropriate foundation design
Hazards and Hazardous Materials	
Impact HH-1: Improper handling, storage, or accidental spills or releases of hazardous materials could result in harm to the public, project workers, or the environment	**MM HH-1a:** Prepare a hazardous materials and waste management plan
Impact HH-2: Ground disturbance could result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors	**MM HH-2a:** Prepare a soil management plan
Impact HH-3: Ground disturbance could result in mobilization of pesticides and herbicides in agricultural soils, creating potential pathways of exposure to humans or other sensitive receptors	**MM HH-3a:** Identify pesticide/herbicide contamination

Table ES-3. Summary of Significant but Mitigable Impacts and Mitigation for the Proposed Project

Impact	Mitigation Measure(s)
Land Use and BLM Realty	
Impact LU-1: Project would disrupt an established or recently approved land use	**MM LU-1a**: Prepare construction notification plan **MM AG-3a**: Establish agreement and coordinate construction activities with agricultural landowners **MM N-1a**: Implement best management practices for construction noise **MM N-1b**: Implement a helicopter noise control strategy **MM R-1a**: Coordinate construction schedule and activities with the authorized officer for the recreation area **MM R-1b**: Coordinate with local agencies to identify alternative recreation areas **MM T-1b**: Prepare Traffic Control Plans **MM T-1c**: Restrict lane closures **MM T-1d**: Minimize disruption of bus and transit service **MM T-1e**: Ensure pedestrian and bicycle circulation and safety **MM T-1f**: Provide access to property **MM T-3a**: Avoid conflicts with planned transportation improvements **MM T-6a**: Notify public of short-term elimination of public parking spaces **MM T-7a**: Prepare and implement a final helicopter use plan **MM VR-1a**: Screen construction activities from view **MM VR-2a**: Minimize vegetation removal and ground disturbance **MM VR-3a**: Reduce color contrast of retaining walls and land scars **MM VR-4a**: Minimize in-line views of retaining walls and land scars **MM VR-5a**: Prohibit construction marking of natural features **MM VR-7a**: Minimize night lighting at project facilities **MM VR-9a**: Minimize visual contrast in project design **MM VR-10a**: Treat structure surfaces
Mineral Resources	
Impact MR-1: Construction activities would render known mineral resources inaccessible	**MM MR-1a**: Coordinate with quarry operations
Paleontological Resources	
Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources	**MM PAL-1a**: Inventory and evaluate paleontological resources **MM PAL-1b**: Develop Paleontological Resource Mitigation and Monitoring Plan **MM PAL-1c**: Train construction personnel **MM PAL-1d**: Monitor construction for paleontological resources **MM PAL-1e**: Final reporting and curation
Recreation	
Impact R-1: Construction activities would temporarily reduce access and visitation to recreation areas	**MM R-1a**: Coordinate construction schedule and activities with the authorized officer for the recreation area **MM R-1b**: Coordinate with local agencies to identify alternative recreation areas **MM R-1c**: Provide a temporary detour for Pacific Crest National Scenic Trail users

Table ES-3. Summary of Significant but Mitigable Impacts and Mitigation for the Proposed Project

Impact	Mitigation Measure(s)
Transportation and Traffic	
Impact T-1: Road or travel lane closures for construction would adversely affect traffic flow and congestion, emergency vehicle response, pedestrians/ bicyclists routes, and access to adjacent residential and business properties	**MM T-1a:** Prepare Construction Transportation Plan **MM T-1b:** Prepare Traffic Control Plans **MM T-1c:** Restrict lane closures **MM T-1d:** Minimize disruption of bus and transit service **MM T-1e:** Ensure pedestrian and bicycle circulation and safety **MM T-1f:** Provide access to property **MM LU-1a:** Prepare Construction Notification Plan
Impact T-2: Traffic related to project construction and operation would result in unacceptable levels of service on roadways in the project area	**MM T-1a:** Prepare Construction Transportation Plan
Impact T-3: Construction would conflict with planned transportation projects	**MM T-3a:** Avoid conflicts with planned transportation improvements
Impact T-4: Construction vehicles and equipment would potentially damage roads in the project area	**MM T-4a:** Repair roadways damaged by construction activities
Impact T-5: Construction activities would cause a temporary disruption to rail traffic or operations	**MM T-5a:**Obtain required permits or approvals for crossing or working in railroad rights of way
Impact T-6: Construction would result in the short-term elimination of parking spaces	**MM T-6a:** Notify public of short-term elimination of public parking spaces
Impact T-7: Use of helicopters would have potential impacts on public safety and create nuisance conditions	**MM T-7a:** Prepare and implement a final helicopter use plan
Impact T-8: Operations would affect aviation safety and activities associated with public airports	**MM T-8a:** Obtain FAA review and approval of all structures and spans posing potential aircraft safety hazards
Utilities and Public Services	
Impact UPS-1: Project construction and operation would increase the need for public services and utilities	**MM UPS-1a:** Use non-potable water for construction purposes **MM T-1b:** Prepare Traffic Control Plans **MM WF-1a:** Prepare and implement a Fire Management Plan
Impact UPS-2: Construction would disrupt existing pipelines and utility systems or cause a collocation accident	**MM UPS-2a:** Protect pipelines and overhead and underground utilities
Visual Resources	
Impact VR-1: Construction would result in adverse visual effects due to the presence of equipment, vehicles, materials, and workforce	**MM VR-1a:** Screen construction activities from view
Impact VR-3: Construction would result in visual contrast associated with retaining walls, land scarring, and establishment of graveled surfaces	**MM VR-3a:** Reduce color contrast of retaining walls and land scars
Impact VR-4: Construction could result in visual contrast associated with in-line views of retaining walls and land scars	**MM VR-4a:** Minimize in-line views of retaining walls and land scars
Impact VR-5: Construction could result in visual contrast associated with the marking of natural features	**MM VR-5a:** Prohibit construction marking of natural features
Impact VR-6: Construction could result in visual contrast associated with fugitive dust, waste, and trash	**MM AQ-1a:** Control fugitive dust **MM WIL-1b:** Ensure wildlife impact avoidance and minimization
Impact VR-7: Construction could result in the use of night lighting or installation of reflective surfaces, which could cause undesirable night light and glare effects	**MM VR-7a:** Minimize night lighting at project facilities **MM VR-10a:** Treat structure surfaces

Table ES-3. Summary of Significant but Mitigable Impacts and Mitigation for the Proposed Project

Impact	Mitigation Measure(s)
Impact VR-10: Project operation would create a new source of reflected light and glare	**MM VR-7a:** Minimize night lighting at project facilities **MM VR-10a:** Treat structure surfaces
Water Resources and Hydrology	
Impact WR-1: The project would deplete groundwater supplies or interfere with groundwater recharge	**MM UPS-1a:** Use non-potable water for construction purposes
Impact WR-2: The project would cause erosion and siltation	**MM WR-2a:** Implement an Erosion Control Plan and demonstrate compliance with water quality permits
Impact WR-3: The project would cause flood damage	**MM WR-3a:** Implement flood, erosion, and scour protection for aboveground and belowground improvements
Impact WR-4: The project would degrade water quality, or violate a water quality standard or waste discharge requirement	**MM WR-2a:** Implement an Erosion Control Plan and demonstrate compliance with water quality permits **MM HH-2:** Prepare a hazardous materials and waste management plan
Wildland Fire	
Impact WF-1: Construction or maintenance activities would increase the probability of a wildland fire	**MM WF-1a:** Prepare and implement a Fire Management Plan **MM VEG-1b:** Prepare and implement a Worker Environmental Awareness Program (WEAP)
Impact WF-4: Construction or maintenance activities would result in a vegetation fuel mix that increases ignition potential and rate of fire spread	**MM VEG-2a:** Prepare and implement an Integrated Weed Management Plan
Electrical Interference and Safety	
Impact EIS-1: Project could create interference with radio, television, communications, or electronic equipment	**MM EIS-1a:** Limit the conductor surface gradient **MM EIS-1b:** Document and resolve electronic interference complaints
Impact EIS-2: Project-induced currents or shocks would create hazards to the public	**MM EIS-2a:** Implement grounding measures

Table ES-4. Summary of Significant Unmitigable Impacts for the Connected Actions

Impact	Typical Mitigation Measures
Air Quality	
Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants	Control fugitive dust Control off-road equipment emissions
Biological Resources – Wildlife	
Impact WIL-3: Collision, electrocution, or solar flux hazards to birds, including special-status birds	Set aside a $500,000 fund to implement a variety of bird conservation actions intended to offset bird mortality caused by solar flux
Cultural Resources	
Impact CL-2: Construction, operation and maintenance, and restoration would cause an adverse change to unknown buried prehistoric and historical archaeological sites or buried Native American human remains	Treat previously unidentified cultural resources Properly treat human remains
Noise	
Impact N-1: Construction noise could substantially disturb sensitive receptors or violate local rules, standards, and/or ordinances	Implement best management practices for construction noise
Recreation	
Impact R-2: Presence of project facilities would change the character of a recreation area, diminishing its recreational value	Minimize night lighting at project facilities Treat structure surfaces Control fugitive dust Minimize visual contrast in project design Minimize vegetation removal and ground disturbance Restore or revegetate temporary disturbance areas Screen construction activities from view Prohibit construction marking of natural features
Visual Resources	
Impact VR-8C: Long-term presence of the project would result in landscape changes or new sources of light and glare that degrade existing visual character or quality	Minimize night lighting at project facilities Minimize visual contrast in project design Treat structure surfaces
Water Resources and Hydrology	
Impact WR-1: The project would deplete groundwater supplies or interfere with groundwater recharge	Monitor drawdown and groundwater overdraft conditions Provide alternate sources of water from outside the basin Implement drought water management and water conservation programs

Table ES-5. Summary of Significant but Mitigable Impacts and Mitigation for the Connected Actions

Impact	Typical Mitigation Measure(s)
Agriculture	
Impact AG-1: Project would permanently convert Important Farmland to non-agricultural use	Secure an agricultural easement or implement an agricultural land mitigation program
Impact AG-2: Project would conflict with existing zoning for agricultural use	Establish a Williamson Act agricultural preserve Secure an agricultural easement or implement an agricultural land mitigation program
Air Quality	
Impact AQ-2: Construction would generate emissions of toxic air contaminants	Control fugitive dust Control off-road equipment emissions
Impact AQ-3: Operation, maintenance, and inspections would generate dust and exhaust emissions	Control fugitive dust Control off-road equipment emissions
Biological Resources – Vegetation	
Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats	Conduct biological monitoring and reporting Restrict disturbance to authorized work areas Restore or revegetate temporary disturbance areas Compensate for permanent habitat loss
Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds	Prepare and implement an Integrated Weed Management Plan Control fugitive dust Implement an Erosion Control Plan and demonstrate compliance with water quality permits Implement compensatory mitigation for effects on sand transport
Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality	Conduct biological monitoring and reporting Implement a Habitat Mitigation and Monitoring Plan Minimize impacts and ensure no net loss for jurisdictional waters and wetlands Demonstrate compliance with water quality permits
Impact VEG-4: Construction, operations, and maintenance activities could cause direct or indirect loss of listed and special-status plants and direct or indirect effects to habitat for listed and special-status plants	Minimize and mitigate impacts to special-status plants Minimize project disturbance areas Conduct biological monitoring and reporting Implement a Vegetation Resources Management Plan Compensate for permanent loss of special-status plants Prepare and implement an Integrated Weed Management Plan
Impact VEG-5: Construction, operations, and maintenance activities may conflict with local policies or ordinances protecting biological resources, Habitat Conservation Plans, Natural Communities Conservation Plans, Multiple Species Habitat Conservation Plans, or other approved local, regional, state, or federal conservation plans	Comply with local tree removal or resource protection policies
Biological Resources – Wildlife	
Impact WIL-1: Noise, lighting, vehicle traffic on access roads, and other project-related disturbance during construction, operations, and maintenance would affect wildlife including nesting birds, eggs, or chicks occupying surrounding vegetation and habitat, and could cause territory abandonment, behavioral changes, wildlife injury, or mortality	Conduct pre-construction biological resources surveys Ensure wildlife impact avoidance and minimization Prepare and implement a Nesting Bird Management Plan Conduct biological monitoring and reporting Prepare and implement a Worker Environmental Awareness Program (WEAP) Minimize and mitigate wildlife disturbance and displacement Compensate for permanent habitat loss

Table ES-5. Summary of Significant but Mitigable Impacts and Mitigation for the Connected Actions

Impact	Typical Mitigation Measure(s)
Impact WIL-2: Construction, restoration, operations, and maintenance activities could cause direct or indirect loss of listed and special-status wildlife and direct or indirect effects to habitat for listed and special-status wildlife	Conduct desert tortoise surveys, monitoring, and avoidance Prepare and implement raven monitoring, management, and control plan Conduct surveys and avoidance for threatened or endangered riparian birds Conduct surveys and avoidance for Stephens' kangaroo rat Conduct surveys and avoidance for coastal California gnatcatcher Conduct surveys and avoidance for golden eagle Conduct surveys and avoidance for burrowing owl Conduct surveys and avoidance for special-status herpetofauna Conduct surveys and avoidance for bats Conduct surveys and avoidance for special-status small mammals Conduct surveys and avoidance for American badger, ringtail, and desert kit fox Conduct pre-construction biological resources surveys Ensure wildlife impact avoidance and minimization Prepare and Implement a Nesting Bird Management Plan Conduct biological monitoring and reporting Prepare and implement a Worker Environmental Awareness Program (WEAP) Minimize native vegetation and habitat loss Restore or revegetate temporary disturbance areas Compensate for permanent habitat loss Prepare and implement an Integrated Weed Management Plan
Impact WIL-3: Collision, electrocution, or solar flux hazards to birds, including special-status birds	Evaluate bird collision risk and implement APLIC design guidelines Implement monitoring and adaptive measures to offset bird mortality through habitat restoration off-site and installation of bird collision deflectors on lines
WIL-4: Project activities and facilities could cause adverse effects to habitat linkages or wildlife movement corridors	Implement habitat set-aside and management, including compensation acreage for wildlife movement habitat
Cultural Resources	
Impact CL-1: Construction, operation and maintenance, and restoration would cause an adverse change to known historic properties	Avoid environmentally sensitive areas Develop Cultural Resource Management Plan (CRMP) Train construction personnel Conduct construction monitoring
Geology and Soils	
Impact G-1: Project structures could be damaged by surface fault rupture at crossings of active and potentially active faults	Implement design characteristics that comply with California Building Code standards Implement an Emergency Response Plan
Impact G-3: Erosion could be triggered or accelerated due to construction activities	Control fugitive dust Implement a Surface Water Protection Plan and drainage design specifications
Impact G-5: Project structures could be damaged by problematic soils exposing people or structures to hazards	Assess soil characteristics to aid in appropriate foundation design

Table ES-5. Summary of Significant but Mitigable Impacts and Mitigation for the Connected Actions

Impact	Typical Mitigation Measure(s)
Hazards and Hazardous Materials	
Impact HH-1: Improper handling, storage, or accidental spills or releases of hazardous materials could result in harm to the public, project workers, or the environment	Prepare a hazardous materials and waste management plan
Impact HH-2: Ground disturbance could result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors	Prepare a soil management plan
Impact HH-3: Ground disturbance could result in mobilization of pesticides and herbicides in agricultural soils, creating potential pathways of exposure to humans or other sensitive receptors	Identify pesticide/herbicide contamination
Land Use and BLM Realty	
Impact LU-1: Project would disrupt an established or recently approved land use	Prepare construction notification plan Establish agreement and coordinate construction activities with agricultural landowners Implement best management practices for construction noise Coordinate construction schedule and activities with the authorized officer for the recreation area Coordinate with local agencies to identify alternative recreation areas Prepare Traffic Control Plans Provide access to property Screen construction activities from view Minimize vegetation removal and ground disturbance Prohibit construction marking of natural features Minimize night lighting at project facilities Minimize visual contrast in project design Treat structure surfaces
Mineral Resources	
Impact MR-1: Construction activities would render known mineral resources inaccessible	Coordinate with quarry operations
Paleontological Resources	
Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources	Inventory and evaluate paleontological resources Develop Paleontological Resource Mitigation and Monitoring Plan Train construction personnel Monitor construction for paleontological resources Final reporting and curation
Recreation	
Impact R-1: Construction activities would temporarily reduce access and visitation to recreation areas	Coordinate construction schedule and activities with the authorized officer for the recreation area Coordinate with local agencies to identify alternative recreation areas
Impact R-3: Presence of a transmission line would permanently preclude recreational activities	Provide alternate access to recreation areas blocked by solar projects

Table ES-5. Summary of Significant but Mitigable Impacts and Mitigation for the Connected Actions

Impact	Typical Mitigation Measure(s)
Transportation and Traffic	
Impact T-1: Road or travel lane closures for construction would adversely affect traffic flow and congestion, emergency vehicle response, pedestrians/ bicyclists routes, and access to adjacent residential and business properties	Prepare Construction Transportation Plan Prepare Traffic Control Plans Provide access to property Prepare Construction Notification Plan
Impact T-2: Traffic related to project construction and operation would result in unacceptable levels of service on roadways in the project area	Prepare Construction Transportation Plan
Impact T-3: Construction would conflict with planned transportation projects	Avoid conflicts with planned transportation improvements
Impact T-4: Construction vehicles and equipment would potentially damage roads in the project area	Repair roadways damaged by construction activities
Utilities and Public Services	
Impact UPS-1: Project construction and operation would increase the need for public services and utilities	Prepare and implement a Fire Management Plan Provide fees to offset increased demand on fire protection services
Impact UPS-2: Construction would disrupt existing pipelines and utility systems or cause a collocation accident	Protect pipelines and overhead and underground utilities
Visual Resources	
Impact VR-1C: Construction would result in adverse visual effects due to the presence of equipment, vehicles, materials, and workforce, or use of night lighting	Screen construction activities from view Minimize night lighting at project facilities
Water Resources and Hydrology	
Impact WR-2: The project would cause erosion and siltation	Implement an Erosion Control Plan and demonstrate compliance with water quality permits
Impact WR-3: The project would cause flood damage	Implement flood, erosion, and scour protection for aboveground and belowground improvements
Impact WR-4: The project would degrade water quality, or violate a water quality standard or waste discharge requirement	Implement an Erosion Control Plan and demonstrate compliance with water quality permits Prepare a hazardous materials and waste management plan
Wildland Fire	
Impact WF-1: Construction or maintenance activities would increase the probability of a wildland fire	Prepare and implement a Fire Management Plan
Impact WF-4: Construction or maintenance activities would result in a vegetation fuel mix that increases ignition potential and rate of fire spread	Prepare and implement an Integrated Weed Management Plan
Electrical Interference and Safety	
Impact EIS-1: Project could create interference with radio, television, communications, or electronic equipment	Limit the conductor surface gradient Document and resolve electronic interference complaints
Impact EIS-2: Project-induced currents or shocks would create hazards to the public	Implement grounding measures

A. Introduction

On October 25, 2013, Southern California Edison (SCE or "the Applicant") submitted Application A.13-10-020 seeking a Certificate of Public Convenience and Necessity (CPCN) for the West of Devers (WOD) Upgrade Project (Proposed Project) from the California Public Utilities Commission (CPUC). Because the proposed transmission line would cross approximately 3.5 miles of federal land managed by the Bureau of Land Management (BLM), the project would also require a Right-of-Way (ROW) Grant from the BLM for the portion of the project across BLM-administered land. SCE submitted a ROW Application to the BLM in March 2013. Since a portion of the Proposed Project would cross Trust Land on the Morongo Indian Reservation, the project would require a ROW grant from the Bureau of Indian Affairs (BIA).

This Final Environmental Impact Statement (EIS) has been prepared by the U.S. Department of the Interior, BLM under the National Environmental Policy Act (NEPA) to inform the public and to meet the needs of local, State, and federal permitting agencies to consider the Proposed Project as described by SCE and project alternatives. Under NEPA, BIA will be a Cooperating Agency. The CPUC published a separate Final Environmental Impact Report (EIR) for compliance with the California Environmental Quality Act (CEQA) on December 11, 2015. The application includes a Proponent's Environmental Assessment (PEA) that contains SCE's own analysis. The Proposed Project is described in detail in Section B of this EIS. This EIS does not make a recommendation regarding the approval or denial of the project; it is purely informational and will be used by the BLM in considering whether to approve the Proposed Project or an alternative analyzed in this EIS.

This EIS evaluates and presents the environmental impacts that are expected to result from construction and operation of SCE's proposed WOD Upgrade Project, and presents recommended mitigation measures that, if adopted, would avoid or minimize many of the significant environmental impacts identified. In accordance with NEPA requirements, this EIS also identifies alternatives to the Proposed Project (including the No Action Alternative) that could avoid or minimize significant environmental impacts associated with the project as proposed by SCE, and evaluates the environmental impacts associated with these alternatives. Based on this environmental impact assessment, as well as the relative sensitivities of impacts in the study region, this EIS identifies the Environmentally Preferred Alternative, as required by NEPA.

The contents of the Draft EIR/EIS, which was published by the CPUC and BLM on August 7, 2015, reflects input by government officials, agencies, nongovernmental organizations, and members of the public during the EIR/EIS scoping period following the CPUC's publication of the Notice of Preparation (NOP) of an EIR/EIS (May 12, 2014) and the BLM's publication of the Notice of Intent (NOI) (July 1, 2014). During these comment periods, several public involvement activities were completed: distribution of the NOP, NOI, and a scoping meeting notice, establishment of an Internet web page and a telephone hotline, 5 public scoping meetings (May and July 2014), meetings with a number of affected local jurisdictions, and publication of a CPUC scoping report and a BLM scoping report (see details in Section I, Public Participation and Consultation). Consultation with agencies also continued after the formal scoping period ended. Following publication of the Draft EIR/EIS, a public comment period was held from August 7 to September 22, 2015. This Final EIS presents comments that were submitted on the Draft EIR/EIS, along with responses to all comments.

The remainder of this section is organized as follows: Section A.1 summarizes the history and provides an overview of the Proposed Project; Section A.2 outlines the purpose and need for the Proposed Project as defined by SCE; Section A.3 identifies Connected Actions and related projects; Section A.4 describes agency use of the EIS, and includes a brief description of the CPUC, BLM, BIA, and other agencies' processes for consideration of project approval, and Section A.5 presents a Reader's Guide to this EIS, explaining how it is organized.

A.1 History and Overview of Proposed Project

A.1.1 Overview

The Proposed Project would upgrade SCE's existing WOD system in a number of ways. The upgrades to the existing 220 kilovolt (kV) transmission lines would be the most visible components of the project. These upgrades would occur on approximately 30 miles of the Devers–El Casco 220 kV transmission line, 14 miles of the El Casco–San Bernardino line, 43 miles of the Devers–San Bernardino line, 45 miles of the Devers-Vista No. 1 and No. 2 lines, 3.5 miles of the Etiwanda–San Bernardino line, and 3.5 miles of the San Bernardino–Vista line. The Proposed Project would replace or upgrade the existing 220 kV transmission lines and structures between Devers, El Casco, San Bernardino, and Vista Substations to increase the system transfer capacity from 1,600 megawatts (MW) to 4,800 MW.

A.1.2 Project History: DPV2 and 2005 West of Devers Proposal

The history of the Proposed Project begins with a previous proposal by SCE to upgrade the lines in the WOD system. On April 11, 2005, SCE submitted an application (A.05-04-015) for a CPCN for a 500 kV interstate transmission line project, the Devers–Palo Verde No. 2 (DPV2) Project. The DPV2 project included three major components:

- A 500 kV line from the Palo Verde area in Arizona to a new substation near Blythe, California;
- A 500 kV line from the Blythe area substation to the Devers Substation; and
- Upgrades to SCE's lower voltage transmission system west of the Devers Substation.

The CPUC approved the DPV2 Project in January 2007 in Decision D.07-01-040. The approved DPV2 Project included the SCE proposal except for the West of Devers segment, which was replaced by the Devers to Valley 500 kV No. 2 Transmission Line Alternative (as explained in Section A.1.3).

On May 14, 2008, SCE filed a Petition for Modification (PFM) of the CPCN approved per Decision D.07-01-040. In the PFM, SCE requested that the CPUC authorize SCE to construct DPV2 facilities in only the California portion of DPV2 and the Midpoint Substation (later re-named as the Colorado River Substation) near Blythe, California. The CPUC approved SCE's PFM on November 20, 2009 in Decision D.09-11-007. The BLM issued its Record of Decision approving the project on July 19, 2011. Construction of the DPV2 Project began in June 2011 and its 500 kV transmission lines were energized in September 2013.

A.1.3 Morongo Tribal Land History and Background

As discussed in Section A.1.2, the West of Devers components, as proposed by SCE in 2005 as part of the DPV2 Project, could not be approved by the CPUC and BLM because by the time of agency decisions (January 2007), the Morongo Band of Mission Indians had not reached an agreement with SCE on terms of the ROW renewal for the transmission corridor that crossed tribal land. Therefore, the Devers Substation to Valley Substation (Devers-Valley No. 2 500 kV) alternative route was approved instead. Although the West of Devers upgrades reviewed in 2006 were legally infeasible to build at the time, the 2006 Final EIR/EIS for DPV2 found the West of Devers proposal to be environmentally superior to the Devers-Valley No. 2 500 kV alternative that was built and is now in use.

On November 27, 2012, SCE and the Morongo entered into an agreement, called "Agreement Related to Grant Easements and Rights-of-Way for Electric Transmission Lines and Appurtenant Fiber-Optic Telecommunications Lines and Access Roads On and Across Lands of the Morongo Indian Reservation" (ROW agreement). In this ROW agreement, the Morongo consented to the grants to SCE. The BIA approved the grants of certain easements and rights of way on and across the lands of the Morongo Indian reservation. Pursuant to the Agreement, the rights of way and easements necessary for SCE to continue operating its existing 220 kV facilities on the Morongo reservation and to replace and upgrade those facilities with the WOD Project for 50 years. This 2012 ROW agreement between SCE and the Morongo Tribe would permit SCE to construct the portion of the Proposed Project that crosses the tribal land. However, the replacement and upgrade project is subject to BIA approval.

The Proposed Project would cross approximately 8 miles of the reservation Trust Lands of the Morongo. Based on the SCE-Morongo ROW agreement, approximately 3 miles of existing WOD ROW would be abandoned and replaced with a new 3-mile alignment. SCE would apply to the BIA for the grant of ROW across the new 3-mile alignment and Morongo would consent to SCE's application[1] for a new 50-year ROW Agreement, as is also discussed in Section A.3.3.

As part of the ROW agreement, on November 27, 2012, SCE also entered into a Development and Coordination Agreement (DCA) with Morongo Transmission LLC[2] that provides Morongo Transmission the option to invest up to $400 million at the time of commercial operation in exchange for 30-year lease rights to a pro rata portion of the proposed facilities. SCE has stated that this investment option was a key factor in the negotiation of a new ROW agreement that allows the Proposed Project be built across the Morongo tribal-trust lands. However, Morongo Transmission's transmission transfer capability rights lease is contingent upon receipt of regulatory approvals from the Federal Energy Regulatory Commission (FERC)[3] and the CPUC. Under the terms of the ROW agreement, if such FERC and CPUC regulatory approvals are not obtained, the Morongo Tribe would have the right to terminate the ROW agreement. SCE stated in its response to Data Request 7 (SCE, 2014: Response to ALT-6):

> *Pursuont to the terms of the ROW Agreement, the Morongo hove the right to terminate the ROW Agreement if either the Proposed Tronsoction between SCE and Morongo Transmission is not opproved, or if SCE is unoble to obtoin o CPCN for the WOD Upgrode Project. As such, if the WOD Upgrode Project is not opproved ond the Morongo terminate the ROW Agreement, SCE would not have the necessary property rights to continue operoting the existing WOD tronsmission facilities and other SCE focilities thot troverse the Reservation.*

The Morongo Tribe lease for SCE's existing 150-foot-wide Devers-Vista No. 1 ROW expired in 2010 and the lease for the 300-foot ROW expires in 2019. As a result, if the WOD Upgrade Project is not approved SCE would not have the necessary property rights to continue operating the existing Devers-Vista No. 1 transmission facilities on tribal land, since that agreement has already expired. SCE's rights to operate the 300-foot ROW would expire in 2019, and because SCE does not have the power of eminent domain over the Morongo trust lands, the Morongo would be able to terminate that ROW Agreement at that time. If

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1 Pursuant to 2S U.S.C. § 81.

2 Morongo Transmission LLC is a venture between the Morongo Band of Mission Indians and Coachella Partners LLC, a Delaware limited liability company formed for the purposes of the Proposed Transaction, for which the Morongo Tribe owns the majority of interest.

3 On May 31, 2013, SCE and Morongo Transmission filed a joint application at FERC pursuant to Section 203 of the Federal Power Act requesting authorization to lease transfer capability in a portion of the WOD-UP by SCE to Morongo Transmission. On September 3, 2013, FERC issued Order Authorizing Disposition of Jurisdictional Facilities, 144 FERC 61,178 (2013) granting SCE's and Morongo Transmission's joint 203 Application, as being consistent with the public interest.

this occurs, SCE would be required to remove the existing WOD transmission lines that traverse the reservation and relocate such facilities to a location outside of the reservation.

Therefore, as part of its Application A.13-10-20, SCE requested an Interim Decision from the CPUC for authority to lease transfer capability rights in a portion of the Proposed Project's upgraded and reconfigured transmission lines to Morongo Transmission. SCE stated that approving an Interim Decision early in the process was important because the ROW agreement is contingent on the CPUC approval of the proposed transaction. Without a ROW agreement, SCE would have to restart and develop a new project that bypasses the Morongo tribal-trust lands. However, in a Prehearing Conference on March 4, 2015, SCE stated that it was no longer requesting an Interim Decision. The terms of the proposed transaction set forth in the DCA and the ROW agreement are included in Appendix J of SCE's Application A.13-10-020 (dated October 25, 2013) and Appendix 3 in this EIR/EIS.

A.2 Purpose and Need for the Proposed Project

SCE identified a number of objectives and submitted statements of the project purpose and need as part of its application to the CPUC for the Proposed Project (A.13-10-020). Section A.2.1 presents SCE's project objectives and its purpose and need for the Proposed Project. Section A.2.2 presents the BLM purpose and need and Section A.2.3 describes the project objectives developed by the CPUC and BLM, after considering SCE's information and data obtained by the EIR/EIS team.

A.2.1 Purposes of the Proposed Project

A.2.1.1 SCE's Project Purpose and Need

The application for the Proposed Project includes SCE's full statements of Purpose and Need in PEA Sections 1.1 and 1.2. SCE presents 10 concepts to supporting the purpose and 6 concepts to demonstrate the need for the Proposed Project. For informational purposes, these are presented in Table A-1, with the purpose and need concepts aligned in the same row, where appropriate.

Table A-1. SCE's Purpose and Need

SCE's 10 Project Purpose Concepts	SCE's 6 Project Need Concepts
▪ Integrate planned generation resources ▪ Facilitate progress toward achieving renewables portfolio standard goals by providing transmission upgrades to deliver renewable generation in the Blythe and Desert Center areas ▪ Support integration of small scale generation ▪ Support California's greenhouse gas reduction program ▪ Support federal renewable energy goals ▪ Support goals of the California Energy Commission Integrated Energy Policy Report ▪ Support Desert Renewable Energy Conservation Plan	▪ The Proposed Project is needed to facilitate integration of renewable generation resource being developed in the Coachella Valley area ▪ The Proposed Project is needed to integrate and interconnect generation resources within the Blythe and Desert Center areas ▪ The Proposed Project facilitates progress toward California's RPS goals
▪ Comply with Large Generator Interconnection Agreements	▪ The Proposed Project is needed to comply with executed Large Generator Interconnection Agreements (LGIAs)
▪ Support integration of generation with Power Purchase Agreements	▪ The Proposed Project is needed to support integration of generation with executed Power Purchase Agreements (PPAs)
▪ Comply with reliability standards	▪ The Proposed Project is needed to comply with reliability standards

Source: SCE, 2013: PEA Sections 1.1 and 1.2.

A.2.1.2 SCE's Project Objectives

In SCE's Application (and in PEA Section 1.3), SCE identified 6 basic objectives for the Proposed Project:

1. Allow SCE to meet its obligation to integrate and fully deliver the output of new generation projects located in the Blythe and Desert Center areas that have requested to interconnect to the electrical transmission grid.
2. Consistent with prudent transmission planning, maximize the use of existing transmission line rights-of-way to the extent practicable.
3. Meet project need while minimizing environmental impacts.
4. Facilitate progress toward achieving California's RPS goals in a timely and cost-effective manner by SCE and other California utilities.
5. Comply with applicable Reliability Standards and Regional Business Practice developed by NERC, WECC, and the CAISO; and design and construct the project in conformance with SCE's approved engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects.
6. Construct facilities in a timely and cost-effective manner by minimizing service interruptions to the extent practicable.

A.2.1.3 Review of SCE's Purpose and Need

The existing WOD transmission system includes four primary 220 kV circuits with uneven line ratings and mismatching single- and double-circuit structures. SCE evaluated whether the existing electrical infrastructure can be modified to meet the project objectives. During preliminary planning for the currently Proposed Project, SCE determined that modifying the existing substation facilities (as was proposed in 2005) would not adequately resolve the constraints associated with the existing WOD transmission lines (SCE PEA Section 2.1 and 2.1.2). As a result, SCE proposes to remove a majority of the existing 220 kV structures and replace them with larger capacity 220 kV structures.

The Proposed Project would substantially increase the capacity of the corridor. The existing 220 kV transmission lines and structures between Devers, El Casco, San Bernardino, and Vista Substations, as operated in conjunction with the separately installed 2013 SCE West of Devers Interim Project, have a system transfer capacity of 1,600 MW. The capacity would increase to 4,800 MW with the Proposed Project; however, higher flows could normally be carried. Setting the proposed system transfer capacity at 4,800 MW includes a scheme to remove from service up to 1,400 MW of generation during certain emergency conditions (for example, if two of the four lines are temporarily out of service; SCE Response to CPUC Data Request ALT-11). The actual power flows that could be carried by each of the four proposed 220 kV circuits under normal operating conditions would range up to 1,292 MW (SCE Response to CPUC Data Request ALT-11). This results in a total project capacity for the corridor with all lines in service under normal conditions of 5,168 MW combined.

Increasing the system transfer capacity in the corridor is SCE's proposed solution to achieving its Project Objectives, and to integrate the growth in generation. Most of the renewable power projects that are new and proposed or planned to be located in the Blythe and Desert Center areas east of the Devers Substation request "full capacity deliverability status"[4] transmission service from SCE and the CAISO.

[4] The California ISO Tariff defines a generation project's **deliverability** as one of two discrete states: "Full Capacity Deliverability Status" or "Energy-Only Deliverability Status." Full Capacity Deliverability is defined as "The condition whereby a Large Generating Facility interconnected with the CAISO Controlled Grid ... can deliver the Large Generating Facility's full output to the aggregate of Load on the CAISO Controlled Grid, consistent with the CAISO's Reliability Criteria and procedures and the CAISO On-Peak Deliverability Assessment."

To determine what transmission facilities are appropriate in light of these generator interconnection requests, the CAISO periodically conducts generator interconnection studies. The CAISO groups the generators into clusters to simplify the interconnection studies. Studies completed by CAISO in 2010 concluded with a plan, designated as a "Delivery Network Upgrade," to achieve a rating under normal conditions of 3,000 Amperes per circuit for each of the four circuits in the WOD corridor (CAISO, 2010).[5] The designation as a Delivery Network Upgrade makes the Proposed Project distinct from a "Reliability Network Upgrade," which is a transmission improvement necessary for safe and reliable operation of the grid.[6] At 3,000 Amperes per circuit, as identified by CAISO, the WOD corridor could carry power flows in excess of 1,200 MW per circuit, which achieves the anticipated rating of 4,800 MW total.

The existing electrical ratings of the individual circuits and power flow capacity that could be achieved by the Proposed Project are summarized in Table A-2.

Table A-2. Capacity of Individual 220 kV Circuits, Existing and Proposed

Circuit	Existing Line Rating (Amperes)	Proposed Project Normal Line Rating[1] (Amperes)	Proposed Project Emergency Rating[2] (Amperes)	Proposed Project Normal Capacity[1] (MW)	Proposed Project Emergency Capacity[2] (MW)
Devers–Vista No. 1	1,150	3,230	4,360	1,292	1,744
Devers–Vista No. 2	1,240	3,230	4,360	1,292	1,744
Devers–San Bernardino	796	3,230	4,360	1,292	1,744
Devers–El Casco & El Casco–San Bernardino	1,150	3,230	4,360	1,292	1,744
WOD Corridor: Four Circuits Total	**4,336**	**12,920**	**17,440**	**5,168**	**6,976**

1 - Under normal conditions and SCE standard conditions, with all lines in service. Using proposed 2B-1590: Each phase would consist of double-bundled (bundle of two conductors for each phase) 1,590 kcmil (one thousand circular mils) aluminum conductor steel reinforced (ACSR) conductor. (SCE Response to Data Request ALT-12 and ALT-19.)
2 - Under SCE emergency conditions. (SCE Response to Data Request ALT-19.)

The application indicates that the Proposed Project would allow SCE to comply with previously executed interconnection agreements and enable "full capacity deliverability status" for generators in the CAISO generation queue. However, some of the renewable power projects that request interconnection and enter the queue may not come to fruition.

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5 The CAISO Tariff Appendix A defines **Delivery Network Upgrade** as: "Transmission facilities at or beyond the Point of Interconnection, other than Reliability Network Upgrades, identified in the Interconnection Studies to relieve Constraints on the California ISO Controlled Grid."

6 The CAISO Tariff Appendix A defines **Reliability Network Upgrade** as: "The transmission facilities at or beyond the Point of Interconnection identified in the Interconnection Studies as necessary to interconnect one or more Generating Facility(ies) safely and reliably to the CAISO Controlled Grid, which would not have been necessary but for the interconnection of one or more Generating Facility(ies), including Network Upgrades necessary to remedy short circuit or stability problems, or thermal overloads. Reliability Network Upgrades shall only be deemed necessary for system operating limits, occurring under any system condition, which system operating limits cannot be adequately mitigated through Congestion Management, Operating Procedures, or Special Protection Systems based on the characteristics of the Generating Facilities included in the Interconnection Studies, limitations on market models, systems, or information, or other factors specifically identified in the Interconnection Studies. Reliability Network Upgrades also include, consistent with WECC practice, the facilities necessary to mitigate any adverse impact the Generating Facility's interconnection may have on a path's WECC rating."

The Proposed Project would give the WOD corridor a large margin of capacity to handle power flow during all conditions and for future growth, including generation projects not yet in the CAISO queue. Independent power flow modeling was conducted by the EIR/EIS team to assess the loading in each of the corridor's circuits, during normal operations and during times when one or more circuits are out of service. The modeled outages are called contingencies, and the results of the modeling indicate the amount of loading during the worst single contingency. During the worst-case scenario of all foreseeable generation projects (the CAISO's Cluster 7, Phase I, 2019 base case) and the worst single contingency, the Proposed Project would be loaded to about 63 percent of its capability, leaving a margin of 37 percent. This information is used in the development of alternatives to the Proposed Project (see Section C, Alternatives and Appendix 5, Alternatives Screening Report).

A.2.1.4 Interconnecting Planned Generation Resources

The key objective of the Proposed Project is to increase the power transfer capability of the WOD transmission facilities to interconnect and fully deliver the electrical power from planned generation resources, primarily in eastern Riverside County. Growth in the number and size of power plants in the desert region contributes to the project need. Power generated in eastern Riverside County, as well as power imported to California from out-of-state and to SCE from Imperial County, flows into the Devers Substation and downstream to customers in the utility load centers in the Los Angeles basin. The Proposed Project would increase the system transfer capacity by approximately 3,200 MW, from current capacity of approximately 1,600 MW to the proposed 4,800 MW (SCE PEA Section 1.1.10 and 3.0).

The generation resources that have recently come online or that have interconnection agreements predating the Proposed Project include one 550 MW solar project (Desert Sunlight) and nearly 2,000 MW from natural gas fired power plants in the vicinity of the Devers Substation and in eastern Riverside County. These generation projects had or have development timelines that predate the approval of the DPV2 Project by CPUC in January 2007, and these also predate the Proposed Project. These generation resources that predate the Proposed Project amount to an output generating capacity of more than 2,500 MW.

As defined in Section A.2.1.4.1 below, SCE and the CAISO have identified a number of individual generation projects that are dependent on the additional transfer capacity that the Proposed Project would provide. These projects have been categorized into analysis categories for this EIR/EIS based on CEQA and NEPA criteria. The description of how each project is considered in this EIR/EIS is presented in Section A.3 below.

A.2.1.4.1 Individual Generation Projects

In 2010, the Proposed Project was identified by CAISO as a required Delivery Network Upgrade to accommodate and deliver 2,200 MW from five renewable energy generation projects. The five generation projects were at that time proposed to be in SCE's eastern desert area from the Devers Substation to the Colorado River Substation. The scope of the Delivery Network Upgrade in the WOD corridor was for each of the four primary 220 kV circuits to be rated in normal conditions at 3,000 Amperes (CAISO, 2010), which is a rating that could carry power flows of 1,200 MW per circuit for 4,800 MW total.

The five solar power plant projects in the 2010 CAISO study were known as the Transition Cluster for transmission planning this region. Since 2010, one has withdrawn its request and others have reduced their anticipated output. The result is that the 2,200 MW of planned generation from the Transition Cluster in 2010 has fallen to a combined total of 1,535 MW (CAISO, 2014). Table A-3 identifies these Transition Cluster projects and the status of each.

Table A-3. Planned Generation in SCE Transition Cluster (2010)

CAISO Queue Position	Location	Project Type	2010 Proposed Size (MW)	2014 Planned or Online Size (MW)
193	NextEra Desert Center Blythe, LLC (Genesis McCoy)	solar thermal and solar PV	500	500
294	NextEra Blythe Solar Energy Center, LLC	solar PV	1,000	485
365	Palen SEGS II, LLC (Palen) subsidiary of BrightSource Energy	solar thermal	500	500
421	Blythe–Eagle Mountain 161 kV line	solar PV	50	50
431	Colorado River 220 kV	solar thermal	150	Withdrawn
	Total Transition Cluster Generation		**2,200**	**1,535**

Source: CAISO, 2010; CAISO, 2015.

At the time of SCE filing the October 2013 Application for the Proposed Project, SCE identified new and recent power plant projects having a total generating capacity of 2,479.5 MW as having either an executed Large Generator Interconnection Agreement (LGIA) or an agreement under negotiation (SCE, 2013: PEA Section 1.1.2). Additionally, 400 MW of generation has applied for an interconnection agreement since October 2013, and an incremental 850 MW of power import capability could be achieved through ongoing upgrades of the transmission path from IID into Devers, known as the Path 42 Upgrades (SCE, 2014: SCE Response to Data Request ALT-17(d)). SCE also notes that the CAISO assumed that the incremental capacity provided by the Proposed Project would be available to accommodate additional power flow into California over the planned Delaney-Colorado River 500 kV line approved by CAISO in 2014 (SCE, 2014: SCE Response to Data Request ALT-10).

These various generation and transmission projects each contribute to the growth in power flows into the Devers Substation that SCE hopes to accommodate by increasing the capacity of the corridor by 3,200 MW with the Proposed Project. Tables A-4 through A-6 itemize these projects, separated by their progress through stages of development.

A.2.2 BLM's Purpose and Need

In accordance with the Federal Land Policy and Management Act (FLPMA) (Section 103(c), 43 United States Code [U.S.C.] §1702(c)), public lands are to be managed for multiple uses that take into account the needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant ROWs on public lands for systems for generation, transmission, and distribution of electric energy (Section 501(a)(4), 43 U.S.C. §1761(a)(4)). Taking into account BLM's multiple use mandate, the purpose and need for the action is BLM to respond to FLPMA ROW application submitted by SCE to construct, operate and maintain the proposed West of Devers Upgrade Project over public lands administered by BLM in compliance with FLPMA, BLM ROW regulations, and other applicable Federal laws and policies.

SCE has requested to upgrade existing transmission facilities crossing BLM-managed public lands totaling about 35 acres. Based on this EIS and other information submitted by SCE, the BLM will decide whether to approve, approve with modifications, or deny issuance of a ROW grant to the Applicant for the project. The BLM may include any terms, conditions, and stipulations it determines to be in the public interest, and may include modifying the proposed use or changing the route or location of the proposed facilities (43 CFR 2805.10(a)(1)).

Federal Renewable Energy Mandates and Policies

BLM is committed to supporting the development necessary and appropriate to meet State and federal renewable energy goals, as guided by the following management objectives:

1. **Executive Order 13212**, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner."
2. **Department of the Interior Secretarial Order 3285AI**, dated March 11, 2009 and amended on February 22, 2010, which "establishes the development of renewable energy as a priority for the Department of the Interior."
3. **BLM Instruction Memorandum (IM) 2011-061**, dated February 7, 2011, which prioritizes the development of solar facilities on, inter alia, "[l]ands specifically identified for solar or wind energy development in BLM land use plans; [p]reviously disturbed sites or areas adjacent to previously disturbed or developed sites; [l]ocations that minimize construction of new roads and/or transmission lines; [and l]ands adjacent to designated transmission corridors ..."
4. **President Obama's Climate Action Plan**, dated June 2013, directed the Interior Department to approve at least 20,000 megawatts of renewable energy capacity on the public lands by 2020. In 2012 the President set a goal to issue permits for 10,000 megawatts of renewables on public lands by the end of the year. The Department of the Interior achieved this goal ahead of schedule and the President has directed it to permit an additional 10,000 megawatts, for a total of 20,000 megawatts from public lands, by 2020.
5. **Desert Renewable Energy Conservation Plan (DRECP).** The Final DRECP Land Use Plan Amendment (LUPA) and EIS was released on November 10, 2015, with the Record of Decision anticipated to be released in late spring, 2016. The preferred alternative defined in the LUPA and Final EIS designates 148,000 acres of Development Focus Areas (DFAs) in Eastern Riverside County with high-quality solar and wind energy resources. It also defines 109,000 acres of DFAs in Imperial County and that allow for development of high quality solar, wind and geothermal energy resources. These DFAs have access to transmission and allow for impacts to be managed and mitigated. Applications would benefit from a streamlined permitting process with predictable survey requirements and simplified mitigation measures, and Interior is considering additional financial incentives through an ongoing rulemaking process. Final approval of the DRECP is anticipated to increase development interest in these DFAs that would increase transmission capacity needs west of the Devers Substation.

BLM Energy Projects Related to the West of Devers Upgrade Project

The need for the WOD Upgrade Project is driven by a number of renewable energy and transmission projects that are in operation, under construction, or under consideration by BLM and other agencies. These projects are presented in Table A-4. This table focuses only on projects in BLM review, and it identifies the positions, where known, of each project in the transmission interconnection queue maintained by the California Independent System Operator (CAISO). The first project listed in the table (Desert Sunlight) became operational in 2013 and 2014, and therefore does not rely on the proposed WOD Upgrade Project. To deliver renewable energy to California customers in a manner consistent with State and federal goals, and based on the study by CAISO in 2010 of generation projects in the "Transition Cluster" studies in 2010, the CAISO recommended upgrading the WOD corridor in a manner consistent with the proposed WOD Upgrade Project. Table A-4 shows that BLM has either recently completed or recently begun the review process for 4,696 MW of new solar power that would be likely to benefit from the proposed WOD Upgrade Project.

In addition to renewable energy generation projects, Table A-4 lists two major transmission projects (one completed and one in planning) that could increase the use of the WOD corridor by importing additional power into the SCE territory from Arizona and the Imperial Valley:

- **Ten West Link Transmission Project** (Delaney-Colorado River 500 kV): This proposed transmission line would add a second 500 kV circuit between the Colorado River Substation (just west of Blythe) and the western Phoenix area. It would increase the existing system's capability to transmit both renewable and conventional (gas-fired) energy between Arizona and eastern Riverside County in California. Upon approving this project in 2014, the CAISO determined that it could provide an incremental import capacity benefit of 200 to 300 MW from Arizona. The CAISO expects California to accrue the associated economic benefits after the Ten West Link is in service, but these benefits depend on the proposed WOD Upgrade Project also being in service.
- **Path 42 Upgrades** (Imperial Irrigation District and Southern California Edison; Imperial County to Riverside County): This project is nearly constructed and is expected to be fully online in June, 2016; it adds approximately 900 MW of transfer capacity from the Imperial Valley to the SCE system, increasing the system's ability to export renewable generation from the Imperial Valley.

Table A-4. Renewable Energy Projects Related to WOD Upgrade

Project Name (Owner or Applicant)	Project MW	Status	Location; Description
Solar Power Project Previously Approved			
Desert Sunlight Solar Project (NextEra)	550	▪ Operational prior to WOD Upgrade application	▪ BLM ROW granted in 2011 (CACA 48649) ▪ 9 miles northwest of Red Bluff Substation ▪ CAISO Queue 146 and 147, predating the proposed WOD Upgrade
Solar Power Projects Recently Approved or in Process			
Genesis Solar (NextEra)	250	▪ Operational	▪ BLM ROW granted in 2010 (CACA 48880) ▪ 11 miles northwest of Colorado River Substation (Ford Dry Lake) ▪ CAISO Queue 193 (with McCoy) and Transition Cluster
Blythe Solar (NextEra)	485	▪ Under construction	▪ BLM ROW granted in 2014 (CACA 48811) ▪ 5 miles northeast of Colorado River Substation ▪ CAISO Queue 294 and Transition Cluster
McCoy Solar (NextEra)	250 (#1) 500 (#2)	▪ Under construction	▪ BLM issued 2 grants of ROW in 2014 and 2015 for up to 750 MW (CACA 48728) ▪ 6 miles northeast of Colorado River Substation ▪ CAISO Queue 193 (for #1) and Transition Cluster
Maverick Solar (EDF) (previously Palen SEGS)	500	▪ POD review	▪ Plan of Development under review in 2015 (CACA 48810) ▪ CAISO Queue 365 and Transition Cluster
Desert Harvest Solar (EDF)	150	▪ ROD & ROW issued ▪ No construction yet	▪ BLM ROW grant 2013 (CACA 49491) ▪ 7 miles northwest of Red Bluff Substation (Desert Center) ▪ CAISO Queue 643AE
Desert Quartzite Solar (First Solar)	300	▪ EIS in progress	▪ Plan of Development under review in 2015 (CACA 49397) ▪ 5 miles east of Colorado River Substation ▪ CAISO Queue status unknown

Table A-4. Renewable Energy Projects Related to WOD Upgrade

Project Name (Owner or Applicant)	Project MW	Status	Location; Description
Blythe Mesa Solar (RRG)	485	▪ ROD issued for gen-tie ▪ No ROW grant yet	▪ BLM decision in 2015 (CACA 053213) ▪ 4 miles east of Colorado River Substation ▪ On private land with BLM transmission component to the Colorado River Substation ▪ CAISO Queue status unknown
Crimson Solar (Recurrent)	450	▪ POD review	▪ Plan of Development under review in 2015 ▪ Adjacent to (south of) Colorado River Substation ▪ CAISO Queue status unknown
Solar Blythe II at Blythe Airport (NRG Energy)	20	▪ Approved by Riverside County	▪ Originally approved as a 100 MW project in 2010. ▪ Amended expired lease for 20 MW, which was approved in June 2015.
First Solar Electric Blythe 1	21	▪ Operational	▪ Operational
Palo Verde Mesa	485	▪ Under environmental review	▪ NOP issued in August 9, 2012. ▪ Adjacent to Blythe Mesa to the north
Solar Reserve (Mule Mountain III)	250	▪ Pre-NOI	▪ BLM First In-line Solar Application (CACA 50390)
	4,696	**Total MW**	
Pumped Storage			
Eagle Mountain Pumped Storage Facility	1,300	▪ FERC License issued June 2014 ▪ Final EIR released July 2013. SWRCB approved project in July 2013	▪ Pumped storage hydroelectric project with project reservoirs formed by filling existing mining pits at the old Kaiser Mine near Desert Center.
Transmission Projects	**Voltage**	**Status**	**Location; Description**
Ten West Link (Abengoa)	500 kV	▪ DEIS in progress (BLM Arizona)	▪ Transmission line between the Delaney Wash in the Palo Verde Hub of Arizona and SCE's Colorado River Substation
Path 42 Upgrades (IID/SCE)	230 kV	▪ Operational	▪ Transmission upgrades between the IID Coachella Valley area and SCE's Devers Substation via the Mirage Substation

Generation Projects Currently in CAISO Queue

The need for the proposed WOD Upgrade Project is reflected in a review of the generation queue maintained by the California Independent System Operator (CAISO). Generators that are seeking to connect to SCE's system apply for positions in the CAISO generation queue. The CAISO queue lists the capacity of each proposed project by generator type, including conventional (natural gas-fired) generation and storage project capacity (also included in the conventional category). Because the contents of the queue are updated monthly, it provides an up-to-date indication of developer interest, but it has also been documented that a significant percentage of renewable power projects that have been in the queue have not come to fruition. As a result, the queue defines the upper limit on likely projects.

SCE's initial application for the WOD Upgrade Project was based on the projects listed in Table A-5, which, at that time, indicated a need for an additional 2,200 MW of deliverability.

Table A-5. 2010 Projects in CAISO Queue and Transition Cluster Studies

CAISO Queue #	2010 Planned Technology	Point of Interconnection	Project MW	Comments and PPA Status
193	Solar PV & Solar Thermal	Colorado River 220 kV	500	LGIA – Executed; Already in-service PPA Status: Executed
294	Solar PV	Colorado River 220 kV	1,000	Project size was reduced to 485 MW; LGIA – Executed; In-service date: 2016 to 2020 PPA Status: Executed for 360 MW
365	Solar Thermal	Red Bluff 220kV	500	LGIA – Executed; In-service date: 2020 to 2021 PPA Status: Unknown
421	Solar PV	Blythe-Eagle Mountain 161 kV	49.5	LGIA - Under Negotiation; Proposed In-service date: 12/2020 PPA Status: Unknown
431	Solar Thermal	Colorado River 220kV	150	Project withdrawn
			2,200	**Total MW in 2010**

Source: Comments and PPA Status provided by SCE.
CAISO Report Date: 02/26/2016; available at: http://www.caiso.com/planning/Pages/GeneratorInterconnection/Default.aspx.
LGIA: Large Generator Interconnection Agreement. PPA: Power Purchase Agreement.

Since SCE's initial application for the WOD Upgrade Project, the number of generators seeking to interconnect to SCE's system has grown. As of February 2016, Riverside County has more generators in the queue than any other California county. In addition to the projects shown in Table A-5, newer positions in the queue are presently held for generators planned in eastern Riverside County, representing an additional 3,147 MW.

Table A-6 shows 11 projects totaling 3,147 MW that entered the CAISO queue during or after 2010. These projects include those up to and including Cluster 8, and the generators include those requesting Full Capacity Deliverability Status (FCDS), which are likely to rely on the proposed WOD Upgrade Project.

Table A-6. 2016 Projects that Entered the CAISO Queue in 2010 or Later

CAISO Queue #	Technology	Point of Interconnection	Project MW	Comments and PPA Status
576	Solar PV	Colorado River 220 kV Bus	224	LGIA – Executed, In-service date: 09/2018 PPA Status: Under Negotiation
643AE	Solar PV	Red Bluff 220kV Bus	150	Desert Harvest (EDF) LGIA – Executed, In-service date: 08/2019 PPA Status: Under Negotiation
970	Solar PV	Colorado River 220 kV Bus	150	LGIA – Under Negotiation, Propose In-service date: 09/2018 PPA Status: Unknown
1070	Solar PV	Red Bluff 220 kV Bus	250	Study Phase-QC7 Phase II, Propose In-service date: 12/2018 PPA Status: Unknown
1071	Solar PV	Colorado River 220 kV Bus	150	Study Phase-QC7 Phase II, Propose In-service date: 5/2019 PPA Status: Unknown
1192	Solar PV	Colorado River 220 kV Bus	463	Study Phase-QC8 Phase I, Propose In-service date: 12/2020 PPA Status: Unknown

Table A-6. 2016 Projects that Entered the CAISO Queue in 2010 or Later

CAISO Queue #	Technology	Point of Interconnection	Project MW	Comments and PPA Status
1194	Natural Gas Combustion Turbine	Colorado River 220 kV Bus	600	Study Phase-QC8 Phase I, Propose In-service date: 6/2020 PPA Status: Unknown
1196	Solar PV	Colorado River 220 kV Bus	410	Study Phase-QC8 Phase I, Propose In-service date: 4/2022 PPA Status: Unknown
1197	Battery	Red Bluff 220kV Bus	400	Study Phase-QC8 Phase I, Propose In-service date: 9/2018 PPA Status: Unknown
1198	Solar PV	Colorado River 220 kV Bus	150	Study Phase-QC8 Phase I, Propose In-service date: 12/2020 PPA Status: Unknown
1200	Solar PV	Red Bluff 220kV Bus	200	Study Phase-QC8 Phase I, Propose In-service date: 12/2018 PPA Status: Unknown
			3,147	Total MW

Source: Comments and PPA Status provided by SCE.
CAISO Report Date: 02/26/2016; available at: http://www.caiso.com/planning/Pages/GeneratorInterconnection/Default.aspx.
QC7: Study window for Queue Cluster 7; QC8: Queue Cluster 8.

Within eastern Riverside County, most of the 4,696 MW of solar energy projects that are listed in Table A-4 are also included in the queue. The queue also includes at least 1,000 MW of planned conventional (natural gas-fired) projects and storage projects not shown in Table A-4. Some projects in Table A-4 that are under BLM review would not directly require a point of interconnection on the CAISO system, and are therefore not included in the queue.

In addition to the 2,200 MW level of development originally anticipated and shown in Table A-5, Table A-6 shows that at least another 3,100 MW of projects are planned for eastern Riverside County that entered the queue relatively recently. These tables illustrate a wide range of remaining and planned generation that would be located east of the Devers Substation and would therefore be likely to benefit from the proposed WOD Upgrade Project.

A.2.3 CPUC and BLM Project Objectives

Project objectives under CEQA are defined in order to allow proper consideration of alternatives to the Proposed Project. The State CEQA Guidelines (Section 15126.6(a)) state that "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."

Having taken into consideration the objectives and purpose and need set forth by SCE (Sections A.2.1.1 and A.2.1.2), the CPUC and BLM identified 3 basic project objectives. These objectives are used by the CPUC and BLM to evaluate alternatives and to define a range of reasonable alternatives to the Proposed Project. The evaluation of alternatives in this EIS provides information on whether each alternative could feasibly accomplish most or all of these basic objectives. The 3 basic project objectives are presented and explained below.

Basic Project Objective 1: To upgrade the WOD 220 kV transmission lines between Devers, El Casco, Vista, and San Bernardino Substations to increase system deliverability by at least 2,200 MW.

The first Basic Project Objective reflects the aim to provide increased deliverability of electricity, defined in terms of MW, for existing and planned generating facilities that are located far from the utility load centers in the Los Angeles basin. Before the Proposed Project was planned, the transmission transfer capability of the WOD 220 kV corridor was limited to approximately 550 MW. Since then, several generators with plans to be online before the Proposed Project's estimated completion date in 2020 requested interconnection to the system. In order to accommodate and deliver the initial group of 5 solar power generation projects that was planned, totaling 2,200 MW (CAISO, 2010), the minimum total capability that would need to be achieved by the Proposed Project or an alternative is 2,750 MW. Accordingly, the first Basic Project Objective is to increase deliverability by at least 2,200 MW. The initial 5 projects are described in Section A.2.1.4.1 above, Table A-3, and in 2010 they were the following:

- NextEra Desert Center Blythe, LLC (Genesis McCoy): 500 MW
- NextEra Blythe Solar Energy Center, LLC: 1,000 MW
- Palen SEGS II, LLC (Palen) subsidiary of BrightSource Energy: 500 MW
- Project interconnecting at Blythe–Eagle Mountain 161 kV line: 50 MW
- Project interconnecting at Colorado River 220 kV: 150 MW

The EIS team completed independent power flow modeling to evaluate the capacity of the current transmission system, the Proposed Project, and several sensitivities. The report of these studies is presented as Attachment 2 to EIS Appendix 5 (Alternatives Screening Report). The CAISO's 2024 Reliability Base Case, from the CAISO's 2013/2014 transmission planning process (one of the base cases used in the alternative analysis) represents the view from the CAISO's and SCE's perspective (a collaborative effort) of the level of generation deemed viable (based on a number of criteria) and to be in place and operational in 2024. In developing the 2024 Reliability Base Case, the CAISO included only that generation that was under construction or had received regulatory approval at the time. The generation level from all renewable and conventional resources within the Eastern Bulk system for the region under analysis is:

- Total Generation On-line: 3,754 MW
- Total Generation Capacity: 6,901 MW

The power flow modeling for the WOD Upgrade Project, and potential alternatives that would need to meet this objective, uses the 2024 Reliability Base Case.

Basic Project Objective 2: to support achievement of State and federal renewable energy goals.

The second Basic Project Objective is directly related to the first, because the projects that plan to rely on the Proposed Project for delivering electricity to the Los Angeles basin are primarily solar generation projects. Therefore, an increase in the capacity of the WOD transmission lines would directly improve the ability for numerous renewable generation projects to interconnect. Aside from the resources imported via transmission lines from outside of the SCE territory, all of the interconnecting projects are solar powered, as described in SCE's Application and PEA Sections 1.1 and 1.2. See also Section A.2.1.4.1 (above).

California's renewable energy goals are defined on the CPUC's website (CPUC, 2015):

> *Established in 2002 under Senate Bill 1078, accelerated in 2006 under Senate Bill 107 and expanded in 2011 under Senate Bill 2, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program*

requires investor-owned utilities (IOUs), electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33% of total procurement by 2020.

The CPUC states that California's three large utilities collectively served 22.7% of their 2013 retail electricity sales with renewable power. Table A-7 presents the current RPS compliance status, as stated on the CPUC RPS website (http://www.cpuc.ca.gov/PUC/energy/Renewables/). The table illustrates that while SDG&E has exceeded the contractual requirements for reaching 33% by 2020, SCE and PG&E remain short of this goal.

Table A-7. California's RPS Compliance Status

Utility	Actual RPS Procurement Percentages for 2013	Percentage of RPS Procurement Currently Under Contract for 2020
PG&E	23.8 %	31.3%
SCE	21.6%	23.5%
SDG&E	23.6%	38.8%

Source: CPUC, 2015

The federal government also has prioritized the development of renewable energy, but has not set specific development targets for the country as a whole. As stated in the federal Purpose and Need discussion for the Desert Renewable Energy Conservation Plan Draft EIR/EIS (CEC and BLM, 2014):

- The Energy Policy Act's goal of at least 10,000 MW of renewable energy generation on public land as well as the more recent goal of an additional 10,000 MW on public land by 2020 (White House, 2013a).
- The Presidential Memorandum, issued May 17, 2013, directs federal agencies to modernize federal infrastructure review and permitting regulations, policies, and procedures. Among other best management practices, this memorandum directs federal agencies to integrate project reviews among agencies with permitting responsibilities; ensure early coordination with other federal agencies, as well as with state, local, and tribal governments; strategically engage with, and conduct outreach to, stakeholders; employ project-planning processes and individual project designs that consider local and regional ecological planning goals; utilize landscape-level mitigation practices; promote the sharing of scientific and environmental data in open-data formats to minimize redundancy, facilitate informed project planning, and identify data gaps early in the review and permitting process; and apply best environmental and cultural practices as set forth in existing statutes and policies (White House, 2013b).
- The Department of the Interior's (DOI's) established national policy goals (Secretarial Order [SO] 3285 and SO 3285A1; DOI, 2009) to identify and prioritize specific locations best suited for large-scale production of solar energy on public lands; encourage the production, development, and delivery of renewable energy as one of DOI's highest priorities; and work collaboratively with others to encourage the timely and responsible development of renewable energy and associated transmission while protecting the nation's water, wildlife, and other natural resources.

Basic Project Objective 3: to maximize the availability of remaining space in the corridor to the extent practicable, so future use of the corridor for additional transmission line upgrades is not precluded.

This objective reflects the aim to be prudent in the use of land within the existing transmission corridor and to allow adequate space within the ROW for future transmission expansion, if needed by SCE in the future. While SCE states that it currently has no specific plans for transmission expansion in the WOD corridor, there are other regional studies that point to the potential for future development. For the purposes of measuring consistency with this objective, 175 feet is used as an acceptable minimum ROW width for a 500 kV double-circuit transmission line. (For additional discussion of future transmission potential in the corridor, see EIS Section E, Cumulative Scenario and Impacts.)

A.3 Definition of Connected Actions and Related Projects

Section A.2.1.4.1 describes a number of projects that are driving the need for SCE to construct the Proposed Project. Table A-8 shows how the projects listed in Tables A-3 through A-6 are considered in this EIS. Further detail on the Connected Actions appears in EIS Section B and the impacts of the various projects are presented in EIS Sections D, E, and F.

Table A-8. Project Analysis Determinations

Projects Considered to be Connected Actions	Projects Considered to be Cumulative	Projects Considered to Fill Remaining Growth-Inducing Capacity
Analyzed in Section D, Environmental Analysis	**Analyzed in Section E, Cumulative Scenario and Impacts**	**Analyzed in Section F Other CEQA and NEPA Requirements**
▪ Palen Solar Power Project (500 MW solar thermal, CAISO Queue 365) ▪ EDF Desert Harvest (150 MW solar PV, CAISO Queue 643AE) ▪ 50 MW Solar PV Project Connecting at Red Bluff Substation (CAISO Queue 421) ▪ 250 MW Solar Star Blythe Mesa Solar PV Project Connecting at Red Bluff Substation 230 kV (CAISO Queue 1070) ▪ 224 MW Solar PV Project Connecting at Colorado River Substation 230 kV (CAISO Queue 576) ▪ 150 MW Solar PV Project Connecting at Colorado River Substation 230 kV (CAISO Queue 970) ▪ 150 MW Solar PV Project Connecting at Colorado River Substation 230 kV (CAISO Queue 1071)	▪ Future 500 kV Transmission Line in WOD Corridor ▪ Blythe Energy Project, Phase II (570 MW gas-fired combined cycle plant) ▪ NextEra Genesis Project and NextEra McCoy Project (250 MW solar trough; 250 MW solar PV) ▪ NextEra Blythe Project (485 MW solar PV) ▪ IID Path 42 Upgrades (230 kV transmission line) ▪ CAISO Queue 798 (221 MW solar PV connecting at Colorado River Substation; energy only) ▪ Delaney-Colorado River 500 kV Transmission Line	▪ Blythe Mesa Solar Project (485 MW solar PV near Blythe) ▪ Palo Verde Mesa Solar Project (486 MW solar PV project near Blythe) ▪ Desert Quartzite Project (600 MW solar PV project near Blythe)
1,474 MW generation total	**1,776 MW generation total** Plus additional power flow across Path 42 Upgrades and Delaney-Colorado River 500 kV	**1,571 MW generation total**

A.4 Agency Use of This Document

The proposed route crosses federal, State, private, and tribal lands. SCE submitted an application and PEA to the CPUC so that the CPUC may issue a CPCN for the project and issue and certify an EIR for the California portion of the project pursuant to CEQA. SCE has also submitted an application to the BLM for an Amended ROW Grant and, if approved, the BLM would issue a Notice to Proceed, allowing construction to be administered by the BLM. Finally, BIA must issue a ROW Grant for the portion of the Proposed Project that would cross the Morongo tribal land.

A.4.1 BLM Process

The BLM is the federal lead agency for the preparation of this EIS in compliance with the requirements of NEPA, the Council on Environmental Quality (CEQ) regulation for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508), and the BLM NEPA guidance handbook (H-1790-1). NEPA mandates that federal agencies consider the environmental consequences of a wide variety of proposed actions. Specifically, NEPA requires federal agencies to prepare an EIS for "proposals for legislation and other major federal actions significantly affecting the quality of the human environment." When the federal agency determines that a proposed action may "significantly affect the quality of human environment," production of an EIS is required (42 U.S.C. 4332 (2)(c)).

The EIS preparation process consists of a series of procedural steps to ensure an adequate and open analysis of environmental issues. The BLM Handbook (Chapters IV.2 and IV.3) specifically notes that when analyzing impacts, effects on future generations and on long-term productivity of resources and the irreversible and irretrievable commitment of resources should be considered as well as direct physical impacts to existing populations and resources. Impacts of all alternatives must be compared because BLM must select a preferred alternative. The process provides and encourages opportunities for interagency coordination and public involvement.

The Notice of Intent (NOI) describing the Proposed Project was published in the Federal Register on July 1, 2014 (Volume 79, Number 126, pages 37345-37346). The NOI announced the beginning of the scoping process, and sought public input on environmental issues and planning criteria. The purpose of the public scoping process is to determine relevant issues that will influence the scope of the environmental analysis, including alternatives, and guide the planning process. Preliminary issues for the Draft EIR/EIS have been identified by BLM personnel; Federal, State, and local agencies; and other stakeholders. The issues include: air quality and greenhouse gas emissions, biological resources including special status species, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use, noise, recreation, traffic, visual resources, cumulative effects, and areas with high potential for renewable energy development, and identification of opportunities to apply mitigation hierarchy strategies for on-site, regional, and compensatory mitigation.

The BLM will use the NEPA public participation requirements to assist the agency in satisfying the public involvement requirements under Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C.470(f)) pursuant to 36 CFR 800.2(d)(3). The information about historic and cultural resources within the area potentially affected by the proposed action will assist the BLM in identifying and evaluating impacts to such resources in the context of both NEPA and Section 106 of the NHPA.

The BLM will consult with Indian tribes on a government-to-government basis in accordance with Executive Order 13175 and other policies. Tribal concerns, including impacts on Indian trust assets and potential impacts to cultural resources, will be given due consideration. Federal, State, and local agencies, along with tribes and other stakeholders that may be interested in or affected by the proposed action were invited to participate in the scoping process and, if eligible, may request or be requested by the BLM to participate in the development of the environmental analysis as a cooperating agency.

Once approved internally, the Draft EIR/EIS was printed, filed with the U.S. EPA, and issued for public review and comment. Chapter VIII of the BLM Handbook presents guidance on all of the administrative procedures for completing and circulating a BLM EIS. The public review period must be at least 45 days from the date the Draft EIR/EIS is transmitted to the U.S. EPA. Depending on the comments received and any additional analysis, the BLM is required to either select or revise the preferred alternative, if necessary, in this Final EIS. BLM has issued a press release announcing this Final EIS, which is available to the public for 30 days.

After the Final EIS is prepared, the BLM must circulate the Final EIS for at least 30 days prior to making a decision on the proposed action. Once the Final EIS is finalized, the Final EIS must be filed with the U.S. EPA's Office of Federal Activities for notification in the Federal Register. The 30-day time period for public review of a Final EIS is measured from the date of the publication in the Federal Register. The BLM may adopt an EIS only after it determines that the EIS meets the standards for EIS adequacy under NEPA. After the EIS has been adopted, the BLM should make a decision on the proposed action, which may not be made until 30 days after EPA has published the Notice of Availability that the Final EIS has been filed.

After preparing and adopting the EIS, and after making a decision on the proposed action, the BLM will prepare a Record of Decision (ROD) explaining why it has taken a particular course of action. The ROD cannot be issued until protests are resolved. The decision regarding the ROW grant is appealable to the Interior Board of Land Appeals upon issuance of a ROD. The BLM expects to issue a ROD in 2016. No action concerning a proposal may be taken until the ROD has been issued.

A.4.2 CPUC Process

Pursuant to Article XII of the Constitution of the State of California, the CPUC is charged with the regulation of investor-owned public utilities, including SCE. The CPUC is the lead agency for CEQA review of this project. The CPUC Energy Division has directed the preparation of an EIR. The CPUC's separate Final EIR under CEQA will be used by the Commission, in conjunction with other information developed in the Commission's formal record, to act on SCE's application for a CPCN for construction and operation of the Proposed Project. The CPUC has exclusive authority to approve or deny SCE's application or an alternative; however, various permits from other agencies may also need to be obtained by SCE to build the Proposed Project. If the CPUC issues a CPCN, it would provide overall project approval and certify compliance of the project with CEQA.

If the CPUC approves a project with significant and unavoidable impacts, it must state why in a "Statement of Overriding Considerations," which would be included in the Commission's decision on the application. The Commission's decision, and the Evidentiary Hearings, will cover issues of project need, project cost, and other considerations.

On August 8, 2014, CPUC assigned Administrative Law Judge (ALJ) Hallie Yacknin to oversee the hearings on the Proposed Project, and on January 9, 2015, Commissioner Liane Randolph became the Assigned Commissioner for the CPCN application. The Notice of Preparation (NOP) describing the Proposed Project was published on May 7, 2014. The ALJ's Proposed Decision, and the Evidentiary Hearings, will cover issues of project need, project cost, and other considerations. The CPUC expects a final decision from the Commission in 2016.

A.4.3 Other Agencies

Several other State and federal agencies will rely on information in this EIS to inform them in their decision over issuance of specific permits related to project construction or operation. In addition to BLM, BIA also has reviewing and permitting authority of the Proposed Project for the portion of the route on Morongo tribal land. The BIA has accepted BLM's offer to be a Cooperating Agency in this EIS under NEPA. SCE would apply to BIA for the grant of ROW across the new 3-mile alignment across the Morongo tribal land.

In addition to the CPUC, BLM and BIA, State agencies such as the Department of Transportation, Department of Fish and Wildlife, Regional Water Quality Control Board, and Office of Historic Preservation would be involved in reviewing and/or approving the project. On the federal level, agencies with potential reviewing and/or permitting authority include the U.S. Fish and Wildlife Service, Advisory Council on Historic Preservation, and the Occupational Safety and Health Administration.

No local discretionary (e.g., use) permits are required, since the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of SCE facilities in California. CPUC General Order 131-D, Section XIV.B states that "local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters. In instances where the public utilities and local agencies are unable to resolve their differences, the Commission shall set a hearing no later than 30 days after the utility or local agency has notified the Commission of the inability to reach agreement on land use matters." The CPUC's authority does not preempt special districts, such as the South Coast Air Quality Management District, or other State agencies or the federal government.

A.4.4 Permits Required for the Proposed Project

Table A-9 summarizes the permits or approvals from other federal, tribal, State or regional, and local agencies that may be needed for the project.

Table A-9. Permits that May Be Required for the West of Devers Upgrade Project

Agency	Jurisdiction	Requirements
Federal Agencies		
U.S. Bureau of Land Management (BLM)	Construction on or in lands administered by the BLM	▪ Amendment to Right-of-Way Grant / Record of Decision / Notice to Proceed for transmission line ▪ Temporary Use Permit
U.S. Bureau of Indian Affairs (BIA)	Tribal lands	▪ Right-of-Way Grant/Easement
U.S. Fish and Wildlife Service (USFWS)	Protection of federal listed, threatened and endangered species	▪ Consultation for Section 7 of the Endangered Species Act ▪ Habitat Conservation Plans – Riverside County
U.S. Army Corps of Engineers (USACE), Los Angeles District	Construction or operation of facilities which may result in any discharge into U.S. navigable waters	▪ Section 404 Permit – discharge of fill material into jurisdictional waters
Federal Aviation Administration (FAA)	Air safety near San Bernardino International Airport and Banning Municipal Airport	▪ Form 7460–1, Notice of Proposed Construction or Alteration; Permit and Notice to Airmen ▪ Form 7460-2 Notice of Actual Construction or Alteration
Federal Communications Commission (FCC)	Licenses/permits related to FCC frequencies and paths	▪ Telecommunications Permit (as required)
Federal Energy Regulatory Commission (FERC)	Ratemaking for transmission facilities	▪ Ratemaking
Tribal Land		
Morongo Band of Mission Indians	Reservation lands	▪ Consent to Right-of-Way Grant/Easement
U.S. Environmental Protection Agency (EPA)	Tribal Lands	▪ Clean Water Act Section 402, General Permit for Strom Water Discharges Associated with Construction Activities on Tribal Land
State or Regional Agencies		
California Public Utilities Commission (CPUC)	Transmission, substation, generation projects 50 kV and above	▪ Certificate of Public Convenience and Necessity
California Department of Fish and Wildlife (CDFW)	Protection of fish, wildlife, plant resources and habitats	▪ Streambed Alteration Agreement, Section 1602 Permit (if required)

Table A-9. Permits that May Be Required for the West of Devers Upgrade Project

Agency	Jurisdiction	Requirements
Regional Water Quality Control Board (RWQCB) – Colorado River Office (Region 7) and Santa Ana Office (Region 8)	Protection of surface waters under the Clean Water Act	▪ Clean Water Act Section 402, General Permit for Storm Water Discharges Associated with Construction Activities
State Water Resources Control Board (SWRCB)	Protection of surface waters under the Clean Water Act	▪ Clean Water Act Section 401 certification
California State Lands Commission (CSLC)	State lands	▪ Right-of-Way Easement
California Department of Transportation (Caltrans) – District 8	California Streets and Highways Code 660-711.21 CCR 1411.1-1411.6	▪ Overload Permit ▪ Road/Highway Encroachment/Crossing Permits for activity in San Bernardino and Riverside Counties
California Department of Water Resources (DWR)	Encroachment of water lines	▪ For construction activities crossing water line in Segment 2
Metropolitan Water District (MWD) of Southern California	Encroachment of Colorado River Aqueduct	▪ For construction activity crossing aqueduct in Segment 6
Department of Toxic Substances Control (DTSC)	Handling hazardous materials under Hazardous Waste Control Act of 1972	▪ EPA Hazardous Waste Generator ID
State Historic Preservation Office (SHPO)	Any archaeological or paleontological work	▪ Cultural Resources Use Permit, Field Use Authorization, or an ARPA Permit (if required) ▪ Consultation for Section 106 of the National Historic Preservation Act
California Air Resources Board (CARB)	Portable emissions sources	▪ Portable Engine Registration for specified non-mobile portable engines.
South Coast Air Quality Management District (SCAQMD)	South Coast Air Basin and Coachella Valley and portions of the Salton Sea Air Basin	▪ Fugitive Dust Control Plan
Local Agencies		
Riverside County	County roads and highways, flood control/drainage channels	▪ Road/Highway Encroachment/Crossing Permit ▪ Flood Control/Drainage Channel Encroachment/Crossing Permit
San Bernardino County	County roads and highways, flood control/drainage channels	▪ Road/Highway Encroachment/Crossing Permit ▪ Flood Control/Drainage Channel Encroachment/Crossing Permit
Cities	City streets, sidewalks, flood control/drainage channels, lands	▪ Road Encroachment/Crossing Permit ▪ Flood Control Channel Encroachment/ Crossing Permit ▪ Temporary Use/Occupancy Permit, for material and storage yards ▪ Storm Water Pollution Prevention Plan
Other Utilities		
Kinder Morgan (El Paso) Natural Gas Pipeline	Activities in area of natural gas pipelines	▪ Pipeline Encroachment/Crossing Permit
Questar Southern Trails Pipeline Company	Activities in area of natural gas pipelines	▪ Pipeline Encroachment/Crossing Permit
Southern California Gas Company	Activities in area of natural gas pipelines	▪ Pipeline Encroachment/Crossing Permit

Table A-9. Permits that May Be Required for the West of Devers Upgrade Project

Agency	Jurisdiction	Requirements
BNSF Railroad	Activities in area of railroad	▪ Encroachment/Crossing Permit Const. D-2738 and D-2739

A.5 Reader's Guide to This EIS

A.5.1 Incorporation by Reference

SCE's PEA, submitted as part of A.13-10-020, contains certain information that is incorporated by reference in some sections of this EIS. This document is available for public review during normal business hours at the CPUC's Central Files (505 Van Ness Avenue, San Francisco), in local libraries (see Section I), and also via the Internet at the CPUC website at http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm and at the BLM website at http://www.blm.gov/ca/st/en/fo/palmsprings/transmission/WestOfDeversProject.html.

In addition, this EIS includes information provided by SCE after submittal of the original applications to the BLM and CPUC in the form of responses to data requests. The data requests and SCE's responses are available on the CPUC's website, under the heading of "Environmental Review" and then "Data Requests."

A.5.2 EIS Organization

This EIS is organized as follows:

Executive Summary. A summary description of the Proposed Project, the alternatives, their respective environmental impacts and the Environmentally Preferred Alternative.

> **Impact Summary Tables.** At the end of the Executive Summary, these tables are a tabulation of the impacts and mitigation measures for the Proposed Project.

Section A (Introduction). This discussion of the history, purpose and need for the project, and the public agency use of the EIS.

Section B (Description of Proposed Project). Detailed description of the Proposed Project and the Connected Actions. List of Applicant Proposed Measures.

Section C (Alternatives). Description of the alternatives evaluation process, description of alternatives considered but eliminated from further analysis and the rationale thereof, and description of the alternatives analyzed in Section D.

Section D (Environmental Analysis). A comprehensive analysis and assessment of impacts and mitigation measures for the Proposed Project and the Connected Actions. Each section considers the impacts of alternatives, including the No Action Alternative. This section is divided into main sections for each of 21 environmental issue areas (e.g., Air Quality, Cultural Resources) that contain the environmental settings and impacts of the Proposed Project and each alternative. At the end of each issue area analysis, a Mitigation Monitoring table is provided.

Section E (Cumulative Scenario and Impacts). A discussion of the cumulative scenario and impacts with regard to the Proposed Project and alternatives.

Section F (Other NEPA Requirements). A discussion of growth-inducing impacts, irreversible and irretrievable commitment of resources, adverse environmental effects which cannot be avoided should the Proposed

Project be implemented, the relationship between short-term uses and long-term productivity of the environment, and energy requirements and conservation potential of various alternatives and mitigation measures.

Section G (Comparison of Alternatives). Identification of the NEPA Agency Preferred Alternative and a discussion of the relative advantages and disadvantages of the Proposed Project and alternatives that were evaluated.

Section H (Proposed Mitigation Monitoring, Compliance, and Reporting Plan). A discussion of the BLM's mitigation monitoring program requirements for the project as approved by the BLM.

Section I (Public Participation). A brief description of the public participation program for this EIS.

Section J (Glossary).

Section K (Index).

Appendices:

Appendix 1	Project Description Information
	Appendix 1A – Structure Height Tables
	Appendix 1B – FAA Hazard Marking Evaluations
	Appendix 1C – Construction Equipment and Workforce Estimates
Appendix 2	Detailed Project Maps
Appendix 3	SCE-Morongo ROW Agreement – Appendix J of SCE's Application A.13-10-020
Appendix 4	EMF Field Management Plan
Appendix 5	Alternatives Screening Report
	Attachment 1 – Phased Build Alternative Supporting Data
	Attachment 2 – Project Alternatives Assessment – A Power Flow Analysis
	Attachment 3 – Existing Structures Design Review
Appendix 6	Air Quality
Appendix 7	Biological Resources
	Biological Resources Figures
	Tables of Special Status Plants and Wildlife
Appendix 8	Cultural Resources
Appendix 9	Policy Screening Report
Appendix 10	Visual Resources
Appendix 11	EIS Information Contacts
Appendix 12	Preparers and Reviewers
Appendix 13	Recipients of the EIS

A.6 References

CAISO (California Independent System Operator). 2015. The California ISO Controlled Grid Generation Queue. http://www.caiso.com/planning/Pages/GeneratorInterconnection/Default.aspx. Accessed February 26, 2015.

_____. 2010. Transition Cluster Phase II Interconnection Study Report; Group Report in SCE's Eastern Bulk System; Final Report. July 8, 2010.

CEC (California Energy Commission). 2015. Order Granting Extension of Time to Construct. Docket Number: 09-AFC-07C, TN#:206118. http://docketpublic.energy.ca.gov/PublicDocuments/09-

AFC-07C/TN206118_20150916T095341_Order_Granting_Extension_of_Time_to_Construct.pdf. Accessed October 2, 2015.

CEC and BLM (California Energy Commission and Bureau of Land Management). 2014. Desert Renewable Energy Conservation Plan Draft EIR/EIS. August. Volume I, Section I.1.2, BLM Purpose and Need.

CPUC (California Public Utilities Commission). 2015. California Renewables Portfolio Standard (RPS). Accessed at http://www.cpuc.ca.gov/PUC/energy/Renewables/. Accessed April 13, 2015.

DOI. 2009. Renewable Energy Development by the Department of the Interior. Viewed at http://www.blm.gov/or/energy/opportunity/files/order_3285.pdf. Accessed April 13, 2015.

Palen SEGS I, LLC. 2015. Petition to Extend Commencement of Construction. Docket Number: 09-AFC-07C, TN#: 205632. http://docketpublic.energy.ca.gov/PublicDocuments/09-AFC-07C/TN205632_20150804T131503_Petition_to_Extend_Commencement_of_Construction.pdf. Accessed October 2, 2015.

SCE (Southern California Edison). 2014. SCE's Responses to the California Public Utilities Commission Data Requests #1 to #12. Dated February 2014 through January 2015. Available on CPUC project website at: http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm

_____. 2013. Proponent's Environmental Assessment for the West of Devers Upgrade Project. Application A.13-10-020. October 25, 2013.

White House. 2013a. President's Climate Action Plan. Viewed at www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf. Accessed April 13, 2015.

_____. 2013b. Presidential Memorandum – Federal Leadership on Energy Management. Viewed at https://www.whitehouse.gov/the-press-office/2013/12/05/presidential-memorandum-federal-leadership-energy-management. Accessed April 13, 2015.

B. Description of the Proposed Project

B.1 Introduction and Overview

This section provides a description of Southern California Edison's (SCE) proposed West of Devers Upgrade Project (Proposed Project or Proposed Action), including the proposed route, facilities and equipment, construction methods and schedule, and operations. As shown in Figure B-1, Proposed Project and Project Vicinity, the Proposed Action would be located primarily within the existing West of Devers (WOD) right-of-way (ROW) in incorporated and unincorporated parts of Riverside and San Bernardino Counties. Note that all figures are presented at the end of this section. The Proposed Action upgrades would:

- Replace the existing 220 kV transmission lines and associated structures with higher-capacity 220 kV transmission lines and new 200 kV structures. Upgrades would occur on approximately 30 miles of the Devers–El Casco line, approximately 14 miles of the El Casco–San Bernardino line, approximately 43 miles of the Devers–San Bernardino line, approximately 45 miles of the Devers-Vista No. 1 and No. 2 lines, approximately 3.5 miles of the Etiwanda–San Bernardino line, and approximately 3.5 miles of the San Bernardino–Vista line;
- Upgrade substation equipment at Devers, El Casco, Etiwanda, San Bernardino, and Vista Substations to accommodate increased power transfer on the 220 kV lines;
- Remove and relocate approximately 2 miles of existing 66 kV subtransmission lines;
- Remove and relocate approximately 4 miles of existing 12 kV distribution lines; and
- Install telecommunication lines and equipment for the protection, monitoring, and control of transmission lines and substation equipment.

The existing WOD corridor traverses a combination of residential, commercial, agricultural, recreation, and open space land uses. The existing structures and existing conductor would be removed and replaced primarily within the existing ROW, except for an approximately 3-mile portion of Segment 5 on the Morongo Band of Mission Indians (Morongo) Reservation that would be in new ROW.

B.1.1 Historical Background in Project Area

Originally, the upgrades west of Devers Substation were planned as part of the Devers–Palo Verde No.2 Project (DPV2). Proposed by SCE in 2005, DPV2 involved construction of a new 230-mile 500 kV line from the Harquahala Substation in Arizona to the Devers Substation in North Palm Springs, California, as well as upgrading an additional 50 miles of 220 kV transmission lines west of Devers Substation. The original WOD proposed upgrades included replacing two existing single-circuit 220 kV lines with a new double-circuit 220 kV line and reconductoring a third 220 kV line between Devers Substation and San Bernardino Junction; reconductoring of 4.8 miles of 220 kV transmission line between San Bernardino Junction and Vista Substation; and reconductoring of 3.4 miles of 220 kV transmission line between San Bernardino Junction and San Bernardino Substation located in San Bernardino County, California.

The currently Proposed Project expands on the original WOD Upgrades. As listed in Section B.1 (Introduction and Overview), existing 220 kV lines would be removed and replaced with two new double-circuit 220 kV lines between Devers, El Casco, Vista, and San Bernardino Substations. One of these new lines would be a portion of the San Bernardino-Etiwanda transmission line between San Bernardino Substation and San Bernardino Junction. In addition, the Proposed Project includes substation modifications, removal and relocation of 66 kV and 12 kV lines, and upgrades to telecommunications facilities.

SCE would also install temporary tower structures, called shoo-flies, to facilitate construction and minimize interruptions to existing electrical and telecommunication facilities.

The main differences between the DPV2 Project and the current West of Devers Upgrade Project include the following:

- *Replacement Structures Due to Heavier Conductor*: SCE's proposes to use heavier (higher capacity) conductors. The existing 220 kV structures would not support the greater weight and SCE is proposing to remove and replace all structures in the corridors.
- *New Structures Installed in Different Locations*: The proposed new structures would be a pair of matching double-circuit 220 kV structures, taller than the existing 220 kV structures. SCE would locate the replacement structures in new locations because project construction is proposed to take place while the existing lines remain in service.
- *Modified Route through Morongo Lands*: Based on an agreement between the Morongo Tribe and SCE,[1] a 3-mile segment of the existing route east of Banning would be relocated to the south, near I-10 (SCE, 2014a).

SCE clarified in its comments on the Draft EIR/EIS that the reason for the scope difference between the original WOD project as part of DPV2 and the proposed WOD Upgrade Project is that the original WOD project scope was limited to 1,200 MW flow increase associated with the DPV2 project, while the scope of the Proposed Project is to maximize the transfer capability on the WOD corridor to accommodate the renewable resources development in Riverside East.

Construction of the Proposed Project would upgrade the existing transmission lines between Devers, El Casco, San Bernardino, and Vista Substations to increase the system transfer capacity from 1,600 MW to 4,800 MW (SCE, 2014a). Until the recent installation of SCE's West of Devers Interim Project, the transmission transfer capability of the existing WOD 220 kV corridor was limited to approximately 550 MW.

West of Devers Interim Project. As discussed in Section A, several generators have requested interconnection earlier than the Proposed Project's estimated completion date in 2020. Therefore, SCE recently completed the West of Devers Interim Project, which added approximately 1,050 MW of additional transfer capability, yielding a total of approximately 1,600 MW of capability.

Since the Proposed Project would not be completed by the generators' interconnection need date, the California Independent System Operator (CAISO) and SCE developed an interim solution to partially address the requested full capacity deliverability needs on a temporary basis. The temporary upgrades include construction of a temporary "West of Devers Substation" located on SCE's Devers Substation fee-owned property on the west side of Diablo Road. Within the site, SCE has installed series reactors

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[1] Under the Agreement Related to Grant Easements and Rights-of-Way for Electric Transmission Lines and Appurtenant Fiber-Optic Telecommunications Lines and Access Roads On and Across Lands of the Morongo Indian Reservation (the "ROW Agreement") entered into November 27, 2012, by and between the Morongo Band of Mission Indians ("Morongo") and SCE, Morongo consented to the grant to SCE by the U.S. Department of the Interior Bureau of Indian Affairs (BIA) of certain easements and ROWs on and across the lands of the Morongo Indian Reservation. The ROW Agreement provides the ROWs and easements necessary for SCE to continue operating its existing 220 kV facilities on the Morongo Reservation and to replace and upgrade those facilities with the WOD Upgrade Project for 50 years. This 2012 ROW agreement between SCE and the Morongo Tribe would permit SCE to construct the portion of the Proposed Project on tribal land. The BIA will consider the construction of the Proposed Project as a reasonably foreseeable impact in determining whether or not to approve the ROW grant.

on the four 220 kV transmission lines that extend west of Devers Substation and a Special Protection System (SPS) to prevent overloading of the existing WOD transmission lines.

The temporary upgrade better uses existing transmission capacity by balancing line loading on the existing WOD transmission lines and redirecting some flows onto the 500 kV system to Valley Substation. The interim project was approved by the CPUC in Advice Letter 2643-E (dated October 21, 2011) and was put in service on October 11, 2013. Once the WOD Upgrade Project is completed, the WOD Interim Project facilities will be removed and the site will be restored. Purpose and Need and Project Objectives are discussed in Section A of this EIS.

B.2 Description of Proposed Project Components

B.2.1 220 kV Transmission Line Improvements

The Proposed Project would include the removal and upgrade of approximately 181 circuit miles of existing 220 kV line facilities (approximately 48 corridor miles) primarily within existing WOD corridor. The proposed transmission line elements have been divided into the following six segments:

- Segment 1 – San Bernardino (Milepost [MP] SB0 to MP SB3.5)
- Segment 2 – Colton, Grand Terrace and Loma Linda (MP 0 to MP 5.2)
- Segment 3 – San Timoteo Canyon (MP 5.2 to MP 15.2)
- Segment 4 – Beaumont and Banning (MP 15.2 to MP 27.4)
- Segment 5 – Morongo Tribal Lands and Surrounding Areas (MP 27.4 to MP 36.9)
- Segment 6 – Whitewater and Devers (MP 36.9 to MP 45)

Figures B-2 through B-7 (at the end of this section) show the proposed route through each of the segments, as well as a profile of the existing and proposed corridor. Appendix 2 presents detailed maps of the entire proposed route. Certain maps in Appendix 2 have been modified in this Final EIS to show updated tower locations to reflect additional engineering performed by SCE for the Proposed Project during the agencies' preparation of the Draft EIR/EIS. Final engineering may result in additional ongoing minor changes in the locations of some towers, the heights of towers, and other aspects of the project.

The Proposed Project would ensure sustained transmission capacity while system upgrades are undertaken and would include removal and rebuilding of all or portions of these existing 220 kV lines, shown in Figure B-8:

- Devers-Vista No. 1
- Devers-Vista No. 2
- Devers–El Casco
- El Casco–San Bernardino
- Devers–San Bernardino
- San Bernardino–Vista
- Etiwanda–San Bernardino

The Proposed Project would primarily be constructed on a combination of 220 kV double-circuit lattice steel towers (LSTs), double-circuit tubular steel poles (TSPs), and single-circuit TSPs. Each of the proposed 220 kV transmission lines would consist of overhead wires (conductors), which form three electrical phases. These conductors would be supported by LSTs and/or TSPs and would be electrically isolated from the structures by insulators. In addition to the conductors, structures, and insulators, the proposed transmission structures would be equipped with overhead ground wires (OHGW) and/or optical fiber ground wires (OPGW) for shielding and/or telecommunication purposes.

B.2.1.1 220 kV Transmission Line Segments

The Proposed Project would include the following six 220 kV transmission line segments.

Segment 1: San Bernardino (MP SB0 to MP SB3.5)

Segment 1, which extends from San Bernardino Substation (MP SB0) to San Bernardino Junction (MP SB3.5) would be approximately 3.5 miles in length and would extend due south from San Bernardino Substation in the City of Redlands, across Interstate 10 (I-10), to the San Bernardino Junction in the City of Loma Linda, see Figure B-2a.

The San Bernardino Substation is located on the northwest side of the city of Redlands. It is in area zoned open space/light industrial, immediately east of the Mountainview Power Plant. The newly rebuilt 220 kV transmission lines in this segment would connect to the existing 220 kV switchrack inside San Bernardino Substation. Transmission line work within Segment 1 would include removal of approximately 45 220 kV LSTs, installation of approximately 46 220 kV structures, and modifications to 1 existing LST within the existing ROW.

As shown in Figure B-2b, the Segment 1 ROW consists of two existing lattice 220 kV towers, which include the following 220 kV transmission circuits: Devers–San Bernardino, Etiwanda–San Bernardino, San Bernardino–Vista, and El Casco–San Bernardino. There are three sets of 66 kV towers supporting six separate 66 kV lines in the corridor near the substation and these 66 kV lines diverge from the corridor as the corridor extends to the south. Two of these 66 kV lines would be relocated in order to accommodate the proposed WOD Upgrade Project (see Section B.2.3, 66 kV Subtransmission Line Improvements).

North of the I-10 crossing, the ROW is mostly in a corridor of agricultural land, but there are residences adjacent to Segment 1 in several areas south of the I-10 crossing, including: (a) immediately adjacent to the corridor near mission Road; (b) north of Beaumont Avenue where the corridor has homes on both sides and a park within the corridor; and(c) its southernmost segment between San Timoteo Wash and Beaumont Avenue. Figure B-9a shows representative photographs of Segment 1.

In addition to the 220 kV transmission line upgrades, 66 kV subtransmission line improvements, 12 kV distribution line improvements, and telecommunications system upgrades would occur in this segment. These components are discussed in Section B.2.3, Section B.2.4, and Section B.2.5.

Segment 2: Colton, Grand Terrace and Loma Linda (MP 0 to MP 5.2)

Segment 2, which extends from Vista Substation (MP 0) to San Bernardino Junction (MP 5.2) would leave Vista Substation and cross I-215 heading east for approximately 5 miles through the Cities of Colton and Grand Terrace to San Bernardino Junction in the City of Loma Linda, see Figure B-3a.

As shown in Figure B-3b, the Segment 2 ROW has three existing lattice structures, but the Proposed Project includes upgrades only to the existing Devers-Vista No. 1 and No. 2 220 kV transmission lines. The newly rebuilt 220 kV transmission lines in this segment would connect to the existing 220 kV switchrack inside Vista Substation. Transmission work within Section 2 would include removal of approximately 23 double-circuit LSTs, installation of approximately 25 structures, and modifications to 6 existing structures.

There are 5 existing structures located along the Grand Terrace/Colton boundary (just north of Vista Grande Way). Three of these existing towers would be retained and slightly modified, minimizing ground disturbance and visual impacts of new structures. Two of the 5 existing structures would be replaced.

Most of the corridor in Segment 2 is in the hills south of Loma Linda and is not visible from public roads. The westernmost 1.5 miles, nearest the Vista Substation, goes through the City of Grand Terrace and passes residences along Grand Terrace Road, east of I-215. There are several residences northwest of the substation on Grand Terrace Road and across from the substation entrance on Newport Avenue. Figure B-9a shows photographs that are representative of Segment 2.

In addition to the 220 kV transmission line upgrades, telecommunications system upgrades would occur in this segment, which are discussed in Section B.2.5.

Segment 3: San Timoteo Canyon (MP 5.2 to MP 15.2)

Segment 3 would be approximately 10 miles in length and extends east from the San Bernardino Junction (MP 5.2) to El Casco Substation (MP 15.2). San Bernardino Junction, where the transmission lines diverge, is south of Loma Linda in nearly inaccessible open space. Along the western several miles of the San Timoteo Canyon, the corridor is not visible or barely visible on the ridgelines south of the canyon. The corridor in Segment 3 roughly parallels San Timoteo Canyon Road for much of its length where it crosses from San Bernardino County into Riverside County, see Figure B-4a.

As shown in Figure B-4b, in this segment, there is generally a set of three existing structures at varying distances of separation: one double-circuit steel lattice 220 kV structures and two single-circuit 220 kV structures (steel or wood; each with the circuits arranged horizontally). The 3 structures include the following existing 220 kV transmission lines: (1) Devers-Vista No. 1 and Devers-Vista No. 2; (2) El Casco–San Bernardino; and (3) Devers–San Bernardino. SCE plans to remove the 3 existing structures and replace most of the structures with 2 double-circuit steel lattice towers (see Appendix 1A for structure heights table and Figure B-10, Typical 220 kV Transmission Structures). Replacement structures would include both lattice steel tower and tubular steel poles. Project work within Segment 3 would include removal of approximately 118 LSTs, installation of approximately 102 structures, and modifications to 4 existing structures.

Along Oak Valley Parkway just south of Woodhouse Road, the newly rebuilt El Casco–San Bernardino 220 kV transmission line in this segment would loop into El Casco Substation and connect to the existing 220 kV switchrack. There are residential developments near the El Casco Substation, and scattered agricultural and residential properties along the route. Figure B-9b shows photographs that are representative of Segment 3.

In addition to the 220 kV transmission line upgrades, telecommunications system upgrades would occur in this segment, which are discussed in Section B.2.5.

Segment 4: Beaumont and Banning (MP 15.2 to MP 27.4)

Segment 4 would be approximately 12 miles in length and extends east from the El Casco Substation (MP 15.2) through unincorporated Riverside County and a southern portion of the City of Calimesa, crossing I-10 to the northeast into the City of Beaumont. Passing about 2 miles north of central Beaumont and I-10, the corridor continues due east, paralleling Oak Valley Parkway to the north. There are some residential areas south of the corridor until the east end of Beaumont at Cherry Avenue where the route would pass through open fields. From this point east through Banning, the corridor is in open space in the hills north of Banning with no adjacent residences. Segment 4 ends at San Gorgonio Avenue in the City of Banning (MP 27.4), see Figure B-5a.

As shown in Figure B-5b, in this segment, there is generally a set of three existing structures at varying distances of separation: one double-circuit steel lattice 220 kV tower and two single-circuit 220 kV structures (steel or wood; each with the circuits arranged horizontally). The 3 structures include the following existing 220 kV transmission lines: (1) Devers-Vista No. 1 and Devers-Vista No. 2; (2) Devers–El Casco; and (3) Devers–San Bernardino. SCE plans to remove the three existing structures and replace most of the structures with two double-circuit steel lattice towers that look similar to the existing double-circuit lattice tower, but would be taller. However, approximately 14 double-circuit tubular steel poles would be constructed as replacement structures. Project work within Segment 4 would include removal of 160 structures, installation of approximately 111 structures, and modifications to 6 existing structures. Figure B-9b shows photographs that are representative of Segment 4.

In addition to the 220 kV transmission line upgrades, telecommunications system upgrades would occur in this segment, which are discussed in Section B.2.5.

Segment 5: Morongo Tribal Lands and Surrounding Areas (MP 27.4 to MP 36.9)

Segment 5, which extends from the City of Banning (MP 27.4) across the Morongo Band of Mission Indians Reservation to MP 36.9 would be approximately 9.5 miles in length and extends east from San Gorgonio Avenue in the City of Banning. The route would cross through the existing gravel mine, across the eastern limit of the Morongo Indian Reservation[2] at Rushmore Avenue. Within this segment, approximately 3 miles of existing WOD ROW through the Morongo Reservation would be abandoned and replaced with a new 3-mile alignment south of the current alignment pursuant to the SCE-Morongo ROW agreement, which is included in Appendix 3 (see also Section A.1.3 and Figure B-6a).

As shown in Figures B-6b and B-6c, Segment 5 includes the following existing 220 kV transmission lines: (1) Devers-Vista No. 1 and Devers-Vista No. 2, (2) Devers–El Casco, and (3) Devers–San Bernardino. The three existing structures would be replaced with two structures. Project work within Segment 5 includes removal of 137 structures and installation of 98 structures. Most of the new structures would be double-circuit LSTs, but some would be tubular steel poles, as specified in the SCE-Morongo ROW agreement. Figure B-9c shows photographs that are representative of Segment 5.

Segment 6: Whitewater and Devers (MP 36.9 to MP 45)

Segment 6, which extends from the eastern boundary of the Morongo Reservation at Rushmore Avenue (MP 36.9) to Devers Substation (MP 45), would be approximately 8 miles in length. From the Morongo Band Reservation, the line would extend east along the foothills of the San Bernardino Mountains passing residences off Haugen-Lehmann Way and crossing Whitewater Canyon Road. The proposed route would travel past scattered residences and through wind generation projects, crossing Highway 62 into the Devers Substation. The newly rebuilt 220 kV transmission lines in this segment would connect to the existing 220 kV switchrack inside Devers Substation, see Figure B-7a.

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2 Under the Proposed Project, approximately 3 miles of existing ROW would be abandoned and replaced with a new 3-mile alignment pursuant to the SCE-Morongo ROW agreement. In addition, this segment consists of an alternative to a new 3-mile alignment (220 kV Transmission Line Route Alternative 1), which is further explained in Appendix 5 (Alternatives Screening Report) and has been eliminated from consideration in light of an agreement between SCE and the Morongo regarding the proposed route.

As shown in Figure B-7b, in general, the transmission corridor has 3 separate structures that are at varying distances of separation, and include the existing 220 kV transmission circuits: (1) Devers-Vista No. 1 and Devers-Vista No. 2, (2) Devers–El Casco, and (3) Devers–San Bernardino. Project work within Segment 6 includes removal of 117 structures and installation of 85 structures. Figure B-9c shows photographs that are representative of Segment 6.

B.2.1.2 Transmission Line Infrastructure

The 220 kV transmission line segments of the Proposed Project would utilize a combination of LSTs and TSPs. The approximate dimensions of the proposed structure types are shown in Figure B-10, Typical 220 kV Transmission Structures, and summarized in Table B-1, Typical Transmission Structure Dimensions.

Table B-1. Typical Transmission Structure Dimensions

Type of Structure	Proposed Number of Structures	Approximate Height Above Ground	Approximate Pole Diameter	Approximate Auger Hole Depth	Approximate Auger Diameter
Lattice Steel Towers	384	110–193 feet	N/A	15–50 feet	3.0–7.0 feet at each leg
Tubular Steel Poles	83 [1]	110–198 feet	3.0–10.0 feet	30–60 feet	5–14 feet

Source: SCE, 2013. As updated by SCE in Draft EIR/EIS Comment Letter 2015.
Note: Specific structure type, foundation type, quantities, height, and spacing would be determined upon final engineering, and would be constructed in compliance with CPUC General Order 95.
1 - Includes 34 TSPs in Segment 5 per agreement between SCE and Morongo.

The existing 220 kV transmission lines within the six geographically defined segments currently utilize a mixture of LSTs, TSPs, and wood structures. As part of the entire Proposed Project, approximately 5 TSPs, 153 H-frame structures, 413 LSTs, 29 three-pole structures, and approximately 562 miles of conductor would be removed, as shown in Table B-2. See Appendix 1A for detailed structures location and height tables. The average difference between existing and proposed double-circuit structures would be a minimum of 20 feet, depending on elevation differences in structure locations.

The Proposed Project 220 kV transmission line removals and installations are summarized in Table B-2, Transmission 220 kV Removal and Installation per Segment. The types and quantities of proposed structures, groundwire, and conductor to be removed and installed are approximate and subject to change following the completion of final engineering.

Table B-2. Transmission 220 kV Removal and Installation Per Segment

	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total
Proposed Project Removals							
Double-circuit lattice steel tower	44	23	33	36	33	33	202
Single-circuit lattice steel tower	1	0	85	61	34	30	211
H-frame	0	0	0	53	55	45	153
Three-pole structure	0	0	0	10	10	9	29
Single-circuit TSP	0	0	0	0	5	0	5
Conductor (miles)	59	31	120	148	108	96	562
OHGW (miles)	7	5	50	63	45	40	210

Table B-2. Transmission 220 kV Removal and Installation Per Segment

	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total
Proposed Project Installation							
Double-circuit lattice steel tower	42	18	86	97	62	79	384
Double-circuit tubular steel pole	2	5	16	14	36	6	79
Single-circuit tubular steel pole	2	2	0	0	0	0	4
Circuit length (miles)	14	10	40	48	36	32	180
Conductor (miles)	87	67	264	320	250	211	1,199
OPGW (miles)	7	6	22	26	20	18	99
OHGW (miles)	0.5	0.5	0.5	0.5	0	3	5
Proposed Project Existing Structures To Be Modified							
Double-circuit lattice steel tower	1	6	4	6	0	0	17

Source: SCE, 2013. As updated by SCE in Draft EIR/EIS Comment Letter 2015.

B.2.1.3 Transmission Insulators and Conductors

Each transmission circuit typically includes three separate electrical phases. Each phase would consist of double-bundled (bundle of two conductors for each phase) 1,590 kcmil (one thousand circular mils) aluminum conductor steel reinforced (ACSR) conductor, which is made of aluminum strands with internal steel reinforcement and would have a non-specular finish. Polymer insulators would typically be used on all structures.

All transmission facilities would be designed consistent with Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (SCE, 2013). All transmission facilities would be evaluated for potential collision risk and in high-risk areas, lines would be marked with collision reduction devices in accordance with Mitigating Bird Collisions with Power Lines: The State of the Art in 2012 (SCE, 2013).

B.2.1.4 Transmission Ground Wires

Overhead ground wires (OHGW), including optical ground wire (OPGW), would be installed on 220 kV transmission structures at or near the top of each structure. Where required, OHGW may also be utilized in addition to OPGW for more shielding. The overhead steel ground wire would typically be half-inch-diameter extra-high-strength galvanized steel.

B.2.2 Substation Improvements

There are no new substations proposed as part of the Proposed Project. Modifications to existing substation equipment would be performed to accommodate continuous and emergency power on the WOD 220 kV transmission lines between Vista, San Bernardino, El Casco, Etiwanda, and Devers Substations. Figure B-11a, Existing Substation Locations, shows the general locations of each of these substations. Figures B-11b to B-11h show the boundary of the fence lines surrounding each substation on aerial photographs. Modifications to existing substations associated with telecommunications activities are described in Section B.2.5, Telecommunications System Upgrades.

Under the Proposed Project, upgrades would occur at Vista, San Bernardino, Etiwanda, El Casco, and Devers Substations, including replacement of disconnect switches, circuit breakers, foundations, and reconductoring line positions. Circuit breakers and disconnect switches would be replaced with higher-rated equipment. All impacted 220 kV circuit breakers at Devers, El Casco, Vista, and San Bernardino Substations are SF_6 gas type and would be replaced with new higher amperage SF_6 gas type circuit breakers. The dimensions of the new 220 kV circuit breakers would be similar to the existing 220 kV circuit breakers. See Figure B-12, 220 kV Substation Profile, for a typical profile view of a 220 kV switchrack position with circuit breaker and disconnect switches highlighted (SCE, 2014a).

Work at Etiwanda Substation would occur within the existing Mechanical and Electrical Equipment Room (MEER) and involve installation of new protection relay equipment.

All substation-related work would be conducted within the existing substation walls or fence lines. The Proposed Project would not result in changes to access, parking, drainage patterns, or modifications to perimeter walls or fencing at the existing substations. Improvements to the existing substations are described below.

B.2.2.1 Devers Substation

Devers Substation is an existing 500/220/115/12 kV substation located north of I-10 and northwest of the City of Palm Springs in Riverside County, as shown on Figure B-11b. While Devers Substation contains 500 kV, 220 kV, 115 kV, and 12 kV equipment, the Proposed Project would modify only 220 kV equipment in the existing switchrack and protective relay equipment inside the MEER.

The 220 kV switchrack currently has 12 positions. Two of the existing positions would be upgraded to higher capacity by installing new ACSR conductor. Proposed upgrades at Devers Substation include the following:

- Replacement of two existing 220 kV circuit breakers (CBs) with new CBs;
- Replacement of 10 group operated disconnect switches;
- Installation of six bus supports on new foundations;
- Replacement of up to 12 existing bus supports, as needed;
- Replacement of existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding; and
- Replacement of protective relaying equipment inside the MEER.

B.2.2.2 El Casco Substation

The El Casco Substation is an existing 220/115/12 kV substation located off of San Timoteo Canyon Road, west of the City of Beaumont in Riverside County, as shown on Figure B-11c. While El Casco Substation contains 220 kV, 115 kV, and 12 kV equipment, the Proposed Project would modify only 220 kV equipment in the existing switchrack and protective relay equipment inside the MEER.

The 220 kV switchrack currently has seven positions. The conductor for two positions would be replaced with new higher capacity ACSR conductor. Proposed work at El Casco Substation includes the following:

- Replacement of five existing 220 kV CBs with new CBs;
- Replacement of 10 group operated disconnect switches; and
- Replacement of existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding.

B.2.2.3 Vista Substation

Vista Substation is an existing 220/115/66 kV substation located west of Interstate 215 and north of Newport Avenue in the City of Grand Terrace, as shown on Figure B-11d. While Vista Substation contains 220 kV, 115 kV, and 66 kV equipment, the Proposed Project would modify only 220 kV equipment within the existing switchrack and protective relay equipment inside the MEER.

The 220 kV switchrack currently has 12 positions. The conductor for two positions would be replaced with new higher capacity ACSR conductor. This work would include the following:

- Replacement of four existing 220 kV CBs with new CBs;
- Replacement of eight group operated disconnect switches;
- Installation of four bus supports on new foundations;
- Replacement of up to four existing bus supports, as needed;
- Replacement of existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding;
- Modification of the existing ground grid to accommodate installation of new transmission structures; and
- Replacement of protective relaying equipment inside the MEER.

B.2.2.4 San Bernardino Substation

San Bernardino Substation is an existing 220/66/12 kV substation located north of San Bernardino Avenue and east of Mountain View Avenue in the City of Redlands, as shown on Figure B-11e. While San Bernardino Substation contains 220 kV, 66 kV, and 12 kV equipment, the Proposed Project would modify only 220 kV equipment within the existing switchrack and protective relay equipment inside the MEER.

The 220 kV switchrack currently has 7 positions. The conductor for two positions would be replaced with new higher capacity ACSR conductor. This work would include the following:

- Replacement of six existing 220 kV CBs with new CBs;
- Replacement of 12 group operated disconnect switches;
- Installation of eight bus supports on new foundations;
- Replacement of existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding;
- Modification of the existing ground grid to accommodate installation of new transmission structures; and
- Replacement of protective relaying equipment inside the MEER.

B.2.2.5 Etiwanda Substation

Etiwanda Substation is an existing 220/66/12 kV substation located north of Sixth Street and west of Etiwanda Avenue in the City of Rancho Cucamonga, as shown on Figure B-11f. Work at Etiwanda Substation would be limited to replacement of protective relaying equipment inside the MEER.

B.2.2.6 Substation Lighting

Approximately 10 new and 30 replacement lights would be installed on the switchracks for upgraded line positions at Devers, El Casco, Vista, and San Bernardino Substations. Under normal operating conditions, the substations would not be illuminated at night. Lighting would be manually operated and used only when required for maintenance outages or emergency repairs. The lighting would typically consist of low intensity Light Emitting Diode (LED) lights located in the switchyard around the circuit breakers and in areas where operating and maintenance activities may take place during evening hours. Maintenance lights would be directed downwards to reduce glare outside the facility.

B.2.3 66 kV Subtransmission Line Improvements

The Proposed Project would require relocation of portions of the existing San Bernardino–Redlands-Timoteo and the San Bernardino–Redlands-Tennessee 66 kV subtransmission lines, located within Segment 1 and shown on Figure B-13. These portions of 66 kV subtransmission lines would be relocated to new routes within existing ROW or franchise (newly acquired ROW) that are outside of the existing WOD corridor, but generally within the vicinity of the geographic area defined as Segment 1 (see Section B.2.1.1). These two existing 66 kV subtransmission lines are currently located on approximately nine double-circuit LST and 28 double-circuit wood poles, which would be removed from the existing Segment 1 ROW.

Removal and reconstruction of the existing San Bernardino–Redlands-Timoteo and San Bernardino–Redlands-Tennessee 66 kV subtransmission lines from within the existing WOD right-of-way (ROW) would occur as follows:

- The relocated San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line would be approximately 2 miles in length and would reconnect to the San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line inside Timoteo Substation.
- The relocated San Bernardino–Redlands-Tennessee 66 kV Subtransmission Line would be approximately 3.5 miles in length and would reconnect to the San Bernardino–Redlands-Tennessee 66 kV Subtransmission Line at Barton Road.

B.2.3.1 San Bernardino–Redlands-Timoteo Line

Removal and relocation of one portion of the existing San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line would occur outside of the existing WOD corridor. The relocated single-circuit San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line would be approximately 2 miles in length, constructed within new ROW or existing franchise[3] and would include the following components:

- Installation of approximately 45 subtransmission lightweight steel (LWS) or wood poles, with associated guying, and approximately 7 TSPs;
- Installation of approximately 4,000 circuit feet of 3,000 kcmil underground conductor, approximately six vaults (10 feet × 20 feet × 11 feet) and approximately 4,000 feet of new duct bank;
- Installation of approximately 7,100 circuit feet of 954 Stranded Aluminum Conductor (SAC) overhead conductor; and
- Removal of 6 wood poles.

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[3] Franchise is a right or privilege conferred by agreement between SCE and local jurisdictions.

The relocated single-circuit San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line would exit San Bernardino Substation on existing poles, and then transition underground to the east for approximately 800 feet within a new duct bank requiring the installation of two new vaults. The relocated 66 kV subtransmission line would then rise to an overhead position via a TSP riser pole, which would be located along West San Bernardino Avenue. From the TSP riser pole, the 66 kV subtransmission line would transition to the south side of San Bernardino Avenue and extend approximately 1,350 feet along San Bernardino Avenue in a double-circuit configuration with the existing Calectric–Homart–Mentone 115 kV line. This portion of the line would extend to the corner of Marigold Avenue and would include the installation of approximately 3 TSPs, 9 LWS/wood poles, and the removal of 6 wood poles.

The 66 kV subtransmission line would then extend south for approximately 1,350 feet along a private property line to Almond Avenue and would include the installation of approximately 1 TSP and 8 LWS/wood poles. Then, the 66 kV subtransmission line would extend west on Almond Avenue for approximately 1,100 feet. This portion of the subtransmission line would include the installation of approximately one TSP and six new LWS/wood poles. From here, the 66 kV subtransmission line would then extend south for 1,250 feet along the east side of Research Drive to Lugonia Avenue, where it would turn east for approximately 500 feet, which would require the installation of approximately one TSP and four new LWS/wood poles. From this location, the 66 kV subtransmission line would then proceed south overbuilt with existing distribution for about 1,200 feet to Interstate 10, which would require the installation of approximately one TSP and seven new LWS/wood poles. In order to accommodate the crossing of Interstate 10, the new 66 kV subtransmission line would require the installation of 2 new TSPs.

From the south side of Interstate 10, the subtransmission line would extend south along Bryn Mawr Avenue for approximately 1,200 feet on approximately five new LWS/wood poles and would then transition from overhead to underground via a TSP riser pole. The 66 kV subtransmission line would be underground for approximately 3,200 feet from the TSP riser pole, south along a portion of Bryn Mawr Avenue (includes installation of one vault), and east along Redlands Boulevard (includes installation of one vault). Then the subtransmission line reaches an alley where it would proceed south (includes installation of one vault) and then west along the alley (includes installation of one vault) until it reaches Mountain View Avenue, where it would then rise to an overhead position via a TSP riser and extend overhead south for 160 feet to connect to the existing Timoteo Substation. This portion of the subtransmission line would include three LWS/wood poles.

B.2.3.2 San Bernardino–Redlands-Tennessee Line

A portion of the San Bernardino–Redlands-Tennessee 66 kV Subtransmission Line would be removed and relocated from the existing WOD corridor. The relocated single-circuit San Bernardino–Redlands-Tennessee 66 kV Subtransmission Line would be approximately 3.5 miles in length, constructed within a new ROW or existing franchise and would include the following components:

- Installation of approximately 90 subtransmission LWS or wood poles, with associated guying, and approximately 12 TSPs;
- Installation of approximately 800 circuit feet of 3,000 kcmil underground conductor, approximately two vaults (10 feet × 20 feet × 11 feet) and approximately 800 feet of new duct bank;
- Installation of approximately 18,400 of circuit feet 954 SAC overhead conductor; and
- Removal of 44 wood poles.

The relocated single-circuit San Bernardino–Redlands-Tennessee 66 kV Subtransmission Line would exit San Bernardino Substation on existing poles and then transition underground to the east for approximately 800 feet in a new duct bank requiring the installation of two new vaults. The relocated 66 kV subtransmission line would then rise to an overhead position via a TSP riser pole, which would be located along West San Bernardino Avenue.

From the TSP riser pole, the 66 kV subtransmission line would then extend approximately 1,350 feet along the north side of San Bernardino Avenue to the corner of Marigold Avenue and would include the installation of approximately one TSP and nine LWS/wood poles. There are two rows of existing trees along the north side of San Bernardino Avenue east of the substation. There is approximately 40 feet between the existing subtransmission poles and the first row of trees. The poles would be set adjacent to the existing poles allowing SCE to place the two pole lines closer together such that no trimming or removal of trees is expected at this time.

The 66 kV subtransmission line would then transition to the south side of West San Bernardino Avenue in a double-circuit configuration with the Calectric-Homart-Mentone 115 kV line and continue east for approximately 3,600 feet on approximately 18 LWS/wood poles and two TSPs and then turn south for approximately 1,350 feet along a private property line to Almond Avenue and would include the installation of approximately 1 TSP and 8 LWS/wood poles. Then the 66 kV subtransmission line would extend east on Almond Avenue for approximately 1,100 feet. This portion of the subtransmission line would include the installation of approximately 1 TSP and 6 new LWS/wood poles. The 66 kV subtransmission line would then extend south on Nevada Avenue for approximately 2,500 feet on approximately 11 LWS/wood poles and 4 TSPs to Interstate 10. In order to accommodate the crossing of Interstate 10, the new 66 kV subtransmission line would require the installation of 3 new TSPs. From the south side of Interstate 10, the subtransmission line would extend south along Nevada Street for approximately 4,000 feet on approximately 20 LWS/wood poles and 2 TSPs to Citrus Avenue. The 66 kV subtransmission line would then extend east on Citrus Avenue for approximately 1,300 feet on approximately 11 LWS/wood poles and 1 TSP to Iowa Street. From Iowa Street, the 66 kV subtransmission line would extend south along Iowa Street for 2,700 feet on approximately 16 LWS/wood poles and 1 TSP where it would connect to the existing San Bernardino–Redlands-Tennessee 66 kV Subtransmission Line on the south side of Barton Road.

Additional minor subtransmission relocations and associated work may be required after the completion of final engineering of the 220 kV upgrades. The exact locations and extent of such work is not known at this time.

B.2.3.3 Subtransmission Structure Types

The 66 kV subtransmission segment of the Proposed Project would utilize a combination of LWS poles, wood poles, and TSPs. See Figures B-14a and B-14b for profile drawings of various combinations of subtransmission construction with underbuilt facilities.

B.2.3.4 Subtransmission Insulators and Conductors

The Proposed Project would use non-specular conductor with polymer insulators on all suspension/dead end structures.

A fault return conductor (FRC) would typically be installed along LWS poles. Due to the combination of proposed wood poles, TSPs, and LWS poles that may be utilized, FRC may be installed on all poles for the entire length of subtransmission line route relocations. The FRC would be located approximately 1 to 2 feet above the telecommunications facilities, and approximately 4 to 6 feet below the distribution facilities. To maintain proper clearances, the telecommunication facilities and distribution facilities may need to be rearranged. Approximately 25,580 circuit feet of FRC would be installed on subtransmission structures.

The 66 kV subtransmission structures would be designed following the intent of the Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006 (SCE, 2013).

B.2.3.5 Subtransmission Underground Facilities

In order to accommodate both the San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line relocation and the San Bernardino–Redlands-Tennessee 66 kV Subtransmission Line relocation, underground 66 kV subtransmission facilities for both lines would be installed from San Bernardino Substation for approximately 800 feet along West San Bernardino Avenue. The underground 66 kV subtransmission facilities portion of the San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line route would be approximately 3,200 feet from Bryn Mawr Avenue to Mountain View Avenue and would be located near Timoteo Substation. The final determination on the number of required underground subtransmission vaults would be made during final engineering; however, nine vaults have been estimated for purposes of the project description.

Trenches approximately 20 to 24 inches wide by a minimum of 63 inches deep would be required for installation of underground facilities. Following completion of trench excavation, duct banks would be installed in the trench, including conduit, spacers, ground wire, and concrete encasement. The duct bank typically consists of six 5-inch diameter polyvinyl chloride (PVC) conduits fully encased with a minimum of 3 inches of concrete all around. Typical subtransmission (66 kV) duct bank installations would accommodate six cables. The Proposed Project would utilize all six conduits for the first 800 feet (at San Bernardino Substation) and, for the remaining 2,300 feet, only three conduits would be utilized (near Timoteo Substation), leaving three spare conduits for any potential future circuit. The subtransmission duct banks would typically be installed in a vertically stacked configuration and each duct bank would be approximately 21 inches high by 20 inches wide.

Vaults are below-grade concrete enclosures that would be installed where the duct banks terminate. The inside dimensions of the underground vaults would be approximately 10 feet wide by 20 feet long with an inside height of 9.5 feet. The vaults would be placed no more than 1,500 feet apart along the proposed underground route. TSP riser poles, located at the ends of each underground segment, would be required so the cables can transition from the underground duct bank to the overhead pole. The transition structure would support cable terminations, lightning arresters, and dead-end hardware for overhead conductors.

B.2.4 12 kV Distribution Line Improvements

Under the Proposed Project, SCE would remove a portion of the existing Dental and Intern 12 kV distribution circuits within the WOD ROW in the City of Loma Linda and would relocate the circuits as described below and shown on Figure B-13, Proposed Relocated Subtransmission and Distribution Line Routes.

- **Dental 12 kV Distribution Circuit** relocation would be approximately 1.0 mile in length and would reconnect in a new underground system, which would originate on the north side of mission Road and east of Mountain View Avenue and extend southeasterly for approximately 1.0 mile to California Street. The 12 kV underground system would then extend south along California Street for approximately 500 feet to Barton Road. At this location, the 12 kV circuit would transition from underground to overhead via a distribution riser pole and reconnect to the existing Dental 12 kV circuit. Included on the Dental is a reconductor of approximately 0.3mi of 3W 1/0ACSR and a new overhead three phase bank for the removal of an existing overhead three phase bank in the transmission corridor. This reconductor may require approximately four distribution pole replacements.

- **Intern 12 kV Distribution Circuit** relocation would be approximately 2.0 miles in length and would be relocated in the same new underground system described for the Dental 12 kV circuit. The Intern 12 kV circuit would transition from underground to overhead via a distribution riser pole at Barton Road, then continue west from California Street for 0.5 miles to Mayberry Street as underbuild (installing distribution circuit facilities under the 66 kV subtransmission circuit on the same structure) on an existing subtransmission pole. The new underbuild may require approximately one subtransmission structure be replaced and one new subtransmission structure.

B.2.5 Telecommunications System Upgrades

Within the scope of the Proposed Project, telecommunications infrastructure would be installed to provide for continued operation of SCE's Supervisory Control and Data Acquisition (SCADA) network, protective relaying, data transmission, and telephone services during the Proposed Project construction, and for the continued operation of these services following construction.

New Telecommunications Infrastructure. The new telecommunications infrastructure would include additions and modifications to the existing telecommunications system. Those modifications would include work needed to maintain telecommunications operations during and after construction of the Proposed Project, work needed to facilitate the connection of existing substations to the new OPGW located on the new 220 kV structures, and ancillary work due to the modifications to accommodate the new OPGW and other modifications necessary to facilitate construction.

As shown on Figures B-15a through B-15e (Proposed Telecommunication Routes), the following work is associated with maintaining telecommunications operations during and after construction of the Proposed Project:

1. Connect the existing Vista-Moreno fiber optic cable to the MEER in El Casco Substation.
    - Install approximately 42,000 feet of fiber optic cable on existing poles from a splice location on San Timoteo Canyon Road (near 12584 San Timoteo Road) to an existing riser pole located outside of El Casco Substation.
    - Install approximately 2,300 feet of fiber optic cable in existing conduit and cable trench between the riser pole and the El Casco MEER.
2. Connect the existing Devers-Valley OPGW to the MEER in Banning Substation.

- Install approximately 690 feet of fiber optic cable in a new underground conduit between the existing Devers-Valley No. 2 500 kV structure M21-T1 to an existing distribution pole on Coyote Trail approximately 3,200 feet west of Old Idyllwild Road. The new underground conduit would be installed by directional bore. From this existing distribution pole on Coyote Trail, install approximately 4,100 feet of new fiber optic cable east on existing distribution poles (combination of public and private lands) to a location 350 feet south of Old Idyllwild Road. From this location, install approximately 470 feet of fiber optic cable in new underground conduit to cross under the existing Devers-Valley 500 kV ROW to an existing distribution pole. From this location, install fiber optic cable overhead on a combination of distribution and subtransmission poles for approximately 2,100 feet to Wesley Street. The fiber optic cable would then extend east along Wesley Street for approximately 1,300 feet to existing SCE ROW and then north for approximately 3,300 feet to East Lincoln Street. It would transition underground at this location and install approximately 280 feet of fiber optic cable and new conduit to an existing trench in Banning Substation and would additionally install approximately 170 feet of fiber optic cable trench to Banning Substation MEER.

3. Connect the existing Devers-Valley OPGW to the MEER in Maraschino Substation.

   - Install approximately 425 feet of fiber optic cable and new underground conduit from the existing Devers-Valley No. 2 500 kV structure M24-T1 to an existing distribution vault located on the west side of Highland Springs Avenue and the north boundary of the SCE 500 kV right-of-way. From this location fiber optic cable would be installed north approximately 5,565 feet in existing conduit to an existing distribution vault approximately 300 feet north of Potrero Boulevard. From the existing vault, approximately 1,000 feet of fiber optic cable and new conduit would be installed to East First Street. From East First Street, the fiber optic cable and conduit would extend west for approximately 600 feet to an existing manhole. From the existing manhole, the fiber optic cable would extend west within existing underground conduit for approximately 12,600 feet to a distribution riser pole 200 feet west of Beaumont Avenue. The fiber optic cable would be installed overhead for approximately 3,200 feet on First Street to Veile Avenue. The fiber optic cable would then extend north on Veile Avenue on existing subtransmission poles for approximately 1,600 feet. From this location, the fiber optic cable would transition underground for 400 feet in an existing underground conduit and cable trench to the MEER located in Maraschino Substation.

4. Connect the Redlands Inland Empire District Office-San Bernardino fiber optic cable through proposed conduit and on proposed and existing poles.

   - From the MEER located inside San Bernardino approximately 2,000 feet of fiber optic cable would be installed in an existing conduit and cable trench to a riser pole located outside of San Bernardino Substation on San Bernardino Avenue. From this location, approximately 1,260 feet of fiber optic cable would be installed on existing subtransmission poles extending east to Marigold Avenue. From this location, the telecommunications facilities would then be co-located on the newly relocated San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line. The co-location of telecommunications would require approximately 6,140 feet of fiber optic cable be installed on new subtransmission structures in private and public rights-of-way to the first structure on Bryn Mawr Avenue just north of the proposed subtransmission TSP riser pole. The telecommunications facilities would transition underground at this location which would require the installation of approximately 400 feet of new conduit and fiber optic cable to an existing pole on the south side of Redlands Boulevard just east of Bryn Mawr Avenue. At this location, the new fiber optic cable would then transition overhead via a telecommunications riser and would connect to the existing fiber optic cable.

5. Connect the Timoteo-Redlands District Office fiber optic cable through existing underground conduit and on existing poles.

   - Install approximately 420 feet of fiber optic cable overhead from an existing pole on the south side of Timoteo Substation crossing to the east side of Mountain View Avenue then extending 160 feet south. The fiber optic cable would transition underground for 850 feet in existing conduit south on Mountain View and 1,550 feet east on mission Road to existing manhole.

6. Connect El Casco-Banning Fiber Optic Cable (10132) to Devers-Vista Skywrap (09033) tap to Maraschino substation.

   - Install approximately 790 feet of fiber optic cable on existing poles on Oak Valley Parkway west from an existing splice located at Oak View Drive to a distribution pole approximately 300 feet east of Golf Club drive. From this pole install approximately 1,150 feet of fiber optic cable and new conduit west crossing Interstate 10 to an existing distribution vault east of Desert Lawn Drive.

7. Connect El Casco Fiber optic Cable (10132) to Vista-Moreno fiber Optic Cable (10131) tap to El Casco

   - Install approximately 615 feet of fiber optic cable in existing underground conduit from a distribution vault on San Timoteo Canyon Road approximately 3,650 feet east of the railroad crossing at the El Casco Substation to the existing an riser pole. New conduit and fiber optic cable would be extended west from the existing conduit approximately 155 feet to an existing distribution pole. From this distribution pole approximately 3,060 feet of overhead fiber optic cable would be installed crossing the railroad to an existing pole with an existing pole on the west side of the access road to the El Casco Substation.

The following work would be conducted in order to facilitate the connection of existing substations to the new OPGW located on the new 220 kV structures. Temporary fiber optic jumpers would be used within each MEER to redirect and route the fiber optic systems and services during the Proposed Project's construction phase. The new fiber optic terminal equipment is needed to compensate for the losses created by the redirected fiber optic routes.

8. Connect Devers-Vista OPGW to the MEER in Banning Substation

   - From the new 220 kV structure (Structure 4S01), install approximately 500 feet of fiber cable and new underground conduit to an existing distribution pole located approximately 660 feet north of Summit Drive on San Gorgonio Avenue. The new fiber optic cable would connect on that pole to an existing fiber optic cable that extends to the MEER in Banning Substation.

9. Connect Devers-Vista OPGW to the MEER in Maraschino Substation

   - From the new 220 kV structure (Structure 4S35), install approximately 2,012 feet of fiber optic cable and new underground conduit to an existing distribution pole on Oak View Parkway approximately 690 feet east of Noble Creek across from Noble Creek Park. The new fiber optic cable would riser up the distribution pole and connect to an existing fiber optic cable that extends to the MEER in Maraschino Substation.

10. Connect the Devers-Vista OPGW to the MEER in El Casco Substation

   - From the new 220 kV structure (Structure 3S02), install approximately 200 feet of fiber optic cable and new underground conduit to an existing manhole located in the existing SCE ROW immediately south of the El Casco Substation. The new fiber optic cable would connect in that manhole to an existing fiber optic cable that extends to the MEER in El Casco Substation.

   - From the new 220 kV structure (Structure 3S25), install approximately 200 feet of fiber optic cable and new underground conduit to an existing distribution pole located nearby. The new fiber optic cable would connect on that pole to an existing fiber optic cable that extends to the MEER in El Casco Substation.

11. Connect the Devers-Vista OPGW and Devers–El Casco OPGW to the MEER in Devers Substation.

   - From the new 220 kV structure (Structure 6N10), install approximately 1,805 feet of fiber optic cable and new underground conduit to an existing telecommunications manhole located beside the driveway to the Devers Substation. The fiber optic cable would then continue in existing conduit to the 220 kV MEER in Devers Substation.

   - From the new 220 kV structure (Structure 6S10), install approximately 1,100 feet of fiber optic cable and new underground conduit to an existing manhole located inside WOD Interim Reactors. The fiber optic cable would then continue in existing conduit to the 200 kV MEER in Devers Substation.

12. Connect the Devers–El Casco OPGW and El Casco–San Bernardino OPGW to the MEER in El Casco Substation.
    - From the new 220 kV structure (Structure 4N64), install approximately 850 feet of fiber optic cable and new conduit to an existing distribution manhole located outside El Casco Substation. From this manhole the fiber optic cable would continue in existing conduit to the 200 kV MEER in the El Casco Substation.
    - From the new 220 kV structure (Structure 3N02), install approximately 350 feet of fiber optic cable and new underground conduit to an existing cable trench located inside the El Casco Substation. The fiber optic cable would then continue to the El Casco 220 kV MEER.
    - From the new 220 kV structure (Structure 3N02), install approximately 115 feet of fiber optic cable and new underground conduit to new 220 kV structure (Structure 4N64).
13. Connect the El Casco–San Bernardino OPGW and San Bernardino–Vista OPGW to the MEER in San Bernardino Substation.
    - From the new 220 kV structure (Structure 1E26), install approximately 40 feet of fiber optic cable and new underground conduit to a new manhole. From the new manhole install approximately 490 feet of fiber optic cable and new conduit to an existing manhole inside the San Bernardino Substation. From this existing manhole the fiber optic cable would continue in existing conduit to the MEER inside San Bernardino Substation.
    - From the new 220 kV structure (Structure 1W26), install approximately 55 feet of fiber optic cable and new underground conduit to the new manhole installed for the route from Structure 1E26. From the new manhole the fiber optic cable would continue in existing conduit to the MEER inside San Bernardino Substation.
14. Connect the Devers-Vista OPGW to the MEER in Vista Substation.
    - From the new 220 kV structure (Structure 2N36), install approximately 420 feet of fiber optic cable and new conduit to an existing manhole inside the Vista substation, from the existing manhole install fiber optic cable in existing conduit to the MEER inside Vista Substation.

Fiber Optic Cable Removal. The removal of the existing fiber optic cable (located on the OHGW) from the existing 220 kV structures is described in Section B.2.1.1, 220 kV Transmission Line Segments. Additionally, removal of the fiber optic portions from the 220 kV existing structures to connections in the field and/or at existing substations would be required and are described below:

- Removal of approximately 250 feet of fiber optic cable from conduit and 600 feet from a cable trench within Vista Substation.
- Removal of approximately 325 feet of fiber optic cable from conduit between existing Structure M17-T2 (existing Devers-Vista No. 2 220 kV structure) and a riser pole 660 feet north of Summit Drive on San Gorgonio Avenue.
- Removal of approximately 2,595 feet of fiber optic cable from conduit between existing Structure M24-T2 (existing Devers-Vista No. 2 220 kV structure) and the riser pole located on Oak View Drive and Oak valley Parkway.
- Removal of approximately 120 feet of fiber optic cable from conduit between existing Structure M29-T2 (existing Devers-Vista No. 2 220 kV structure) and existing manhole located in the SCE ROW immediately south of El Casco Substation.

- Removal of approximately 100 feet of fiber optic cable from existing conduit between Structure M32-T3 (existing Devers-Vista No. 2 220 kV structure) and riser pole nearby.
- Removal of approximately 60 feet of fiber optic cable from conduit between existing Structure M1-T1 (existing Devers–San Bernardino 220 kV structure) and riser pole on Redlands Boulevard.
- Removal of approximately 4,810 feet of fiber optic cable from overhead poles between Timoteo Substation and a pole on the south side of mission Road at the SCE ROW.

Ancillary Telecommunications Work. The following ancillary work would be conducted to accommodate the new OPGW and other modifications necessary to facilitate construction of the Proposed Project:

- New telecommunication equipment would be installed in the MEERs at Vista, El Casco, Banning, Devers, San Bernardino, Maraschino, and Timoteo Substations and the Redlands Inland Empire District Office.
- During construction, temporary fiber optic jumpers (i.e., connectors) would be installed between the equipment inside the MEERs at Vista, El Casco, San Bernardino, Banning, Devers, Maraschino, Purewater, Mentone, Zanja, and Yucaipa Substations to maintain telecommunication services, systems, ad circuits. Temporary fiber optic jumpers would be used within a substation's telecommunication facility to redirect and route the fiber optic systems and services during the Proposed Project's construction phase. The new fiber optic terminal equipment is needed to compensate for the losses created by the redirected fiber optic routes.

B.2.6 Right-of-Way Requirements

Table B-3 lists ROW widths of SCE's existing West of Devers corridor.

SCE would acquire property rights to support the Proposed Project as required. The Proposed Project lines would be built on a combination of existing and new ROW. This would require upgrading existing rights and acquiring new land rights. The land rights SCE would acquire may include a combination of grants, leases, licenses, franchise, and easements over public and private lands.

Temporary land rights (e.g., easements, permits, and license) may be required for access roads, laydown areas, pulling sites, helicopter staging yards, construction yards and shoo-fly corridors during construction.

Table B-3. Existing SCE Right-of-Way Widths

WOD Segment	Range of ROW Width (feet)
Segment 1	150' to 245'
Segment 2	115' to 500'
Segment 3	400' throughout
Segment 4	400' throughout
Segment 5	150' to 450'
Segment 6	100' to 450'

B.2.6.1 Tribal Lands: Morongo Band of Mission Indians

Within Segment 5, the Proposed Project would cross approximately 8 miles of the Trust Lands (reservation) of the Morongo. SCE and Morongo entered into a ROW agreement that covers the entire Segment 5 ROW, as further explained in Section A (Introduction). Based on the SCE-Morongo ROW agreement, approximately 3 miles of existing WOD ROW would be abandoned and replaced with a new 3-mile alignment. SCE would apply to the Federal Bureau of Indian Affairs (BIA) for the grant of ROW across the new 3-mile alignment and Morongo would consent to SCE's application[4] for a new 50-year ROW Agreement.

[4] Pursuant to 25 U.S.C. § 323.

As part of the ROW agreement, on November 27, 2012, SCE entered into a Development and Coordination Agreement (DCA) with Morongo Transmission LLC[5] that provides Morongo Transmission the option to invest up to $400 million at the time of commercial operation in exchange for 30-year lease rights to a pro rata portion of the proposed facilities. SCE has stated that this investment option was a key factor in the negotiation of a new ROW agreement that allows the Proposed Project be built across the Morongo tribal-trust lands. However, Morongo Transmission's transmission transfer capability rights lease is contingent upon receipt of regulatory approvals from the Federal Energy Regulatory Commission (FERC)[6] and the CPUC. Under the terms of the ROW agreement, if such FERC and CPUC regulatory approvals are not obtained, the Morongo Tribe would have the right to terminate the ROW agreement.

As part of its Application A.13-10-20, SCE requested an Interim Decision from the CPUC for authority to lease transfer capability rights in a portion of the Proposed Project's upgraded and reconfigured transmission lines to Morongo Transmission. SCE has stated that approving an Interim Decision early in the process would be important because the ROW agreement is contingent on the CPUC approval of the proposed transaction. However, at the Prehearing Conference on March 4, 2015, SCE stated that it was no longer requesting the Interim Decision.

Without a ROW agreement, SCE would have to restart and develop a new project that bypasses the Morongo tribal-trust lands. The terms of the proposed transaction set forth in the DCA and the ROW agreement are included in Appendix J of SCE's Application A.13-10-020 (dated October 25, 2013) and Appendix 3 in this EIS.

B.2.6.2 BLM-Administered Public Lands

Within Segment 6, the Proposed Project would cross approximately 3.5 miles of lands managed by the Federal Bureau of Land Management (BLM) as a designated utility corridor. The Proposed Project would be located primarily within the BLM ROW for the existing WOD transmission lines, although some disturbance may occur outside the existing ROW. Disturbance beyond the existing ROW within BLM would be both temporary and permanent. Temporary disturbance that may occur outside of the ROW includes areas, such as construction work areas, temporary access roads, cut/fill slopes, and pulling locations. Permanent disturbance would include areas of new access road construction, crane pads, and existing access roads to be continually maintained.

SCE will seek a revised ROW grant from the BLM to accommodate the Proposed Project. The BLM's consideration of the ROW grant would trigger environmental review under the National Environmental Policy Act (NEPA), and the BLM would act as the NEPA lead agency. Because the Proposed Project is within a designated utility corridor, the revised ROW would not require a land use plan amendment.

B.2.6.3 Transmission Line Right-of-Way Requirements

In addition to the rights that would be acquired through the SCE-Morongo ROW Agreement (see Section B.2.6.1), the following acquisitions may be required for the 220 kV transmission lines:

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5 Morongo Transmission LLC is a venture between the Morongo Band of Mission Indians and Coachella Partners LLC, a Delaware limited liability company formed for the purposes of the Proposed Transaction, for which the Morongo Tribe owns the majority of interest.

6 On May 31, 2013, SCE and Morongo Transmission filed a joint application at FERC pursuant to Section 203 of the Federal Power Act requesting authorization to lease transfer capability in a portion of the WOD-UP by SCE to Morongo Transmission. On September 3, 2013, FERC issued Order Authorizing Disposition of Jurisdictional Facilities, 144 FERC 61,178 (2013) granting SCE's and Morongo Transmission's joint 203 Application, as being consistent with the public interest.

- Subject to completion of final engineering, 10 miles of existing ROW would require an upgrade of land rights and approximately 6 miles would require new acquisition from private property owners for additional ROW, totaling a combined approximate of 194 acres. Approximately 33 acres, of new access and spur roads leading to the new structure locations, which is approximately 33 acres may need to be acquired from private property owners.

For the 66 kV Subtransmission line relocations, the following acquisition may be required:

- The total distance for both relocated 66 kV subtransmission lines is approximately 6.0 miles, of which 2.8 miles would be located in franchise area,[7] 1.5 miles would require approximately 9 acres of new acquisition, 1.3 miles would be located within existing easement, and 0.9 miles may be converted to underground within franchise area.

B.2.6.4 Federal Aviation Administration Considerations

The alignment of the lines and terrain in the region may require Federal Aviation Administration (FAA) notification due to the above ground height of the conductor or OPGW between structures or the height of the transmission, subtransmission and shoo-fly structures. After considering the information provided by SCE, the FAA will make formal determinations as to which line segments should be installed with lights or marker balls to minimize or eliminate any potential hazards.

220 kV Transmission Line. SCE anticipates that over the entire length of the Proposed Project (220 kV transmission lines component) approximately 171 structures and 113 spans would be submitted to the FAA in order that the FAA could make the ultimate determinations for potential hazards. The structures requiring notification are more likely to trigger appurtenances that make structures or conductor spans more visible to aircraft. FAA's recommendations could include installation of lights on proposed new structures, or they could suggest installation of orange, yellow and white marker balls on certain conductor spans.

Due to the proximity to the Banning Airport and potential feasibility issues with the route preferred by the Morongo Tribe, SCE submitted early FAA notification and received determinations from the FAA for the structures in the western most portion of Segment 5. FAA has indicated that 18 structures on the west end of the Morongo Reservation would benefit from lighting on the west end of the Morongo Reservation in order to consider them as "no hazard" facilities (see EIS Appendix 1B) (SCE, 2014). SCE anticipates four additional structures will benefit from lighting based on final engineering and resubmittal to the FAA.

In order to illustrate the remaining general locations where structure and conductor height would be more visible, SCE expects FAA to make determinations on the following structures (for lighting) and spans (for marker balls):

- 47 structures and 2 spans in Segment 1
- 12 structures and 14 spans in Segment 2
- 8 structures and 56 spans in Segment 3
- 16 structures and 23 spans in Segment 4
- 88 structures and 8 spans in the eastern portion of Segment 5
- 0 structures and 10 spans in Segment 6

[7] Franchise is a right or privilege conferred by agreement between SCE and local jurisdictions.

The specific structures and spans that would likely require FAA notification and determinations are listed in Appendix 1B. Except for the western portion of Segment 5, the FAA has not conducted its review of the Proposed Project and thus has not issued any lighting or marker ball recommendations to date. The number of structures requiring FAA notifications would be updated following completion of final engineering. SCE would file the necessary FAA Form 7460 for structures or lines upon completion of final engineering and prior to construction, as outlined in Federal Aviation Regulations (FAR) Part 77. To the extent practicable, FAA recommendations would be implemented into the design of the Proposed Project.

If a span requires three or fewer marker balls, then the marker balls on the span would all be aviation orange. If a span requires more than three marker balls, then the marker balls would alternate between aviation orange, white, and yellow. Marker balls would be 36 inches in diameter. If a structure requires lighting, SCE would comply with FAA Advisory Circular 70/7460 which, depending on the structure height, could require either one steady light at the top of the structure or one red flashing light at the peak/top and two red steady lights at the middle height of the structure.

66 kV Subtransmission Line. The relocated 66 kV subtransmission lines could also require FAA notification for certain subtransmission structures because of the proximity to the San Bernardino Airport and terrain in the region. The FAA notification process and installation of marker ball and structure lighting is the same as described above. At this time, SCE has neither determined nor been informed by the FAA as to whether marking and/or lighting of the 66 kV subtransmission line route spans or poles would be recommended. SCE would submit all relevant information, including any required Form 7460 to the FAA, for the 66 kV subtransmission line routes.

Shoo-Flies. Depending on the height and location of the temporary shoo-flies (described in Section B.3.3.13), FAA hazard marking could be required by the FAA. SCE has stated that specific shoo-fly locations cannot be determined until final design and engineering efforts are completed and the construction sequencing plans are finalized. However, whenever specific shoo-fly locations are determined, SCE would perform the same level of analysis to determine appropriateness for FAA filing as would be performed for any and all permanent structures. SCE would submit all relevant information including any required Form 7460 to the FAA for the shoo-fly structures.

B.3 Construction of Proposed Project

B.3.1 General Construction

If approved by the CPUC, BLM, and other permitting agencies, construction of the Proposed Project is currently estimated to commence early 2016 with a proposed operational date of December 2020. Work would take place on multiple Project components at a time, but, in general, efforts related to telecommunications relocations, subtransmission (66 kV) line relocations, and distribution (12 kV) line relocations would need to occur in the initial stages of construction. Bulk transmission (220 kV) line upgrades and substation upgrades would occur throughout the duration of construction. Shoo-fly facilities would be erected to provide a structure upon which to place the live wire while permanent structures were being built. SCE's construction schedule and sequence is further described in Section B.3.10.

Table B-4, Approximate Land Disturbance Summary for the Proposed Project, presents the approximate acres of temporary and permanent disturbance associated with the Proposed Project. The acres of disturbance include access roads and other land disturbance associated with the transmission and subtransmission work.

Table B-4. Approximate Land Disturbance Summary for the Proposed Project

Project Element	Approximate Total Acres Temporarily Disturbed	Approximate Total Acres to be Restored	Approximate Total Acres Permanently Disturbed
Transmission and subtransmission	4,796.4	4,286.5	510.0
Distribution	9	9	0
Telecommunication system	6	6	0
Total	4,811.4	4,301.5	510.0

Source: SCE, 2013.

It is not anticipated that lighting would be used at construction sites unless a permit condition, an outage requirement, critical work activity and/or an emergency situation would require work to be conducted during off hours. In those instances, lighting would consist of temporary construction lighting systems that utilize shielding to direct the light away from sensitive receptors, to the extent feasible.

In populated areas, SCE would post notices on the ROW or at other sites where the public would be affected by construction activities. Notices would be posted approximately one month prior to commencement of work.

B.3.1.1 Staging Areas and other Work Areas

Construction of the Proposed Project would require the establishment of temporary staging yards. Staging yards would be used as reporting locations for workers, vehicle and equipment parking, and material storage. The yards may also have construction trailers for supervisory and clerical personnel. Staging yards may be lighted for staging and security.

Sites were selected based on proximity to the project, having existing useable areas of reasonably level terrain, and vehicular access. Some of the yards listed are currently in use by other projects and are projected to be vacated by the time of need for this project. The in-use yards would be reused as an effort to reduce environmental impacts.

SCE anticipates using one or more of the possible locations listed in Table B-5, Potential Staging Yard Locations and seen in Figure B-16, Proposed Staging Yard Locations, as the staging yard(s) for the Proposed Project. Typically, each yard would be 3 to 20 acres in size, depending on land availability and intended use. Table B-6 provides the estimated land disturbance at the potential staging yards.

Table B-5. Potential Staging Yard Locations

Yard Name*	Location	Condition	Approximate Area (acres)
Mountain View No. 1 Material and Equipment Staging Area	West of Mountain View Avenue & North of San Bernardino Avenue, Redlands	Previously disturbed, vacant (fenced)	2.8
Lugonia Material and Equipment Staging Area	South of Lugonia Avenue & West of Segment 1 Corridor, Redlands	Recently used as staging area for a pipeline project (fenced)	3.9
Beaumont No. 1 Material and Equipment Staging Area	Northeast corner of South California Avenue & East Third Street, Beaumont	Currently in use as a staging area for an electrical project (fenced, gravel)	3.9
Beaumont No. 2 Material and Equipment Staging Area	853 E. Third Street, East of Maple Avenue, Beaumont	Currently in use as a staging area for an electrical project (fenced, gravel)	5.0

Table B-5. Potential Staging Yard Locations

Yard Name*	Location	Condition	Approximate Area (acres)
Matich Material and Equipment Staging Area	Southwest corner of E. Theodore Street & N. Hathaway Street, Banning	Previously disturbed, vacant (50 percent concrete)	21
Hathaway No. 1 Material and Equipment Staging Area	600 N. Hathaway Street, Banning	Previously disturbed, buildings, (concrete, fenced)	30.0
Hathaway No. 2 Material and Equipment Staging Area	Northeast side of East Williams Street and North Hathaway, Banning	Unimproved	15.7
San Timoteo Material and Equipment Staging Area	30595 San Timoteo Canyon Road, Redlands	Previously disturbed, vacant	17.0
Poultry Material and Equipment Staging Area	Directly in front of MCM Poultry, San Timoteo Canyon Road, Redlands	Previously disturbed, vacant	13.0
Devers Material and Equipment Staging Area	East of SCE's Devers Substation	Currently in use as staging area for an electrical project (fenced, gravel)	9.5
Grand Terrace Material and Equipment Staging Area	Northeast corner of Mt. Vernon Avenue and Canal Street, Grand Terrace	Vacant, previously disturbed SCE utility corridor	4.4

Source: SCE, 2013.
*Transmission line materials have been identified as the project component for use at each of the yards; however, subtransmission, distribution, and telecommunications materials may also be stored at each of these yards.

Preparation of the staging yards would include temporary perimeter fencing and, depending on existing ground conditions at the site, grubbing any existing vegetation, and the application of gravel or crushed rock.

Table B-6. Potential Staging Yard Approximate Land Disturbance

Project Feature	Site Quantity	Disturbed Acreage Calculation (L × W)	Acres Disturbed During Construction	Acres to be Restored (Temporary)	Acres Permanently Disturbed
Grand Terrace Material and Equipment Staging Area	1	n/a	4.5	0	4.5
Mountain View No. 1 Material and Equipment Staging Area	1	n/a	2.8	0	2.8
Lugonia Material and Equipment Staging Area	1	n/a	3.7	0	3.7
Beaumont No. 1 Material and Equipment Staging Area	1	n/a	0*	0	0
Beaumont No. 2 Material and Equipment Staging Area	1	n/a	0*	0	0
Matich Material and Equipment Staging Area	1	n/a	21	0	21
Hathaway No. 1 Material and Equipment Staging Area	1	n/a	0*	0	0
Hathaway No. 2 Material and Equipment Staging Area	1	n/a	14.0	0	14.0
San Timoteo Material and Equipment Staging Area	1	n/a	17.0	0	17.0
Poultry Material and Equipment Staging Area	1	n/a	13.0	0	13.0
Devers Material and Equipment Staging Area	1	n/a	0*	0	0

Table B-6. Potential Staging Yard Approximate Land Disturbance

Project Feature	Site Quantity	Disturbed Acreage Calculation (L × W)	Acres Disturbed During Construction	Acres to be Restored (Temporary)	Acres Permanently Disturbed
Total Estimated Disturbance Area				0	55.0

Source: SCE, 2013.
The disturbed acreage calculations are estimates based upon SCE's preferred area of use for the described project feature, the width of the existing ROW, or the width of the proposed ROW. They do not include any new access/spur road information. They are subject to revision based upon final engineering and review of the project by SCE's Construction Manager and/or contractor awarded the project. In summary, the disturbance calculations are based on preliminary calculations and are expected to change.
*The yard has previously been improved to a condition where the project can use it without further modifications. Therefore, no disturbance acreage is included for this location.

Staging yards would have lighting installed for security purposes, and this lighting system would utilize a shielding system to limit glare to surrounding areas (SCE, 2014a). Power and telecommunications would be needed at the staging areas for office trailer(s) and lighting at the site. These connections would be established from the nearest existing facilities (e.g., distribution pole) and/or service provider connection.

Any land that may be disturbed at the staging yards would be restored to preconstruction conditions or to conditions agreed upon between SCE and the landowner following the completion of construction for the Proposed Project. Fencing and other improvements at the staging yard locations may stay in place post-construction per the landowner's request. The potential staging yard locations identified as previously disturbed would be returned to pre-existing conditions.

Substation staging areas would be located at the existing substations where modifications for this project would occur. This project does not include the construction of any new substations; however, there would be modifications to existing substations as described in Section B 2.2, Substation Improvements. Modifications or upgrades to the existing Vista, San Bernardino, El Casco, Etiwanda, and Devers Substations would be confined inside each existing site boundary fence for all the facilities. Substation staging areas would typically be accessed by construction vehicles utilizing existing access roads, walk-ins, and by helicopter if necessary.

Materials commonly stored at the construction staging yards would include, but not be limited to construction trailers, construction equipment, portable sanitation facilities, steel bundles, steel/wood poles, conductor reels, OHGW or OPGW reels, hardware, insulators, cross arms, signage, consumables (such as fuel and filler compound), waste materials for salvaging, recycling, or disposal, and BMP materials (straw wattles, gravel, and silt fences).

Fuel and hydraulic fluids would be located at the construction staging yards. Normal maintenance and refueling of construction equipment would be conducted at these yards. All refueling and storage of fuels would be performed in accordance with the Storm Water Pollution Prevention Plan (SWPPP). It would include Best Management Practices (BMPs) to address the handling of hazardous materials during construction activities. Fuel from the construction staging yards may be transported to other portions of the project area (e.g., structure locations, access roads, ROW, etc.) via mobile refuelers. When not in use (e.g., parked) mobile refuelers would be subject to general containment provisions (e.g., parking area with berms) to contain potential leaks or spills.

A majority of materials associated with the construction efforts would be delivered by truck to designated staging yards, while some materials may be delivered directly to the temporary transmission and subtransmission construction areas.

Transmission and subtransmission construction areas serve as temporary working areas for crews and where project-related equipment and/or materials would be placed at or near each structure location, within SCE ROW or franchise. Table B-7, Approximate Laydown/Work Area Dimensions, identifies the approximate land disturbance for these construction area dimensions (for both removal and installation) for the Proposed Project.

Table B-7. Approximate Laydown/Work Area Dimensions

Laydown/Work Area Feature[1]	Preferred Size (L × W)[2]	Acreage
Temporary guard structures	150 feet × 50 feet	0.2
Lattice steel towers	220 feet × 220 feet	1.1
TSPs	200 feet × 150 feet	0.7
H-Frames	175 feet × 125 feet	0.5
LWS / wood poles	175 feet × 100 feet	0.4
Wood guy poles	175 feet × 100 feet	0.4
Stringing, pulling/tensioning setup areas	600 feet × 150 feet	2.0
Stringing setup areas: splices, pulling/tensioning	200 feet × 150 feet	0.7
Underground vaults	100 feet × 100 feet	0.2

Source: SCE, 2013.

1 - Field and safety conditions may dictate that wire-sites, structure pads, or access roads may be used to stage certain types of helicopter-installed materials (including, but not limited to, travelers, insulators, and light tools) to limit the distance external loads are carried.

2 - The acreage of disturbance per laydown/work area would remain consistent with those numbers represented in this table. However, the preferred width and length of these laydown/work areas are provided for reference only and would likely change based on field conditions. For temporary guard structures, the preferred length may increase depending on the angle of crossing.

Any structure construction activities performed by helicopter would be based out of local airports/ airfields located within the vicinity of the ROW and staging yards, where possible. Otherwise, the helicopter would be located along the ROW and existing access roads, as needed. Mobile fueling apparatus would be required where helicopters would be staged along the ROW during construction. Use of the mobile fueling equipment would be operated in accordance with proper spill containment requirements.

B.3.1.2 Storm Water Pollution Prevention Plan

Construction of the Proposed Project would disturb a surface area greater than 1 acre. Therefore, SCE would be required to obtain coverage under the State Water Resources Control Board's (SWRCB's) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ. Commonly used BMPs are stormwater runoff quality control measures (boundary protection), erosion and sediment controls, good housekeeping measures, dewatering procedures, and concrete waste management. A SWPPP would be based on final engineering design. It is anticipated that there would be multiple SWPPPs for the Proposed Project.

B.3.1.3 Dust Control

During construction, migration of fugitive dust from the construction sites would be limited by control measures set forth by the South Coast Air Quality Management District (SCAQMD) Rule 403 and Rule 403.1. These measures may include the use of water trucks and other dust control measures. Existing water sources within the project area would be utilized for dust suppression.

Water tanks needed for dust suppression may be required in multiple areas in order to support construction activities. Water tanks typically hold 10,000 gallons and would be filled by water trucks or local fire hydrants on a regular basis during construction. Water tanks during construction would be placed in areas identified for disturbance (e.g., access roads, temporary laydown/work areas, and the ROW).

B.3.1.4 Water Usage

SCE developed an estimate of the amount of water needed to support construction activities related to fugitive dust mitigation, vegetation restoration, and soil compaction/concrete placement for the West of Devers Upgrade Project. This estimate was based on assumptions related to the area of land disturbance, project duration, seasonal timing of work (which would result in varying amounts of evapotranspiration), type of construction activity, and roadway access/conditions (SCE, 2014b).

SCE estimated it would use up to a maximum of 250 acre-feet of water on an annual basis for construction purposes. Table B-8 indicates the water purveyors that may be asked to provide water for construction use. After final engineering is completed, SCE will contact these water purveyors to determine the availability of water in each jurisdiction. Water would be obtained at the locations closest to the locations of need, in order to minimize the distance traveled by water trucks (to reduce air emissions).

Table B-8. Potential Water Providers to WOD Upgrade Project

Location	Water Provider	Type (City, ID, Private)	Total Supply AF (2010)	Total Use AF (2010)
San Bernardino County				
Colton, CA	City of Colton Water Division	City	15,000	11,169
Grand Terrace, CA	Riverside Highland Water Company	Corporation	Unknown	Unknown
Loma Linda, CA	City of Loma Linda Water Division	City	4,530	5,490
San Bernardino, CA	San Bernardino Municipal Water Department	City	55,940	52,627
Highlands, CA	East Valley Water District	Organization	22,722	22,570
Redlands, CA	Redlands Municipal Utilities & Engineering Department	City	31,479	27,902
Riverside County				
Calimesa, CA	South Mesa Water Co.	Public agency	Unknown	Unknown
Calimesa, CA	Yucaipa Valley Water District	Public agency	18,969	12,128
Beaumont, CA	Beaumont Cherry Valley Water District	Public agency	11,399	11,023
Banning, CA	City of Banning Water Division	City	9,553	7,587
Cabazon, CA	Cabazon Water District	Muni. Water District	Unknown	Unknown
Palm Springs, CA	Desert Water Agency	Irrigation District	61,000	50,500
Coachella Valley and East Palm Springs, CA	Coachella Valley Water District	Regional Water District	109,488	109,488
Desert Hot Springs, CA	Mission Springs Water District	Water District	8,665	8,664

Source: SCE, 2014b, CPUC Data Request #1; and DWR, 2014.

B.3.1.5 Traffic Control

Construction activities completed within public-street ROWs would require the use of a traffic control service, and any lane closures would be conducted consistent with local ordinances and ministerial city permit conditions. These traffic control measures would be consistent with those published in the California Joint Utility Traffic Control Manual (SCE, 2013).

B.3.2 Modifications to Existing Substations

The following section describes the construction activities associated with installing the components described in Section B.2.2, Substation Improvements.

Work at Vista, San Bernardino, El Casco, and Devers Substations would occur on the Proposed Project-related 220 kV facilities and would include replacement of disconnect switches, circuit breakers, foundations, and reconductoring line positions. Circuit breakers and disconnect switches would be replaced with higher-rated equipment. Work at Etiwanda Substation would occur within the existing Mechanical and Electrical Equipment Room (MEER) and include replacement of protective relay equipment.

All substation-related work would be conducted within the existing substation walls or fence lines. The Proposed Project would not result in changes to access, parking, drainage patterns, or modifications to perimeter walls or fencing at the existing substations.

Below-grade facilities, such as new equipment foundations, ground grid, and conduits, would be installed at existing substations. All work would restore grade back to original condition.

Above-grade work related to the substation modifications would be conducted only within the perimeter fence of the existing substations.

B.3.2.1 Substation Ground Surface Improvements

The import and/or export of soil and the import of concrete would be required for new equipment foundations installed at several existing substation locations. A summary of substation soil and concrete quantities is provided in Table B-9, Substation Cut/Fill Grading and Surface Improvements Summary.

Table B-9. Substation Cut/Fill Grading and Surface Improvements Summary

Element	Material	Approximate Surface Area (square feet)	Approximate Volume (cubic yards)
Devers Substation			
Substation equipment foundations, cut	Concrete	1,200	110
Substation equipment foundations, import	Concrete	1,000	210
Site fill	Soil	200	—
Site cut	Soil	—	100
El Casco Substation			
Substation equipment foundations, cut	Concrete	800	50
Substation equipment, import	Concrete	1,000	60
Site cut	Soil	200	10
Vista Substation			
Substation equipment foundations, cut	Concrete	1,200	110
Substation equipment foundations, import	Concrete	1,000	200
Site fill	Soil	200	—
San Bernardino Substation			
Substation equipment foundations, cut	Concrete	2,900	330
Substation equipment foundations, import	Concrete	1,600	260
Site Fill	Soil	1,300	60

Source: SCE, 2013.

Excess soil excavated from the substation locations may be used as fill for other project elements or disposed of off-site at a properly licensed waste facility. Similarly, excess soil excavated from other project elements may be used as fill at other substation locations.

B.3.3 Transmission and Subtransmission Line Construction Process

The following sections describe the construction activities associated with installing the transmission and subtransmission line components for the Proposed Project.

B.3.3.1 Access, Spur, and Temporary Roads

SCE intends to use approximately 220 miles of new and existing access/spur roads for the Proposed Project; of that, it is estimated that 130 miles of those roads would require rehabilitation, and 20 miles of planned new access/spur roads would require more extensive construction activities. Both scenarios are described below.

Access Roads. Typical construction activities associated with rehabilitation of existing dirt access roads include vegetation clearing, blade-grading and recompacting to fill potholes, remove ruts, and other surface irregularities in order to provide a smooth dense riding surface capable of supporting heavy construction and maintenance equipment. Existing dirt roads may also require additional upgrades such as protection for underground utilities and widening existing roads that are too narrow for safe vehicle operation. Repair and stabilization of slides, washouts, and other slope failures may be necessary to prevent future failures. The type of structure to be utilized would be based on specific site conditions to be determined during final engineering.

Typical construction activities for new roads are similar to those described for the rehabilitation of existing dirt roads, but may also include the following additional construction requirements that depend upon the existing land terrain.

- *Existing relatively flot terroin opproximotely 0 to 4 percent grade:* Construction activities are generally similar to rehabilitation activities to existing dirt roads, and in addition may require activities such as grubbing and constructing drainage improvements (e.g., wet crossings, water bars, and/or culverts).
- *Existing rolling terroin approximotely 5 to 12 percent grade:* Construction activities generally include activities typical to flat terrain and in addition may require activities such as cut and fill in excess of 2 feet in depth, benched grading, drainage improvements (e.g., v-ditches, down drains, and energy dissipaters), and slope stability improvements such as retaining walls and mechanically stabilized earth walls. Figure B-17, Typical Retaining and Mechanically Stabilized Earth Walls, shows the types of retaining and mechanically stabilized earth walls typically used by SCE. The extent of slope stability improvements and structure type is determined after site-specific geotechnical investigations and final engineering are performed.
- *Existing mountoinous terroin over 12 percent grode:* Construction activities would include similar activities as rolling terrain construction activities and may likely require significant cut and fill depths, benched grading, drainage improvements, and slope stability improvements. In some cases, paving of the road may be necessary.

Generally, dirt access roads would have a minimum 14-foot drivable width with 2 feet of shoulder on each side to accommodate required drainage features depending on the existing topography. Curves would generally have a minimum radius of curvature of 50 feet measured from the center line of the drivable road width. Along a curved section, the drivable road width would be typically widened an additional 1 to 8 feet depending on the radius of the curvature to accommodate construction and maintenance vehicles. Access road gradients may be modified so that sustained grades do not generally exceed 12 percent. Grades greater than 12 percent would be permitted when such grades do not exceed 40 feet in length and are located more than 50 feet from any other excessive grade. In some instances, SCE may deviate from mitigating grades greater than 12 percent.

Retaining walls may be required along some of the access roads. Retaining wall locations are preliminarily assumed to occur within areas identified for proposed grading. For the purposes of the environmental analysis, it is estimated that the project will have approximately 3,168 linear feet of retaining wall structures spread amongst the various project segments. The specific number of retaining wall structures and locations would be identified during final engineering. Retaining walls could range between 2 and 18 feet in exposed height. Impact pile driving equipment could be used for the installation of soldier pile-type retaining walls, though most are expected to be drilled piers.

The estimated length of new retaining walls for each segment is summarized in Table B-10, Approximate Length of New Retaining Wall per Segment, and shown in Figure B-17.

Table B-10. Approximate Length of New Retaining Wall Per Segment

	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total
Retaining wall (feet)	0	1,124	1,192	431	231	190	3,168

Source: SCE, 2013. As updated by SCE Draft EIR/EIS Comment Letter 2015.

Spur Roads. New spur roads would be constructed similar to how access roads are described above. The new spur roads would typically have circle-type turnaround areas around the structure location. Where a circle-type turnaround is not practical, an alternative turnaround configuration would be constructed to provide safe ingress/egress of vehicles to access the structure location. It is common to use access roads and turnaround areas for structure access, parking, laydown areas, and as a crane pad set-up area during construction activities. In some instances, the turnaround area would remain as a permanent feature.

Temporary Roads. Temporary construction roads may be required for construction of the 220 kV transmission portion of the Proposed Project. These roads would be separate from the access and spur roads. These temporary roads would be constructed solely for the purpose of facilitating construction activities when use of existing or proposed permanent roads would not be feasible. Approximately 15 miles of new roads would be used for temporary construction access. Temporary and permanent roadways would be a minimum of 12 feet wide. In areas where the existing road width is greater than 18 feet, the entire road width would be used for the Proposed Project.

Land disturbance related to access/spur roads and retaining walls includes temporary construction work areas and permanent areas to be maintained for ongoing operations and maintenance. Additional information related to land disturbance for this portion of the Proposed Project is included in Section B.3.3.15, Transmission and Subtransmission Land Disturbance.

Project-related foot travel between structures and along the SCE ROW may be necessary during construction. Crews walking from structure to structure at times may be more efficient than utilizing vehicle or helicopter travel to and from structure sites. Project-related foot travel would occur in areas identified for temporary and/or permanent disturbance (e.g., access roads, temporary laydown/work areas, or the ROW).

B.3.3.2 Structure Site Preparation

The new structure pad locations and laydown/work areas (previously referenced in Table B-7, Approximate Laydown/Work Area Dimensions in Section B.3.1.1) would first be graded and/or cleared of vegetation as required to provide a vegetation-free surface for structure installation. Sites would be graded to enable water to flow in the direction of the natural drainage, which would be designed to prevent ponding and erosion that could cause damage to the structure footings. The graded area would be compacted to be capable of supporting heavy vehicular traffic.

Erection of the structures typically requires establishment of a crane pad. The crane pad would occupy an area of approximately 50 feet by 50 feet and be located adjacent to each applicable structure within the laydown/work area used for structure assembly and erection. It would remain for operations and maintenance activities. The pad may be cleared of vegetation and/or graded as necessary to provide a relatively level surface for crane operation. The decision to use a separate crane pad within the laydown/work areas would be determined during final engineering for the Proposed Project.

Benching may be required to provide access for footing construction, assembly, erection, and wire-stringing activities during line construction. Benching is a technique in which an earth-moving vehicle excavates a terraced access to structure locations in extremely steep and rugged terrain. Benching would also be used on an as-needed basis in areas to help ensure the safety of personnel during construction activities.

Prior to ground disturbance activities, SCE, or its contractor, would contact Underground Service Alert to identify any underground utilities in the construction zone. If an underground utility is identified as being potentially affected by SCE's construction or operation procedures, a method to mitigate conflicts would be implemented as agreed to by SCE and the affected underground utility owner/operator.

B.3.3.3 Foundation Installation

Structure foundations for each LST would typically consist of four poured-in-place concrete footings, whereas foundations for each TSP would require a single drilled poured-in-place concrete footing. Actual footing diameters and depths for each of the structure foundations would depend on the structure design as well as the soil conditions and topography at each site and would be determined during final engineering. Table B-11 lists the estimated land disturbance for the Proposed Project transmission structures. Table B-12 lists the estimated land disturbance for the Proposed Project for subtransmission structures.

Table B-11. Transmission Approximate Land Disturbance

Project Feature	Site Quantity	Approximate Disturbed Acreage Calculation (L × W)	Approximate Total Acres Disturbed During Construction	Approximate Total Acres to be Restored (Temporary)	Approximate Total Acres Permanently Disturbed
Guard structures	667	150 feet × 50 feet	114.8	114.8	0.0
Remove existing lattice steel tower[1]	413	220 feet × 220 feet	458.9	458.9	0.0
Remove existing tubular steel pole[1]	5	220 feet × 150 feet	3.8	3.8	0.0
Remove existing 220 kV wood H-frame & wood 3 pole structures[1]	182	175 feet × 125 feet	91.4	91.4	0.0
Construct new lattice steel tower[2]	384	220 feet × 220 feet	426.7	330.7	96
Construct new tubular steel pole[2]	83	220 feet × 150 feet	62.9	57.9	5.0

Table B-11. Transmission Approximate Land Disturbance

Project Feature	Site Quantity	Approximate Disturbed Acreage Calculation (L × W)	Approximate Total Acres Disturbed During Construction	Approximate Total Acres to be Restored (Temporary)	Approximate Total Acres Permanently Disturbed
Conductor stringing setup area[3]	123	600 feet × 150 feet	254.1	254.1	0.0
Conductor splicing setup areas[3]	14	200 feet × 150 feet	9.6	9.6	0.0
Existing access roads to be improved[4]	130.0	linear miles × 18 feet'	283.6	0.0	283.6
New access roads[4]	20	linear miles × 18 feet	43.6	0.0	43.6
Crane pads, walls, cut slopes	—	—	2919.7	2840.5	79
Total Estimated Disturbance Acreage			4,669.2	4,161.8	507.5

Source: SCE, 2013. As updated by SCE Draft EIR/EIS Comment Letter 2015.
1 - Includes the removal of existing conductor, teardown of existing structure, and removal of foundation 2' below ground surface.
2 - Includes structure assembly & erection conductor & OPGW installation. Area to be restored after construction. Portion of ROW within 20' of ALL structures to remain cleared of vegetation. Permanently disturbed areas for LST = 0.25 acres, TSP=0.06 acres, LWS=0.05 acres, and H-Frame=0.06 acres.
3 - Based on 9,000' standard conductor reel lengths, conductor size, number of circuits, route design, and terrain.
4 - Based on approximate length of road in miles x driveable road width of 14'–22' with 2' of berm on each side of road.

The disturbed acreage calculations are estimates based upon SCE's preferred area of use for the described project feature, the width of the existing right-of-way, or the width of the proposed right-of-way and, they do not include any new access/spur road information; they are subject to revision based upon final engineering and review of the project by SCE's Construction Manager and/or Contractor awarded project.

Footing/Base Volume and Area Calculations (approximate):

- Average TSP depth 30 feet deep, 7-foot diameter, quantity 1 per TSP: earth removed for footing = 42.8 c.y.; surface area = 38.5 sq.ft.
- Average LWS/Wood pole depth 12 feet deep, 2.5-foot diameter, quantity 1 per LWS/wood pole; earth removed for pole base 2.2 c.y.; surface area = 4.9 sq.ft.
- Average Wood H-Frame depth 12 feet deep, 2.5-foot diameter, qty 2 per H-Frame: earth removed for pole base= 4.4 c.y.; surface area = 9.8 sq.ft.

Permanent areas of disturbance were calculated based on the footprint of the structures with an additional 20-foot buffer around the structures reserved for operation and maintenance purposes and the utilization of the crane pad for O&M activities.

Acres permanently disturbed are assumed to be project areas where the disturbance will continue to be used during Operations and Maintenance (O&M) Activities post construction. Areas that would be stabilized or revegetated per requirements identified in Section 4.4 Biological Resources and not used for O&M have been assumed to be temporarily impacted (Acres to be Restored).

Table B-12. Subtransmission Approximate Land Disturbance

Project Feature	Quantity	Disturbed Acreage Calculation (L × W)	Approximate Total Acres Disturbed During Construction	Approximate Total Acres to be Restored (Temporary)	Approximate Total Acres Permanently Disturbed
Guard structures	70	75 feet × 50 feet	6.0	6.0	0.0
Remove existing lattice steel tower[1]	9	220 feet × 220 feet	10.0	10.0	0.0
Remove existing wood pole[1]	28	175 feet × 100 feet	11.2	11.2	0.0
Construct new tubular steel pole[2]	18	220 feet × 150 feet	13.6	12.5	1.1
Construct new lightweight steel/ wood pole[2]	135	175 feet × 100 feet	54.3	52.9	1.4
Guying structures[3]	8	100 feet × 75 feet	1.4	11.4	0.0
Conductor stringing setup area[4]	28	400 feet × 100 feet	25.7	25.7	0.0
Install underground cable in conduit	5,280 (linear feet)	Linear feet × 24-inches wide	2.9	2.9	0.0
Install underground vault	9	100 feet × 100 feet	2.1	2.1	0.0
Total Estimated Disturbance Acreage[4]			127.2	124.7	2.5

Source: SCE, 2013.

1 - Includes the removal of existing conductor, teardown of existing structure, and removal of foundation 2' below ground surface.
2 - Includes structure assembly & erection, conductor & OPGW installation. Area to be restored after construction. Portion of ROW within 20' of ALL structures to remain cleared of vegetation. Permanently disturbed areas for TSP = 0.06, LWS/Wood = 0.05, and H-Frame = 0.06 acres.
3 - Permanent disturbance around a guy stub pole would be 10-foot radial, centered on the pole.
4 - Based on 7,500' standard conductor reel lengths, conductor size, number of circuits, route design, and terrain.

The disturbed acreage calculations are estimates based upon SCE's preferred area of use for the described project feature, the width of the existing right-of-way, or the width of the proposed right-of way, and they do not include any new access/spur road information; they are subject to revision based upon final engineering and review of the project by SCE's Construction Manager and/or Contractor awarded project.

Footing/Base Volume and Area Calculations (approximate):

- Average TSP depth 30 feet deep, 7-foot diameter, quantity 1 per TSP: earth removed for footing = 42.8 c.y.; surface area = 38.5 sq.ft.
- Average LWS/Wood pole depth 12 feet deep, 2.5-foot diameter, quantity 1 per LWS/wood pole; earth removed for pole base 2.2 c.y.; surface area = 4.9 sq.ft.

The foundation process begins with the drilling of the holes using truck- or track-mounted excavators with various diameter augers to match the diameter requirements of the structure type. LSTs typically require an excavated hole approximately 3 feet to 7 feet in diameter and approximately 15 feet to 50 feet deep; TSPs typically require an excavated hole approximately 5 feet to 14 feet in diameter and approximately 30 feet to 60 feet deep. On average, each footing for a LST structure would project approximately 2 to 5 feet above ground level; TSP footings would project approximately 1 to 3 feet above ground level within franchise areas and approximately 2 to 5 feet above ground level in uninhabited areas. There is also a potential for rock blasting to be necessary for foundations.

The excavated material would be distributed at each structure site, used to backfill excavations from the removal of nearby structures (if any), used in the rehabilitation of existing access roads, or used as fill at existing substations. Depending on the quality of the native soils extracted from the foundations, up to approximately one-third of that material could be used as backfill and the remainder would be disposed of at an off-site disposal facility in accordance with all applicable laws.

Following excavation of the foundation footings, steel-reinforced rebar cages and stub angles (for LSTs) or anchor bolts (for TSPs) would be set, survey positioning would be verified, and concrete would then be placed. The steel-reinforced rebar cages may be assembled at staging yards or vendor facilities and delivered to each structure location by flatbed truck or they may be delivered loose and assembled at the job site. Depending upon the type of structure being constructed, soil conditions, and topography at each site, LSTs would require approximately 20 to 310 cubic yards of concrete delivered to each structure location and, TSPs would require approximately 25 to 370 cubic yards of concrete delivered to each structure location.

Slight to severe ground caving is anticipated along the project route during the drilling of the LST/TSP foundations due to the presence of loose soils or groundwater levels. The use of water, fluid stabilizers, drilling mud, and/or casings would be made available to control ground caving and to stabilize the sidewalls from sloughing. If fluid stabilizers are utilized, mud slurry would be added in conjunction with the drilling. The concrete for the foundation would then be pumped to the bottom of the hole, displacing the mud slurry. Mud slurry brought to the surface is typically collected in a pit adjacent to the foundation and/or vacuumed directly into a truck to be reused or discarded at an off-site disposal facility in accordance with all applicable laws.

During construction, existing commercial concrete supply facilities would be used. Concrete samples would be drawn at time of pour and tested to ensure engineered strengths were achieved. A normally specified SCE concrete mix typically takes approximately 20 working days to cure to an engineered strength. This strength is verified by controlled testing of sampled concrete. Once this strength has been achieved, crews would be permitted to commence erection of the structure.

Conventional construction techniques would generally be used as described above for new foundation installation. Alternative foundation installation methods would be used where conventional methods are not practical. In certain cases, equipment and material may be deposited at structure sites using helicopters or by workers on foot, and crews may prepare the foundations using hand labor assisted by hydraulic or pneumatic equipment, or other methods.

B.3.3.4 Lattice Steel Tower Installation

LSTs would primarily be assembled within the construction areas at each tower site. See Table B-7, Approximate Laydown/Work Area Dimensions, for approximate laydown dimensions. Structure assembly begins with the hauling and stacking of steel bundles, per engineering drawing requirements, from a material staging yard to each structure location. This activity requires use of several trucks with 40-foot trailers and a rough terrain forklift. After steel is delivered and stacked, crews would proceed with assembly of leg extensions, body panels, boxed sections, and the cages/bridges. Assembled sections would be lifted into place with a crane and secured by a combined erection and torquing crew. When the steel work is completed, the construction crew may opt to install insulators and wire rollers (travelers) at this time.

If the LST is located in terrain inaccessible by a crane, it is anticipated that a helicopter may be used for the installation of the structure. The use of helicopters for the erection of structures would be similar to methods detailed in Institute of Electrical and Electronic Engineers (IEEE) 951-1996, Guide to the Assembly and Erection of Metal Transmission Structures, Section 9, Helicopter Methods of Construction. See Section B.3.3.16, Helicopter Use, for detailed information on helicopter usage and Attachment D.16-1 (at the end of Section D.16) for SCE's Preliminary Helicopter Use Plan.

B.3.3.5 Tubular Steel Pole Installation

Each TSP would require a drilled, poured-in-place concrete footing that would form the structure foundation. The hole would be drilled using truck or track-mounted excavators. Excavated material may be used as backfill. Following excavation of the foundation footings, steel-reinforced cages would be set, positioning would be survey verified, and concrete would then be poured. Foundations in soft or loose soil or those that extend below the groundwater level may be stabilized with drilling mud slurry. In this instance, mud slurry would be placed in the hole during the drilling process to prevent the sidewalls from sloughing. Concrete would then be pumped to the bottom of the hole, displacing the mud slurry. Depending on site conditions, the mud slurry brought to the surface would typically be collected in a pit adjacent to the foundation or vacuumed directly into a truck to be reused or discarded at an appropriate off-site disposal facility.

TSPs consist of multiple sections. The pole sections would be placed in temporary laydown areas at each pole location. See Table B-7, Approximate Laydown/Work Area Dimensions, for approximate laydown dimensions. Depending on conditions at the time of construction, the top sections may come pre-configured, may be configured on the ground, or configured after pole installation with the necessary cross arms, insulators, and wire stringing hardware. A crane would then be used to set each steel pole base section on top of the previously prepared foundations. If existing terrain around the TSP location is not suitable to support crane activities, a crane pad would be constructed within the laydown area. When the base section is secured, the subsequent section of the TSP would be slipped together into place onto the base section. The pole sections may also be spot welded together for additional stability. Depending on the terrain and available equipment, the pole sections could also be pre-assembled into a complete structure prior to setting the poles.

B.3.3.6 Wood Pole Installation

Each wood pole would require a hole to be excavated using either an auger, backhoe, or with hand tools. Excavated material may be used as backfill. Depending on the quality of the native soils extracted from the excavation, up to approximately one-third of that material could be used as backfill and the remainder would be disposed of off-site. The wood poles would be placed in temporary laydown areas at each pole location. While on the ground, the wood poles may be configured (if not preconfigured) with the necessary cross arms, insulators, and wire-stringing hardware before being set in place. The wood poles would then be installed in the holes, typically by a line truck with an attached boom.

If deemed necessary based on field conditions, wood guy stub poles[8] would be installed by direct bury similar to wood poles. Wood poles would not be used for bulk (220 kV) transmission work.

B.3.3.7 Lightweight Steel Pole Installation

Each LWS pole would require a hole to be excavated using either an auger or excavated with a backhoe. Excavated material may be used as backfill. LWS poles consist of separate base and top sections and may be placed in temporary laydown areas at each pole location. Depending on conditions at the time of construction, the top sections may come pre-configured, may be configured on the ground, or configured after pole installation with the necessary cross arms, insulators, and wire-stringing hardware. The LWS poles would then be installed in the holes, typically by a line truck with an attached boom. When the base section is secured, the top section would be installed on top of it. Depending on the terrain and available equipment, the pole sections could also be assembled into a complete structure on the ground prior to setting the poles in place within the holes.

If deemed necessary depending on field conditions, lightweight steel guy stub poles would be direct buried and installed similarly to LWS poles. Lightweight steel poles would not be used for permanent bulk (220 kV) transmission purposes.

B.3.3.8 Counterpoise

Transmission structures located within the substation boundary would be grounded to the substation ground grid. Foundations for 220 kV structures located more than 700 feet outside a substation would require separate grounding.

If adequate foundation-to-ground resistance criteria cannot be met with ground rods, a counterpoise system would be installed. A counterpoise is an additional ground wire installed below ground adjacent to and attached to the structure to increase conductivity between the structure and the ground so that adequate grounding can be achieved. This additional ground wire would be installed within the approximate laydown/work area.

B.3.3.9 Guard Structures

Guard structures are temporary facilities that would typically be installed at transportation, flood control, and utility crossings for wire stringing/removal activities. These structures are designed to keep a conductor above a minimum height should it momentarily drop too far below a conventional stringing height. SCE estimates that approximately 663 guard structure locations may need to be constructed along the proposed 220 kV ROW. For the 66 kV subtransmission line relocations, SCE estimates approximately 70 guard structure locations may need to be constructed. Guard structures would be located

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[8] A guy stub is a short wood pole used in lieu of an anchor in locations where the use of anchors is not feasible.

within the disturbance footprint identified in Table B-7, Approximate Laydown/Work Area Dimensions, but exact locations cannot be identified until further engineering is completed. Additional guard structures may also be needed at the time of construction based upon changes in field conditions (e.g., newly identified environmental resources, additional transportation, flood control and utility crossings).

Typical guard structures are standard wood poles. Depending on the overall spacing of the conductors being installed, approximately two to four guard poles would be required on either side of a road crossing. In some cases, the wood poles could be substituted with the use of specifically equipped boom trucks or, at highway crossings, temporary netting could be installed, if required by the governing transportation agency. The guard structures would be removed after the conductor is secured into place.

For highway and flood control crossings, SCE would work closely with the applicable jurisdiction agency to secure the necessary permits to string conductor over the affected infrastructure.

B.3.3.10 Wire Stringing

Wire stringing activities would be in accordance with SCE common practices and similar to process methods detailed in the IEEE Standard 524-2003 (SCE, 2013).

To ensure the safety of workers and the public, safety devices such as traveling grounds, guard structures, radio-equipped public safety roving vehicles and linemen would be in place prior to the initiation of wire stringing activities. Advanced planning by supervision is required to determine circuit outages, pulling times, and safety protocols for ensuring that the safe installation of wire is accomplished.

Wire stringing includes all activities associated with the installation of the primary conductors onto transmission line structures. These activities include the installation of conductor, ground wire (OHGW/OPGW), insulators, stringing sheaves (rollers or travelers), vibration dampeners, weights, and suspension or dead-end hardware assemblies for the entire length of the route.

The following five steps describe typical wire stringing activities:

- *Step 1: Planning:* Develop a wire stringing plan to determine the sequence of wire pulls and the set-up locations for the wire pull/tensioning/splicing equipment.
- *Step 2, Option 1: Sock Line Threading (Transmission):* A helicopter would fly a lightweight sock line from structure to structure, which would be threaded through rollers in order to engage a camlock device[9] that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a wire pull.
- *Step 2, Option 2: Sock Line Threading (Subtransmission):* A bucket truck is typically used to install a lightweight sock line from structure to structure. The sock line would be threaded through the wire rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a conductor pull.
- *Step 2, Option 3: Sock Line, Threading (Subtransmission):* In areas where a bucket truck is unable to install a lightweight sock line, a helicopter would fly the lightweight sock line from structure to structure. The sock line would be threaded through the wire rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a conductor pull.

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9 A camlock is a fastening mechanism that incorporates a cam or tab that is turned to engage a catch or slot and secure the device that is to be locked.

- *Step 3: Pulling:* The sock line would be used to pull in the conductor pulling rope and/or cable. The pulling rope or cable would be attached to the conductor using a special swivel joint to prevent damage to the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel.
- *Step 4: Splicing, Sagging, and Dead-Ending:* Once the conductor is pulled in, if necessary, all mid-span splicing would be performed. Once the splicing has been completed, the conductor would be sagged to proper tension and dead-ended to structures.
- *Step 5: Clipping-In:* After the conductor is dead-ended, the conductors would be secured to all tangent structures; a process called clipping in. Once this is complete, spacers would be attached between the bundled conductors of each phase to keep uniform separation between each conductor.

B.3.3.11 Transmission Wire Pulling and Splicing Locations

The puller, tensioner, and splicing set-up locations associated with the Proposed Project would be temporary and the set-up locations require reasonably level areas to allow for maneuvering of the equipment. When possible, these locations would be located on existing roads and level areas to minimize the need for grading and cleanup. The number and location of these sites would be determined during final engineering. For purposes of the environmental analysis, it is estimated that approximately 135 pulling, tensioning and splicing equipment set-up areas would be required for the 220 kV transmission line construction, and approximately 28 set up areas for the 66 kV subtransmission relocation. The approximate area needed for stringing set-ups associated with wire installation is variable and depends upon terrain. See Table B-7, Approximate Laydown/Work Area Dimensions, in Section B.3.1.1 for approximate size of pulling, tensioning and splicing equipment set-up areas and laydown dimensions. The splicing equipment may include the use of explosives for implosive sleeves to fuse wire segments.

Wire pulls are the length of any given continuous wire installation process between two selected points along the line. Wire pulls are selected based on availability of dead-end structures, conductor size, geometry of the line as affected by points of inflection, terrain, and suitability of stringing and splicing equipment set-up locations. On relatively straight alignments, typical wire pulls for transmission occur approximately every 3 miles and wire splices every 1.5 miles on flat terrain. Typical wire pulls for subtransmission occur approximately every 6,000 feet. When the line route alignment contains multiple deflections or is situated in rugged terrain, the length of the wire pull is diminished. Generally, pulling locations and equipment set-ups would be in direct line with the direction of the overhead conductors and established approximately a distance of three times the height away from the adjacent structure. These assumptions were used to develop the estimates for land disturbance areas that are provided in Table B-11 and Table B-12 in Section B.3.3.3.

Each stringing operation consists of a puller set-up positioned at one end and a tensioner set-up with wire reel stand truck positioned at the other end of the wire pull. Pulling and wire tensioning locations may also be utilized for splicing and field snubbing of the conductors. Temporary splices (e.g., pulling socks), may be necessary since permanent splices that join the conductor together typically cannot travel through the rollers. Splicing set-up locations are used to remove temporary pulling splices and install permanent splices once the conductor is strung through the rollers located on each structure. Field snubs (i.e., anchoring and dead-end hardware) would be temporarily installed to sag conductor wire to the correct tension at locations where stringing equipment cannot be positioned in back of a dead-end structure.

B.3.3.12 Transfer/Removal of Existing Structures/Facilities

The land disturbance tables and workforce estimate tables provide specific information related to specific activities, summarized below:

Removal of Wood Poles

The existing wood poles would typically be removed after the subtransmission, distribution, and telecommunication lines are transferred to the new structures. The removal would consist of the above and below-ground portions of the pole. Any holes left from removing the poles would be backfilled with spoils that may be available as a result of the excavation for new poles and using imported fill as needed.

Topping Off of Existing Poles

Where necessary to support existing underbuild (e.g., distribution, and/or third-party communication facilities), the top portion of the existing poles would be removed and existing underbuild would remain.

Removal of LSTs and TSPs

Removal of both LSTs and TSPs would involve removing structures, conductor, and associated hardware. The following would be removed in the sequence below:

- *Road Work:* Existing access roads would be used to access structures, but some rehabilitation and grading may be necessary before removal activities would begin to establish temporary crane pads for structure removal.
- *Wire-pulling Locations:* Wire pulling sites for wire removals would be located according to a Pulling Plan. The Pulling Plan would be completed after final engineering and would be as described in Section B.3.3.11.
- *Conductor Removal:* After the wire pulling equipment is in place, rollers would be installed on structures, the old conductor would be unclipped from the supporting structures, placed into the rollers, and pulled out with a pulling rope and/or cable attached to the trailing end of the conductor. The old conductor wire would be transported to a construction yard where it would be prepared for recycling.
- *Structure Removal:* For each structure to be removed, a laydown/work area equivalent to the structure type being removed would be required. Most structure removal activities would use the crane pad or other previously disturbed area established for structure installation. If previously disturbed areas adjacent to the structure site are not available, an area would be cleared of vegetation and graded if the ground is not level. The crane would be positioned approximately 60 feet from the LST or TSP location to dismantle the structure. LSTs and TSPs would be dismantled down to the foundations and the materials would be transported to a recycling center. In the event that constructing a crane pad is not feasible, then a helicopter would be utilized for removal of the structure.
- *Footing/Foundation Removal:* Foundations/footings would typically be crushed by mechanical means such as a pneumatic hammer. Footings would be removed to a depth approximately 1 to 2 feet below grade[10] and the holes would be filled with excess soil and smoothed to match the surrounding grade. Footing materials would be transported to a construction yard where they would be prepared for disposal or reuse.

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[10] Where necessary, footings may be removed at a greater depth than 1 to 2 feet below grade.

Existing transmission lines, subtransmission lines, distribution lines, and telecommunication lines (where applicable) would be transferred to the new structures prior to removal of existing structures. Any remaining facilities that are not reused by SCE would be removed and delivered to an authorized facility for recycling and/or disposal.

Tables B-11 and Table B-12 in Section B.3.3.3 provide temporary and permanent land disturbance required for the removal of structures for the Proposed Project.

B.3.3.13 Shoo-Flies

Construction of the Proposed Project would require the use of temporary shoo-fly facilities in order to maintain continuous power flow in the WOD corridor/ROW during construction. A shoo-fly is a temporary electrical line on temporary poles that is used during construction to maintain electrical service to the area while allowing portions of a permanent line to be taken out of service, ensuring safe working conditions during construction activities. The shoo-fly facilities would be removed after construction is completed.

A variety of shoo-fly facilities would need to be installed in order to accommodate the installation of the new 220 kV structures within the existing ROW. Locations of individual shoo-fly facilities would be developed as part of final engineering. SCE estimates approximately 300 shoo-fly structure locations would be necessary for construction. Shoo-fly structures could consist of steel and/or wood poles that may be guyed for stability. These structures would range in height from approximately 40 to 145 feet above ground.

Specific shoo-fly locations cannot be determined until final design and engineering efforts are completed and the construction sequencing plans are finalized. Section B.2.6.4 discusses potential FAA hazard marking of shoo-fly structures.

Shoo-fly structures would typically be direct buried and would be installed similar to wood poles. Removal of the shoo-fly facilities would be similar to the removal of wood poles, as explained in Section B.3.3.12, Transfer/Removal of Existing Structures/Facilities. Table B-13 provides the approximate ground disturbance associated with the shoo-fly structures and Figure B-18 shows a photograph of a typical shoo-fly structure.

Table B-13. Transmission Shoo-Fly Approximate Land Disturbance

Project Feature	Quantity	Disturbed Acreage Calculation (L × W)	Approximate Total Acres Disturbed During Construction	Approximate Total Acres to be Restored (Temporary)	Approximate Total Acres Permanently Disturbed
Installation and removal of shoo-fly structure[1]	300[4]	100' × 100'	68.9	68.9	0.0
Conductor stringing setup area[2]	7	600' × 150'	14.5	14.5	0.0
Conductor splicing setup areas[2]	6	200' × 150'	4.1	4.1	0.0
Temporary construction roads[3]	17.0	linear miles × 18'	37.1	0.0	37.1
Total Estimated Disturbance Acreage[4]			124.6	87.5	37.1

Source: SCE, 2013.

1 - Includes structure assembly & erection, conductor& OPGW installation. Area to be restored after construction. Structures would be removed once permanent structures were erected, new conductors were strung and energized.
2 - Based on 9,000' standard conductor reel lengths, conductor size, number of circuits, route design, and terrain.
3 - Based on approximate length of road in miles x driveable road width of 14'–22' with 2' of berm on each side of road. With an average of 300 feet of new road assumed per structure
4 - SCE's current preliminary engineering now estimates the need for 51 shoe-flies rather than 300. Acreage calculations have not been updated. (SCE, 2014/2015)

The disturbed acreage calculations are estimates based upon SCE's preferred area of use for the described project feature, the width of the existing right-of-way, or the width of the proposed right-of-way and, they do not include any new access/spur road information; they are subject to revision based upon final engineering and review of the project by SCE's Construction Manager and/or Contractor awarded project.

Removals, existing roads to be improved and guard structures are not accounted for in this table considering these counts will not fluctuate with selection of either alternative. These areas are accounted for in Tables B-10 and B-11.

B.3.3.14 Idle Facilities

A portion of the existing San Bernardino–Redlands-Tennessee 66 kV Subtransmission Line would be idled from the existing WOD corridor east along Barton Road to Iowa Street, and a portion of the existing San Bernardino–Redlands-Timoteo 66 kV Subtransmission Line would be idled from the existing WOD corridor west along Barton Road to Mountain View Avenue.

Though the subtransmission lines will be idled as a result of the Proposed Project, the poles will remain in place because a significant majority of them also support existing distribution, telecommunications, and cable television lines that will remain in service after the completion of the Proposed Project.

B.3.3.15 Helicopter Use

Project-related helicopter activities for the construction of the transmission lines could include delivery of equipment and materials from staging yards to structure sites, structure placement, hardware installation, and conductor and/or optical ground wire (OPGW) stringing operations, and conductor and structure deconstruction and removal. The specific helicopter models that would typically be used include the Bell 500 (MD 500), Hughes and Kaman Kmax. It is also assumed that the total time within any given hour of the day that the helicopters would be used at one location outside of the staging areas is approximately 15 minutes. The helicopters may travel back and forth between sites and staging yards multiple times within that hour. Depending upon the specific needs, project-related helicopter activities for the construction of the transmission lines could occur across the entire project area. However, helicopters would not be used at night for construction. Prior to the start of construction, SCE and the selected construction contractor would create a detailed Project Specific Helicopter Use Plan describing all planned usage of helicopters or other aircraft in the performance of this work. This plan will be reviewed by SCE to ensure FAA regulations/guidance and/or industry best management practices are met. It would also include flight routes and altitudes in order to minimize flight into sensitive areas and to avoid aircraft congestion.

The operations area of the helicopters would be limited to the Proposed Project area, including staging areas, ground locations in close proximity to conductor and/or OPGW pulling, tensioning, and splice sites, including locations in previously disturbed areas near construction sites. In addition, helicopters must be able to land within SCE ROWs, which could include landing on access or spur roads. All helicopter refueling in the staging areas, ROWs or access or spur roads, would be in accordance with the SWPPP. It is also assumed that at night or during off days, for safety and security concerns, helicopters and their associated support vehicles and equipment may be based at a local airport.

Helicopter-based construction of the structures themselves is not anticipated. However, if a structure is located in terrain inaccessible by a crane, it is anticipated that a helicopter may be used for the installation of the structure. Helicopters will also be used for installation of aerial safety markers (see Section

B.3.3.16). In the event that helicopter-based structure construction is deemed necessary, the following would apply:

1. Structure sections would be assembled at the construction staging yards and hauled by helicopter to the designated structure sites and lowered into place,
2. Structure site and foundation preparation equipment and materials would be ferried to the site by helicopter or delivered by vehicle,
3. SCE may temporarily stage materials and/or assemble structure sections at previously approved structure and wire pull sites that are road-accessible, and
4. SCE will provide CPUC monitors a list of the areas to be used for this temporary purpose and identify the material or assemblages to be staged at each site and the structure sites where the materials or assemblages would be used.

The majority of deconstruction would be performed with ground based equipment (i.e., cranes and hauling vehicles); however, helicopters would also be used across the entire project area to remove transmission hardware, poles, structural assemblies, conductor and ground wire. In addition, helicopters would be used to stage materials and personnel required to support deconstruction. Project-related helicopter activities for the deconstruction of the existing transmission lines and towers (including poles) would include the removal of equipment and materials from structure sites to laydown areas (previously established disturbance areas) for removal by locally staged hauling vehicles. Helicopters may land in any approved disturbance area, including structure sites, pull sites, and access or spur roads.

Prior notice would be given in the daily helicopter flight information provided to agency monitors regarding the specific sites that will be used for helicopter picks that day and the destination of the materials being lifted out. Dust control measures will be implemented to assure that fugitive dust is not generated during picking operations. Fly Yard Coordinators (FYCs) will be responsible for coordinating all helicopter activities at yards, and all pilots entering an area of operations will communicate with both the FYCs and other pilots to establish the location of other helicopter traffic, establish traffic patterns, and yard and worksite conditions. See Attachment D.16-1 (at the end of Section D.16) for SCE's Preliminary Helicopter Use Plan.

B.3.3.16 Aerial Safety Markers

As presented earlier in Section B.2.6.3, Federal Aviation and Administration Considerations, to the extent practicable, FAA recommendations, including the installation of marker balls on appropriate infrastructure where necessary, would be incorporated into the design of the Proposed Project. In most cases, marker balls would be installed by helicopter because of this method's efficiency, minimal ground disturbance, and ability to operate in rugged terrain. In limited circumstances, marker balls may be installed using a spacer cart, but this method is generally less efficient and may result in additional ground disturbance.

SCE would select the most suitable installation method for a particular span. SCE would generally use a light-duty helicopter to install the marker balls. Installation by helicopter may require a short-term outage to nearby energized subtransmission lines and transmission lines.

Helicopter installation requires staging at a landing zone where the helicopter would pick up the construction worker and a marker ball(s), and travel to the installation location. To minimize ground disturbance, SCE would propose to use previously disturbed areas as landing zones.

In limited circumstances, SCE may employ a spacer cart to install marker balls and associated hardware. The spacer cart would be installed on the overhead wire by installation crews, either by helicopter or by using a crane placed on an existing crane pad created during the construction of the structure. Because any installation of spacer carts by crane would take place during construction, it is not expected that installation or use of spacer carts would cause any additional ground disturbance.

Due to the terrain in the areas where marker balls may be required, installation by crane would likely be infeasible, and may entail significant additional ground disturbance. For these reasons, crane installation would not be considered for the Proposed Project. FAA structure lighting, if necessary, would be installed on the appropriate transmission structures during construction of the structure using similar equipment.

B.3.3.17 Protection Measures for Irrigation Infrastructure

The Proposed Project would be constructed and operated in areas that may contain existing irrigation systems and other private infrastructure. In coordination with landowners, these systems and infrastructure may be temporarily removed, relocated, and/or replaced to facilitate the safe and efficient construction of the Proposed Project and to protect the current uses of private lands.

Irrigation infrastructure, including pumps, sprinklers, supply lines, and other equipment, may need to be removed, relocated, and/or replaced to facilitate construction of the project. Prior to construction, SCE would consult with property owners to locate irrigation infrastructure and determine appropriate protection measures. Actions could include the marking of agricultural infrastructure, installation of steel or wood plating on access roads to distribute the weight of construction vehicles and protect shallow-buried irrigation piping, or the installation of temporary protection structures (e.g., bollards, jersey walls) adjacent to infrastructure along access roads. Protection, replacement, or relocation measures would be accomplished using conventional construction equipment. Where infrastructure cannot be protected in place, SCE would temporarily relocate infrastructure to prevent damage, and would then re-site the infrastructure following completion of construction. Infrastructure damaged during construction or relocation would be repaired or replaced to as close to pre-construction conditions as feasible, or to the conditions agreed upon between the landowner and SCE following the completion of construction of the Proposed Project.

B.3.3.18 Protection Measures for Existing Underground Utilities

Table B-14 lists underground utilities that are in proximity to the proposed structure locations and could potentially require the installation of new or modification of existing cathodic protection equipment. However, it is not known at this time if the Proposed Project would result in the need for cathodic protection to be installed on any of the pipelines listed Table B-14. A detailed engineering study must still be performed to evaluate the long-term operational impacts of the Proposed Project's resultant electrical system on those pipelines as it relates to corrosion and maintenance safety issues. Once final engineering design is completed, which would provide the necessary horizontal and vertical clearance dimensions required as inputs to the analysis, SCE would engage the services of a professional firm that specializes in these evaluations, which would include discussions with the owners of these pipelines to verify their locations, sizes, and existing cathodic protections systems in place (or if they even currently exist) (SCE, 2014b).

Table B-14. Existing Underground Pipelines in Project Area Potentially Requiring Protection Measures

Owner	Description	Location(s)
Southern California Gas	16-inch mainline	Meanders between Structures 6N25-6N26, 6S27-6S28, and 6S30-6S31
Southern California Gas	30-inch transmission (L2001)	Generally parallels transmission line alignment from Structures 5X23-5X28; crosses between Structures 5X29-5X30
Kinder-Morgan	High pressure fuel line	Various transmission line crossings near Structures 3S03, 3N04-3N06, 3X13-3X14, and 3X17-3X19
Kinder-Morgan	High pressure fuel line	Crosses transmission line route between Structures 1X11-1X12 (parallels existing railroad tracks)
Kinder-Morgan	High pressure fuel line	Crosses transmission line route at Structures 2N01 and 2N12
Southern California Gas	12-inch mainline	Crosses transmission line route at Structure 2N02
Department of Water Resources	108-inch aqueduct	Crosses transmission line route between Structures 2N28 and 2N29

Source: SCE, 2014b, CPUC Data Request #7.

There are three potential results from such a study, any of which could be applicable for a specific location: (1) cathodic protection is not needed; (2) cathodic protection is needed, but a system is already present and is sufficient for the new electrical configuration; or (3) cathodic protection is needed, and new or upgraded facilities must be installed as a result of the Proposed Project. Any cathodic protection that may be required to be installed on existing pipelines in conjunction with the Proposed Project would consist of a range of options, such as the following most likely methods (SCE, 2014b):

- **Deep Ground Rods.** A single deep ground rod (DGR) would be placed underground, approximately 5 feet from the existing gas pipeline. A 6-inch diameter hole would be drilled from approximately 50 feet to 500 feet deep depending on the ground rod location, as specified in the design. Ground rod pipes ranging from 0.5 to 1.5 inches in diameter would be placed in the hole for the entire depth of the hole. The top of the pipe would then be connected to the existing gas pipeline with #6 AWG wire.[11] Finally, the hole would be backfilled with a bentonite clay-based, electrically conductive material, and a 50-pound bentonite plug would be placed at the top of the hole. The top of the hole would then be covered with native soil, leaving no obvious indication of its presence.
- **Zinc Ribbon Mitigation Wire.** Zinc ribbon mitigation wire (ZR) or a Faraday Shield would be installed underground approximately 5 feet from an existing gas pipeline where deemed most appropriate in the analysis. The zinc ribbon wire would be connected to a number of ground rods (depending on the overall length of zinc ribbon wire installed) with #2 AWG (wire) and would also be connected to the existing pipeline with 4/0 AWG (wire). These mitigation features would be installed approximately 2 to 3 feet below grade.
- **Gradient Control Mats.** Gradient control mats (GCM) function to provide a safe, uniform voltage gradient at the surface of the earth in the immediate vicinity of above ground appurtenances (i.e., gas valves, fences, above ground pipes) on an influenced pipeline. These mats would be installed near any such features identified in the analysis by SCE following final engineering. Specifically, there is an extreme concern for potential differences between above ground pipeline appurtenances and adjacent chain link security fencing. These fences would be bonded to the pipeline in order to avoid hazardous touch potential differences between pipeline and fence.

[11] American Wire Gauge (AWG) wire is a standardized wire gauge system used for the diameters of round, solid, nonferrous, electrically conducting wire.

B.3.4 Installation of Underground Subtransmission Line

The following sections describe the construction activities associated with installing the underground 66 kV subtransmission lines for the Proposed Project.

B.3.4.1 Survey

Prior to the start of construction, SCE would survey existing underground utilities along the proposed underground subtransmission source line route, and survey proposed structure locations. In accordance with California law, SCE would notify all applicable utilities via Underground Service Alert to locate and mark existing utilities and would conduct exploratory excavations (potholing) as necessary to verify the location of existing utilities. SCE would secure encroachment permits for trenching in public streets.

B.3.4.2 Trenching

The Proposed Project includes a total of approximately 3,100 feet of new underground 66 kV subtransmission lines and associated transition and support structures. An approximately 20- to 24-inch-wide by 60-inch-deep trench would be required to place the 66 kV subtransmission line underground. This depth is required to meet the minimum 36 inches of cover above the duct bank. Trenching may be performed by using the following general steps, including but not limited to: mark the location and applicable underground utilities, lay out trench line, saw cut asphalt or concrete pavement as necessary, dig to appropriate depth with a backhoe or similar equipment, and install duct bank. Once the duct bank has been installed, the trench would be backfilled with a two-sack sand slurry mix. Approximately 1,800 cubic yards of material would be removed from the trenches. Depending on the quality of the native soils extracted from the trenches, up to approximately one-third of that material could be used as backfill or fill on other project elements and the remainder would be disposed of at an off-site disposal facility in accordance with all applicable laws. Should groundwater be encountered, it would be disposed of in accordance with all applicable laws.

The trench for underground construction would be widened and shored where appropriate to meet California Occupation and Safety Health Administration (OSHA) requirements. Trenching would be staged so that open trench lengths would not exceed that which is required to install the duct banks. Where needed, open trench sections would have steel plates placed over them in order to maintain vehicular and pedestrian traffic. Provisions for emergency vehicle access, where necessary, would be incorporated into the construction plan.

B.3.4.3 Duct Bank Installation

As trenching for the underground 66 kV subtransmission line is completed, SCE would begin to install the underground duct bank. Collectively, the duct bank is comprised of conduit, spacers, ground wire, and concrete encasement. The duct bank typically consists of six 5-inch diameter polyvinyl chloride (PVC) conduits fully encased with a minimum of 3 inches of concrete all around. Typical 66 kV subtransmission duct bank installations would accommodate six cables. The Proposed Project would utilize three conduits and leave three spare conduits for any potential future circuit pursuant to SCE's current standards for 66 kV underground construction. See Figure B-19, Typical Subtransmission Duct Bank, for the standard subtransmission duct bank configuration.

The majority of the 66 kV duct banks would be installed in a vertically stacked configuration and each duct bank would be approximately 21 inches in height by 20 inches in width. In areas where underground utilities are highly congested or areas where it is necessary to fan out the conduits to reach termination structures, a flat configuration duct bank may be required. However, for the Proposed Project it is not anticipated that a flat underground duct bank configuration would be required.

In instances where a subtransmission duct bank would cross or run parallel to other substructures that operate at normal soil temperature (e.g., gas lines, telephone lines, water mains, storm drains, sewer lines), a minimal radial clearance of 6 inches for crossing and 12 inches for paralleling these substructures would be required, respectively. Where duct banks cross or run parallel to substructures that operate at temperatures significantly exceeding normal soil temperature (e.g., other underground transmission circuits, primary distribution cables, steam lines, heated oil lines), additional radial clearance may be required. Clearances and depths would meet requirements set forth within Rule 41.4 of CPUC General Order 128.

B.3.4.4 Vault Installation

Vaults are below-grade concrete enclosures where the duct banks terminate. The vaults are constructed of prefabricated steel-reinforced concrete and designed to withstand heavy truck traffic loading. The inside dimensions of the underground vaults would be approximately 10 feet wide by 20 feet long with an inside height of 9.5 feet. The vaults would be placed no more than 1,500 feet apart along the underground portion of the subtransmission source line. Initially, the vaults would be used as pulling locations to pull cable through the conduits. After the cable is installed, the vaults would be utilized to splice the cables together. During operation, the vaults would provide access to the underground cables for maintenance, inspections, and repairs. See Figure B-20, Typical Subtransmission Vault, for the standard subtransmission vault configuration.

The vault pit would be excavated and shored; a minimum of 6 inches of mechanically compacted aggregate base would be placed to cover the entire bottom of the pit, followed by delivery and installation of the vault. Once the vault is set, grade rings and the vault casting would be added and set to match the existing grade. The excavated area would be backfilled with a 2-sack concrete/sand slurry mix to a point just below the top of the vault roof. Excavated materials, if suitable, would be used to backfill the remainder of the excavation. Finally, the excavated area would be restored as required.

B.3.4.5 Cable Pulling, Splicing, Termination

Following vault and duct bank installation, SCE would pull the electrical cables through the duct banks, splice the cable segments at each vault, and terminate cables at the transition structures where the subtransmission line would transition from underground to overhead. To pull the cables through the duct banks, a cable reel would be placed at one end of the conduit segment, and a pulling rig would be placed at the opposite end. The cable from the cable reel would be attached to a rope in the duct bank, and linked to the pulling rig, which would pull the rope and the attached cable through the duct banks. A lubricant would be applied as the cable enters the ducts to decrease friction and facilitate travel through the PVC conduits. The electrical cables for the 66 kV subtransmission line circuit would be pulled through the individual conduits in the duct bank.

After cable pulling is completed, the electrical cables would be spliced together. A splice crew would conduct splicing operations at each vault location and continue until all splicing is completed.

B.3.4.6 Transition Structures

At each end of an underground segment, the cables would rise out of the ground at transition structures, which accommodate the transition from underground to overhead subtransmission lines. Transition structures constructed as part of the Proposed Project would consist of engineered TSP structures (TSP riser poles). The transition structure would support cable terminations, lightning arresters, and dead-end hardware for overhead conductors. Construction methods for these structures would be substantially similar to those described in Section B.3.3.5, Tubular Steel Pole Installation.

B.3.5 Construction of Distribution Systems

The following sections describe the construction activities associated with installing the 12 kV distribution lines for the Proposed Project.

B.3.5.1 Access

For those portions of the subtransmission route where existing distribution facilities would be relocated to new subtransmission structures, access to the sites would be via the existing paved streets. Transfer of existing distribution conductor and equipment would typically be performed using a line truck.

For the new underground distribution system along mission Road and California Street in the City of Loma Linda, access will be via the existing paved streets. Excavation would occur in the existing paved streets and would be approximately 20 inches wide and 1.5 miles long. The work area for the trenching would be approximately 15 feet wide and 1.5 miles long. The excavated soil would temporarily be placed next to the trench on previously disturbed area. Construction activities would typically include the use of a backhoe, dump trucks, crew trucks, concrete trucks and asphalt trucks. Soil excavated would be used to refill the trench and area surrounding the vaults, and excess soil would be trucked to an approved disposal facility. New asphalt would be placed over the top of the trench to match the existing asphalt in the street. Once the underground infrastructure is in place, the crews would install cable in two of the six conduits. See Figure B-21, Typical Distribution Duct Bank, for the standard distribution duct bank configuration. See Figure B-22, Typical Distribution Vault, for the standard vault configuration.

For the portion of distribution underbuild that may result in up to 21 subtransmission structures being replaced along Mayberry Street and Barton Road, access to the site will be via the existing paved streets. Activities associated with structure installation and removal is discussed in Sections B.3.3.6, Wood Pole Installation and Section B.3.3.12 Transfer/Removal of Existing Structures/Facilities.

B.3.5.2 Distribution Land Disturbance

Land disturbance for the Proposed Project would include structure installation and removal activities and installation of new conductor. The estimated land disturbance for these project features are summarized below in Table B-15, Approximate Land Disturbance of Distribution Line Construction.

Table B-15. Approximate Land Disturbance of Distribution Line Construction

Project Feature	Site Quantity	Disturbed Acreage Calculation (L × W)	Approximate Total Acres Disturbed During Construction	Approximate Total Acres to be Restored	Approximate Total Acres Permanently Disturbed
Underground conduit Installation	7,920 linear feet	Linear feet × 15'	2.7	2.7	0
Vault/Manhole	10	55' × 40'	0.5	0.5	0
Distribution pole removal	34	5' × 5'	<0.1	<0.1	0
Potential replacement of existing subtransmission wood poles with LWS poles	21	150' × 75'	5.3	5.3	0
Total Estimated Disturbance Acreage			8.6	8.6	0

Source: SCE, 2013.

B.3.6 Energizing Transmission and Subtransmission Lines

To safely conduct work on an existing transmission line, the transmission line must be de-energized. Temporary de-energizing of the circuits involved with the Proposed Project will take place throughout the duration of this project. Energizing the new lines is the final step in completing the transmission and subtransmission construction. To reduce the need for electric service interruption, de-energizing and re-energizing the existing lines may occur at night when electrical demand is low.

B.3.7 Telecommunications

Telecommunication infrastructure would be installed for the Proposed Project to provide for continued operation of SCE's Supervisory Control and Data Acquisition (SCADA) network, protective relaying, data transmission, and telephone services during the Proposed Project construction, and for the continued operation of these services following construction.

The new telecommunications infrastructure would include additions and modifications to the existing telecommunications system. Those modifications would include work needed to maintain telecommunications operations during and after construction of the Proposed Project, work needed to facilitate the connection of existing substations to the new OPGW located on the new 220 kV structures, and ancillary work due to the modifications to accommodate the new OPGW and other modifications necessary to facilitate construction.

B.3.7.1 Telecommunications Equipment Installation

All new communications equipment installations and upgrades at the existing substations would occur within the existing MEERs, therefore no additional ground disturbance is associated with this work.

Installation of new telecommunication equipment would consist of fiber optic terminals (with increased optical range), multiplexers, and other telecommunication equipment devices installed at each of the identified substations as described in Section B.2.5, Telecommunications Upgrades.

Temporary fiber optic jumpers would be used within each MEER to redirect and route the fiber optic systems and services during the Proposed Project's construction phase. The new fiber optic terminal equipment is needed to compensate for the losses created by the redirected fiber optic routes.

B.3.7.2 Fiber Optic Cable Installation

Overhead Telecommunications Facilities Installation

Overhead telecommunications facilities would be installed by attaching cable to structures in a manner similar to that described above for wire stringing. A truck with a cable reel would be set up at one end of the section to be pulled, and a truck with a winch would be set up at the other end. Typically, fiber optic cable pulls vary between 6,000 feet to 10,000 feet in length. Fiber optic cable pulls are the length of any given continuous cable installation process between two selected points along the existing overhead or underground structure line. The dimensions of the area needed for stringing set ups varies depending upon the terrain; however, a typical stringing set up is 40 feet by 60 feet. Cable would be pulled onto the pole and permanently secured. Fiber strands in the cable from one installed section of cable would be spliced to fiber strands in the cable from the next installed section to form one continuous path.

Fiber Optic Cables within the WOD Corridor

OPGW fiber optic cable would be installed on the 220 kV structures as described in Section B.3.3.10 Wire Stringing. All fiber optic cable splicing and testing would be completed by SCE or contract crews using industry and SCE accepted practices.

Underground Telecom Facilities Installation – Fiber Optic Cable

New underground conduit and structures would typically be installed using a backhoe. The trench would be excavated to approximately 12 to 18 inches wide and a minimum of approximately 36 inches deep. The ground disturbance area for the trenching would be approximately 25 feet wide by the specific length of the excavation. PVC conduit would be placed in the trench and covered with approximately 8 inches of concrete slurry, then backfilled and compacted. For manholes and pull boxes, a hole is excavated between approximately 4 to 10 feet deep, 5 to 8 feet long, and 4 to 8 feet wide. The ground disturbance area for the manhole installation is approximately 40 feet wide by 50 feet long. The disturbance is due to activities associated with the conduit and structure installation and concrete encasement. The manhole or pull box would be lowered into place, connected to the conduits, and backfilled with 2-sack concrete/sand slurry. Excess soil would be hauled to an approved disposal facility in accordance with all applicable laws or may be used as fill material for transmission, subtransmission, distribution, or substation project elements. Construction activities would typically include the use of a backhoe, dump trucks, crew trucks, and concrete trucks. See Figure B-23, Typical Telecommunications Duct Bank, for the standard telecommunications duct bank configuration. See Figure B-24, Typical Manhole Design, for the standard manhole configuration.

New underground conduit would be installed by direction bore in this manner. Existing utilities that would be crossed or are in close proximity to the bore would be physically located by digging a pot hole with a backhoe or vacuum truck. A bore pit approximately two feet wide and ten feet long is then dug with a backhoe on each end of the proposed bore. The horizontal bore rig is set up at one of the bore pits. Setup includes anchoring the rig to the ground with augers attached to the front. The bore machine spins the drill head while inserting drilling rods behind the head as it is pushed through the ground. Drilling fluid under high pressure assist in drilling, moves the dirt loosened by the drill head, and holds the hole formed in the drilling process. Excess drilling fluid accumulated in the bore pits is vacuumed up and disposed of at safe site. The depth and direction of the bore is monitored and controlled by telemetry between the bore head and a devise held on the surface by a worker. The bore head is guided to the second bore pit where the drill head is removed and a reamer is installed on the drilling steel. The conduit that has been glued together and laid in line with the bore is then attached to the reamer. The conduit is installed in the bore as the reamer is pulled back to the bore rig. The bore pits are used for other bores going the opposite direction or will be part of the excavation for a manhole.

The fiber optic cable would be installed throughout the length of the underground conduit and structures by first installing an innerduct, which provides for protection and identification of the cable. The innerduct would be pulled in the conduit from structure to structure using a pull rope and pulling machine, or truck-mounted hydraulic capstan. After installation of the innerduct, the fiber optic cable would be pulled through the innerduct using similar equipment.

B.3.7.3 Road Access for Telecommunications Installation

Existing and new roads for the 220 kV transmission line as described in Section B.2.1.1, 220 kV Transmission Line Segments, and Section B.3.3.1, Access and Spur Roads, would provide access for telecommunications during construction, operation, and maintenance. Additionally, existing public and SCE access and spur roads for locations that are specifically not along the WOD corridor would be utilized for telecommunications construction, operations, and maintenance.

B.3.7.4 Telecommunication System Land Disturbance

Land disturbance for the new telecommunication system would include OPGW installation, wire stringing, and new conduit installation. The estimated land disturbance for these project features are summarized below in Table B-16, Telecommunication System Approximate Land Disturbance.

Table B-16. Telecommunication System Approximate Land Disturbance

Project Feature	Site Quantity	Disturbed Acreage Calculation (L × W)	Approximate Total Acres Disturbed During Construction	Approximate Total Acres to be Restored	Approximate Total Acres Permanently Disturbed
New Cable to Banning Substation					
Devers-Valley No. 2 M21-T1, trenching	1	690' × 25'	0.40	0.40	0
Old Idyllwild Road Crossing 500 kV, trenching	1	470' × 25'	0.27	0.27	0
Crossing Lincoln Street to Banning MEER, trenching	1	230' × 25'	0.13	0.13	0
New Cable to Maraschino Substation					
Devers-Valley No. 2 M24-T1, trenching	1	1,460' × 25'	0.84	0.84	0
4×4 manholes	3	40' × 50'	0.14	0.14	0
SCE vault to ECS manhole, trenching	1	1,550' × 25'	0.89	0.89	0
Connect Devers-Vista OPGW to Banning Substation					
Structure 5S54, trenching	1	560' × 25'	0.32	0.32	0
Connect Devers-Vista OPGW to Maraschino Substation					
Structure 4S37, trenching	1	800' × 25'	0.46	0.46	0
Connect Devers-Vista OPGW to El Casco Substation East					
Structure 3S02, trenching	1	120' × 25'	0.07	0.07	0
Connect Devers-Vista OPGW to El Casco Substation West					
Structure 3S25, trenching	1	100' × 25'	0.06	0.06	0
Fiber Optic Cable Entrance at Devers					
D-EC 136, D-V 243 Trenching	2	80' × 25' 329' × 25'	0.24	0.24	0
Fiber Optic Cable Entrance at El Casco					
Tie between Structures 4N65, 3N02, Trenching	3	200' × 25' 840' × 25' 200' × 25'	0.71	0.71	0
Fiber Optic Cable Entrance at San Bernardino					
Structure 1E26 Structure 1W26, trenching	2	350' × 25' 350' × 25'	0.40	0.40	0

Table B-16. Telecommunication System Approximate Land Disturbance

Project Feature	Site Quantity	Disturbed Acreage Calculation (L × W)	Approximate Total Acres Disturbed During Construction	Approximate Total Acres to be Restored	Approximate Total Acres Permanently Disturbed
Connect San Bernardino to Inland District Office					
SB-V 7, trenching	1	200' × 25'	0.11	0.11	0
Option: Connect San Bernardino to Inland District Office					
Redlands Blvd at Bryn Mawr Trenching	1	560' × 25'	0.3	0.5	0
Fiber Optic Cable Entrance at Vista					
Structure 2N37 trenching	1	1,000' × 25'	0.57	0.57	0
New Cable to Banning Substation					
Devers-Valley No. 2 M21-T1, trenching	1	690' × 25'	0.4	0.4	0

Source: SCE, 2013.

B.3.7.5 Telecommunication System Workforce and Construction Equipment Estimates

The estimated number of personnel and equipment required for construction activities related to the Telecommunications System for the Proposed Project are summarized in Table B-17, Telecommunication System Construction Equipment and Workforce Estimates.

Table B-17. Telecommunication System Construction Equipment and Workforce Estimates

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (days)	Duration of Use (hours)
Telecommunications Work for OPGW and Work to Accommodate Construction						
Bucket Truck	300	Diesel	6	12	27	7
Crew Truck	300	Diesel	3	3	27	8
Backhoe	200	Diesel	2	4	40	7
Dump truck	350	Diesel	2	3	17	3
Material Transport	350	Diesel	1	1	4	4
Forklift	200	Diesel	1	1	4	1
Splice Lab	300	Diesel	6	12	40	7
Telecommunications Work Inside the MEER						
Crew Truck	300	Gas	3	3	30	8

Source: SCE, 2013.

Construction would be performed by either SCE construction crews or contractors. Contractor personnel would be managed by SCE construction management personnel. SCE anticipates that crew members would work concurrently whenever possible; however, the estimated deployment and number of crew members would be dependent upon local jurisdiction permitting, material availability, and construction scheduling.

SCE anticipates a total of up to approximately 14 construction personnel working on any given day on this project component.

B.3.8 Site Restoration

All work associated with below grade activities would restore the grade back to its original condition. A Revegetation Plan, as described under APM BIO-1, would be prepared and implemented to reduce or mitigate temporary impacts to habitat for special status species and foraging raptors. The Revegetation Plan would provide guidelines and specifications for the replacement of vegetation in areas affected by construction, where special status species occur or have a reasonable potential to occur, in order to reduce or mitigate temporary loss or degradation of habitat. The overall goal of implementing the revegetation plan would be to re-establish vegetation that is approximately equivalent to pre-construction conditions in terms of coverage and composition of the native and non-native component species in particular areas.

B.3.9 Construction Workforce and Equipment

The estimated total number of personnel required for construction activities on any given day for the following components would be:

- Transmission and Subtransmission Lines – up to approximately 300 construction personnel;
- Substation Modifications – approximately 15-20 construction personnel at each substation site; and
- Distribution Lines – up to approximately 20 construction personnel.

The estimated workforce, as well as materials and equipment required for construction of the Proposed Project, are detailed for each project component in Appendix 1C.

Construction would be performed by either SCE construction crews or contractors. If SCE construction crews are used, they typically would be based at SCE's local facilities, (e.g., service centers, substations, and transmission ROW) or a temporary material staging yard set up for the project. Contractor construction personnel would be managed by SCE construction management personnel and based out of the contractor's existing yard or temporary material staging yard set up for the project.

SCE anticipates that crews would work concurrently whenever possible; however, the estimated deployment and number of crew members would vary depending on factors such as material availability, resource availability, construction scheduling, and local jurisdiction requirements, if applicable.

In general, construction efforts would occur in accordance with accepted construction industry standards. To the extent possible, SCE would comply with local ordinances for construction activity. Should the need arise to work outside the local ordinances, SCE would request a variance from the applicable local jurisdictions. For example, it may be necessary to work during nighttime or outside normal work hours to facilitate major crossings, or when loads on the lines are reduced. However, helicopters would not be used at night.

B.3.10 Construction Schedule and Sequence

SCE anticipates that construction of the Proposed Project would take approximately 36-48 months following receipt of CPUC and BLM approvals, completion of final engineering and procurement activities, acquisition of any necessary property rights, and receipt of other applicable permits.

Given that the existing WOD transmission lines are a necessary component of the CAISO-controlled grid, they must remain operational for the majority of the Proposed Project construction duration in order to accommodate existing electric system operational requirements. Any short- or long-term transmission line outages that would be needed to facilitate construction of any of the individual transmission lines for the Proposed Project would typically be scheduled through and subject to the approval of the CAISO.

As such, construction of the Proposed Project would be complex, given the need to keep existing WOD facilities operational during construction and the need to construct safely when in proximity to energized transmission lines.

In addition to uncertain transmission line outage availability, the construction schedule duration would vary depending on other items such as, but not limited to, the following: the availability of substation and subtransmission line outages, the ability to construct needed critical telecommunications facilities in advance of transmission line construction, environmental constraints (e.g., nesting birds) during construction, permit limitations, weather, and construction resource and material availability.

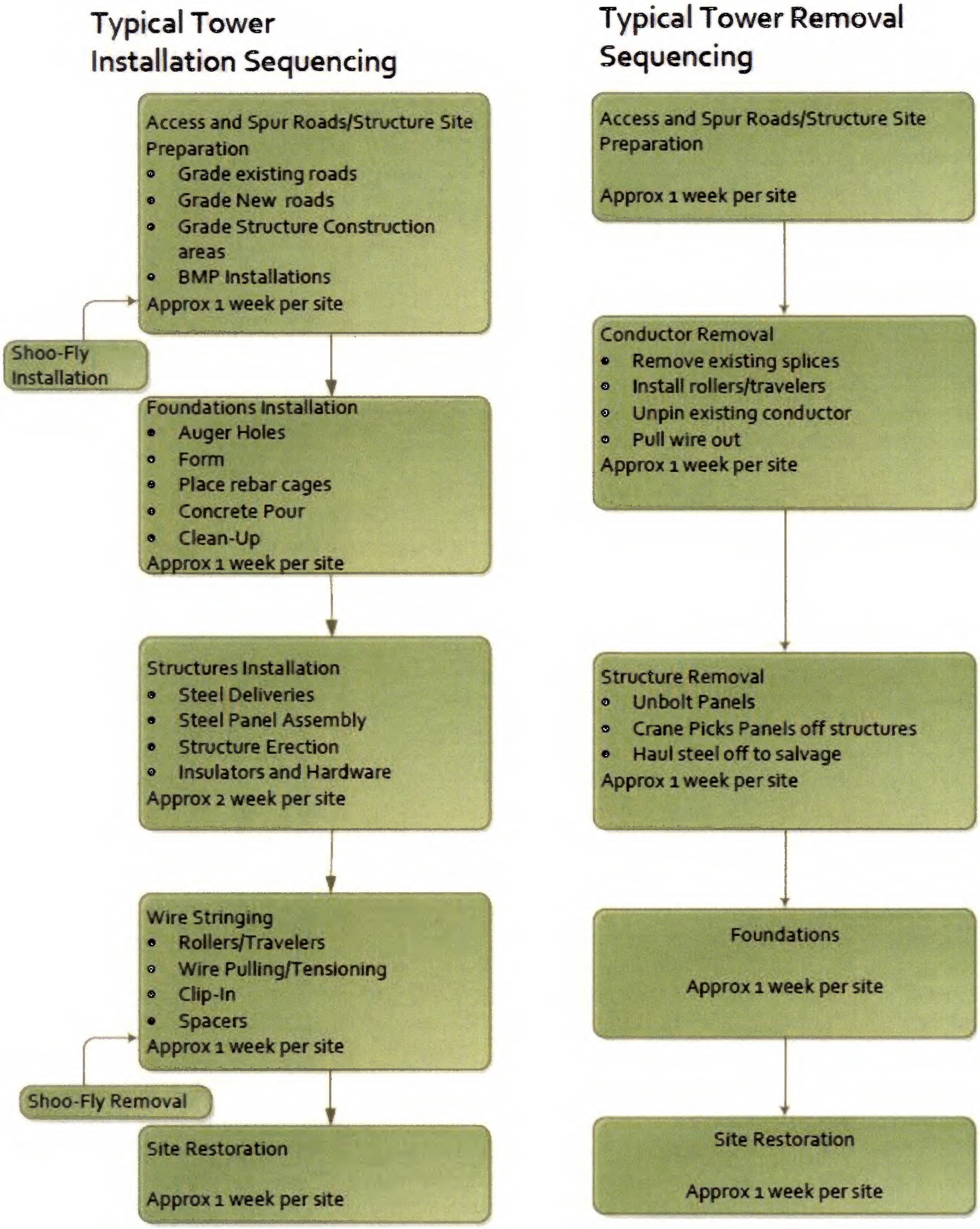
Finally, the Proposed Project estimated construction schedule does not reflect scope modifications that may be recommended during the agency application review phase that: (1) are needed to accommodate requirements identified during final engineering and material procurement; (2) are needed to accommodate compliance with environmental restrictions during construction; (3) are needed to keep enough of the existing WOD transmission lines operational during construction; or (4) are otherwise needed for safety or electric system reliability.

The diagram on page 53 includes a typical sequence of construction activities for structure installation and structure removal at any given location. In general, it is estimated that new structure installation could range from four to six weeks and that structure removal could range from two to four weeks of overall construction duration, though these efforts would generally be spread out over a larger period of time in any one location. For sites requiring retaining wall construction, an additional four to five weeks of active construction is expected. Each segment of the Proposed Project would generally require the sequence for structure installation to occur two times and for structure removal up to three times.

As seen in the diagram, access and spur road construction as well as civil upgrades, such as retaining walls, would be the first activity to occur on the ROW. This would then be followed closely by structure site preparation where vegetation clearing can be performed without the need for outages on existing lines. Upon completion of roads and structure site preparation, foundation installation would commence. Due to available clearances between drilling equipment and existing conductor, some foundation installation may not be able to proceed until existing line segments are de-energized or re-routed using temporary shoo-fly structures.

New structure construction would not typically begin until site specific foundation installation is completed, and the foundation construction equipment de-mobilized from the defined structure disturbance area. The specific sequence in which new structures and conductor would be installed and existing structures and conductor would be removed cannot be fully defined at this time due to factors such as final tower locations to be determined upon final engineering, line outage duration and availability, extent of shoo-fly configurations, construction contractor resource availability, and potential environmental constraints.

Table B-18 provides preliminary construction durations for the respective Project components, noting that transmission is referenced by Segment. The construction durations shown for each work scope element represent the anticipated time required to complete all elements of construction associated with specific work scope with the exception of long-term site restoration. The specified construction durations represent an estimate of time needed to complete defined work scope uninterrupted from planned start to finish for each Project component. Typical of a linear transmission construction project, it is anticipated that along the length of a given Project segment, multiple construction crews would be working concurrently on each of the construction elements. In addition, it is anticipated that construction activities would be occurring concurrently at up to four Project Segments at a time if no construction delays occur, and up to all six Project Segments if delays occur that result in a given Segment not being completed by the planned finish date.



Durations shown are typical and site specifics such as terrain, structure type, working constraints, environmental sensitivities and other such site specific difficulties would change the amount of time.

Source: SCE, 2015

The approximate time frames in Table B-18 are inclusive of the use of shoo-flies to address the need for keeping most of the existing circuits energized during construction. However, the construction durations do not factor in constraints for the relatively short-duration circuit outages that would be necessary for switching shoo-flies and new line segments in and out of the CAISO-controlled grid. Other project activities, such as ROW procurement, design, and material procurement are assumed to occur in advance of construction, or in parallel and have also not been factored into the construction durations. Additionally, the time frames do not reflect time impacts from non-work windows that could result from addressing sensitive environmental areas, weather delays or other work-related restrictions.

Table B-18. Preliminary Construction Durations

Project Component	Approximate Duration (months)
Subtransmission Relocations	14
Distribution Relocations	12
Telecommunications	6
Substations[1]	36[1]
Segment 1	14
Segment 2	14
Segment 3	24
Segment 4	16
Segment 5	24
Segment 6	12

1 - Substation work is intermittent and would be based on scheduled outages that would occur throughout the duration of Project construction.

B.4 Operations and Maintenance

Ongoing Operations and Maintenance (O&M) activities are necessary to ensure reliable service, as well as the safety of the utility workers and the general public, as mandated by the CPUC. SCE facilities are subject to Federal Energy Regulatory Commission jurisdiction. SCE transmission facilities are under operational control of the California Independent System Operator.

The transmission, subtransmission, and distribution lines would be maintained in a manner consistent with CPUC General Order 95 and General Order 128, as applicable. It is not anticipated that additional workforce would be necessary for the operation and or maintenance of the Proposed Project, because the project is proposed within an existing transmission corridor and substations. Normal operation of the lines would be controlled remotely through SCE control systems, and manually in the field as required. SCE inspects the transmission, subtransmission, telecommunications and distribution overhead facilities in a manner consistent with CPUC General Order 165, a minimum of once per year via ground and/or aerial observation.

Maintenance would occur as needed and could include activities such as repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, replacing poles and towers, tree trimming, brush and weed control, and access road maintenance. Most regular O&M activities of overhead facilities are performed from existing access roads with no surface disturbance. However, repairing or replacing poles and structures could occur in undisturbed areas. Existing conductors could require re-stringing to repair damages. Some pulling site locations could be in previously undisturbed areas and at times, conductors could be passed through existing vegetation on route to their destination.

Routine access road maintenance is conducted on an annual and/or as-needed basis. Road maintenance includes maintaining a vegetation-free road way (to facilitate access and for fire prevention) and blading to smooth over washouts, eroded areas, and washboard surfaces as needed. Access road maintenance could include brushing (i.e., trimming or removal of shrubs) approximately 2 to 5 feet beyond berms or road's edge when necessary to keep vegetation from intruding into the roadway. Road maintenance would also include cleaning ditches, moving and establishing berms, clearing and making functional drain inlets to culverts, culvert repair, clearing and establishing water bars, and cleaning and repairing over-side drains. Access road maintenance includes the repair, replacement and installation of stormwater diversion devices on an as-needed basis.

Insulators could require periodic washing with water to prevent the buildup of contaminants (dust, salts, droppings, smog, condensation, etc.) and reduce the possibility of electrical arcing which can result in circuit outages and potential fire. Frequency of insulator washing is region specific and based on local conditions and build-up of contaminants. Replacement of insulators, hardware, and other components is performed as needed to maintain circuit reliability.

Some towers and pole locations and/or lay down areas could be in previously undisturbed areas and could result in ground and/or vegetation disturbance, though attempts would be made to utilize previously disturbed areas to the greatest extent possible. In some cases new access is created to remove and replace an existing towers and poles. Wood pole testing and treating is a necessary maintenance activity conducted to evaluate the condition of wood structures both above and below ground level. Intrusive inspections require the temporary removal of soil around the base of the pole, usually to a depth of approximately 12 to 18 inches, to check for signs of deterioration. Roads and trails are utilized for access to poles. For impact prevention, all soil removed for intrusive inspections would be reinstalled and compacted at completion of the testing.

Regular tree pruning would be performed to be in compliance with existing state and Federal laws, rules, and regulations and is crucial for maintaining reliable service, especially during severe weather or disasters. Tree pruning standards for distances from overhead lines have been set by the CPUC (General Order-95, Rule 35), Public Resource Code 4293, California Code of Regulations Title 14, Article 4, and other government and regulatory agencies. SCE's standard approach to tree pruning is to remove at least the minimum required by law plus one years' growth (species dependent).

In addition to maintaining vegetation-free access roads, helipads and clearances around electrical lines, clearance of brush and weeds around poles and transmission tower pads, and as required by local jurisdictions on fee owned ROWs, is necessary for fire protection. A 10-foot radial clearance around non-exempt poles (as defined by California Code of Regulations Title 14, Article 4) and a 25- to 50-foot radial clearance around non-exempt structures (as defined by California Code of Regulations Title 14, Article 4) are maintained in accordance with Public Resource Code 4292.

In some cases, towers and poles do not have existing access roads and are accessed on foot, by helicopter, or by creating temporary access areas. O&M related helicopter activities could include transportation of transmission line workers, delivery of equipment and materials to structure sites, structure placement, hardware installation, and conductor or OPGW stringing operations. Helicopter landing areas could occur where access by road is infeasible. In addition, helicopters must be able to land within SCE ROWs, which could include landing on access or spur roads.

In addition to regular O&M activities, SCE conducts a wide variety of emergency repairs in response to emergency situations such as damage resulting from high winds, storms, fires, and other natural disasters, and accidents. Such repairs could include replacement of downed poles, transmission towers, or lines or re-stringing conductors. Emergency repairs could be needed at any time. SCE would notify the applicable agencies as soon as feasible of any emergency repairs. The notice would include a description of the work, location of the transmission facilities, and cause of the emergency, if known. The applicable agencies and SCE would work together to agree upon habitat restoration needs after the emergency.

The telecommunications equipment would be subject to maintenance and repair activities on an as-needed or emergency basis. Activities would include replacing defective circuit boards, damaged radio antennas or feedlines, and testing the equipment. Telecommunication equipment would also be subject to routine inspection and preventative maintenance such as filter change-outs or software and hardware upgrades. Most regular O&M activities of telecommunications equipment are performed at substation or communication sites and inside the equipment rooms and are accessed from existing access roads with no surface disturbance; helicopter transportation may be required to access remote communications sites for routine or emergency maintenance activities. Access road maintenance is performed as mentioned above.

The telecommunications cables would be maintained on an as-needed or emergency basis. Maintenance activities would include patrolling, testing, repairing and replacing damaged cable and hardware. Most regular maintenance activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs done to existing facilities, such as repairing or replacing existing cables and re-stringing cables, could occur in undisturbed areas. Access and habitat restoration may be required for routine or emergency maintenance activities.

For the West of Devers project, SCE would conduct an environmental review of all O&M activities that involve ground disturbance to determine potential risks to resources. This review, which would include cultural and biological analysis, may result in additional permitting. Following this review, SCE Environmental would issue an Environmental Clearance, which O&M work crews would review and adhere to during preconstruction and construction for O&M. Risk levels for activities on public lands were developed based on the O&M activity type and the potential effect to a sensitive environmental resource. These risk levels pertain to environmental review for O&M activities that have been proposed as part of an adaptive management approach to facilitate notification or receive approval of O&M activities within BLM's authorization (i.e., ROW Authorization or Easement). SCE would follow a similar environmental review process, including the implementation of applicable avoidance and minimization measures, for O&M activities on privately owned lands based on the type of activity and potential to affect sensitive environmental resources.

Risk levels will generally be categorized by SCE as follows:

Low Risk Level Environmental Impact – Activities may include:

- Repair or maintenance-type activities that will not require any ground or vegetation disturbing activity.
- The activity is not located in an area of any known sensitive cultural or biological resource, and/or the activity will occur in a previously disturbed location.
- Impact prevention measures for Low Risk activities may include removing all materials, leaving the project area clean and safe, keeping all vehicles within the existing road prism or designated work area, ensuring that all personnel remain on existing roads and trails, or other measures.
- The work would generally proceed after notification to the public land agency and does not generally require a monitor.

Medium / High Risk Level Environmental Impact – Activities may include

- Ground and/or vegetation disturbance.
- Special Status Species likely or known to be present.
- Additional field review by an SCE approved subject matter expert.
- Impacts can be reduced or avoided with the implementation of avoidance and minimization measures.
- Impact prevention measures for Medium/High Risk activities may include clearance surveys, monitoring, avoidance and minimization, or other measures.
- SCE Environmental Staff will perform tailboards as necessary.
- The work may be allowed to proceed after notification to the public land agency, but may require approval, depending on the extent of ground disturbance.

B.5 Electric and Magnetic Fields Management

B.5.1 Electric and Magnetic Fields

Recognizing that there is public interest and concern regarding potential health effects that could result from exposure to electric and magnetic fields (EMF) from power lines, this document provides information regarding EMF associated with electric utility facilities and the potential effects of the Proposed Project related to public health and safety. Potential health effects from exposure to ***electric fields*** from power lines (produced by the existence of an electric charge, such as an electron, ion, or proton, in the volume of space or medium that surrounds it) are typically not of concern since electric fields are effectively shielded by materials such as trees, walls, etc. Therefore, the majority of the following information related to EMF focuses primarily on exposure to ***magnetic fields*** (invisible fields created by moving charges) from power lines.

Magnetic fields can be reduced either by cancellation or by increasing distance from the source. Cancellation is achieved in two ways. A transmission line circuit consists of three "phases": three separate wires (conductors), usually on an overhead tower. The configuration of these three conductors can reduce magnetic fields. When the configuration places the three conductors closer together, the interference, or cancellation, of the fields from each wire is enhanced, and the magnetic field is reduced. This technique has practical limitations because of the potential for short circuits if the wires are placed too close together. Close conductor spacing can also create worker safety concerns because there is a risk of workers contacting energized conductors during maintenance.

This EIS does not consider magnetic fields in the context of NEPA and determination of environmental impact. This is because (a) there is no agreement among scientists that EMF does create a potential health risk, and therefore, (b) there are no defined or adopted NEPA standards for defining health risk from EMF. As a result, EMF information is presented for the benefit of the public and decisionmakers.

After several decades of study regarding potential public health risks from exposure to power line EMF, research results remains inconclusive. Several national and international panels have conducted reviews of data from multiple studies and state that there is not sufficient evidence to conclude that EMF causes cancer. The International Agency for Research on Cancer (IARC), an agency of the World Health Organization (WHO), and the California Department of Health Services (DHS) both classified EMF as a possible carcinogen (WHO, 2001; DHS, 2002).

In addition, the 2007 WHO [Environmental Health Criteria (EHC) 238] report concluded that:

- Evidence for a link between Extremely Low Frequency (ELF, 50–60 Hz) magnetic fields and health risks is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia. However, "...virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status....the evidence is not strong enough to be considered causal but sufficiently strong to remain a concern."
- "For other diseases, there is inadequate or no evidence of health effects at low exposure levels."

Currently, there are no applicable regulations related to EMF levels from power lines or substations. However, following a CPUC decision from 1993 (Decision [D.]93-11-013) that was reaffirmed by the CPUC on January 27, 2006 (D.06-01-042), the CPUC requires utilities to incorporate "low-cost" or "no-cost" measures to mitigate EMF from new or upgraded electrical utility facilities up to approximately 4 percent of total project cost. To comply with this requirement, SCE developed and included a Field Management

Plan (FMP) as part of the application for the Proposed Project to reduce magnetic field levels in the vicinity of the transmission line.

B.5.2 EMF in the Proposed Project Area

Magnetic field strength is a function of both the electric current carried by the wires, and the configuration and design of the three conductors that together form a single circuit of an electric transmission line. Magnetic field strengths for typical transmission power line loads at the edge of an *overhead* transmission system right-of-way generally range from 10 to 30 milligauss (mG) (NIEHS, 2002). Exposure to EMF occurs in the community from sources other than electric transmission lines. Research on ambient magnetic fields in homes indicates that levels below 0.6 mG could be found in half of the studied homes in the centers of rooms, and that the average levels in the homes away from electrical appliances was 0.9 mG. Immediately adjacent to appliances (within 12 inches), field values are much higher, for example: 4 to 8 mG near electric ovens and ranges, 20 mG for portable heaters, or 60 mG for vacuum cleaners (NIEHS, 2002). Outside of the home, the public also experiences EMF exposure from the electric distribution system that is located throughout all areas of the community. Existing EMF levels along SCE's existing 220 kV corridor are indicated in Table B-19 and are discussed in greater detail in SCE's EMF Field Management Plan (see EIS Appendix 4). These calculated EMF levels were based on peak loading condition and a set of assumptions. They were used to compare various design options and not meant to be indicators of real levels because magnetic field levels vary with time of the day, season of the year, and operating conditions.

Table B-19. Magnetic Field Levels along Existing 220 kV Transmission Corridor

Segment	West or North Edge of ROW (mG)	East or South Edge of ROW (mG)
Segment 1, Model 1	28.5	67.0
Segment 1, Model 2	30.5	54.1
Segment 1, Model 3	50.9	66.7
Segment 1, Model 4	32.1	67.6
Segment 2, Model 1	74.8	53.4
Segment 2, Model 2	75.0	36.1
Segment 3	16.5	34.0
Segment 4, Model 1	36.8	21.6
Segment 4, Model 2	74.3	21.0
Segment 5, Model 1	74.3	21.0
Segment 5, Model 2	33.9	64.4
Segment 5, Model 3	22.3	64.1
Segment 6, Model 1	27.0	72.6
Segment 6, Model 2	Northern ROW – 27.3 Southern ROW – 28.4	Northern ROW – 31.9 Southern ROW – 75.3
Segment 6, Model 3	Northern ROW – 27.2 Southern ROW – 67.2	Northern ROW – 32.4 Southern ROW – 35.2

Source: SCE's Field Management Plan (see EIS Appendix 4).

B.5.3 Field Management Plan for the Proposed Project

This section discusses SCE's general practices regarding EMF and the specific EMF reduction measures proposed by SCE for the Proposed Project. SCE's Field Management Plan is included in this EIS as Appendix 4. SCE's Field Management Plan also includes design calculations of estimated EMF levels for the proposed 220 kV and 66 kV lines with and without implementation of these EMF reduction measures and conductor phasing (i.e., arranging conductors of the proposed transmission lines for magnetic field reduction). These design calculations are shown in Table B-20. For additional details on SCE's set of assumptions and calculated magnetic field levels for the Proposed Project, see EIS Appendix 4.

Table B-20. Calculated Magnetic Field Levels along Proposed 220 kV Transmission Corridor

Segment	Proposed without EMF Reduction: West or North Edge of ROW (mG)	Proposed with Phasing and Increased Conductor Heights: West or North Edge of ROW (mG)	Proposed without EMF Reduction: East or South Edge of ROW (mG)	Proposed with Phasing and Increased Conductor Heights: East or South Edge of ROW (mG)
Segment 1, Model 1	83.9	29.0	72.5	68.6
Segment 1, Model 2	123.0	56.1	61.5	57.1
Segment 1, Model 3	119.2	53.6	89.4	54.9
Segment 1, Model 4	119.2	53.6	89.4	54.9
Segment 2, Model 1	158.3	54.3	125.1	45.1
Segment 2, Model 2	157.6	55.5	56.5	58.4
Segment 3	127.5	37.5	15.0	2.2
Segment 4, Model 1	158.3	54.3	13.3	2.3
Segment 4, Model 2	9.3	0.4	186.5	53.6
Segment 5, Model 1	9.3	0.4	186.5	53.6
Segment 5, Model 2	190.5	45.0*	211.2	67.4*
Segment 5, Model 3	190.5	35.5	211.2	53.6
Segment 6, Model 1	18.0	0.7	180.4	60.7
Segment 6, Model 2	Northern ROW – 13.0 Southern ROW – 156.2	Northern ROW – 0.9 Southern ROW – 53.9	Northern ROW – 137.2 Southern ROW – 164.0	Northern ROW – 54.8 Southern ROW – 63.9
Segment 6, Model 3	Northern ROW – 13.3 Southern ROW – 162.0	Northern ROW – 0.8 Southern ROW – 50.7	Northern ROW – 135.5 Southern ROW – 23.6	Northern ROW – 54.4 Southern ROW – 29.3

Source: SCE's Field Management Plan (see EIS Appendix 4).

* The proposed with EMF reduction calculations indicate phasing only. Because the proposed design already includes no cost field reduction measures in the preliminary design, no low-cost field reduction measures, such as raising structure heights or conductor ground clearance near populated areas, are recommended in SCE's Field Management Plan for this segment of the Proposed Project.

SCE's EMF Design Guidelines. In accordance with Section X (A) of CPUC General Order 131-D, Decision No. D.06-01-042, and SCE's EMF Design Guidelines prepared in accordance with the EMF Decision, SCE will incorporate "no cost" and "low cost" magnetic field reduction steps in the design of the proposed transmission line and switchyard.

SCE's guidelines call for implementation of measures to reduce magnetic fields based on the land uses surrounding each project, in the following priority:

- Schools, day care centers, hospitals
- Residential properties
- Commercial/industrial land uses
- Recreational sites
- Agricultural lands
- Undeveloped land

Common magnetic field reduction options SCE utilizes to comply with the CPUC EMF Policy include the following measures, any or all of which may be selected to reduce the magnetic field strength levels from the proposed transmission line:

- Increasing the distance from electrical facilities by:
  - Increasing pole (structure) height,
  - Increasing the width of right-of-way, and/or
  - Locating power lines closer to the centerline of the corridor.
- Reducing conductor (phase) spacing.
- Arranging conductors to reduce magnetic field.
- Converting single-phase circuits to split-phase circuits.

Proposed EMF Reduction Measures. The Preliminary Field Management Plan for the Proposed Project (EIS Appendix 4) includes each of these measures, as "no cost" and "low cost" magnetic field reduction steps:

- Utilize subtransmission structure heights that meet or exceed SCE's EMF preferred design criteria,
- Utilize underground subtransmission construction for crossing other transmission structures and other engineering reasons,
- Utilize double-circuit construction that reduces spacing between circuits as compared with single-circuit construction,
- Utilize taller structure heights or increased conductor ground clearance where the proposed transmission lines run adjacent to populated areas, and
- Arrange conductors of the proposed transmission lines for magnetic field reduction ("phasing").

Final engineering and selection of the alignment of the line would include seeking opportunities to strategically place the line farther from priority land uses, where feasible.

Additional information regarding EMF and Proposed Project can be found in Appendix B of SCE's CPCN application (A.13-10-020). SCE's CPCN application and Proponent's Environmental Assessment are available for public review at the CPUC Energy Division CEQA Unit and on the project website at:

http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm

If the project or an alternative is approved by the CPUC, SCE would prepare and submit to the CPUC a Final EMF Management Plan containing the precise EMF measures to be employed for the project.

B.6 Applicant Proposed Measures

SCE proposes to implement certain measures to ensure the Proposed Project would occur with minimal environmental impacts in a manner consistent with applicable rules and regulations. SCE proposes to implement these measures during the design, construction, and operation of the Proposed Project in order to avoid or minimize potential environmental impacts (SCE, 2013 and 2014a).

Applicant Proposed Measures (APMs) listed in Table B-21 are considered part of the Proposed Project and are considered in the evaluation of environmental impacts (see Section D). CPUC approval would be based upon SCE adhering to the Proposed Project as described in this document, including this project description and the APMs, as well as any adopted mitigation measures identified by this EIS.

Table B-21 lists each APM by environmental issue area. In some cases, mitigation measures presented in Section D either expand upon or add detail to the APMs presented in Table B-21 as necessary, to ensure that potential impacts would be reduced to less than significant levels.

Table B-21. Applicant Proposed Measures (APMs)

APM	Description
Air Quality	
APM AIR-1	SCE would prepare an Exhaust Emissions Control Plan to establish a target goal of a project-wide fleet average reduction of 20 percent NO_X compared to the estimated unmitigated emissions as presented in the PEA for applicable diesel-fueled off-road construction equipment of more than 50 horsepower. Acceptable options for reducing emissions could include, but are not limited to: the use of newer model engines meeting USEPA Tier 3 standards if available (or better), low emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other similar available options.
APM AIR-2	SCE would prepare a Fugitive Dust Control Plan to reduce fugitive dust emissions (fugitive PM_{10} and $PM_{2.5}$). Acceptable control measures for reducing emissions described within the Fugitive Dust Control Plan may include, but are not limited to: limit traffic speeds on unpaved roads to 15 mph; apply water as needed to comply with SCAQMD Rule 403 requirements, or apply soil stabilizers (e.g., gravel for substation area) on active unpaved access roads, the substation area, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area; apply soil stabilizers to inactive construction areas as described in the SWPPP; where applicable, install gravel, shaker plates, or other BMPs at the point of intersection with public paved surfaces. The Fugitive Dust Control Plan would describe how the measures would be implemented and monitored during Project construction. Furthermore, as construction details become available, the Fugitive Dust Control Plan would include site-specific mitigation measures for Project areas that could be more likely to generate dust near sensitive receptors.
Biology	
APM BIO-1	**Revegetation Plan.** Prior to starting construction, a draft revegetation plan would be prepared to guide the revegetation of those areas subject to temporary project impacts during construction and that are not included within either the WR-MSHCP or CV-MSHCP (e.g., land areas within the Morongo Reservation or San Bernardino County), and where dominant land cover consists of native vegetation. The objective of revegetation would be to re-establish vegetation back to pre-construction conditions (e.g., by maintaining roughly equivalent or comparable native to non-native dominance patterns) with consideration of adjacent community composition. Areas dominated primarily by non-native vegetation and that are temporarily disturbed by construction activities may also be revegetated; however, the primary objective for those areas would be to stabilize soils to minimize erosion potential in accordance with any applicable SWPPP requirements. Prior to completing construction activities, the revegetation plan would be finalized to address site-specific conditions, methodology and technique, implementation schedule, monitoring and maintenance, and success criteria. The revegetation plan would also direct revegetation of temporarily impacted native-dominated vegetation areas located in the WR-MSHCP and the CV-MSHCP plan areas consistent with MSHCP standards and pursuant to any agreements negotiated between SCE and the MSHCP management entities (e.g., RCA and CVCC) regarding SCE's obligations as a PSE receiving coverage for impacts to various resources. If SCE does not gain PSE status under either MSHCP, the draft revegetation plan to re-establish native-dominated vegetation back to pre-construction conditions (as noted above) would include native dominated areas within MSHCP areas also. The draft revegetation plan would be submitted to the CPUC, BLM, and applicable wildlife agencies for approval after completion of final engineering and prior to the start of construction. The Revegetation Plan will include the following elements: (a) A statement of revegetation goals for different areas within the project (e.g., to mitigate project impacts to specific resources) based on the administrative land jurisdiction particular areas fall in and also based on the different vegetation types and the constituent elements therein. In particular, revegetation objectives for areas supporting native vegetation may differ substantially from the objectives for revegetation in other areas. Revegetation objectives will be specified for different habitat and vegetation types and for the following administrative areas: 1) San Bernardino County, including specific reference to goals for revegetation within USFWS-designated Critical Habitat for California gnatcatcher and areas deemed occupied by Stephens' kangaroo rat; 2) WRC MSHCP areas, including Public/Quasi-Public conservation areas and Additional Reserve Lands;

Table B-21. Applicant Proposed Measures (APMs)

APM	Description
	3) CVMSHCP areas; and 4) areas to be re-vegetated on land within the Morongo Reservation. Examples of likely goals may include preventing or minimizing further site degradation; stabilizing soils; promoting passive vegetation recovery over time; replacing degraded natural vegetation and habitat value with equivalent vegetation cover and composition as compared to pre-construction conditions; and minimizing soil erosion, dust generation, and weed invasions. (b) Quantitative success criteria. Because restoration goals will differ according to location, success criteria shall be tailored appropriately to areas in different administrative jurisdictions (please see above) and will also be defined specifically for areas containing habitat for listed species and other special-status species for which habitat value is being replaced along the route. (c) Implementation. The Plan will describe SCE's proposed implementation measures, including: (a) pre-construction characterization of specific areas subject to temporary construction impacts; (b) soil preparation measures, including locations of recontouring, decompacting, soil amendments, imprinting, or other treatments; (c) details for top soil salvage and storage, as applicable; (d) plant material collection and acquisition guidelines, including guidelines for obtaining plants or seed from vendors; (e) scheduling and methods for planting or seeding; (f) proposed irrigation methods. (d) Maintenance. The Plan will include scheduling and methods for proposed maintenance activities such as weeding, trash removal, etc. (e) Monitoring and Reporting. The Restoration Plan will include a detailed monitoring and reporting program, commensurate with the goals and success criteria for each revegetation site. The monitoring and reporting program will be designed to evaluate progress toward success criteria at appropriate milestones, provide an objective determination whether each site meets success criteria at the end of the monitoring period, and report this information to the relevant agencies. (f) Contingency. The Plan will include contingency measures for implementation if revegetation efforts make insufficient progress toward success criteria at specified milestones
APM BIO-2	**Biological Monitoring.** Where special-status species (e.g., reptiles, birds, mammals, and bat roosts) or unique resources (defined by regulations and local conservation plans) are known to occur, biologists would monitor construction activities, unless otherwise mitigated for or as appropriate actions are described in species-specific APMs.
APM BIO-3	**Nesting Birds.** SCE would prepare and implement a Nesting Bird Management Plan to address nesting birds undertaken in collaboration with the CDFW, USFWS, and BLM. The Plan would be an adaptive management plan that may be updated as needed if improvements are identified or conditions in the field change. The Plan would include the following: nest management and avoidance, field approach (survey methodology, reporting, and monitoring), and the Project avian biologist qualifications. The avian biologist would be responsible for oversight of the avian protection activities including the biological monitors. In order to minimize impacts to nesting birds during nesting season, pre-construction surveys and regular sweep surveys of active construction areas by a qualified biologist would focus on breeding behavior and a search for active nests within 500 feet of the project disturbance areas where survey access is not limited. (a) For vegetation clearing that needs to occur during the typical nesting bird season (February 1 to August 31; as early as January 1 for raptors) qualified biologists would conduct nesting bird surveys. If an active nest (e.g., nests with eggs or chicks) was located, the appropriate avoidance and minimization measures from the management plan would be implemented. If it is determined that removal of an active nest is required, the project avian biologist will evaluate the appropriate level of consultation with CDFW, USFWS, and BLM; (b) During the typical nesting bird season, SCE would conduct pre-construction clearance surveys no more than 14 days prior to initial start of construction and in accordance with the adaptive management plan, to determine the location of nesting birds and territories; (c) Nest monitoring would be conducted by Project biological monitors with knowledge of bird behavior under the direction of a BLM and/or CDFW approved avian biologist; (d) Nesting deterrents (e.g. mooring balls, netting, etc.) could be used for inactive nests where appropriate at the direction of the Project avian biologist; (e) A Project avian biologist would determine the appropriate buffer area around active nest(s) and provisions for buffer exclusion areas (e.g. highways, public access roads, etc.) along with construction activity limits. Unless restricted by the Project avian biologist, construction vehicles would be allowed to move through a buffer area

Table B-21. Applicant Proposed Measures (APMs)

APM	Description
	with no stopping cr idling. The Project avian biologist would determine, evaluate, and modify buffers as appropriate based on species tolerance and behavior, the potential disruptiveness of construction activities, and existing conditions; and (f) The Project biological monitor would observe and document implementation of appropriate buffer areas around active nest(s) during project activities. The active nest site and applicable buffer would remain in place until nesting activity concluded. Nesting bird status reports would be submitted according to the management plan.
APM BIO-4	**Burrowing Owl.** A pre-construction, focused burrowing owl survey would be conducted no more than 30 days prior to commencement of ground-disturbing activities within suitable habitat to determine if any occupied burrows are present. If occupied burrows are found, adequate buffers shall be established around burrows. Adequate buffers would be determined by a Project Avian biologist based upon field conditions and resource agency guidelines for wintering burrows and breeding season burrows. SCE would develop a Burrowing Owl Management Plan for the Project. The Plan would include information related to construction monitoring, avoidance and minimization measures, relocation strategy, exclusionary devices, and reporting requirements.
APM BIO-5	**Desert Tortoise.** In desert tortoise habitat in Segments 5 and 6, from Deep Creek Road east to Devers Substation, project personnel in non-desert tortoise exclusion fenced areas would be required to inspect for desert tortoises under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, the vehicle would not be moved until the tortoise leaves on its own accord, or if necessary, the tortoise may be moved by an Authorized Biologist. If a vehicle must be moved in the event of an emergency, placing a tortoise in harm's way, a USFWS Authorized Biologist may move the tortoise to an appropriate location. All burrows suitable for desert tortoise found during clearance surveys within project ground disturbance areas within desert tortoise habitat, whether occupied or vacant, that would be subject to construction-related disturbance, would be excavated by a Biologist authorized by USFWS, and collapsed or blocked to prevent desert tortoise reentry. All desert tortoise handling, including excavations of nests, would be conducted by a Biologist authorized by USFWS, in accordance with USFWS-approved protocol in compliance with appropriate regulatory permits. Desert tortoise exclusion fencing shall be installed around staging yards within suitable, occupied habitat according to USFWS recommended specifications (USFWS, 2005) and in compliance with appropriate regulatory permits. Trash and food items would be contained in closed containers during construction to discourage attracting opportunistic predators such as ravens.
APM BIO-6	**Least Bell's Vireo, Southwestern Willow Flycatcher, & Western Yellow-billed Cuckoo.** *Pre-construction:* In areas of potentially suitable riparian habitat for the least Bell's vireo (or other listed riparian birds), which occurs in Segment 3 and may occur in limited areas in Segment 4, SCE would conduct non-protocol pre-construction surveys no more than 7 days prior to commencing construction activities to determine the location of nests and territories. Survey areas would include potentially suitable habitat within a 500-foot buffer around project disturbance areas unless property access is not allowed. *Buffer:* If active least Bell's vireo (or other listed riparian bird) nesting activity is identified, SCE's avian biologist would establish a buffer area where construction activities are prohibited around active least Bell's vireo nest(s) and would monitor construction activities to evaluate the adequacy of the buffer. The buffer would be established and may be subsequently adjusted based on construction activities, noise and disturbance levels in the area not attributable to construction, and observed behavior of individual vireos (or as specified by conditions established under a Biological Opinion issued by the U.S. Fish & Wildlife Service or as directed by provisions established under the WR-MSHCP if SCE obtains PSE status). As SCE intends to apply for PSE status, if granted, potential impacts to the least Bell's vireo would be mitigated by participation in the WR-MSHCP. SCE's participation would include following provisions and measures outlined in the WR-MSHCP. SCE would prepare a Determination of Biological Equivalent or Superior Preservation (DBESP) that would include conservation recommendations similar to those that would be established under a Biological Opinion. The Riverside Conservation Authority (RCA) would request USFWS and CDFW concurrence with the MSHCP "findings of consistency," as well as DBESP approval. Subsequent coordination on any biological issues would be handled through consultation with the RCA. The RCA would determine the need for additional consultation with the USFWS and CDFW.

Table B-21. Applicant Proposed Measures (APMs)

APM	Description
	If SCE does not participate in the WR-MSHCP, then any temporary and permanent impacts to least Bell's vireo and its habitat that may occur in Segments 3 and 4 would be mitigated by obtaining an incidental take authorization under the Federal and State Endangered Species Acts and implementing relevant permit conditions.
APM BIO-7	**Special Status Plants.** Pre-construction surveys for plant species assigned a State Rare Plant Rank of 1B would be performed during the appropriate season and observed populations compared to impact area limits associated with final design. If substantial adverse impacts to a population are unavoidable then replacement or translocation of equivalent numbers of plants would be planned and implemented. (Substantially adverse impacts are defined as damage or loss of at least 20 percent of the total number of individuals in a local population within the Project Area or 20 percent of the total area occupied by a population of special status plants. Potential impacts to species ranked 2 or 4 would not be considered significant but may still be avoided to the extent practicable). Special status plants designated on List 1B that are substantially adversely affected would be salvaged and relocated. SCE will prepare plan to accomplish salvage and relocation/replacement that states methods of salvage, storage, and replacement planting of seeds or plants, and to identify receptor sites, set target numbers to be established, describe monitoring methods, and define requirements for maintenance and annual monitoring reports. List 1B species observed in project area include: Yucaipa onion, smooth tarplant, Parry's spineflower, white-bracted spineflower, and chaparral sand verbena.
APM BIO-8	**Coachella Valley Milk-vetch.** Focused surveys for Coachella Valley milk-vetch would be conducted during the appropriate season within designated Critical Habitat along the Whitewater River during the season immediately preceding proposed construction activities in that area. This species was not found during focused surveys conducted in 2011 and 2012. If this species is located and occurs within areas potentially subject to impacts during construction, a plan to avoid impacts, protect specimens in place, and/or salvage and replace affected specimens would be developed in consultation with the CVCC, USFWS, and CDFW.
APM BIO-9 (Revised by SCE in Comment Letter on Draft EIR/EIS)	**Jurisdictional Water Permits.** Jurisdictional waters permits would be obtained from CDFW under Cal. Fish & Game Code Section 1602, and from USACE, EPA and the SWRCB in accordance with Sections 404 and 401 of the Clean Water Act, to address unavoidable impacts to State and Federal jurisdictional waters. Impacts would be mitigated based on the terms of the permits. The applicant would develop a Habitat Mitigation and Monitoring Plan (HMMP) for affected jurisdictional areas within established riparian areas, as needed, for review and approval by the USACE, CDFW, the EPA and the SWRCB as appropriate. The plan would describe measures to accomplish restoration or revegetation, provide criteria for restoration success, and specify compensation ratios. Monitoring and reporting requirements and the duration of post-construction monitoring would be specified. A copy of the final HMMP would be provided to the CPUC, USACE EPA, SWRCB, and CDFW. Regarding any affected Riparian/Riverine drainages and habitat areas in Segments 3 and 4 in Western Riverside County, if SCE participates in the WR-MSHCP, SCE would prepare a DBESP that would include mitigation measures consistent with the HMMP as previously described. The RCA would request USFWS and CDFW concurrence with the MSHCP "findings of consistency," as well as DBESP approval. Subsequent coordination on any biological issues would be addressed through consultation with the RCA. The RCA would determine the need for additional consultation with the USFWS and CDFW.
APM BIO-10	**Coastal California Gnatcatcher and Designated Critical Habitat.** In San Bernardino County, SCE would develop construction minimization measures and habitat conservation measures to be incorporated into Section 7 consultation, with the intent to obtain take authorization for the expected minimal impact (based on negative surveys to date), as well as a finding of no adverse modification to Critical Habitat. Expected measures would include: pre-construction protocol surveys to identify the locations of any gnatcatchers; monitoring of all vegetation clearing in coastal sage scrub habitat or designated Critical Habitat in San Bernardino County; restoration of temporarily impacted coastal sage habitat; and additional restoration of degraded areas within the SCE right-of-way as compensation for permanent impacts to coastal sage scrub habitat, such that there is no net loss of habitat value for coastal California gnatcatcher in San Bernardino County.

Table B-21. Applicant Proposed Measures (APMs)

APM	Description
APM BIO-11	**Stephens' Kangaroo Rat.** For portions of the Proposed Project within SKR habitat in Segments 2 and 3, from the San Bernardino Junction to the Riverside County line, avoidance and mitigation measures would be incorporated into conditions established in a Biological Opinion issued through Section 7 consultation with USFWS, which would be required to obtain incidental take authorization for the expected minimal impact (based on surveys to date). Expected measures would include: pre-construction protocol surveys to identify the locations of any SKR present and delineate extent of suitable habitat: monitoring by a qualified biologist during all vegetation clearing and ground disturbance in suitable habitat; flagging of potential burrows for avoidance where possible; covering all excavated, steep-walled holes or trenches more than 2 feet deep at the close of each working day with plywood or provide one or more escape ramps constructed of earth fill or wooden planks to prevent entrapment of SKR during construction; thorough inspection of construction pipes, poles, culverts, or similar structures with a diameter of 1.5 inches or greater stored at a construction site for one or more overnight periods shall be done by a qualified biologist for the presence of SKR before the construction pipes, poles, culverts, or similar structures is subsequently buried, capped, or otherwise used or moved in any way; where construction traffic over identified burrows is unavoidable, covering burrows during daytime operations with 1-inch plywood or steel plates to avoid collapsing burrow; restoration of all temporarily affected areas within suitable habitat; and additional restoration of degraded areas within the SCE right-of-way as compensation for permanent impacts to suitable habitat, such that there is no net loss of habitat value for SKR, as agreed upon by USFWS.
APM BIO-12	**Los Angeles Pocket Mouse; Palm Springs Pocket Mouse.** SCE would develop construction minimization measures and habitat conservation measures, as necessary through MSHCP participation, or, in the absence of such participation, in consultation with USFWS and CDFW. Habitat mitigation measures would be a combination of revegetation of temporarily impacted areas (see APM-BIO-1) and restoration of degraded areas as necessary to conserve the equivalent of 90 percent of the long-term conservation value habitat for LAPM, as determined by the RCA and/or USFWS and CDFW.
APM BIO-13	In areas where foot travel is necessary outside of already identified temporary or permanent disturbance areas. Biological Monitors, present in areas as required by APM BIO-2, would assist construction crews in determining the most appropriate foot path having the least potential to disturb sensitive biological resources.
Cultural/Paleontological	
APM CUL-1	Potential Project effects to Historical Resources/Historic Properties may be mitigated or reduced to a less than significant level by utilizing one, or a combination of standard-practice mitigation scenarios potentially including, but not limited to: **Prehistoric Resources:** a. avoid (avoidance by design, preserve in place, capping); b. minimize (reduction of Area of Direct Impact/Effect); c. mitigate (data recovery). **Historic Resources:** a. avoid (avoidance by design, preserve in place, capping); b. minimize (reduction of Area of Direct Impact/Effect); c. mitigate (historic context statement, data recovery). **Historic Architecture/Utility Infrastructure:** a. avoid (avoidance by design, preserve in place); b. minimize (reduction of Area of Direct Impact/Effect); c. mitigate (historic context statement, Historic American Engineering Record, Historic American Building Survey, advanced DPR recordation). **Traditional Cultural Property:** a. consult with Native American stakeholders on perceived impacts/effects and negotiate mutually agreeable treatment.

Table B-21. Applicant Proposed Measures (APMs)

APM	Description
APM CUL-2	During construction, it is possible that previously unknown archaeological or other cultural resources or human remains could be discovered. Prior to construction, SCE would prepare a Construction Monitoring and Unanticipated Cultural Resources Discovery Plan or similar document to be implemented if an unanticipated discovery is made. At a minimum the Plan would detail the following elements: Worker and supervisor training in the identification of cultural remains that could be found in the Proposed Project area, and the implications of disturbance and collection of cultural resources per applicable federal and state laws. Worker and supervisor response procedures to be followed in the event of an unanticipated discovery, including appropriate points of contact for professionals qualified to make decisions about the potential significance of any find. Identification of persons authorized to stop or redirect work that could affect the discovery, and their on-call contact information. Procedures for monitoring construction activities in archaeologically sensitive areas. A minimum radius around any discovery within which work would be halted until the significance of the resource has been evaluated and mitigation implemented as appropriate. Procedures for identifying and evaluating the historical significance of a discovery. Procedures for consulting Native Americans when identifying and evaluating the significance of discoveries involving Native American cultural materials. Procedures to be followed for treatment of discovered human remains per current state law on non-Federal land, Federal law (including the Native American Graves Protection and Repatriation Act) on Federal land and protocol developed in consultation with Native Americans.
APM PAL-1	Potential effects of the Proposed Project to sensitive paleontological resources may be mitigated or reduced to a less-than-significant level by implementing a Paleontological Resource Mitigation and Monitoring Plan, which would identify monitoring and treatment requirements for sensitive paleontological resources of significance.
Hydrology	
APM HYDRO-1	Installation of drainage improvements would be designed to maintain the existing flow patterns as practicable.
APM HYDRO-2	Soil disturbance at structures and access roads would be minimized and designed to prevent long-term erosion through revegetation or construction of permanent erosion control structures.
APM HYDRO-3	Erosion control and hazardous material plans will be incorporated into the construction bidding specifications to ensure compliance.
Minerals	
APM MIN-1	To minimize interference with mining operations at Robertson's Ready Mix Banning Rock Plant #66, SCE will coordinate with the owner/operator to avoid critical mining periods and high volume earthmoving days and will document said coordination.
Recreation	
APM REC-1	SCE would coordinate temporary closures with recreational facility managers and would post a public notice at recreation facilities indicating that the facilities would be closed or have limited use during construction.
APM REC-2	SCE would prepare a construction notification plan identifying procedures for notifying the public of the location and duration of construction.
Transportation	
APM TRANS-1	SCE would prepare a project specific helicopter use plan to describe anticipated helicopter activities. The helicopter plan will include information related to the types of activities to be conducted by helicopters, locations of and activities to be conducted at helicopter yards, flight and data management procedures, and safety information.

B.7 Connected Actions

B.7.1 Definition of Connected Action Projects

The CPUC and BLM have evaluated a range of projects to determine whether they are so closely related to the Proposed Project as to be considered "connected actions" under the National Environmental Policy Act (NEPA). Projects that are considered "connected actions" under NEPA (40 C.F.R. 1508.25(a)(l)) include actions that:

> *(i) ore outomoticolly triggered by the proposed oction,*
>
> *(ii) connot or will not proceed unless the proposed oction occurs first or simultoneously, or*
>
> *(iii) ore interdependent ports of o lorger oction ond depend upon the lorger oction for their justificotion.*

The second category (ii) is relevant for the generation projects considered to be "connected." The approach to identifying connected actions for the Proposed Project has been driven by an analysis of generator interconnection agreements and transmission studies prepared by the California Independent System Operator (CAISO). A number of solar generation projects appear to depend on the WOD Upgrade Project in order to move to construction and operation, because there is currently inadequate transmission capacity west of Devers Substation.

Table B-22 lists the generation projects that are analyzed as actions connected to the WOD Project and includes a brief explanation of why each project is considered to be connected. These projects are described in more detail in Sections B.7.2.1 and B.7.2.2. The total generation capacity of the projects in Table B-22 is 1,474 MW.

Table B-22. Connected Actions – Solar Generation Projects

Project Name (if known)[1]	MW / Type	Rationale for Consideration as a "Connected Action"
Known Projects with Interconnection Agreements		
Palen SEGS I, LLC (Palen) subsidiary of Abengoa Solar LLC (CAISO Queue 365)	500 MW Solar Trough	Project deliverability via Red Bluff Substation modeled in CAISO "transition cluster" that presumes implementation of WOD Upgrade Project, and this project's interconnection agreement was executed in February 2011 that presumes implementation of the WOD Upgrade Project. Potentially connected to Proposed Project because this project may not be able to achieve deliverability without WOD Upgrade Project, and it may not be possible to be made deliverable by the 1,050 MW of additional deliverability within the existing West of Devers Interim Project (due to lack of capacity or lack of financial ability).
Desert Harvest, LLC EDF Renewable Energy (CAISO Queue 643AE)	150 MW Solar Photovoltaic (PV)	Project has an interconnection agreement that was executed in October 2014 that presumes implementation of WOD Upgrade Project and achieving deliverability via Red Bluff Substation. Potentially connected to Proposed Project, because this project may not be able to achieve deliverability without WOD Upgrade Project, and it may not be possible to be made deliverable by the 1,050 MW of additional deliverability within the existing West of Devers Interim Project (due to lack of capacity or lack of financial ability).

Table B-22. Connected Actions – Solar Generation Projects

Project Name (if known)[1]	MW / Type	Rationale for Consideration as a "Connected Action"
Confidential Projects Requesting Interconnection		
Project 1: Connecting at Red Bluff Substation (CAISO Queue 421)	50 MW Solar PV	Project 1 deliverability modeled in CAISO "transition cluster" that presumes implementation of WOD Upgrade Project.
Project 2: Connecting at Red Bluff Substation 230 kV (CAISO Queue 1070)	250 MW Solar PV	Projects 2 through 6 entered the CAISO interconnection process after the CAISO determined that the WOD Upgrade Project would allow additional generators in Eastern Riverside County to achieve "full capacity deliverability" status. These projects may not meet their financial or economic goals without the proposed WOD Upgrade Project being online.
Project 3: Solar Star Blythe Mesa Project Connecting at Colorado River Substation 230 kV (CAISO Queue 576)[2]	224 MW Solar PV	
Project 4: Connecting at Colorado River Substation 230 kV (CAISO Queue 970)	150 MW Solar PV	
Project 5: Connecting at Colorado River Substation 230 kV (CAISO Queue 1071)	150 MW Solar PV	
Total this table: 1,474 MW		

1 - The CAISO queue position indicates when the generator requested interconnection, and at that time, the CAISO can commence studies to determine the transmission upgrades that might be needed to integrate the generator with the remainder of the system.

2 - Project 3 executed an interconnection agreement in July 2015 that presumes implementation of WOD Upgrade Project and achieving deliverability via Colorado River Substation. The Solar Star Blythe Mesa (Queue 576) was filed at FERC on July 31, 2015.

Each of these connected actions is described below, to the extent that information is available. The environmental impacts of these connected actions are described in Section D of this EIS, following the discussion of the Proposed Project impacts. It is important to note that each of these projects will have its own project-level impact analysis under CEQA and/or NEPA. The analysis presented in this EIS is intended to disclose the range of potential impacts to the public and to decision-makers, since these projects are all made more likely to occur by the construction of the WOD Upgrade Project.

B.7.2 Descriptions of Connected Action Projects

Two categories of projects are defined here. Section B.7.2.1 describes known projects, and Section B.7.2.2 presents analysis assumptions for projects that are not yet publicly defined.

B.7.2.1 Known Projects

Palen Solar Power Project

The Palen Solar Power Plant (PSPP) was first proposed in August 2009 by Solar Millennium as a 500 MW solar trough project. Project review was completed by the California Energy Commission (CEC) and BLM, and a slightly smaller project was approved in December 2010, incorporating two potential alternative layouts. Subsequently, Solar Millennium filed for bankruptcy and sold the project to BrightSource (CEC, 2015), and a new proceeding was initiated at the CEC and BLM. The CEC published its Final Staff Assessment (FSA) in several parts, completing it in November 2013. In September 2014, the CEC published a revised Presiding Member's Proposed Decision (PMPD), recommending approval of a single power tower with 250 MW capacity, rather than the two tower 500 MW proposed project (CEC, 2014), and the addition of thermal storage capacity. In late September 2014, BrightSource withdrew its application to the CEC and the proceeding was terminated. After withdrawal of the BrightSource application, Palen SEGS I, LLC requested an extension of the original proceeding deadline for the commencement of construction of the project from December 15, 2015 to December 15, 2016. The owner also noted that the ownership of the project is fully held by Abengoa SP Holdings, LLC. In September 2015, the Energy Commission granted the extension of time to construct to give the project owner time to file an amendment to update the design to solar trough and to incorporate energy storage into the project.

Because of the CEC's decision to grant an extension of the original decision, the project would likely be a 500 MW project at this location with storage, this analysis assumes that the impacts associated with a 500 MW solar trough would be a connected action to the WOD Upgrade Project.

PSPP would be located either entirely or primarily on public land managed by the BLM (Right-of-Way No. CACA-048810). The CEC approved two potential boundaries for the project, one that included use of 240 acres of private lands. This analysis describes the impacts of the Reconfigured Alternative #2; however, the alternatives are similar in nature and have a very similar boundary and the effects of either the Reconfigured Alternative #2 or the Reconfigured Alternative #3 would be substantially similar. The project site is located approximately 0.25 miles north of I-10and 10 miles east of Desert Center, approximately halfway between the Cities of Indio and Blythe, in Riverside County, California. The amended 500 MW project would occupy the same location as the 2010 approved project. Because the amendment to the project has not been filed yet, this analysis assumes the project footprint would remain the same as originally approved, approximately 4,000 acres within a 5,200-acre ROW. Figure B-25 (at the end of this section) illustrates the location and configuration of one of the PSPP potential boundaries.

The PSPP configuration evaluated in this EIS is called the "Reconfigured Alternative #2" in the CEC's FSA and Commission Decision from 2010. The solar trough technology for the Reconfigured Alternative #2 would be the same as described for the project approved in 2010. This alternative would avoid a portion of the sand transport corridor. A generation tie-line would connect at the north side of the solar troughs. A natural-gas pipeline would require rerouting for this alternative.

The impact analysis presented in Section D of this EIS is based primarily on the CEC's Commission Decision and FSA, published in parts in 2010.

EDF Desert Harvest Solar Project

This 150 MW alternating current solar PV energy generating project holds CAISO Queue position 643AE. The project would be located 5 miles north of Desert Center on lands administered by the BLM, Palm Springs–South Coast Field Office in Riverside County. The project would be located entirely on land administered by BLM, but with generation tie-in (gen-tie) transmission line encroachment permits for roadway crossings and rights-of-way required from Riverside County.

BLM issued its Final EIS in November 2012 with EIS Alternative 4 as the Environmentally Preferred Alternative. Riverside County used this EIS to support its issuance of encroachment permits, under CEQA Guidelines Section 15221 (BLM, 2012). The project (Alternative 4) was approved by the BLM in a Record of Decision signed on March 6, 2013, and a ROW grant was issued on September 13, 2013. The impact analysis presented in Section D of this EIS is based primarily on the BLM's 2012 Final EIS.

The approved Desert Harvest Solar Project analyzed in BLM's Final EIS as Alternative 4 is comprised of two separate parcels separated by a desert wash. The northern parcel consists of 1,053 acres and the southern parcel consists of 155 acres for a total of 1,208 acres, or about 8 acres per MW. Figure B-26 illustrates the project layout and its location.

The main components of the Desert Harvest solar facility would consist of:

- Main generation area—PV arrays, switchyard, inverters, overhead lines, and access corridors;
- O&M Facility – either on or off site;

- On-site electrical substation and switch gear; and
- Site security, fencing, and lighting.

B.7.2.2 Confidential Projects

Six projects listed in Table B-22 are considered to be connected actions because the CAISO has determined that the WOD Upgrade Project is required to provide them with "full capacity deliverability" status. These generation projects may not meet their financial or economic goals without the proposed WOD Upgrade Project being online. Several of these generators submitted confidential letters of support to SCE, requesting that the CPUC expedite approval of the Proposed Project in order that they could attain deliverability for their generation (SCE, 2014c).

Because the locations of these confidential projects is not defined in public documents and CEQA/NEPA documents are not available for all projects, the impact analysis presented in this EIS in Section D is based on the defined impacts of solar PV projects in similar nearby areas and habitats. Table B-23 summarizes size and analysis assumptions for the confidential solar PV projects. Each project is described below.

Table B-23. Analysis Assumptions for Confidential Connected Action Projects, All Solar PV

Project No. and Interconnection Location	MW	Acres (Est.)	CEQA/NEPA Analysis Model
1. Red Bluff Substation	50	400	Desert Harvest Solar Project Final EIS
2. Red Bluff Substation	250	2,000	
3. Colorado River Substation	224	1,800	Blythe Mesa Solar Project Draft EIR/EA
4. Colorado River Substation	150	1,200	
5. Colorado River Substation	150	1,200	
TOTAL	**824 MW**	**6600 acres**	

Project 1: Connecting to Blythe-Eagle Mountain 161 kV Line

Project 1 is a 50 MW solar PV project with CAISO Queue position 421. Given its interconnection to a transmission line connecting Blythe with the Desert Center area, this analysis assumes that it would be located in the Desert Center area, so its impacts would be comparable to those of the Desert Harvest Solar Project (described in Section B.7.2.1), located north of Desert Center and south of Eagle Mountain. At 8 acres per MW, Project 1 would require about 400 acres.

Project 2: Connecting at Red Bluff Substation

Project 2 is a 250 MW solar PV project with CAISO Queue position 1070. Given its interconnection at the Red Bluff Substation in the Desert Center area, this analysis assumes that it would be located in the vicinity of Desert Center. Its impacts would be comparable to those of the Desert Harvest Solar Project (described in Section B.7.2.1), which is proposed to be located north of Desert Center and south of Eagle Mountain. At 8 acres per MW, Project 2 would require about 2,000 acres.

Projects 3, 4, and 5: Connecting at Colorado River Substation

As shown in Table B-23, these three projects would total 524 MW and would be solar PV projects. Given their interconnection at the Colorado River Substation, southwest of the City of Blythe, this analysis assumes that they would be located in vicinity of Blythe. Their impacts would be comparable to those of the Blythe Mesa Solar Project, which is proposed to be located west of central Blythe and northeast of the Colorado River Substation (see description below). At 8 acres per MW, these three projects would require about 4,200 acres.

As listed in Table B-23, the impact analysis for solar PV projects connecting with the Colorado River Substation considers as a model for impacts the EIR/Environmental Assessment (EIR/EA) prepared for Riverside County Planning Department and BLM for the Blythe Mesa Solar Project (BLM and Riverside County, 2014).

Blythe Mesa Solar Project. The proposed Blythe Mesa Solar Project encompasses 3,660 acres and consists of two primary components:

- A solar facility site (3,587 total acres) including a solar array field that would use single-axis solar PV trackers. It would have a system of interior collection power lines located between inverters and substations. There would be up to three on-site substations (each approximately 90,000 square feet), up to two O&M buildings (approximately 3,500 square feet each), and associated communication facilities and site infrastructure.
- Offsite facilities would include two primary off-site access roads and approximately 8.4 miles of 230 kV gen-tie transmission line (with approximately 3.6 miles located within the solar facility, which would connect all on-site substations). Approximately 4.8 miles of the gen-tie line would extend outside of the solar facility and would be placed within a 125-foot-wide ROW and occupy 73 acres. Of this, 3.8 miles would traverse BLM-managed lands with 53 acres within the Riverside East Solar Energy Zone (SEZ) designated by BLM's Solar Programmatic EIS (PEIS).

The fenced-in solar PV electric generation facility would occupy approximately 3,587 acres on privately owned land (approximately 3,253 acres are within the County of Riverside and approximately 334 acres are within the City of Blythe). The portion of the gen-tie line outside the solar facility site, from the southernmost substation to the Colorado River Substation, would traverse 3.8 miles of BLM-managed lands and approximately 1 mile of private land. Figure B-27 illustrates the Blythe Mesa solar facility site, gen-tie line location, and jurisdictions within the project vicinity.

B.7.2.3 Impact Analysis Approach Summary

Based on the descriptions presented in Sections B.7.2.1 and B.7.2.2, the analysis of the known and confidential solar projects considered to be connected actions is presented in this EIS using the analysis parameters and data sources defined in Table B-24. Each discipline's analysis in Section D considers the potential impacts based on two different solar technologies, three general locations, and varying land ownership characteristics.

Table B-24. Analysis Assumptions for Connected Actions

Project Type and Location	MW	Acres (est.)	CEQA/NEPA Analysis Model; Land Ownership
Solar Trough in Desert Center Area	500	3,000	▪ CEC Palen Commission Decision (2010) – BLM land
Solar PV in Desert Center Area	450	3,600	▪ Desert Harvest Solar Project Final EIS – Mix of BLM land and private land
Solar PV in Blythe Area	524	4,200	▪ Blythe Mesa Solar Project Draft EIR/EA – Primarily private land; BLM land for gen-ties
TOTAL	**1,224 MW**	**9,760 acres**	

B.8 References

BLM (Bureau of Land Management). 2014. Blythe Mesa Solar Power Project Draft EIS. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Blythe_Mesa_Solar_Power_Project.html. Accessed February 16, 2015.

_____. 2012. Desert Harvest Solar Farm Final EIS. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Harvest_Solar_Project.html. Accessed February 16, 2015.

_____. 2011. Desert Sunlight Solar Farm Project EIS. Viewed at http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Sunlight.html. Accessed February 16, 2015.

BLM and Riverside County. 2014. Blythe Mesa Solar Project Draft EIR/EA. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Blythe_Mesa_Solar_Power_Project.html. Accessed February 16, 2015.

CEC (California Energy Commission). 2015. Palen Solar Project website. http://www.energy.ca.gov/sitingcases/palen/. Accessed February 16, 2015.

_____. 2014. Presiding Member's Proposed Decision (revised). Palen Solar Power Project. http://docketpublic.energy.ca.gov/PublicDocuments/09-AFC-07C/TN203061_20140915T094029_Revised_Presiding_Member%27s_Proposed_Decision_PMPD.pdf Accessed February 16, 2015.

_____. 2010. Palen Solar Power Project Commission Decision. http://docketpublic.energy.ca.gov/PublicDocuments/Regulatory/Non%20Active%20AFC's/09-AFC-7%20Palen%20Solar/2010/December/TN%2059350%2012-22-10%20Commission%20Decsion.pdf Accessed October, 2015.

_____. 2008. CPV Sentinel Energy Project Final Staff Assessment. http://www.energy.ca.gov/2008publications/CEC-700-2008-005/CEC-700-2008-005-FSA.PDF. Accessed February 16, 2015.

CSP Today (Concentrated Solar Power Today). 2014. Abengoa building on storage expertise in smaller Palen proposal. http://social.csptoday.com/markets/abengoa-building-storage-expertise-smaller-palen-proposal. Accessed February 16, 2015.

DWR (California Department of Water Resources). 2014. 2010 Urban Water Management Plan Data. http://www.water.ca.gov/urbanwatermanagement/2010_Urban_Water_Management_Plan_Data.cfm. Accessed January 9, 2015.

NextEra. 2015. Desert Sunlight at work in California. http://webtest.nexteraenergyresources.com/what/desert-sunlight.shtml. Accessed February 16, 2015.

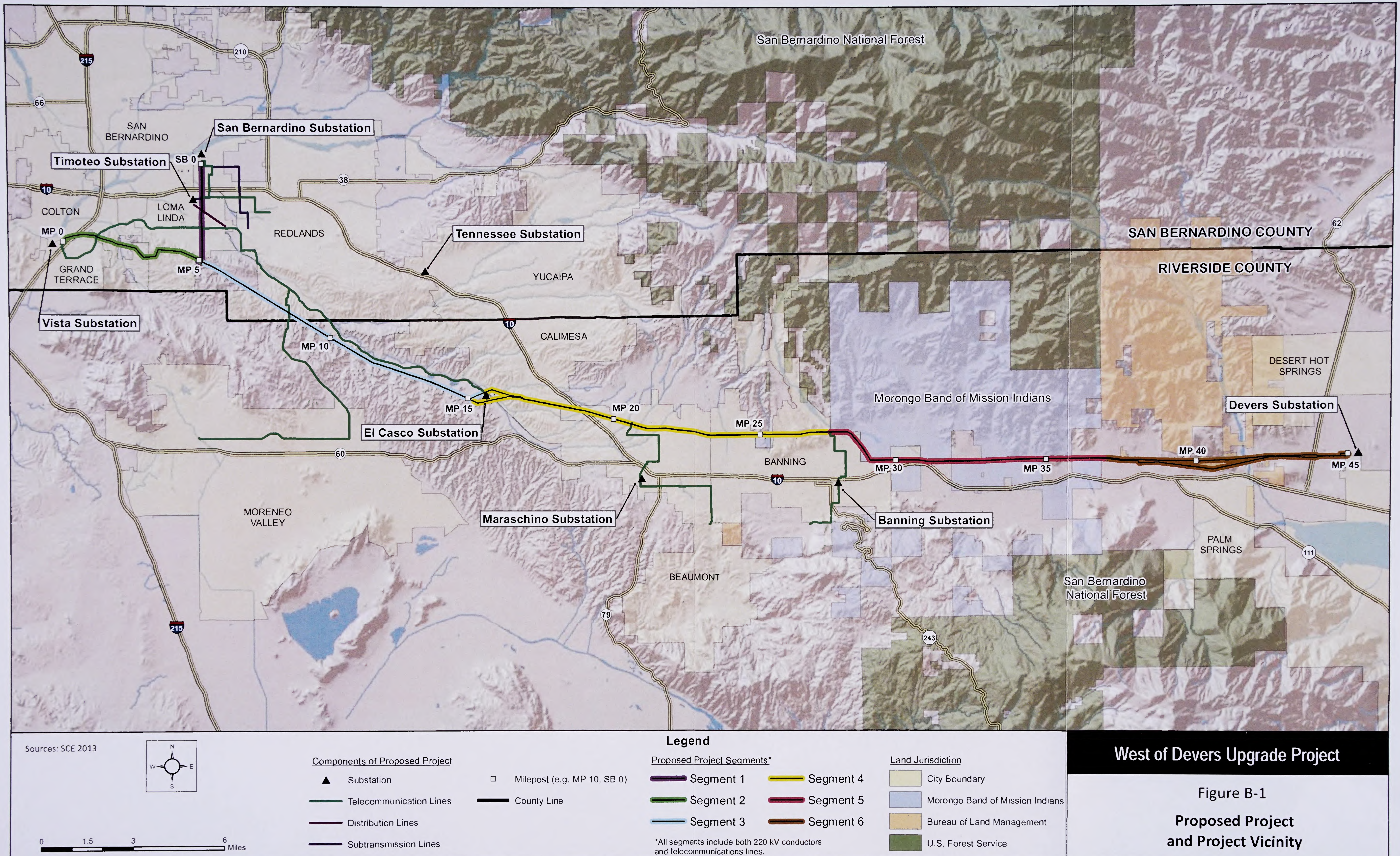
SCE (Southern California Edison). 2014a. SCE's Responses to the California Public Utilities Commission PEA Completeness Letter dated November 25, 2013. January.

_____. 2014b. SCE's Responses to the California Public Utilities Commission Data Requests #1 through #15 dated February 2014 through April 2015. http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/drs.htm#dr1. Accessed February 23, 2015.

_____. 2014c. SCE's Responses to the California Public Utilities Commission Data Request #17d dated December 5, 2014 (*Confidential Responses*).

_____. 2014/2015. SCE Responses to CPUC Data Requests 1 through 17 (dated December 2013 through November 2015) http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm.

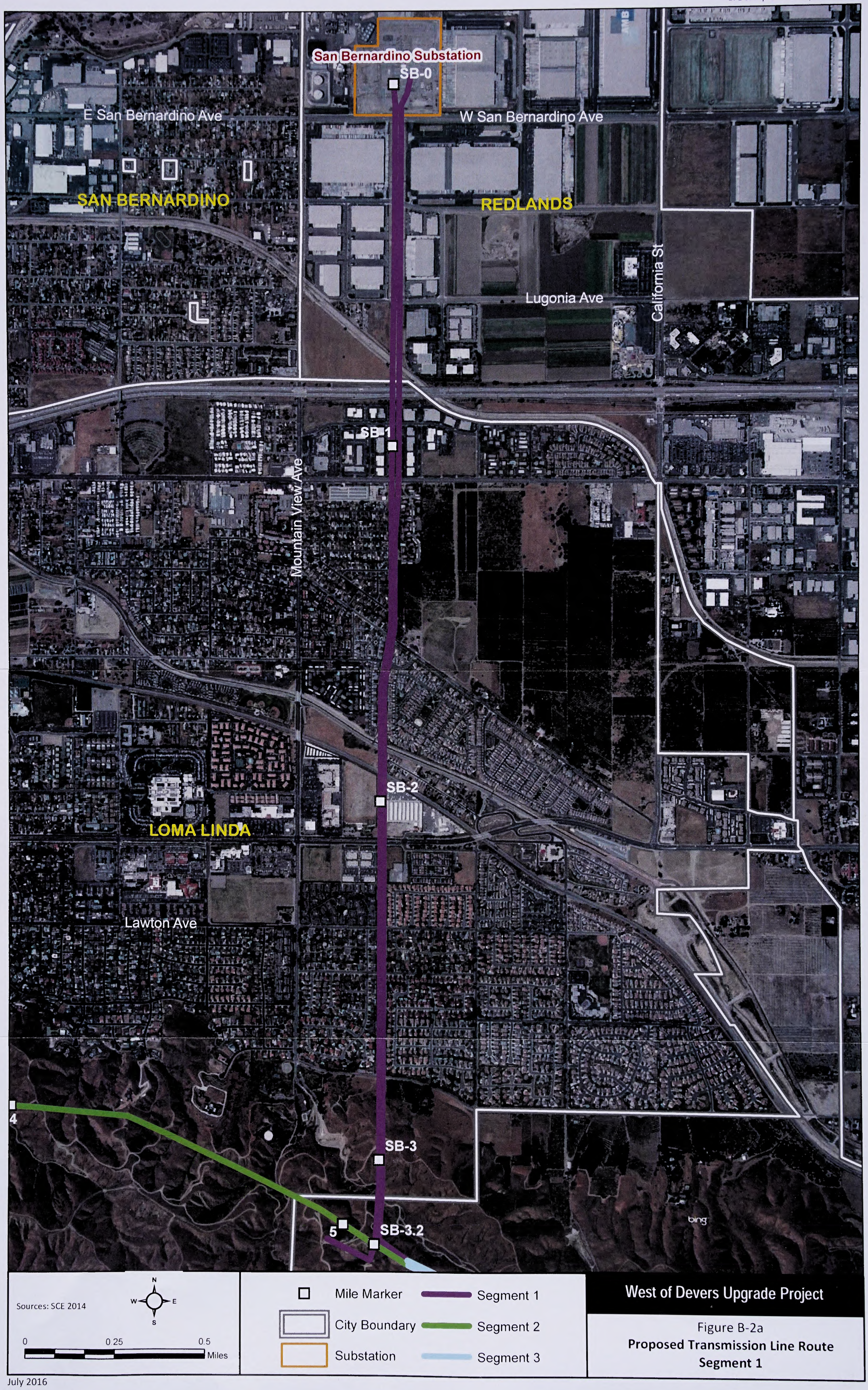
_____. 2013. Proponent's Environmental Assessment for the West of Devers Upgrade Project. Application A.13-10-020. October 25, 2013. http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/toc-pea.htm. Accessed February 23, 2015.



West of Devers Upgrade Project

Figure B-1

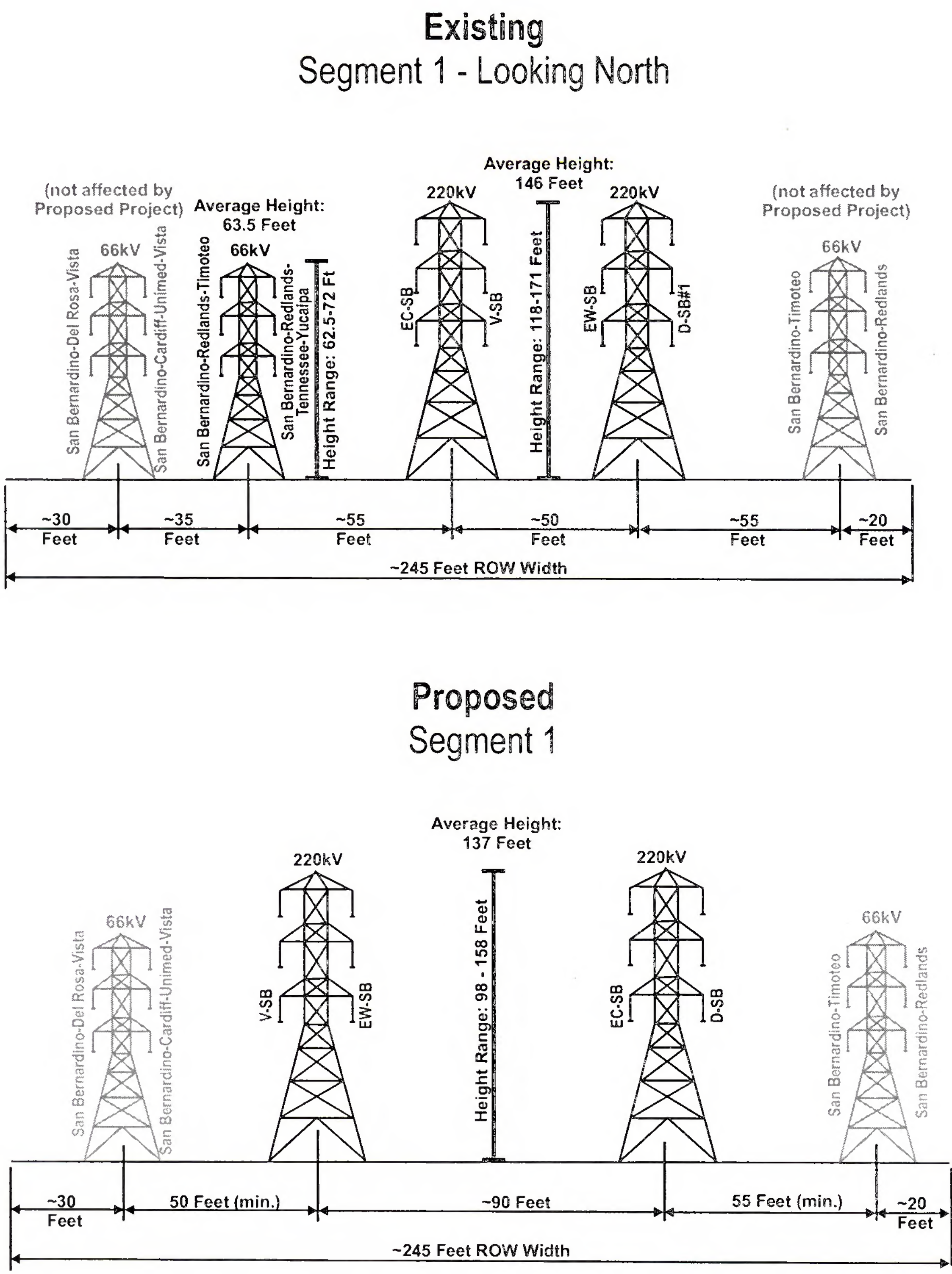
Proposed Project and Project Vicinity



West of Devers Upgrade Project

Figure B-2a
Proposed Transmission Line Route Segment 1

July 2016

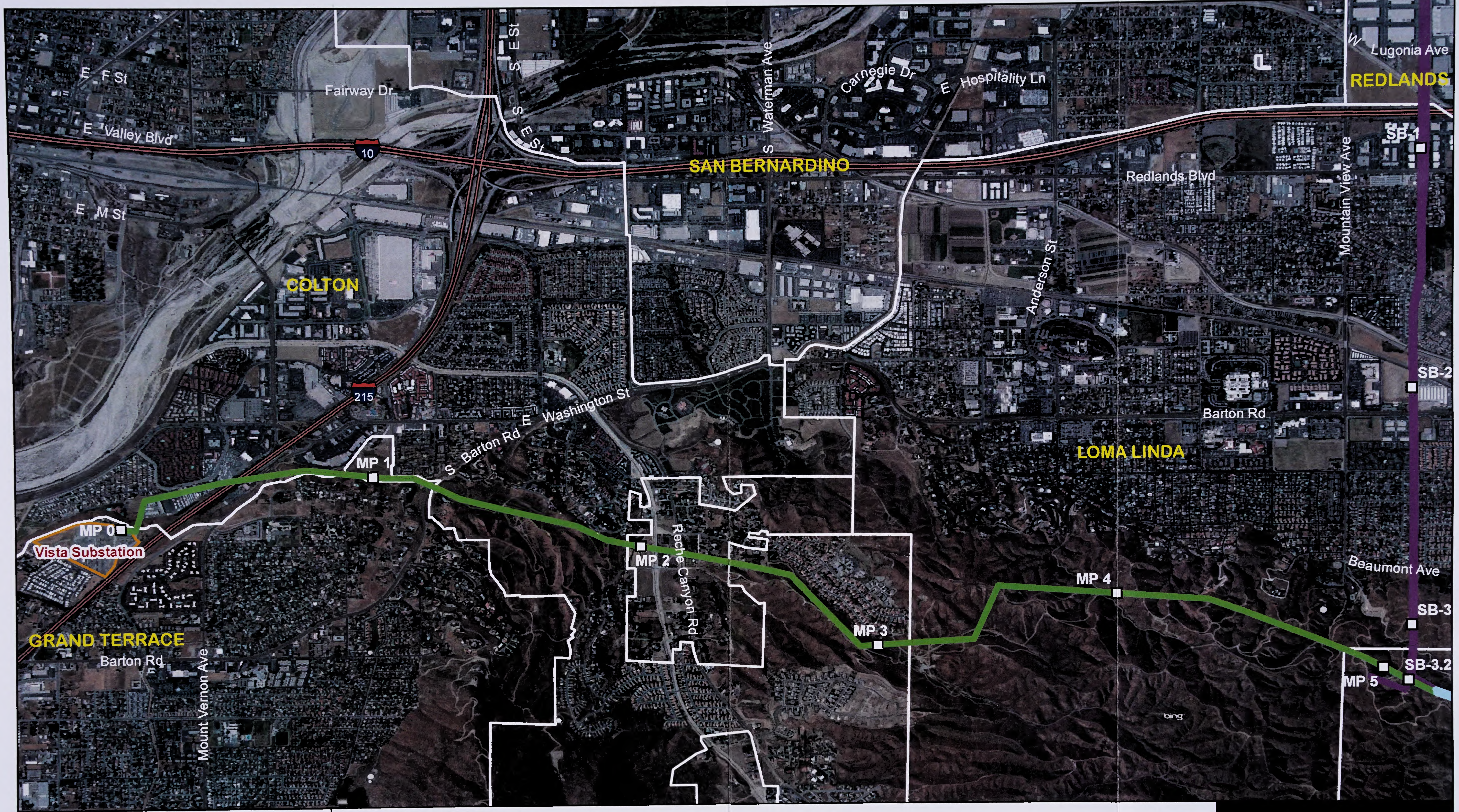


Source: SCE, 2014.

Not to Scale

West of Devers Upgrade Project

Figure B-2b
Existing and Proposed Corridor Profile - Segment 1



Source: SCE 2014

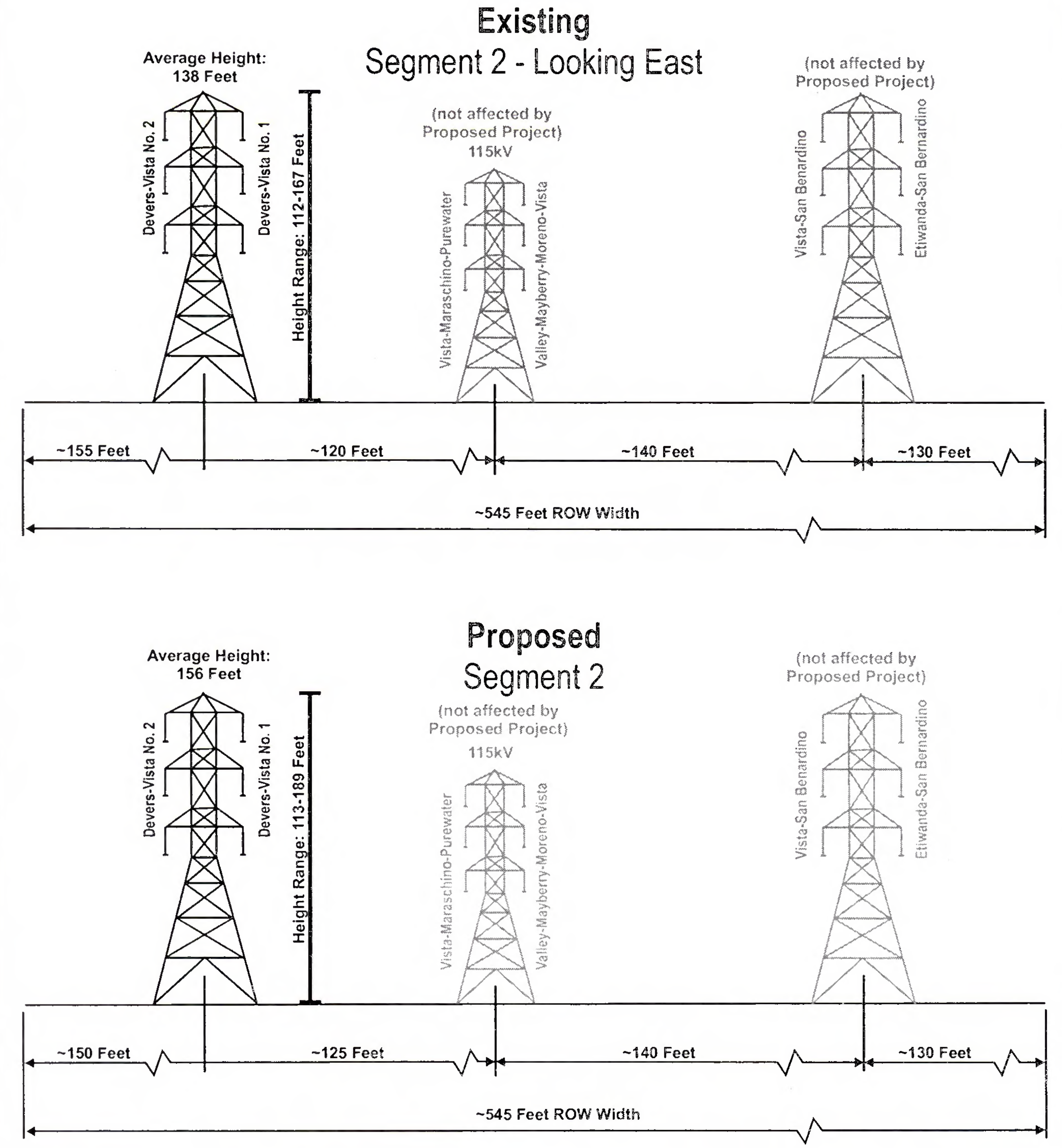
0 0.5 1 Miles

Mileposts
Substation
Segment 1
Segment 2
Segment 3
Major Highways
Major Roads
City Boundary

West of Devers Upgrade Project

Figure B-3a
Proposed Transmission Line Route Segment 2

July 2016

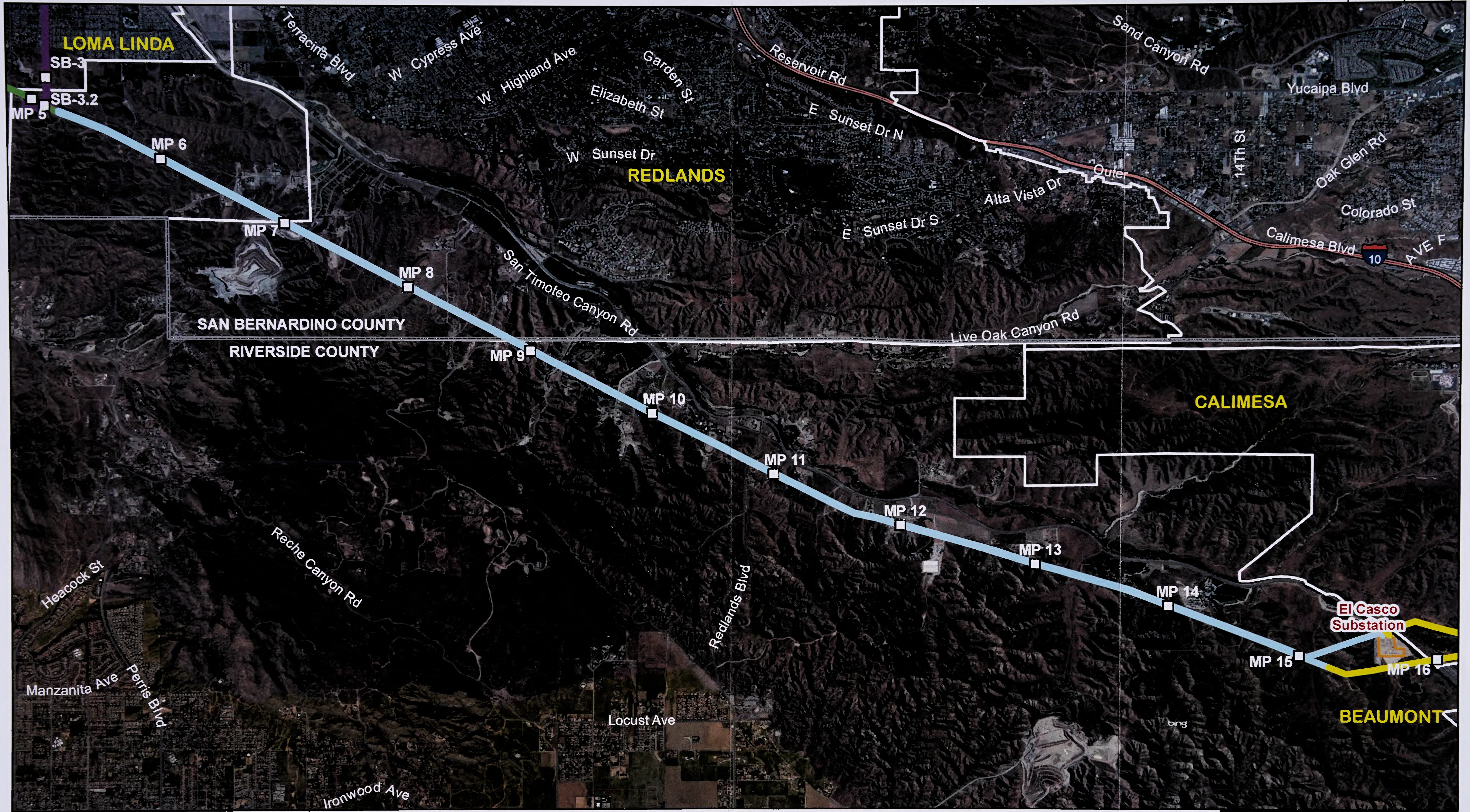


Source: SCE, 2014.

Not to Scale

West of Devers Upgrade Project

Figure B-3b
Existing and Proposed Corridor Profile - Segment 2



Source: SCE 2014

N W E S

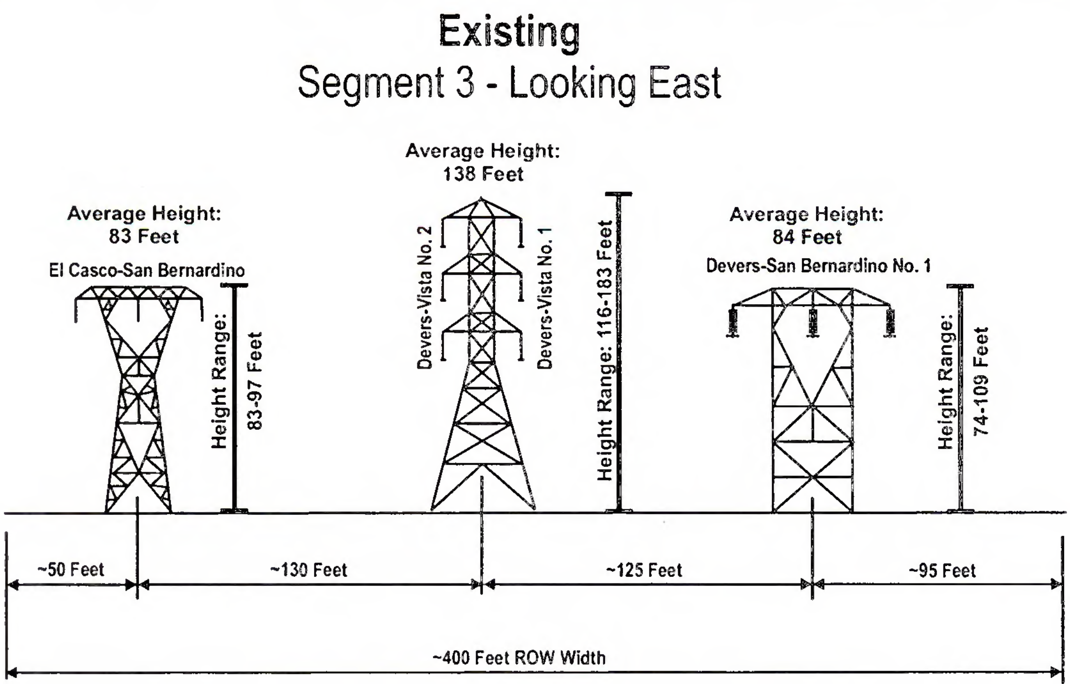
0 1 2 Miles

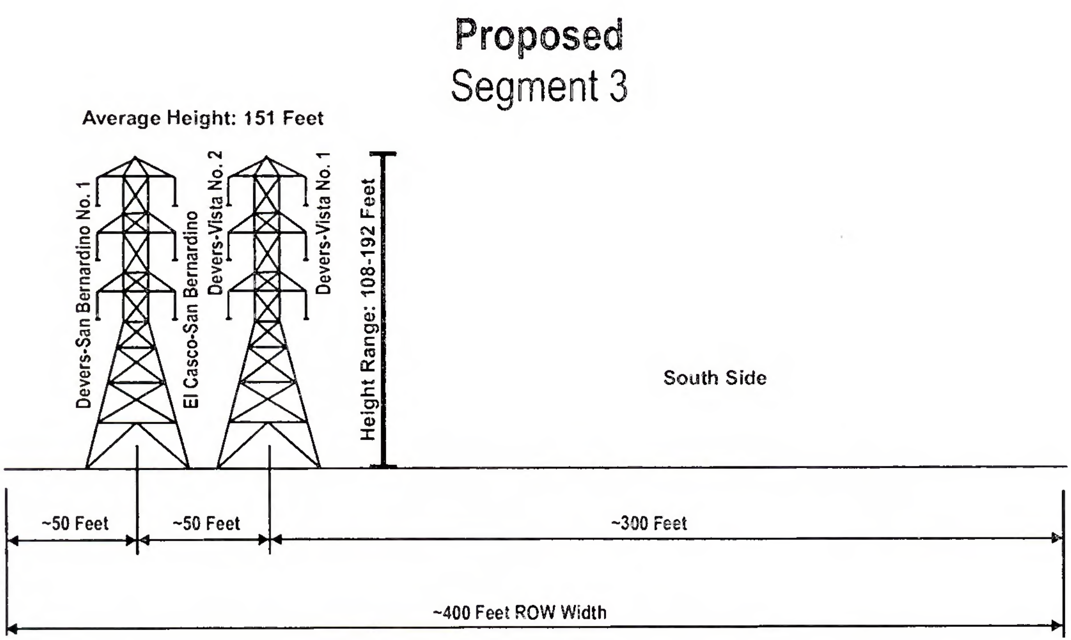
Mileposts	Segment 1
Substation	Segment 2
	Segment 3
	Segment 4
Major Highways	County Line
Major Roads	City Boundary

West of Devers Upgrade Project

Figure B-4a
Proposed Transmission Line Route
Segment 3

July 2016



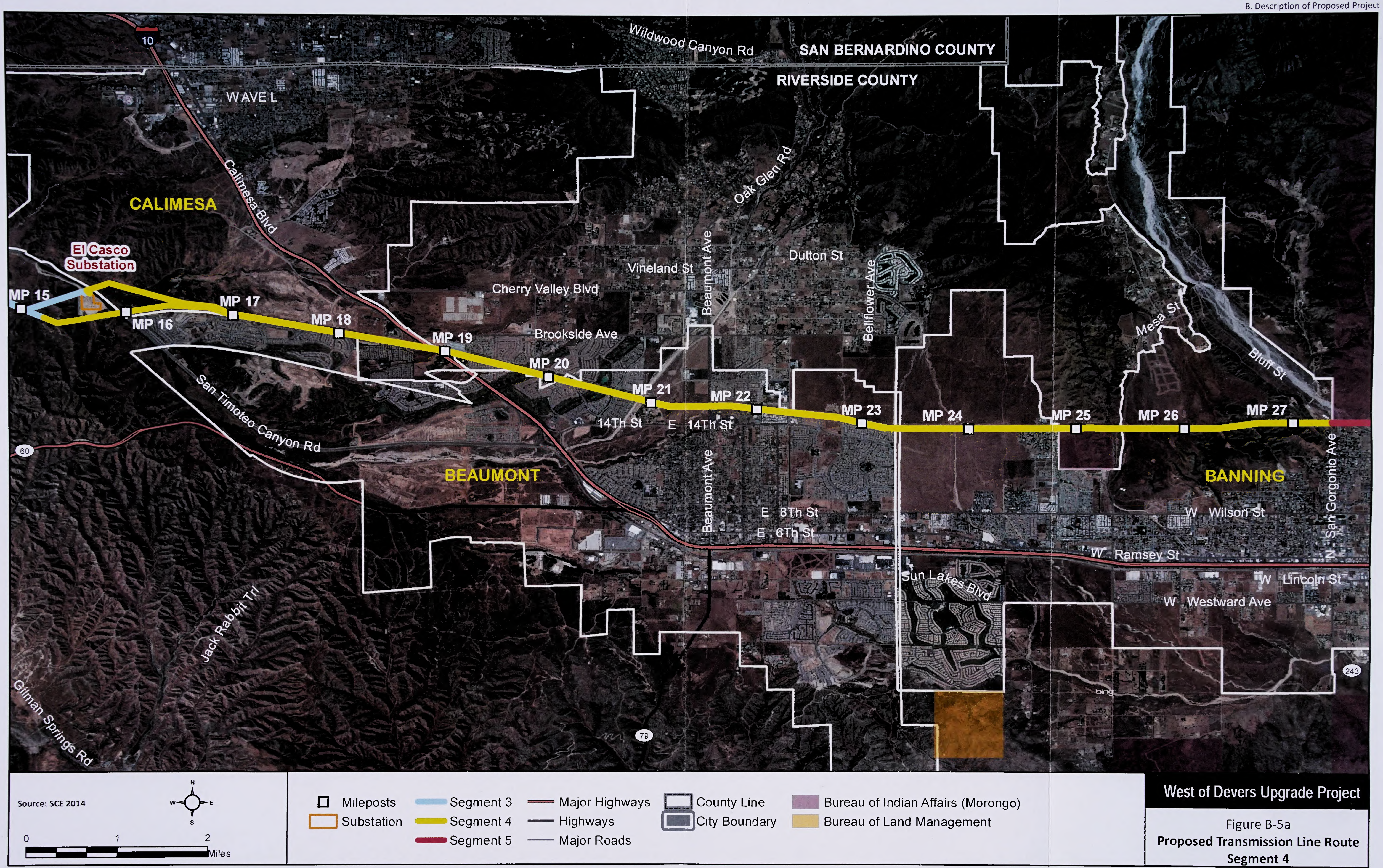


Source: SCE, 2014.

Not to Scale

West of Devers Upgrade Project

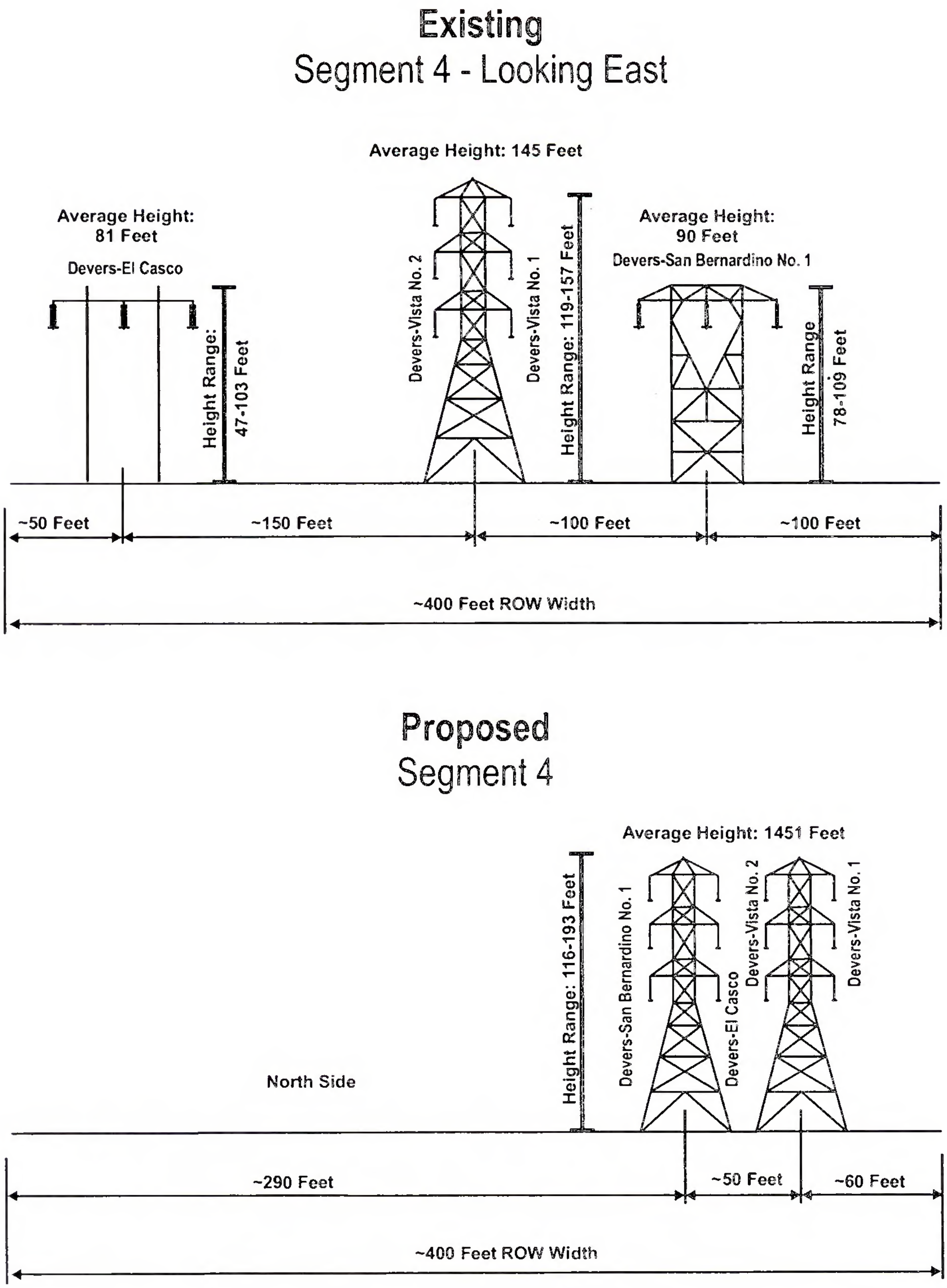
Figure B-4b
Existing and Proposed Corridor Profile - Segment 3



July 2016

West of Devers Upgrade Project

Figure B-5a
Proposed Transmission Line Route Segment 4

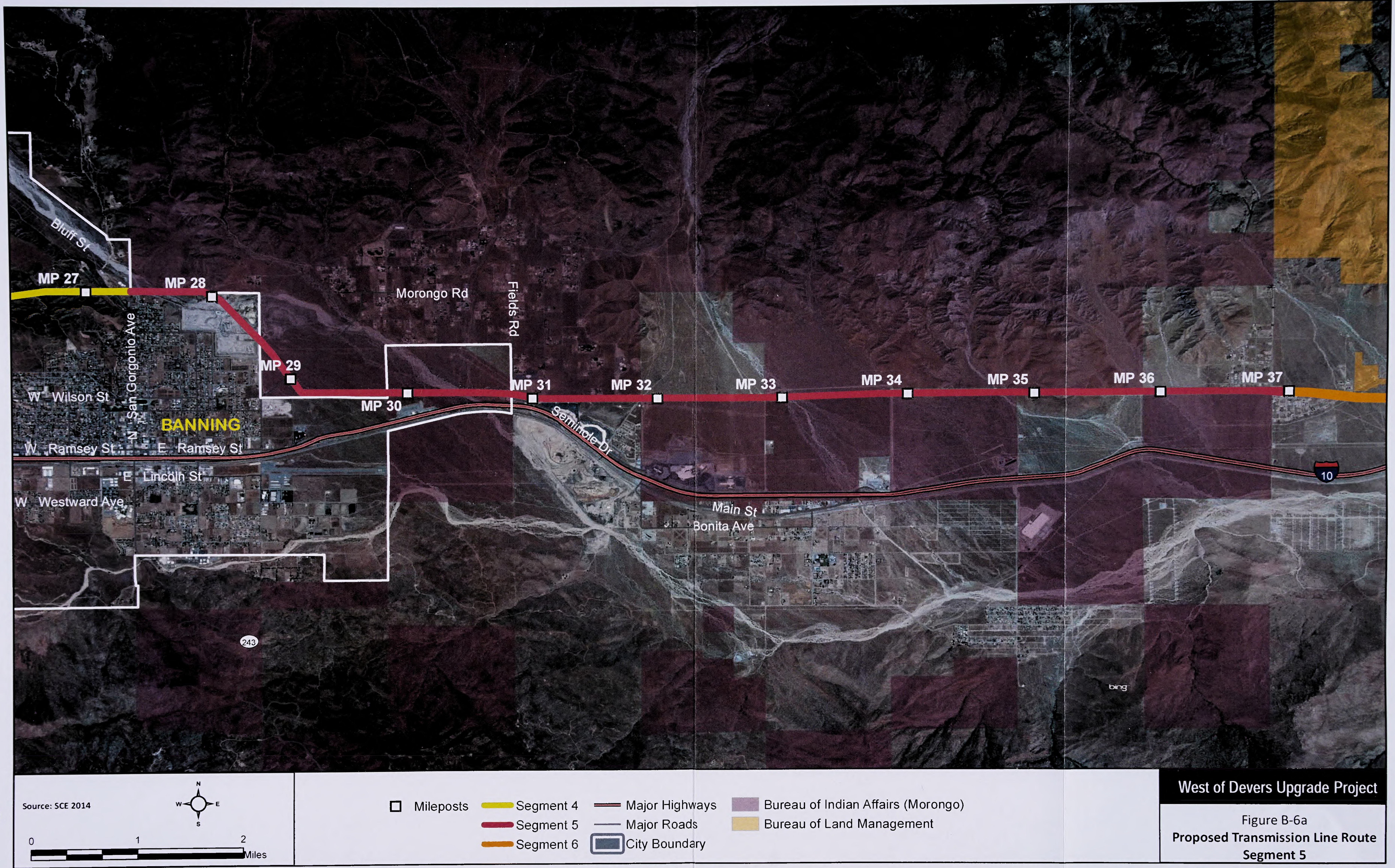


Source: SCE, 2014.

Not to Scale

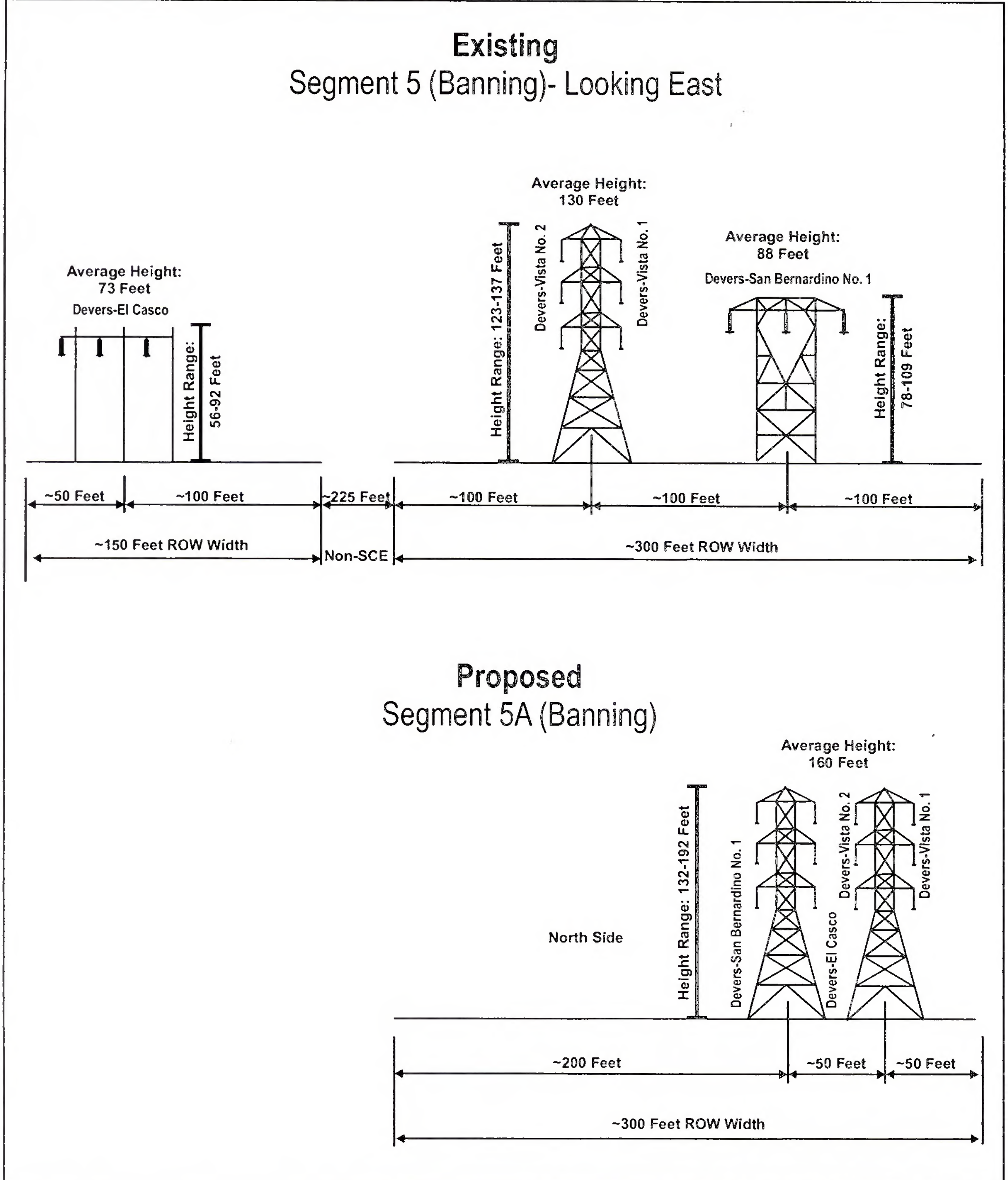
West of Devers Upgrade Project

Figure B-5b
Existing and Proposed Corridor Profile - Segment 4



West of Devers Upgrade Project
Figure B-6a
Proposed Transmission Line Route
Segment 5

July 2016

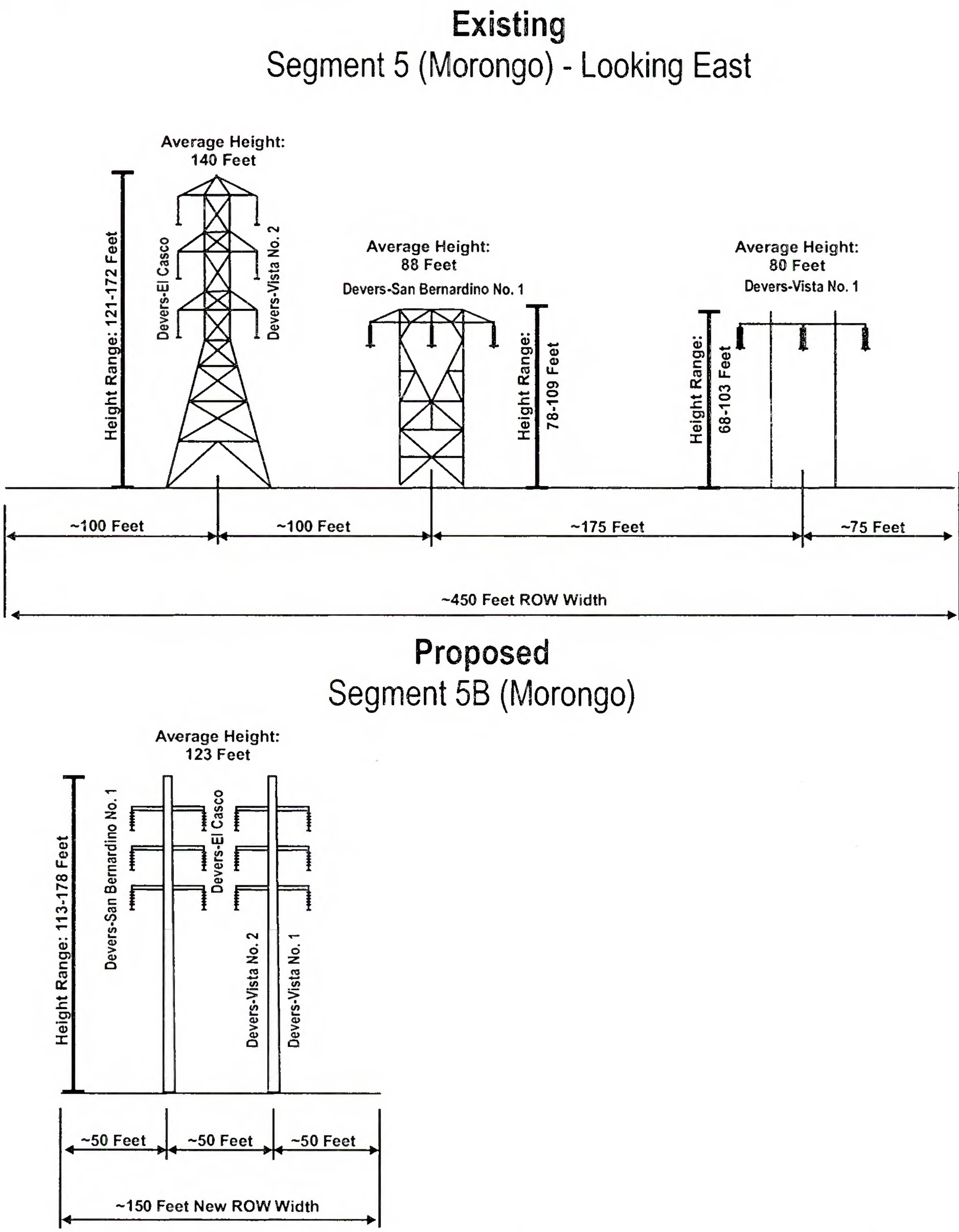


Source: SCE, 2014.

Not to Scale

West of Devers Upgrade Project

Figure B-6b
Existing and Proposed Corridor Profile - Segment 5

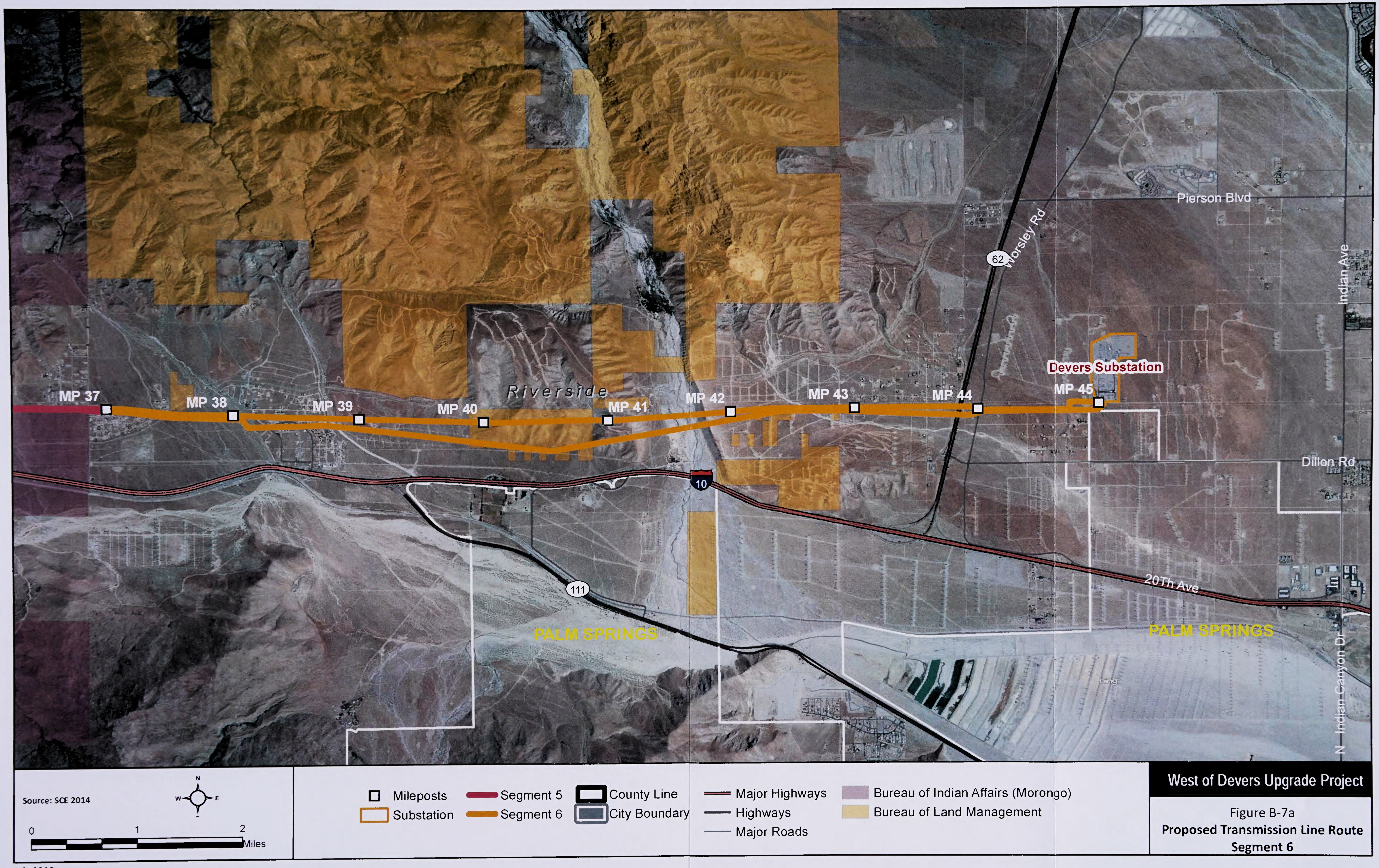


Source: SCE, 2014.

Not to Scale

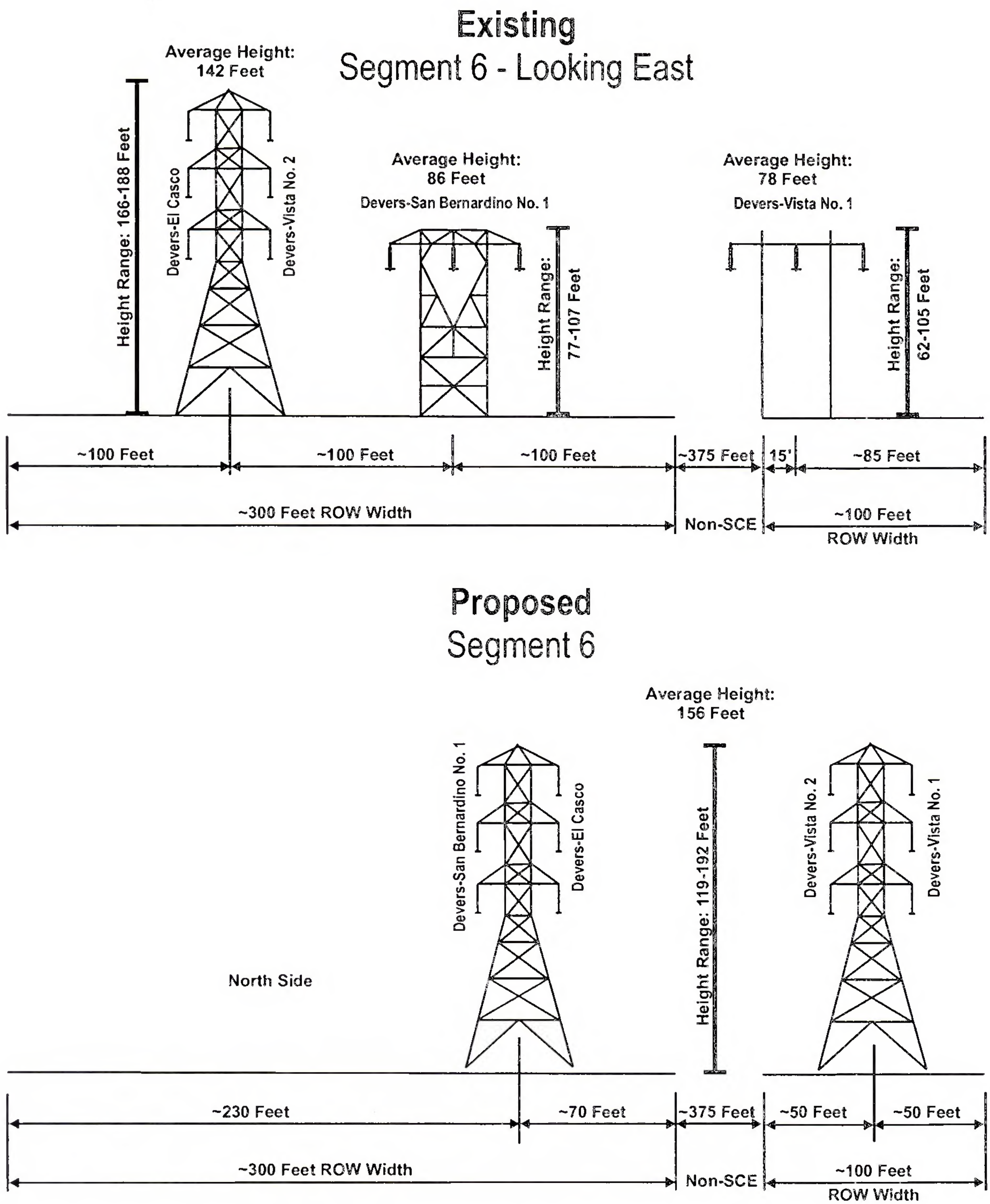
West of Devers Upgrade Project

Figure B-6c
Existing and Proposed Corridor Profile - Segment 5



West of Devers Upgrade Project

Figure B-7a
Proposed Transmission Line Route
Segment 6

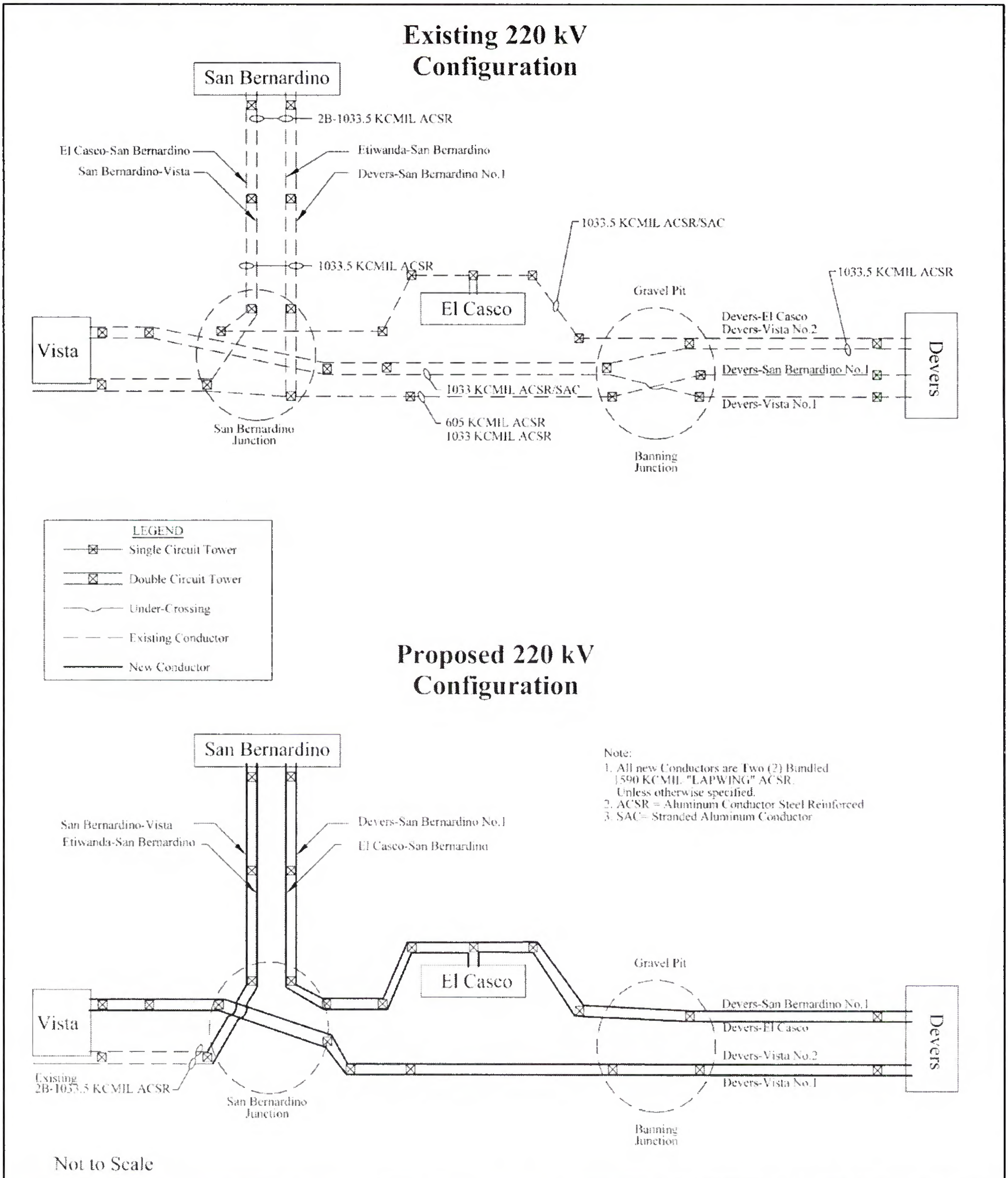


Source: SCE, 2014.

Not to Scale

West of Devers Upgrade Project

Figure B-7b
Existing and Proposed Corridor Profile - Segment 6



Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-8

Existing and Proposed 220 kV Configuration

Photo 1. Segment 1 looking south from San Bernardino Substation

Photo 2. Segment 1 looking north from Beaumont Avenue

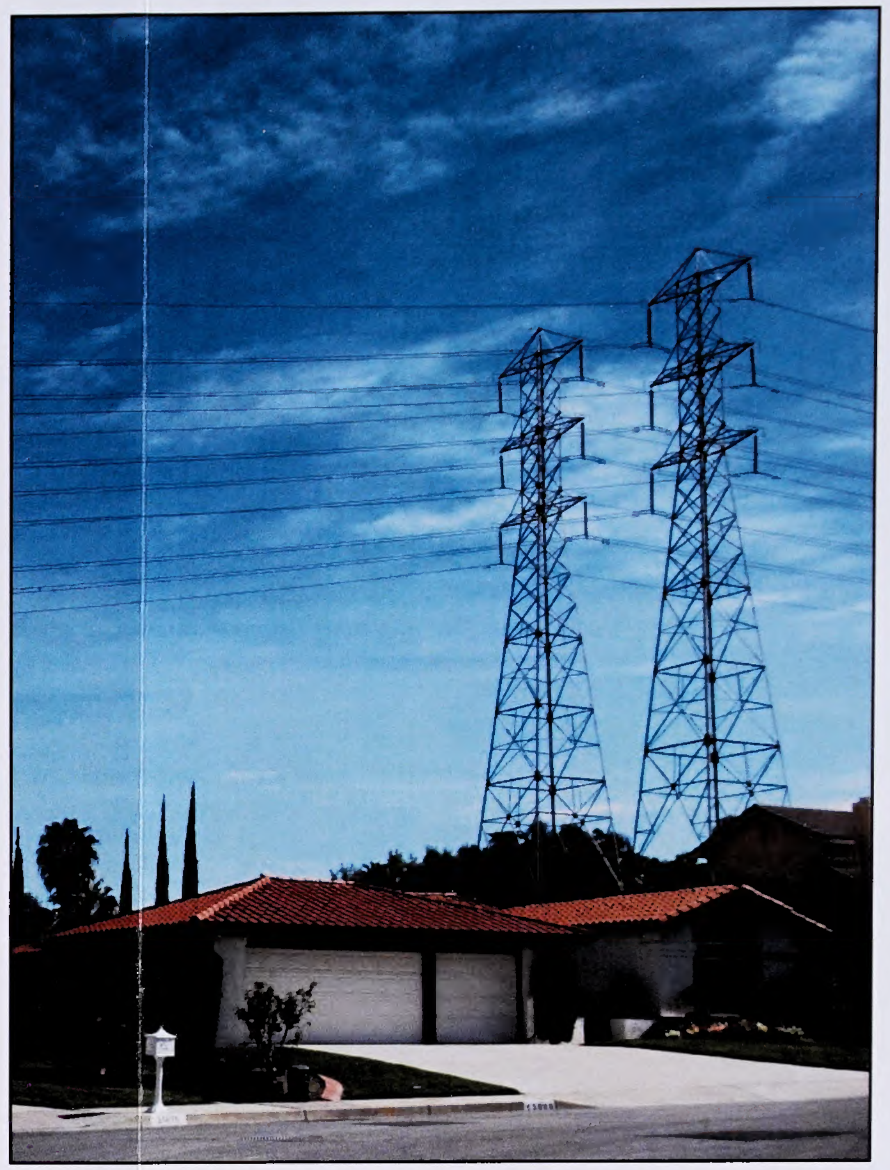


Photo 3. Segment 1 in Loma Linda

Photo 4. Segment 2 in Colton by Vista Grande Way

Photo 5. Segment 2 in Loma Linda by Prado Lane

Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-9a

Photos of Existing West of Devers Corridor Segments 1 and 2

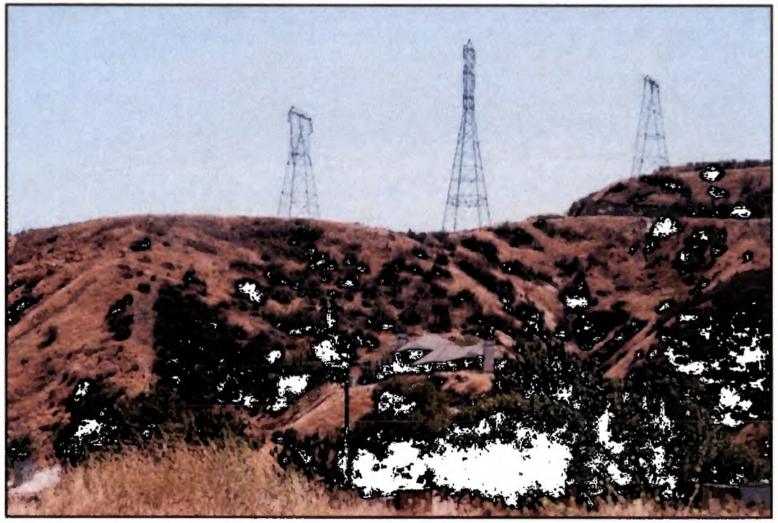


Photo 6. Segment 3 in San Timoteo Canyon

Photo 7. Segment 3 west of El Casco Substation from San Timoteo Canyon Road

Photo 8. Segment 4 in Beaumont

Photo 9. Segment 4 in Banning

Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-9b

Photos of Existing West of Devers Corridor Segments 3 and 4

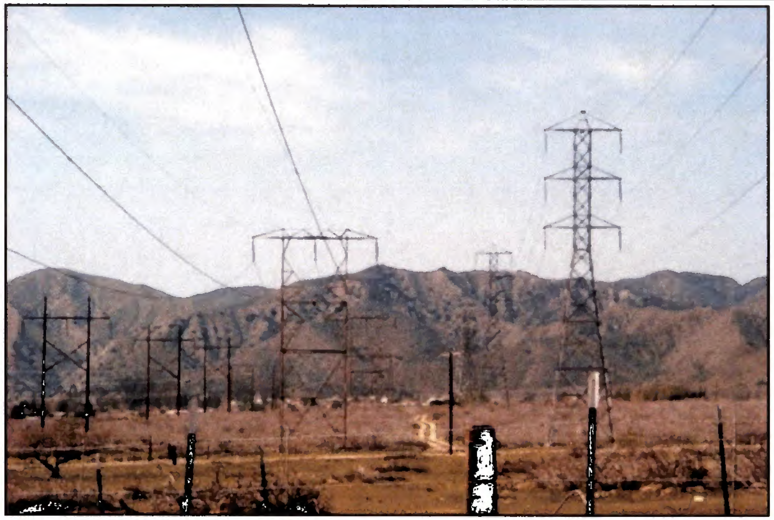


Photo 10. Segment 5 on Morongo Reservation

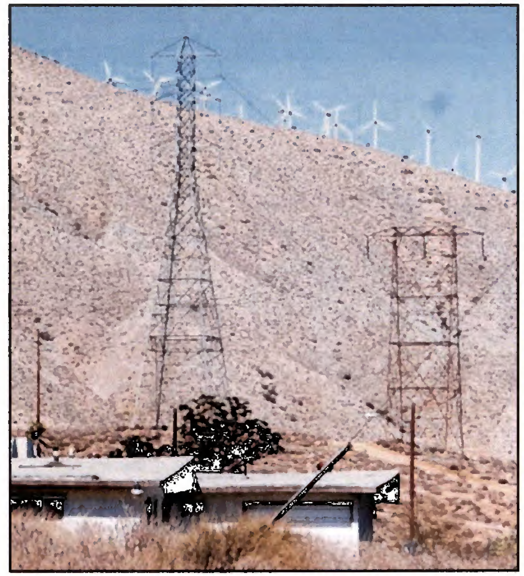


Photo 11. Segment 6 by Haugen-

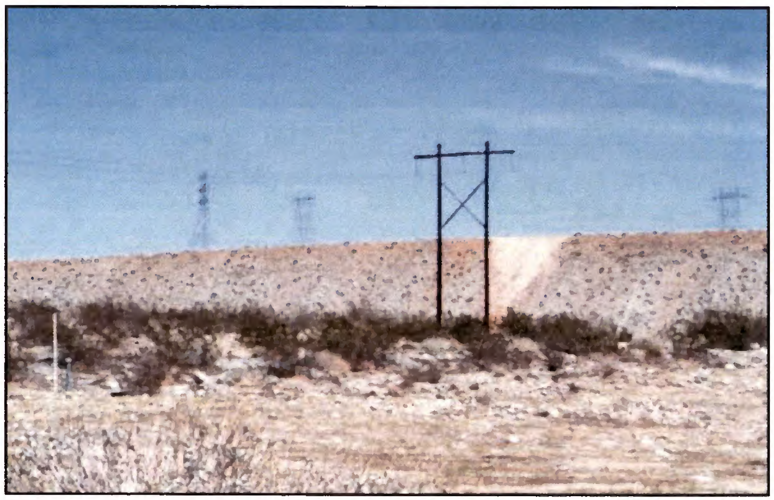


Photo 12. Segment 6 crossing Whitewater River (desert wash)

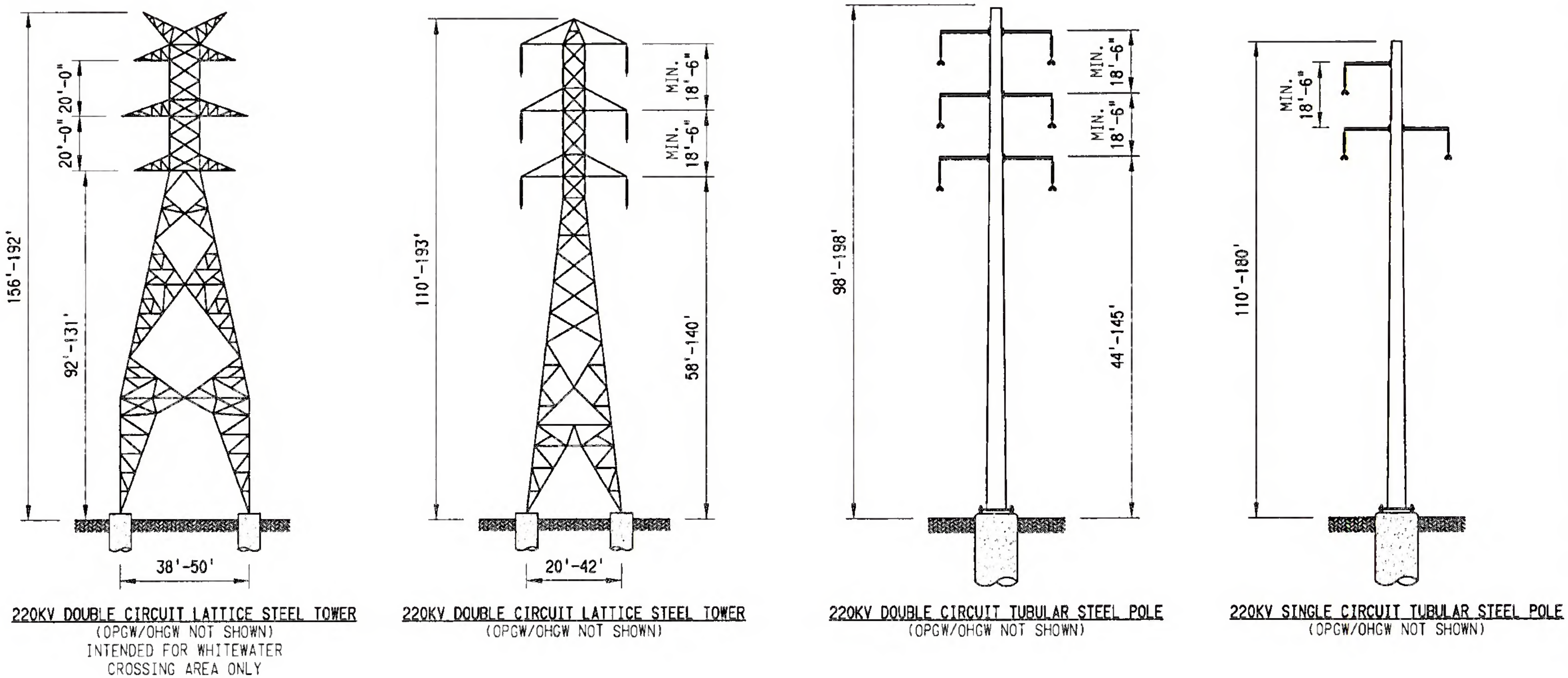
Photo 13. Segment 6 by Devers Substation

Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-9c

Photos of Existing West of Devers Corridor Segments 5 and 6



Source: SCE, 2015.

West of Devers Upgrade Project

Figure B-10

Typical 220 kV Transmission Structures

Sources: SCE 2013

Legend

Components of Proposed Project

- ▲ Substation
- Telecommunication Lines
- Distribution Lines
- Subtransmission Lines
- □ Milepost (e.g. MP 10, SB 0)
- County Line

Proposed Project Segments*

- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6

*All segments include both 220 kV conductors and telecommunications lines.

Land Jurisdiction

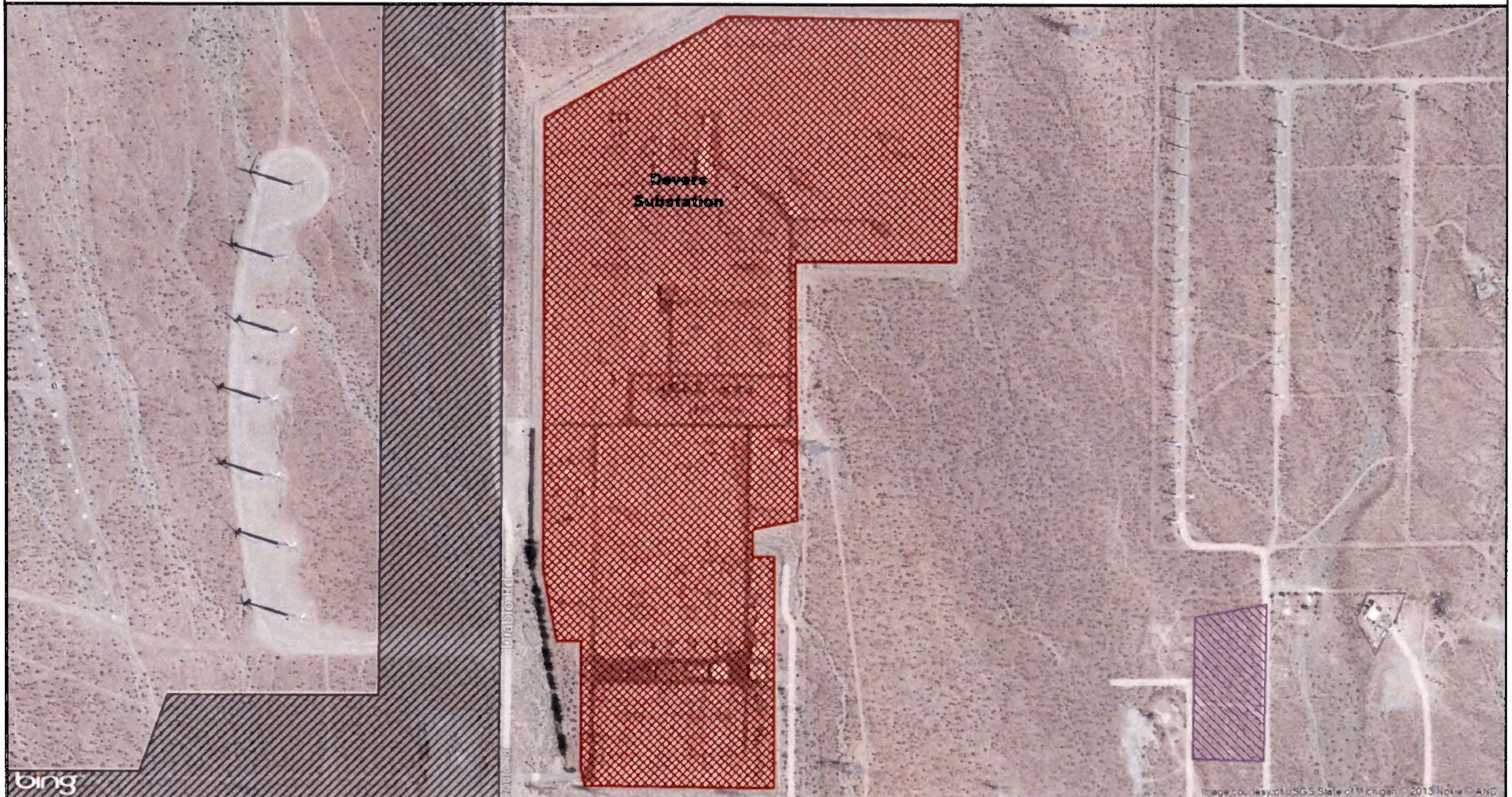
- City Boundary
- Morongo Band of Mission Indians
- Bureau of Land Management
- U.S. Forest Service

0 1.75 3.5 7 Miles

West of Devers Upgrade Project

Figure B-11a

Existing Substation Locations



Source: SCE, 2013.

Area Within Substation Fence Line

Transmission Line Right-of-Way

US Bureau of Land Management

West of Devers Upgrade Project

Figure B-11b

Existing Devers Substation Boundary

Source: SCE, 2013.

Area Within Substation Fence Line

Transmission Line Right-of-Way

West of Devers Upgrade Project

Figure B-11c

Existing El Casco Substation Boundary

Source: SCE, 2013.

Area Within Substation Fence Line

Transmission Line Right-of-Way

West of Devers Upgrade Project

Figure B-11d

Existing Vista Substation Boundary

Source: SCE, 2013.

Area Within Substation Fence Line

Transmission Line Right-of-Way

West of Devers Upgrade Project

Figure B-11e
Existing San Bernardino Substation Boundary

Source: SCE, 2013.

Area Within Substation Fence Line

Transmission Line Right-of-Way

West of Devers Upgrade Project

Figure B-11f
Existing Etiwanda Substation Boundary

Source: SCE, 2013.

Area Within Substation Fence Line

Transmission Line Right-of-Way

West of Devers Upgrade Project

Figure B-11g
Existing Timoteo Substation Boundary

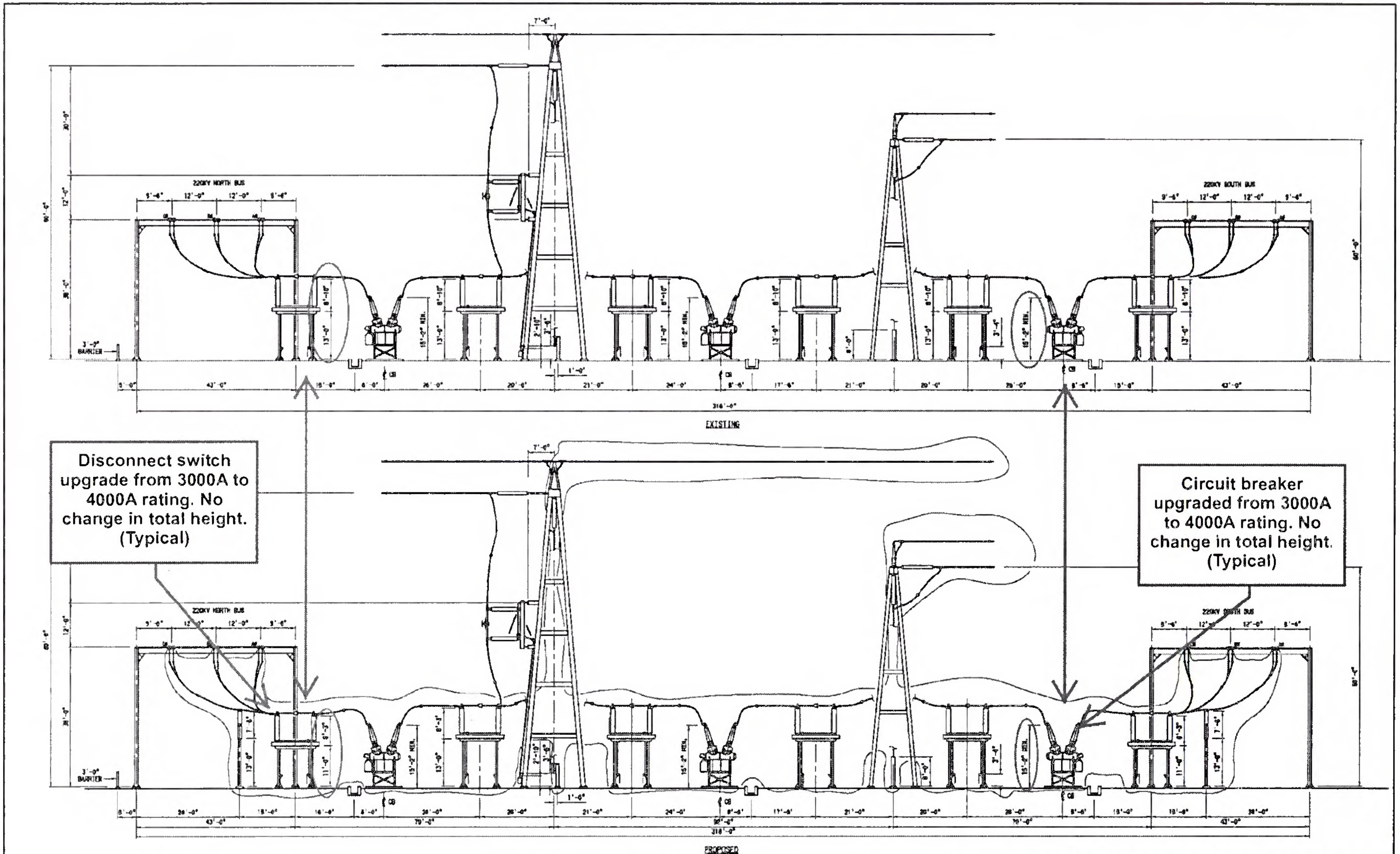
Source: SCE, 2013.

Area Within Substation Fence Line

Transmission Line Right-of-Way

West of Devers Upgrade Project

Figure B-11h
Existing Tennessee Substation Boundary

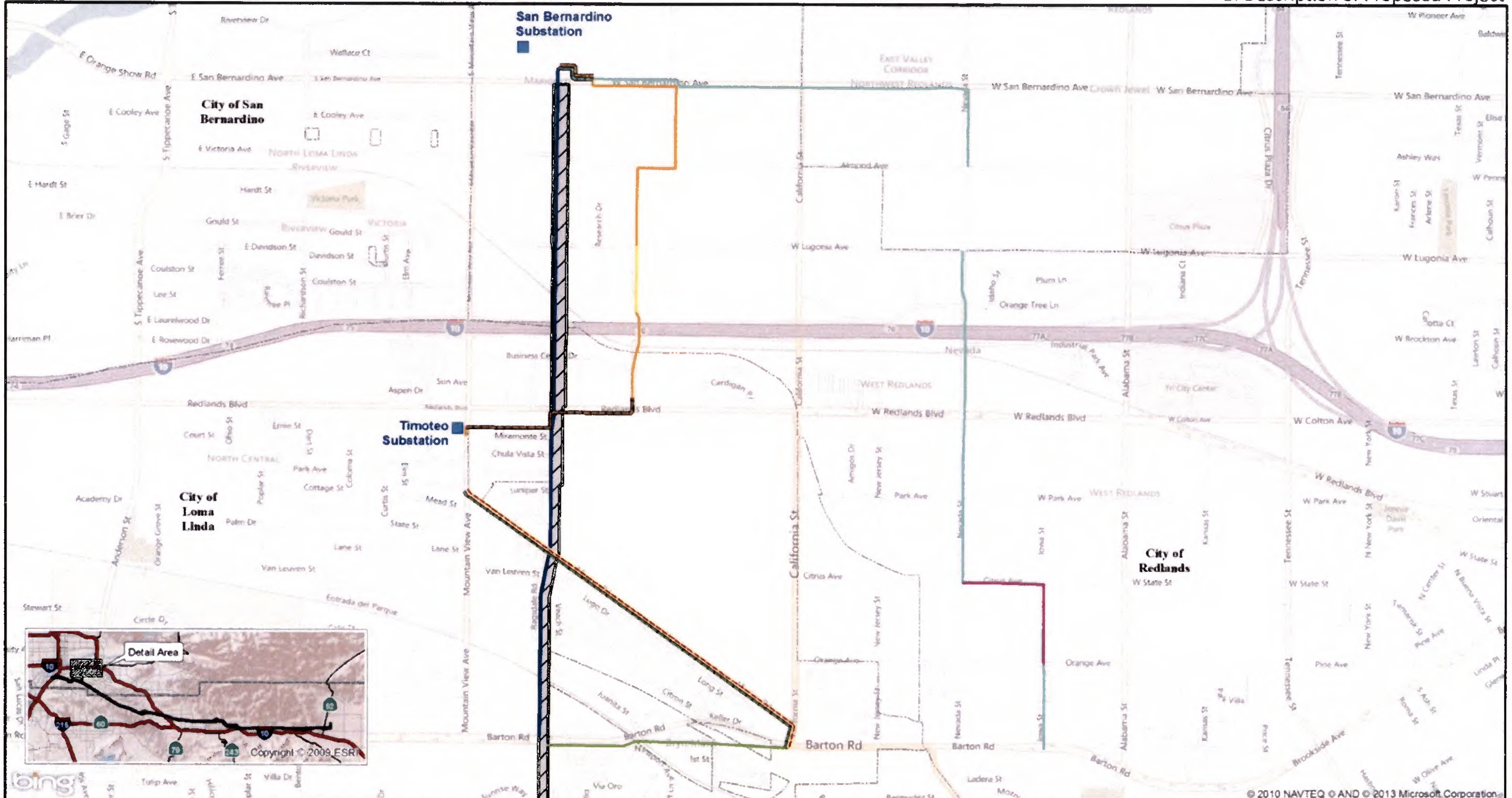


Source: SCE, 2014a.

West of Devers Upgrade Project

Figure B-12

220 kV Substation Profile



Transmission Line Right-of-Way
Substations

Relocated 66kV Subtransmission Line Routes
- Proposed SB-Redlands-Tennessee OH 66kV
- Proposed SB-Redlands-Timoteo OH 66kV

Relocated 66kV Subtransmission Line Routes
- Proposed SB-Redlands-Tennessee UG 66kV
- Proposed SB-Redlands-Timoteo UG 66kV
- Existing SB-Redlands-Tennessee OH 66kV and SB-Redlands-Timoteo OH 66kV to be Removed

Relocated 12kV Distribution Line Routes
- Location 1: Removal of 12kV and Relocation on New 66kV Structure
- ~~Location 2: Removal of 12kV and Relocation on New 66kV Structure~~
- Location 3: Removal of 12kV and Relocation on New 66kV Structure
- Location 4: Underground System (Dental 12kV Circuit)

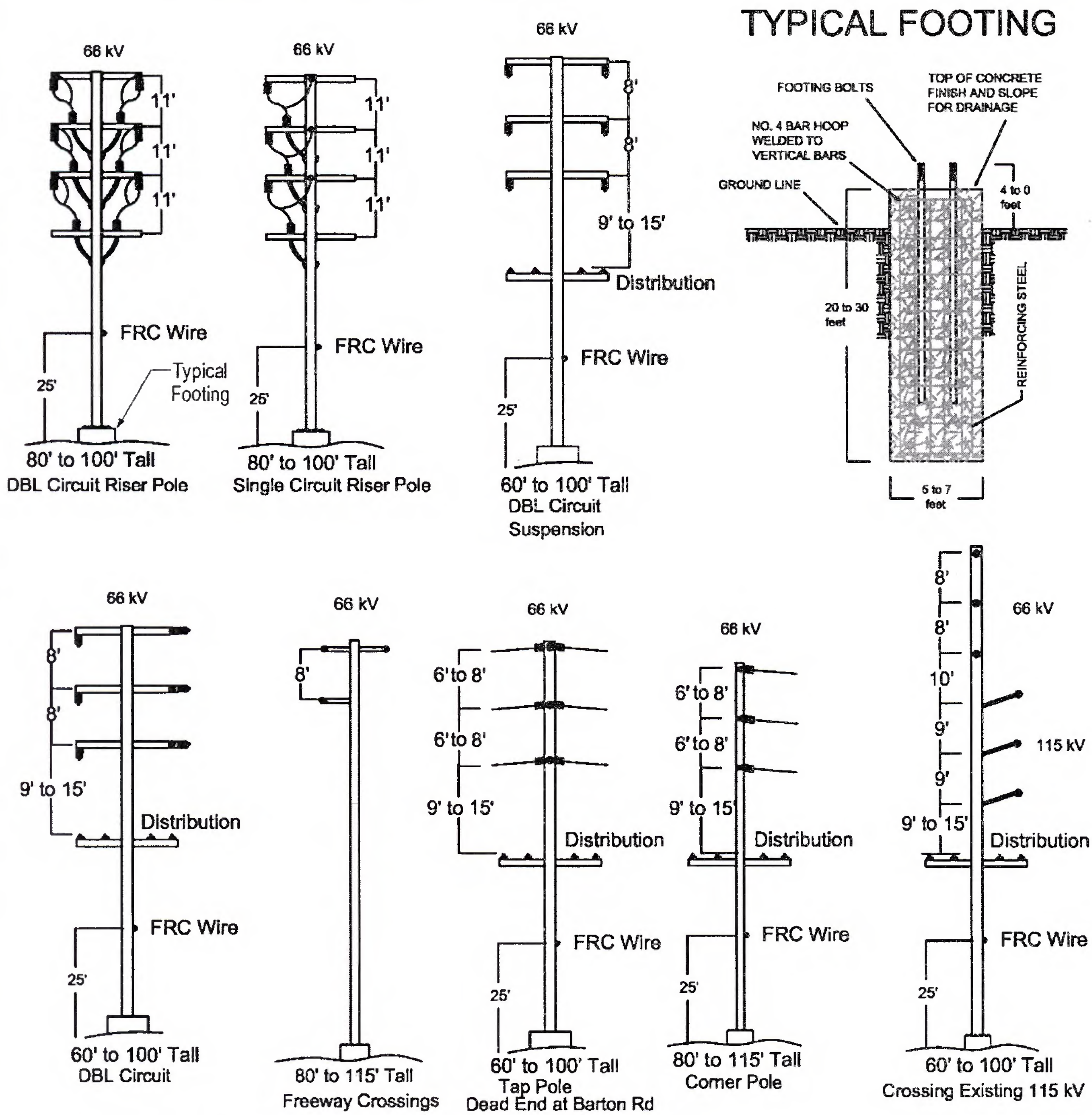
Relocated 12kV Distribution Line Routes
- Location 5 : Relocation of 12kV on Existing 66kV Structures
- Location 5: Underground System (Intern 12kV Circuit)

Source: SCE, 2013.

0 750 1500
FEET

West of Devers Upgrade Project

Figure B-13
Proposed Relocated Subtransmission and Distribution Line Routes



* FRC (Ground Wire) may be raised when crossing Interstate-10

Notes: This diagram is based on engineering which is subject to change as a result of the CPUC permit process, final engineering, and any necessary adjustments during construction.

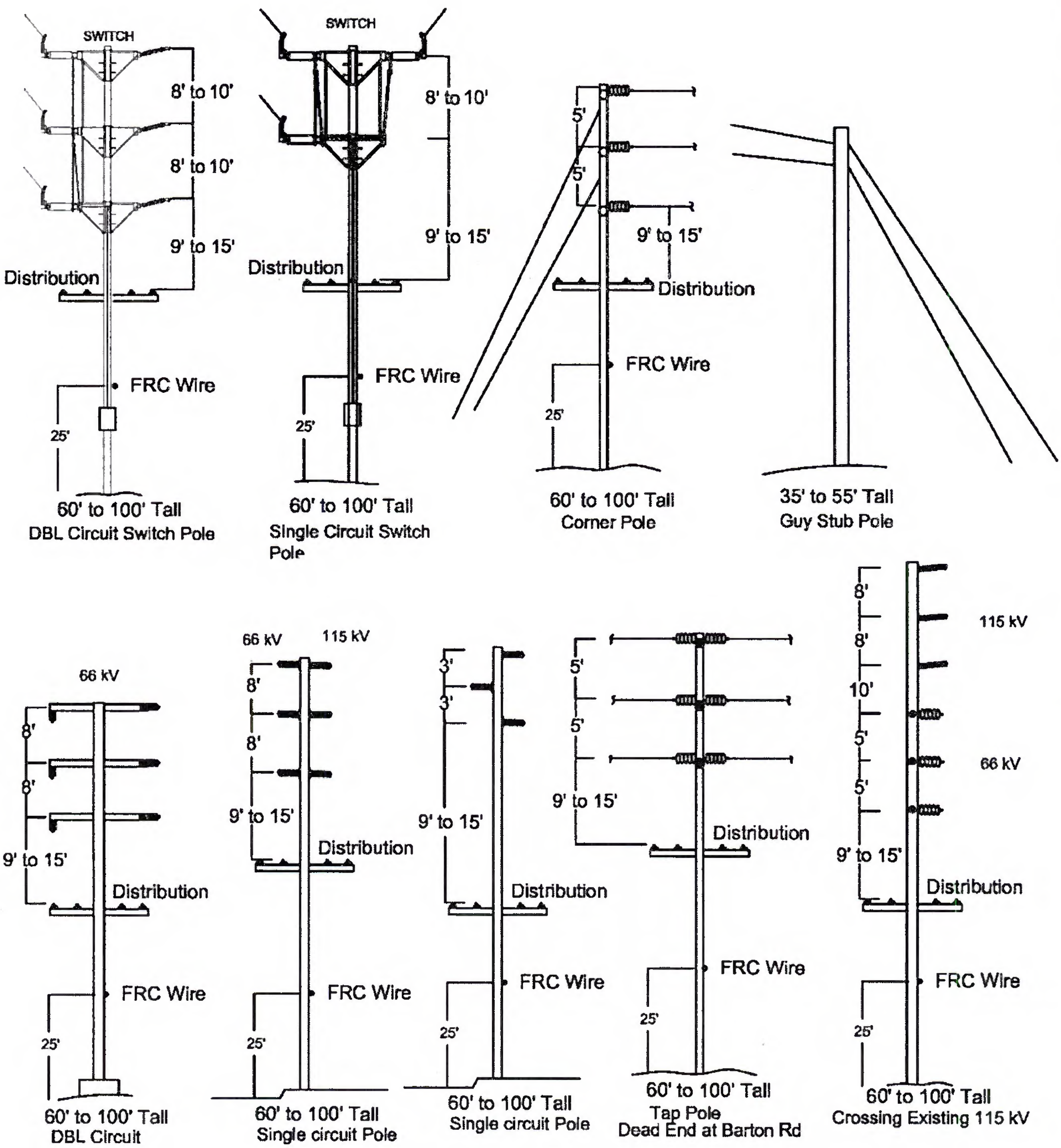
The height of each TSP will vary depending on the elevation at the top of each footing. The TSP configurations shown in these diagrams depict both direct buried and projected footings. Any TSP configuration could have a buried or projected footing, depending on terrain or other engineering considerations.

Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-14a

Typical 66 kV Tubular Steel Pole Structures

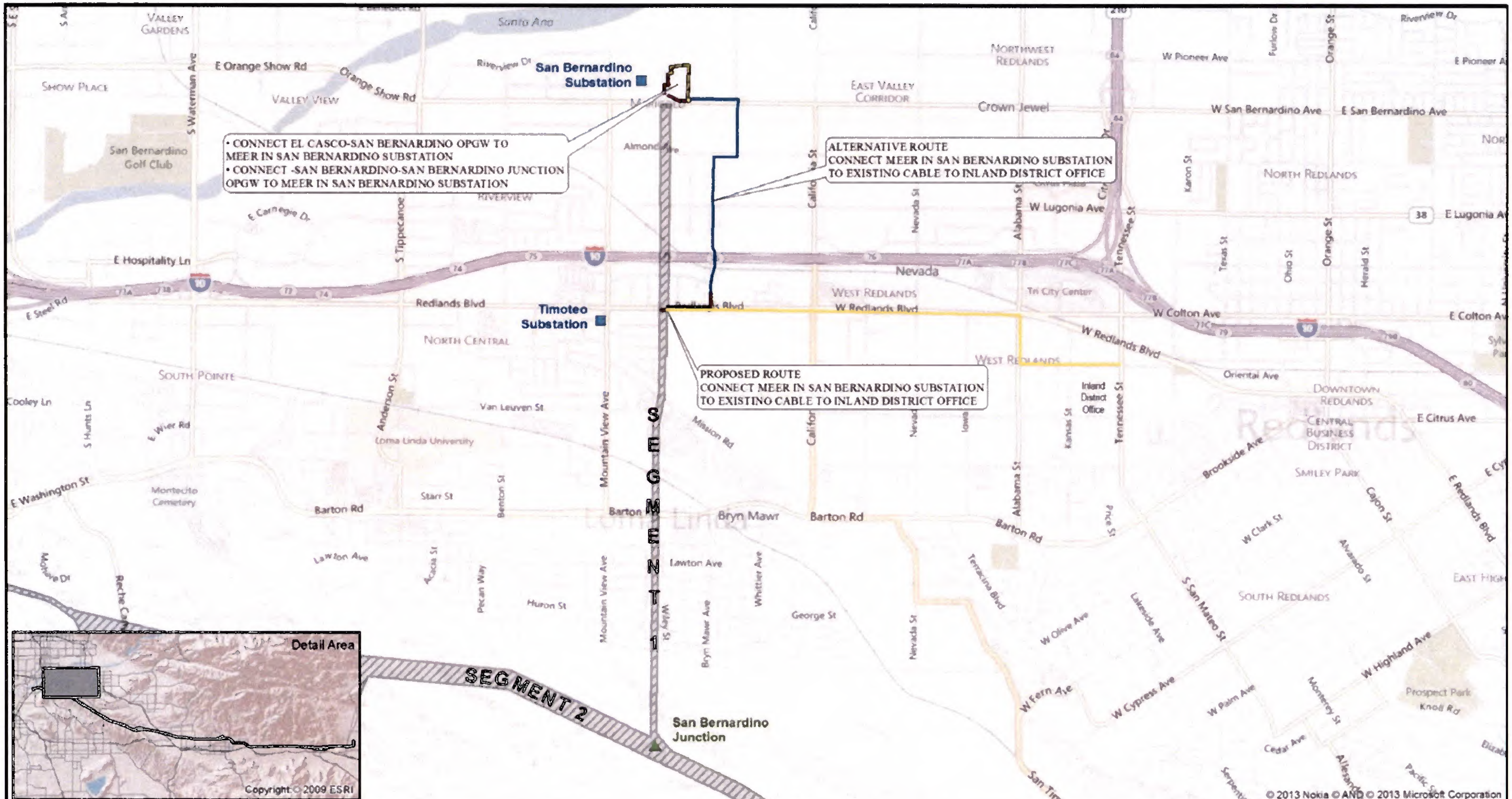


Note: This diagram is based on engineering which is subject to change as a result of the CPUC permit process, final engineering, and any necessary adjustments during construction.

Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-14b
Typical Light-Weight Steel and Wood Poles



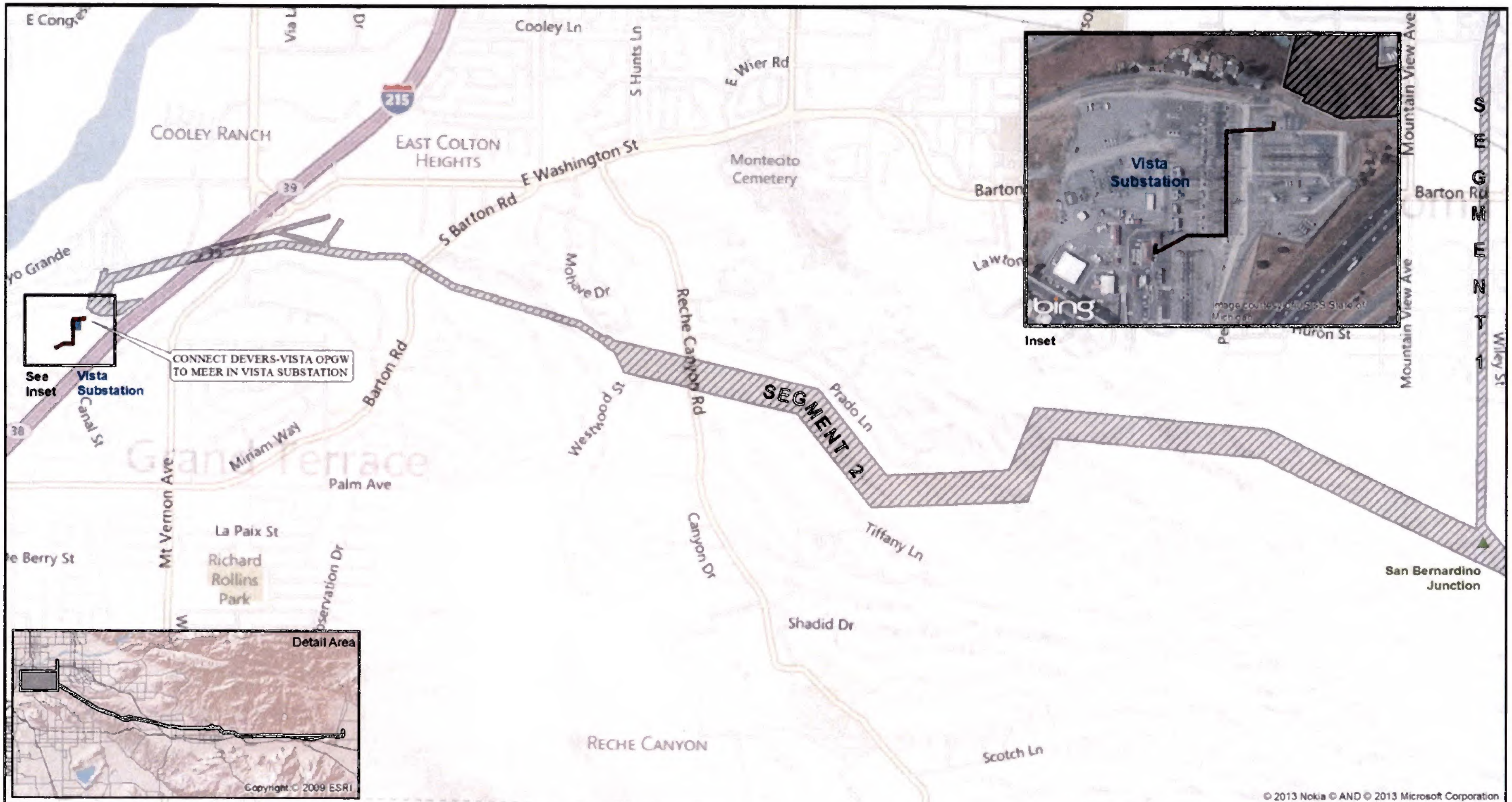
Source: SCE, 2013.

Existing Transmission Line Right-of-Way
Substations
Junctions

Telecommunication Line Routes
- Existing OH
- Existing UG
- Proposed OH Fiber
- Proposed UG
- Remove Existing OH

West of Devers Upgrade Project

Figure B-15a
Proposed Telecommunication Routes - Sheet 1 of 5



Source: SCE, 2013.

Existing Transmission Line Right-of-Way

Substations

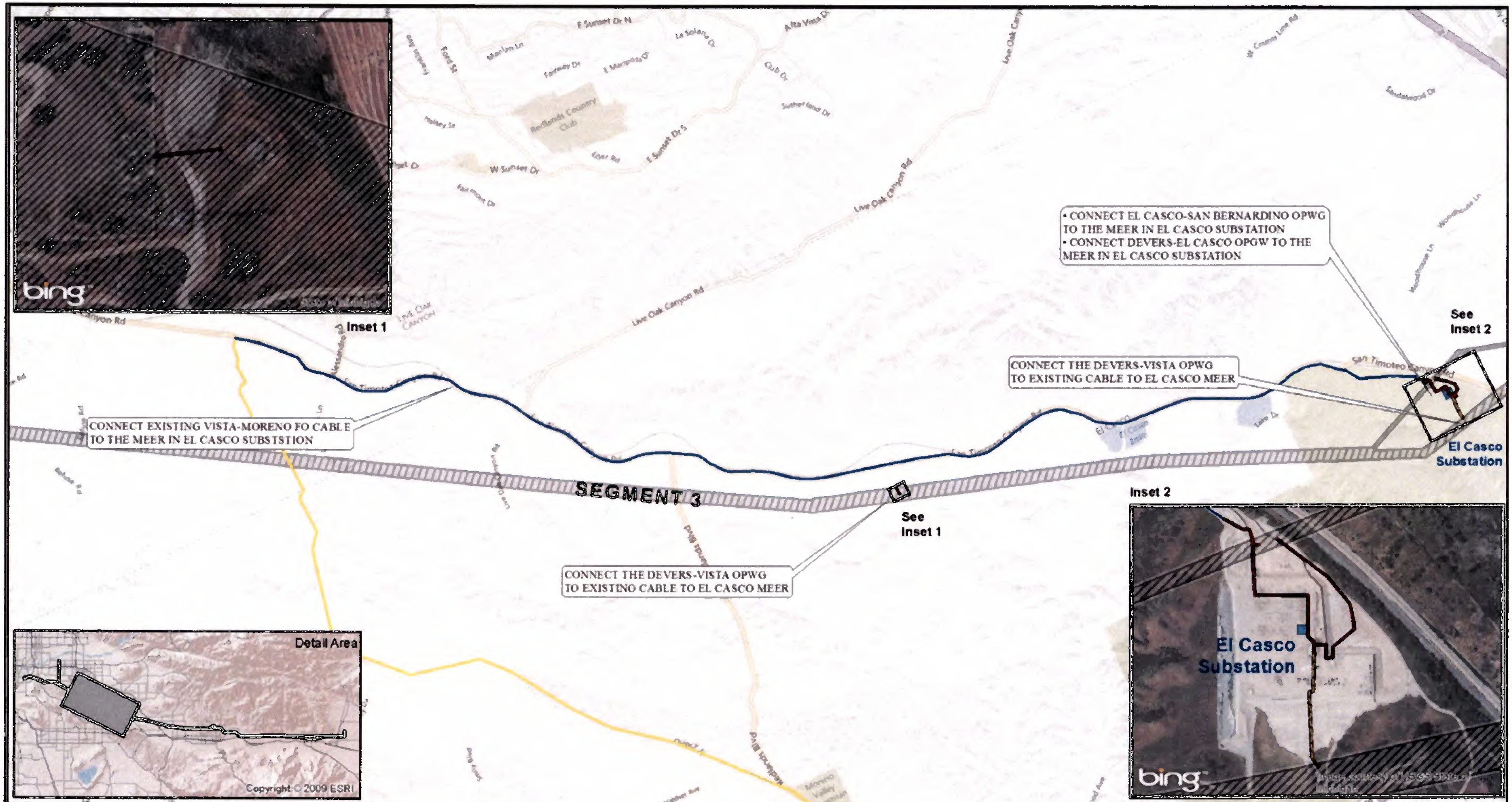
Junctions

Telecommunication Line Routes

Proposed UG

West of Devers Upgrade Project

Figure B-15b
Proposed Telecommunication Routes - Sheet 2 of 5



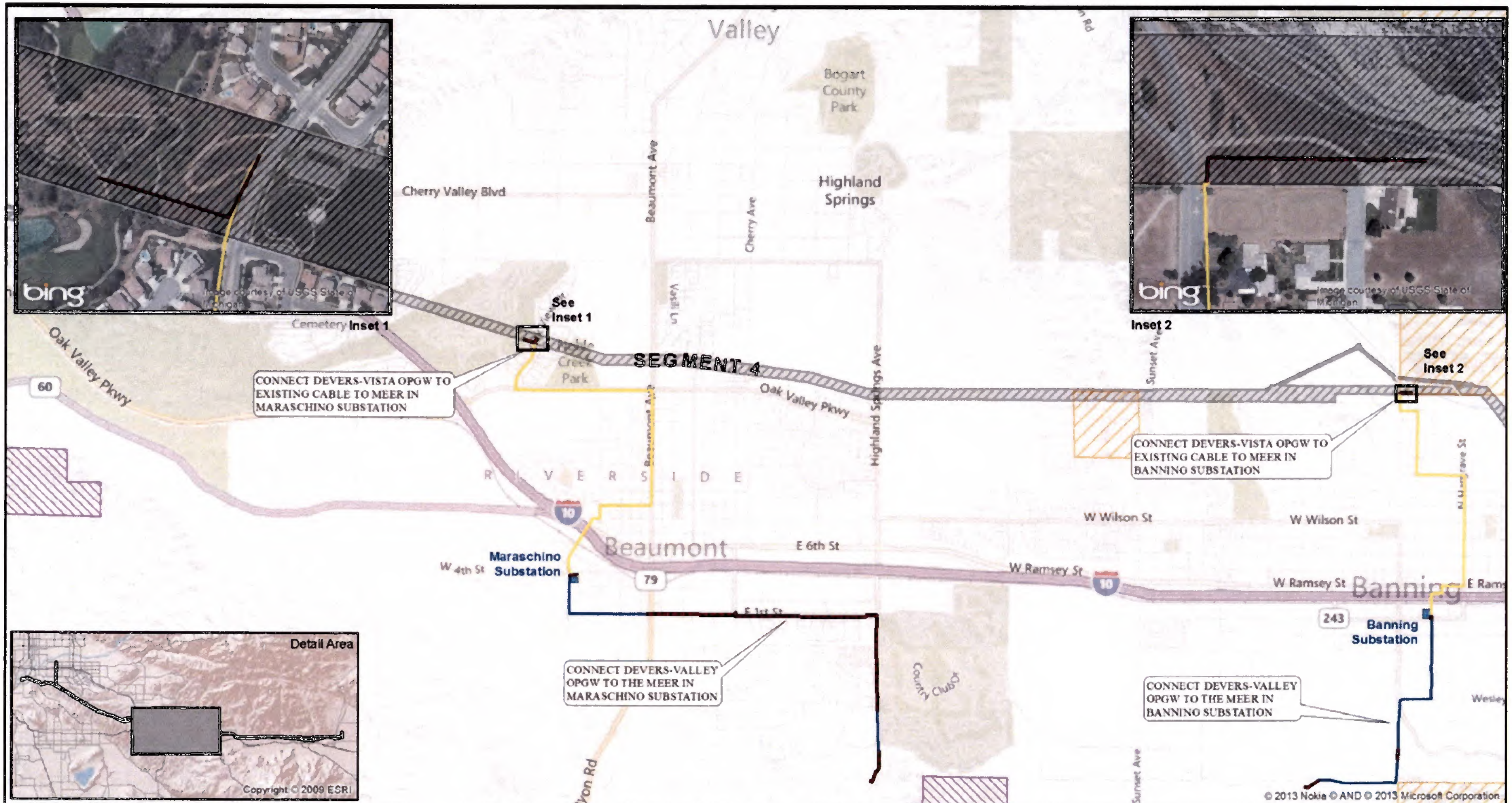
Source: SCE, 2013.

Existing Transmission Line Right-of-Way
Substations

Telecommunication Line Routes
Existing OH
Proposed OH ADSS
Proposed UG
Existing UG OFNR

West of Devers Upgrade Project

Figure B-15c
Proposed Telecommunication Routes - Sheet 3 of 5



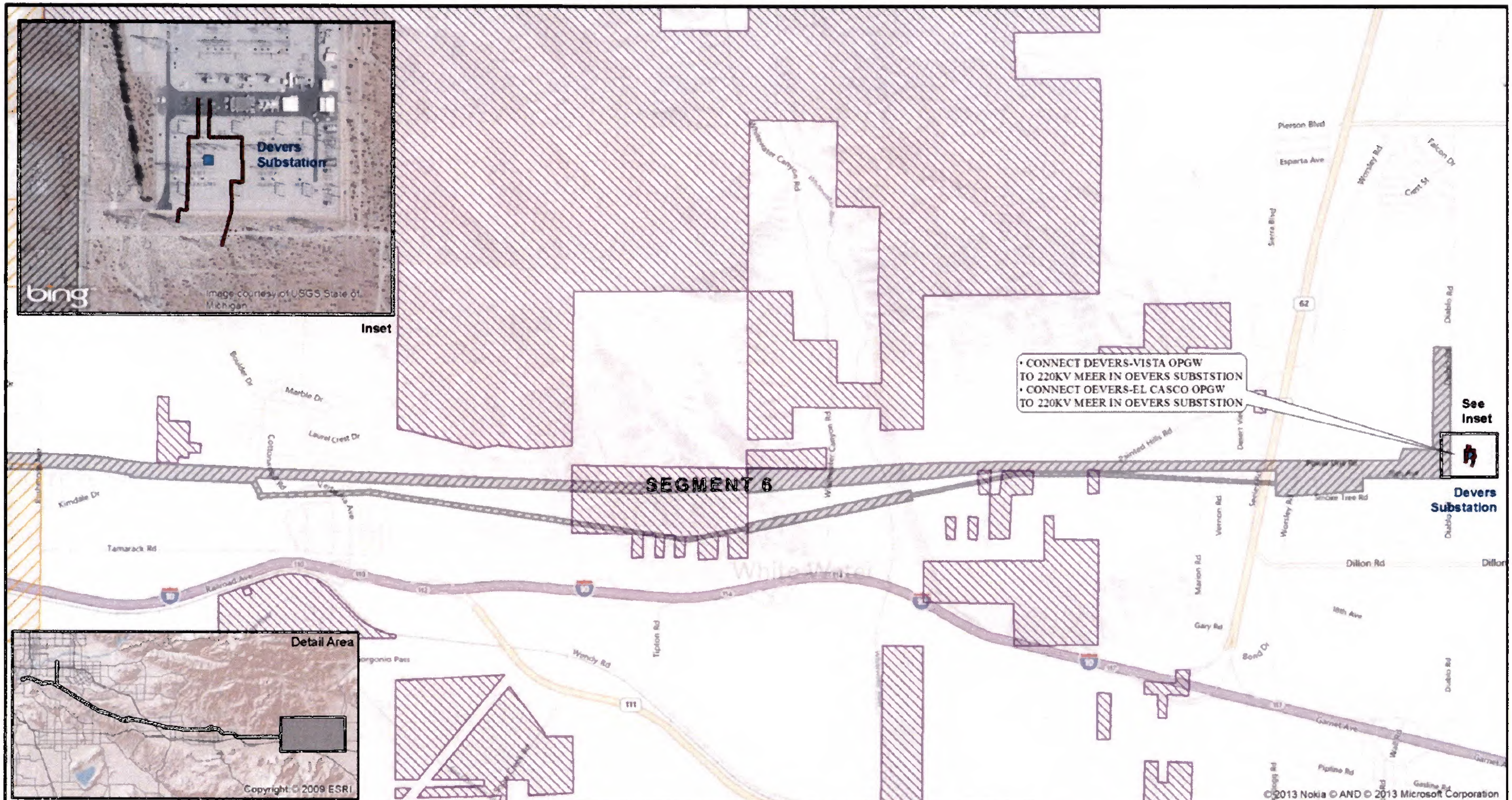
Source: SCE, 2013.

Existing Transmission Line Right-of-Way
Substations
U.S. Bureau of Land Management
Morongo Reservation

Telecommunication Line Routes
- Proposed OH
- Proposed UG
- Existing OH

West of Devers Upgrade Project

Figure B-15d
Proposed Telecommunication Routes - Sheet 4 of 5

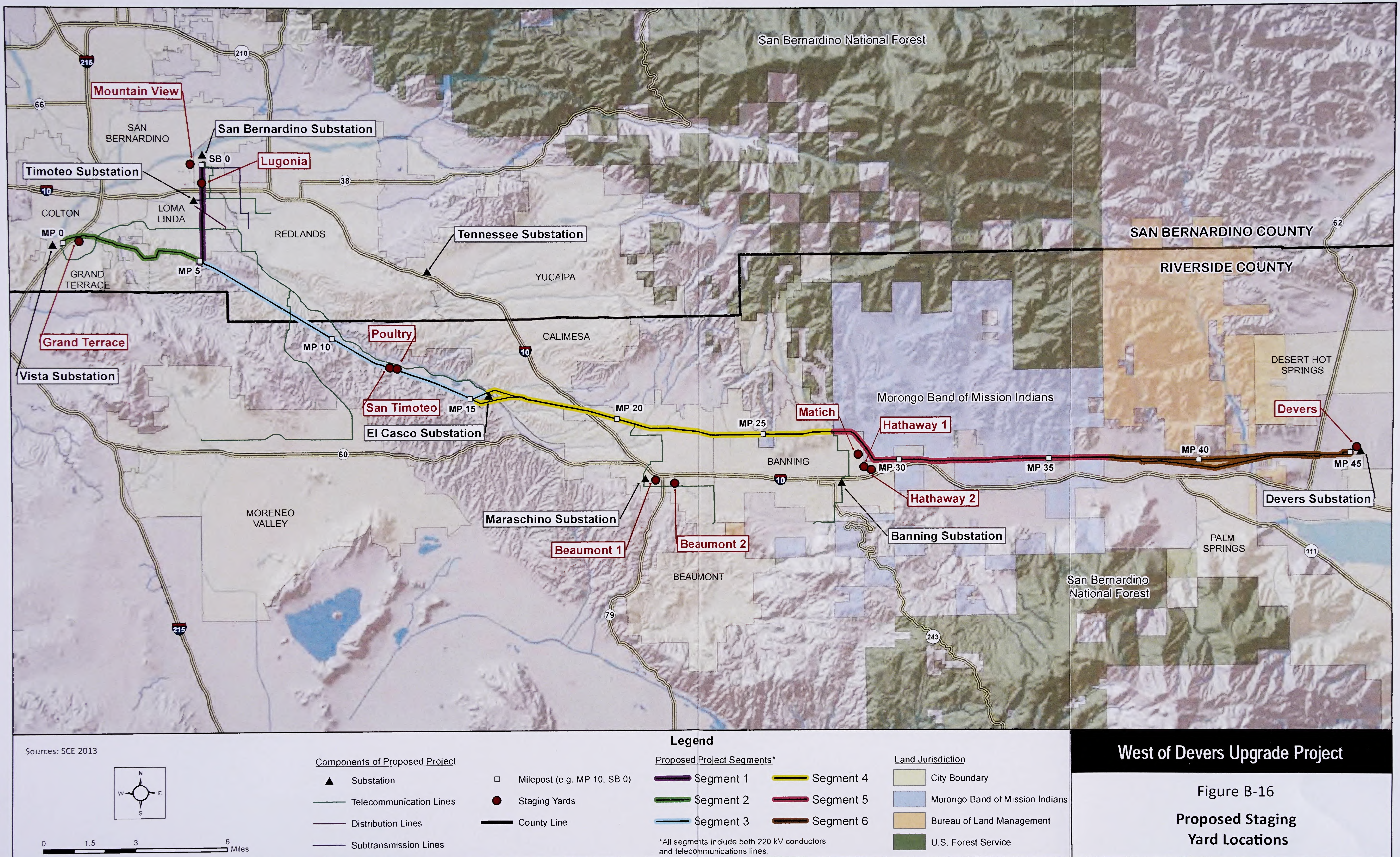


Source: SCE, 2013.

Existing Transmission Line Right-of-Way
Substations
Telecommunication Line Routes
Proposed UG
U.S. Bureau of Land Management
Morongo Indian Reservation

West of Devers Upgrade Project

Figure B-15e
Proposed Telecommunication Routes - Sheet 5 of 5



West of Devers Upgrade Project

Figure B-16

Proposed Staging Yard Locations


Typical concrete crib wall.


Typical gabion wall.


Typical soldier pile wall.


Typical welded wire wall.

Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-17

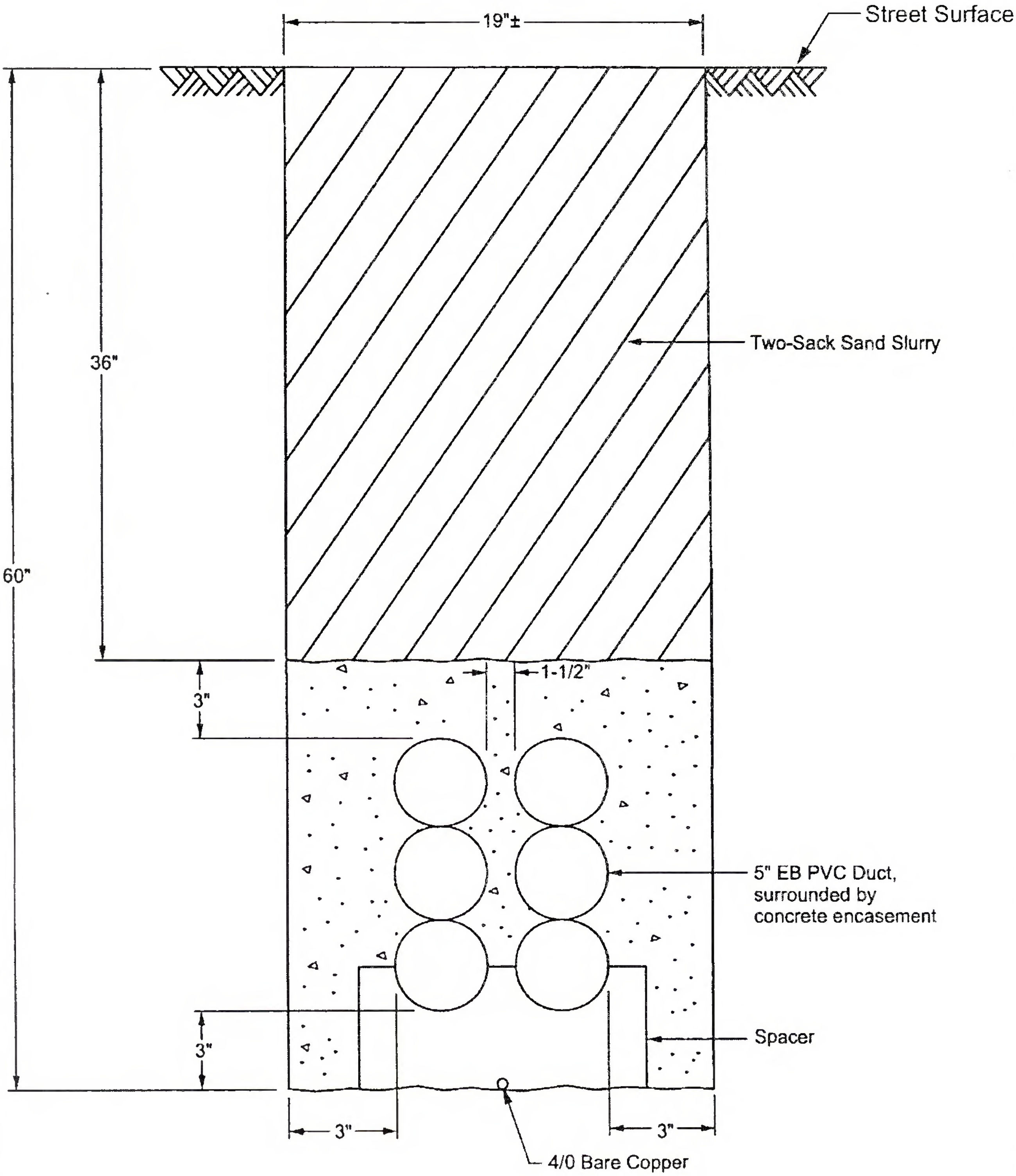
Typical Retaining and Mechanically Stabilized Earth Walls

Photo 1. Wire installation on a shoo-fly pole.

Photo 2. Shoo-fly in use during 220 kV tower removal.

West of Devers Upgrade Project

Figure B-18
Typical Shoo-Fly Structures

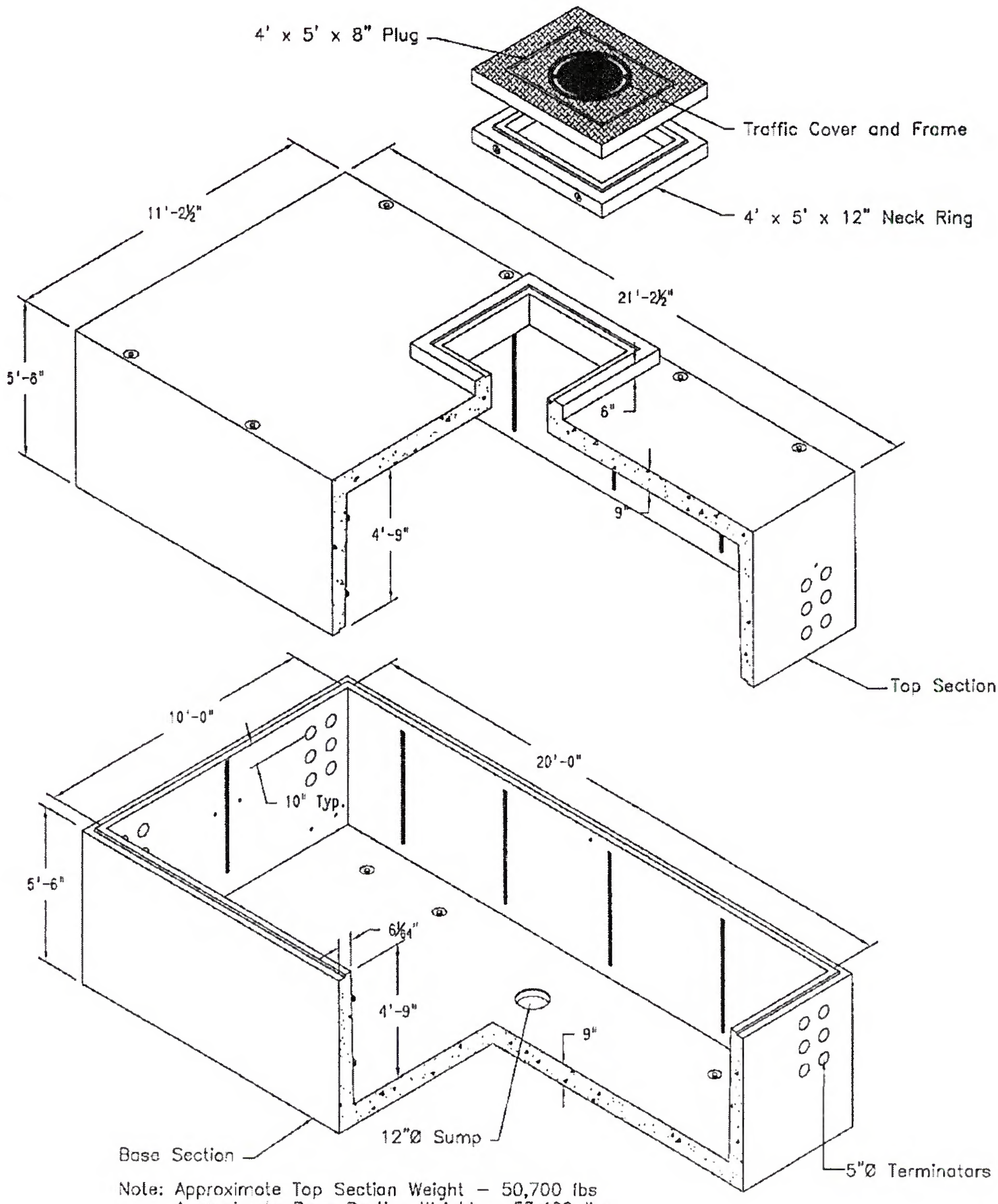


Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-19
Typical Subtransmission Duct Bank

Isometric View (10' x 20' x 9'6")



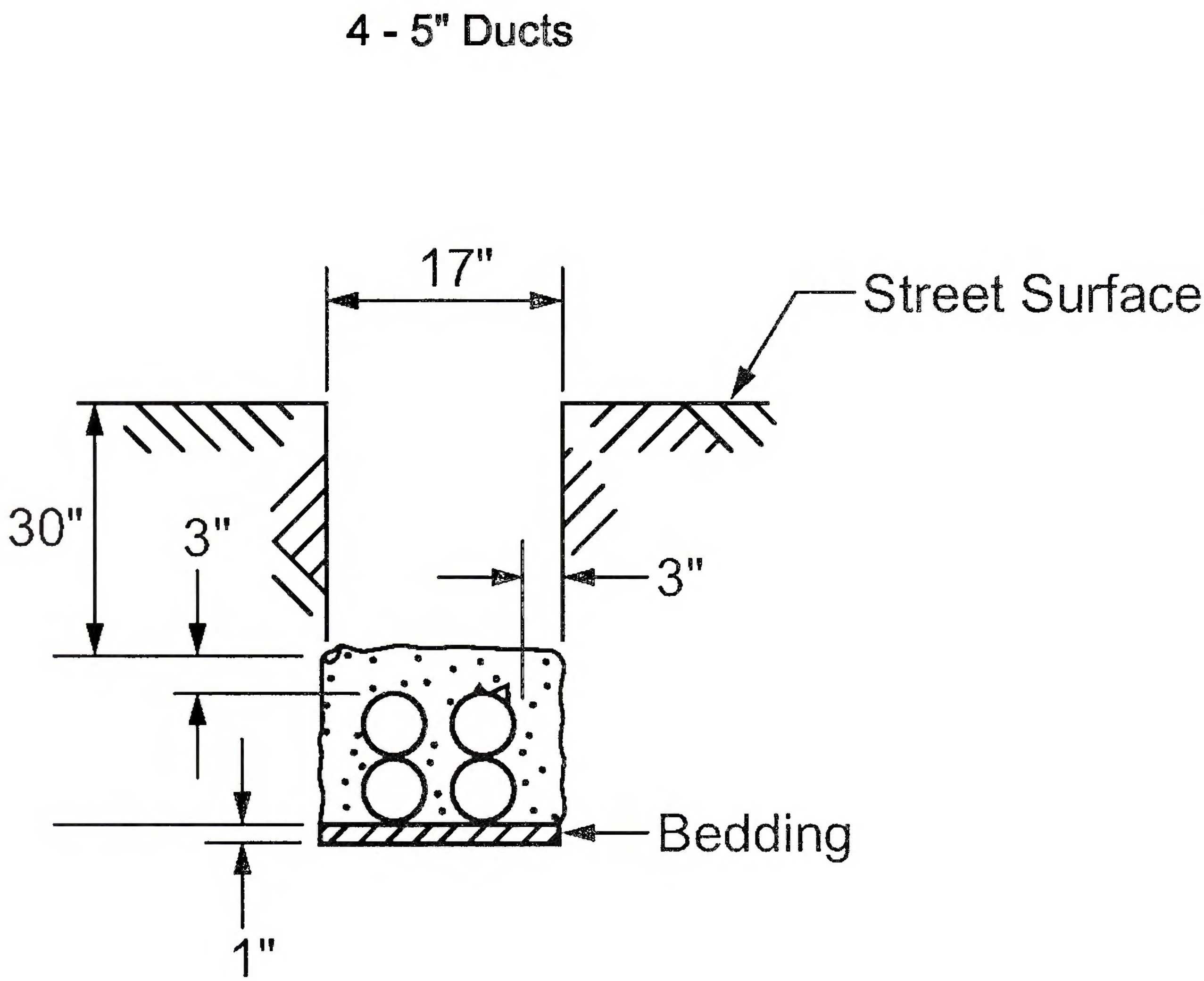
Note: Approximate Top Section Weight – 50,700 lbs
Approximate Base Section Weight – 53,400 lbs

Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-20

Typical Subtransmission Vault

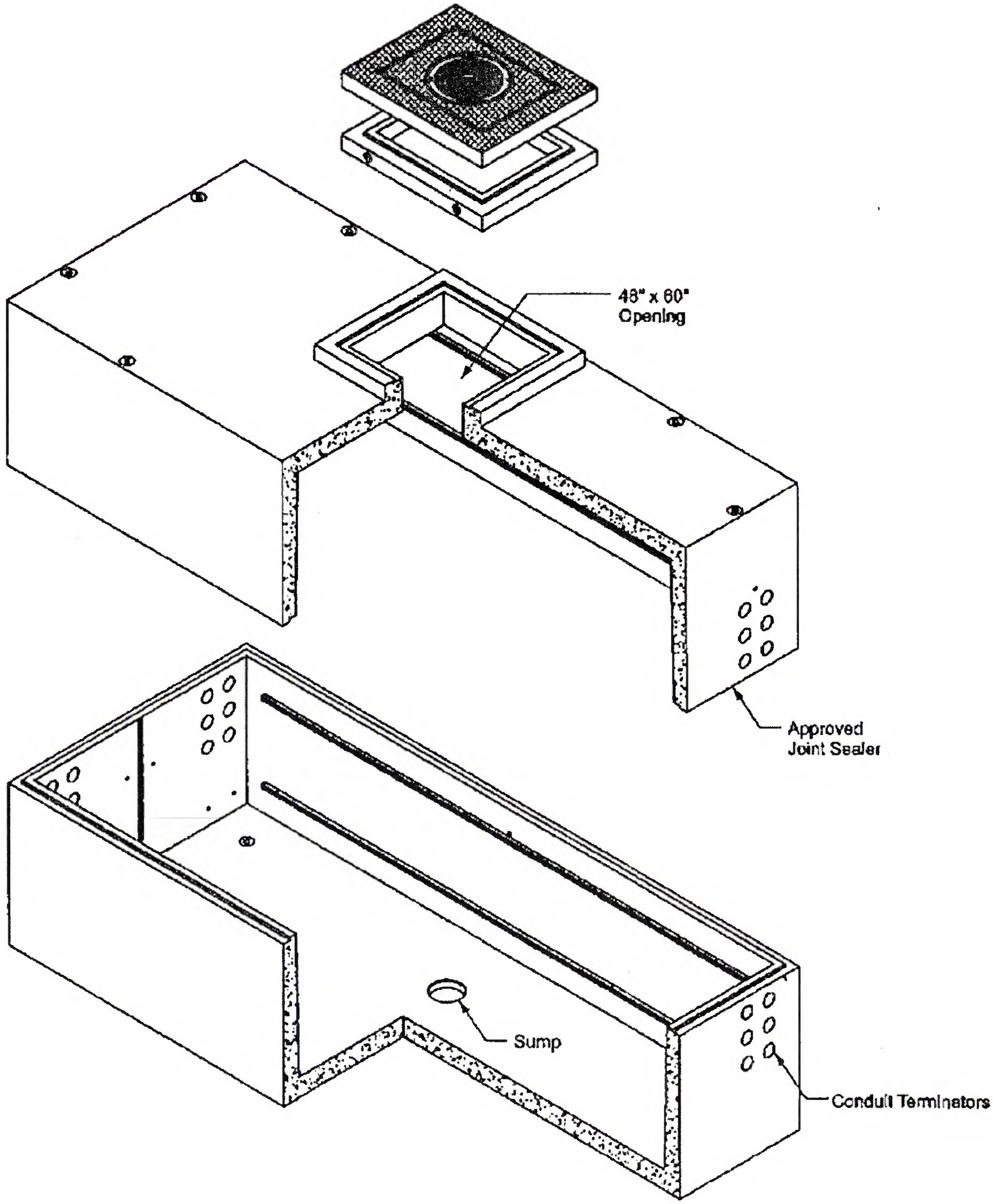


Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-21

Typical Distribution Duct Bank

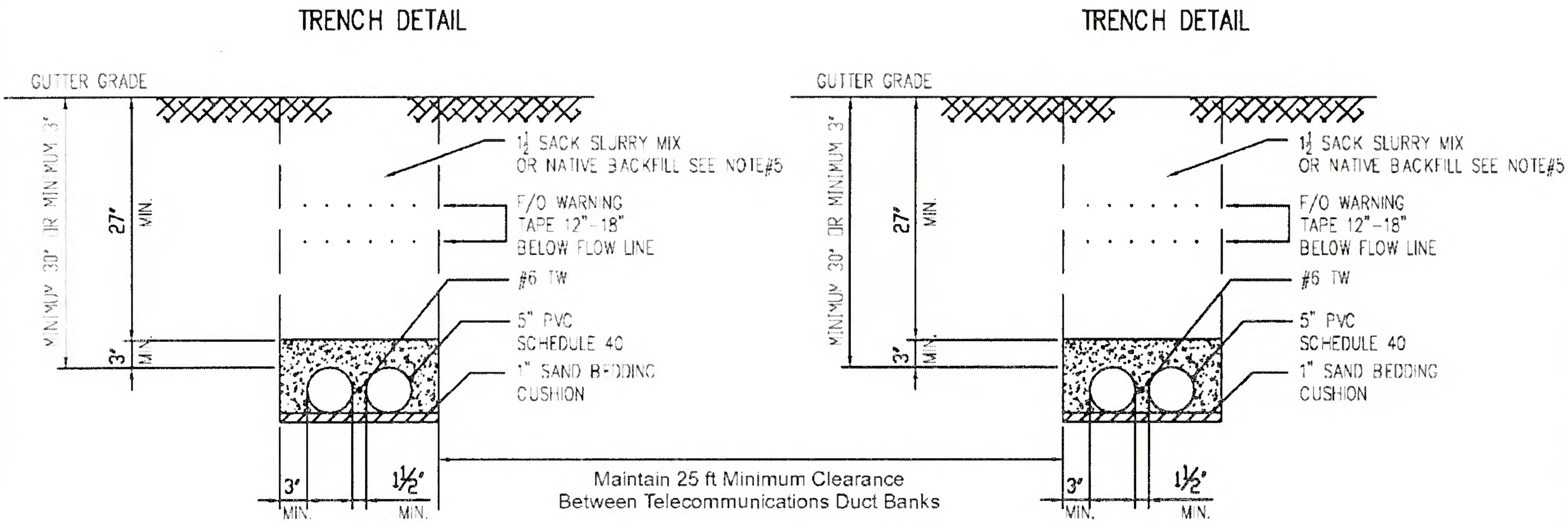


Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-22

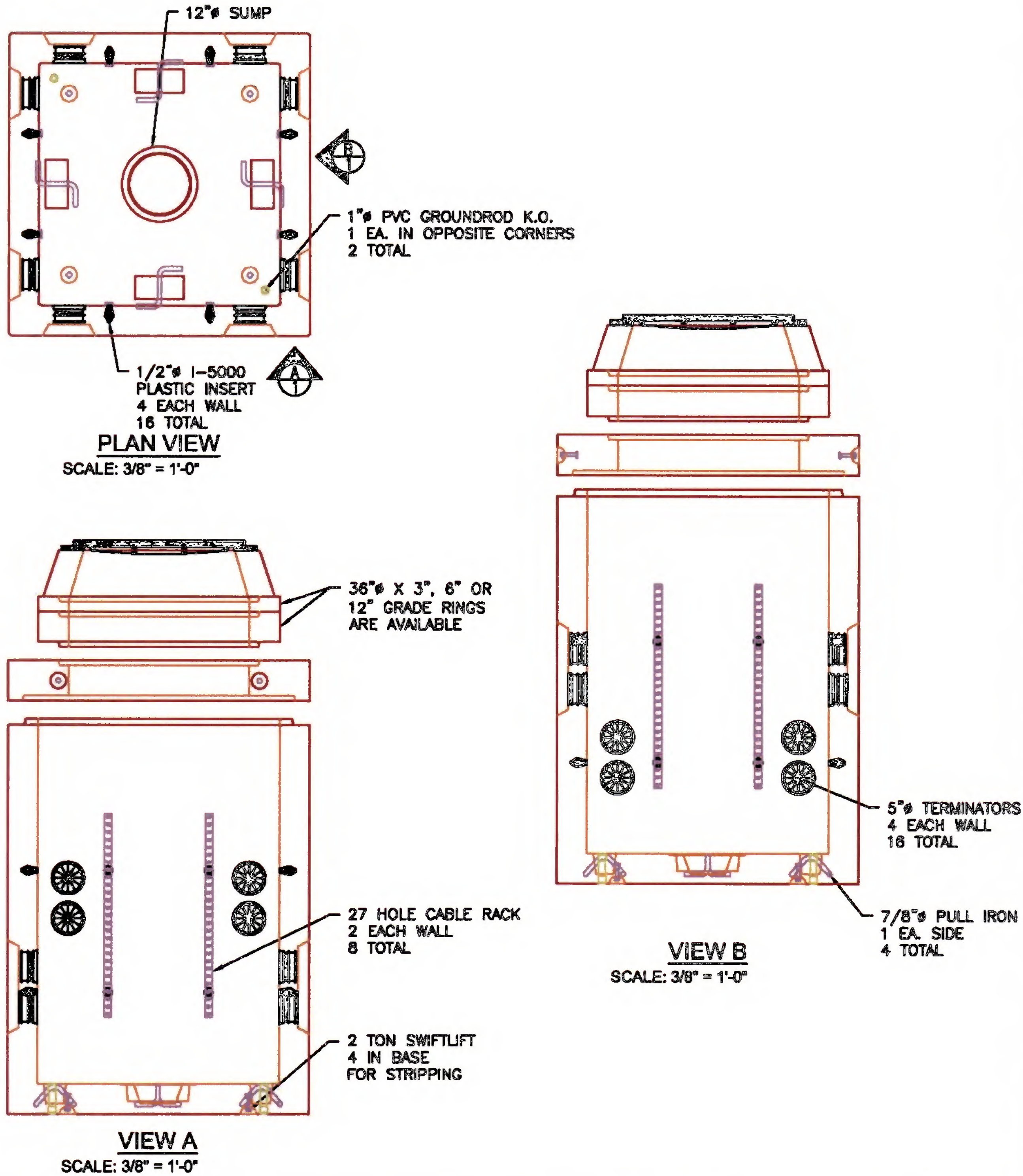
Typical Distribution Vault



Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-23
Typical Telecommunications Duct Bank

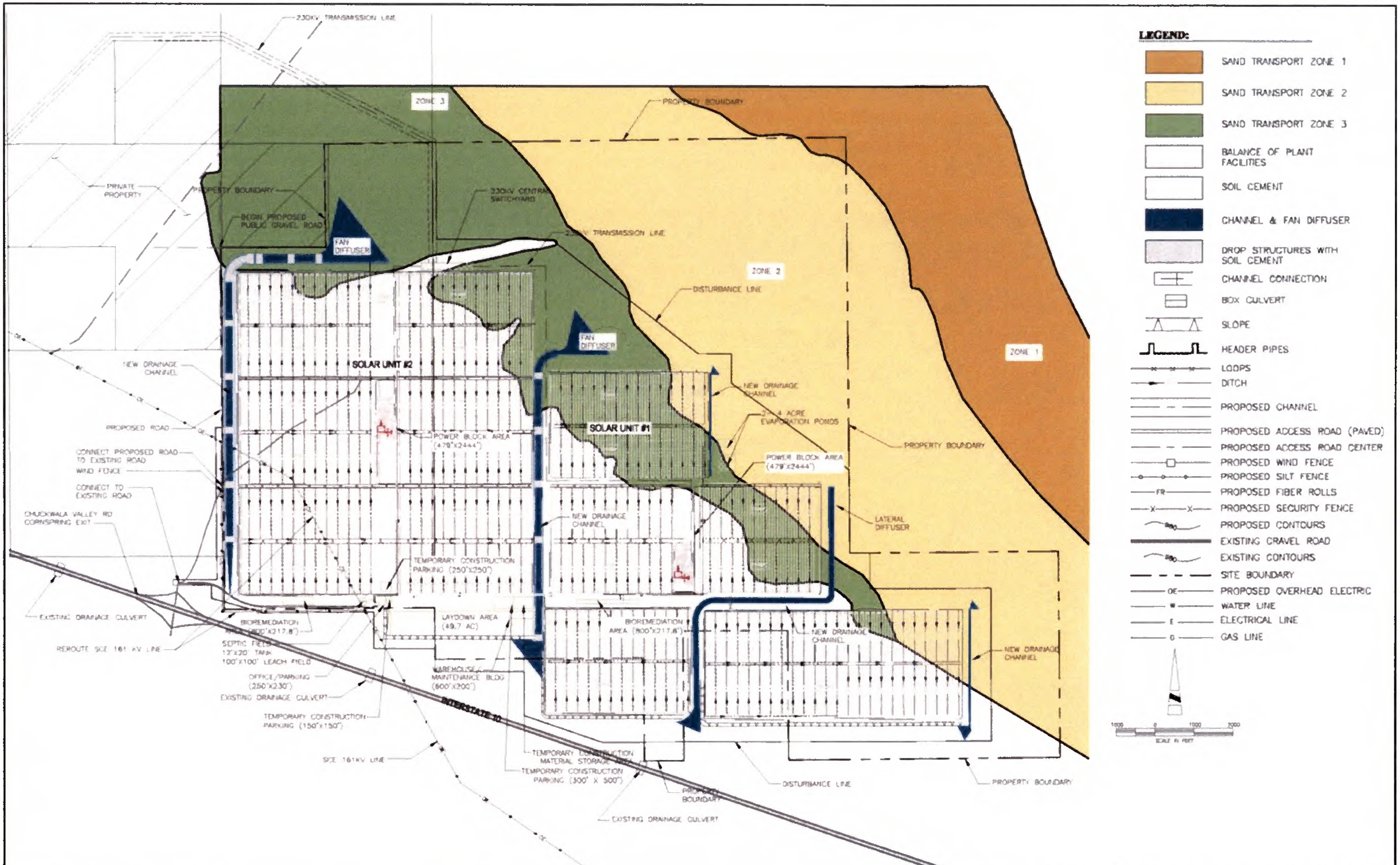


Source: SCE, 2013.

West of Devers Upgrade Project

Figure B-24

Typical Manhole Design



Source: CEC, 2010.

West of Devers Upgrade Project

Figure B-25

Palen Solar Power Project

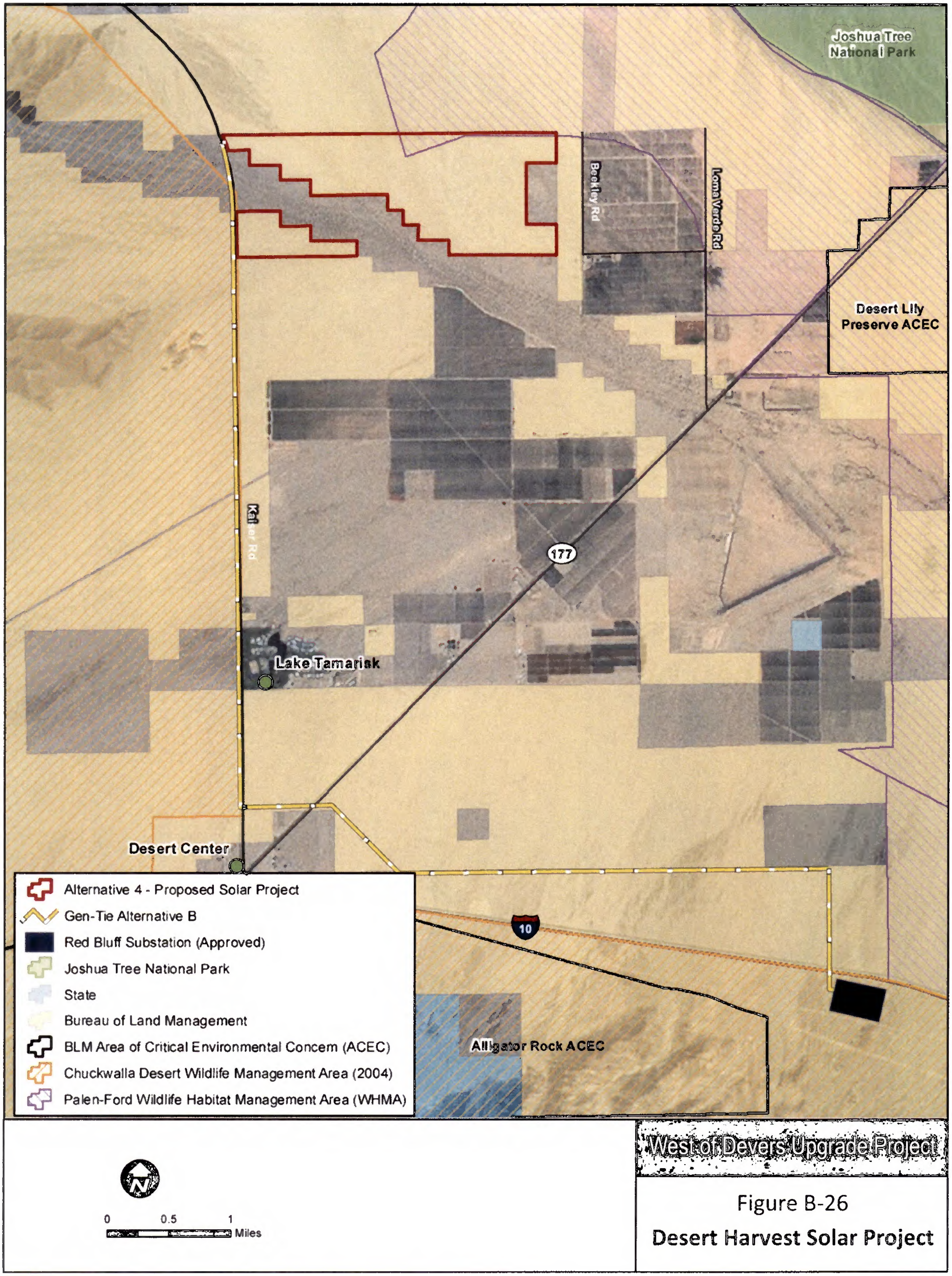


Figure B-26
Desert Harvest Solar Project

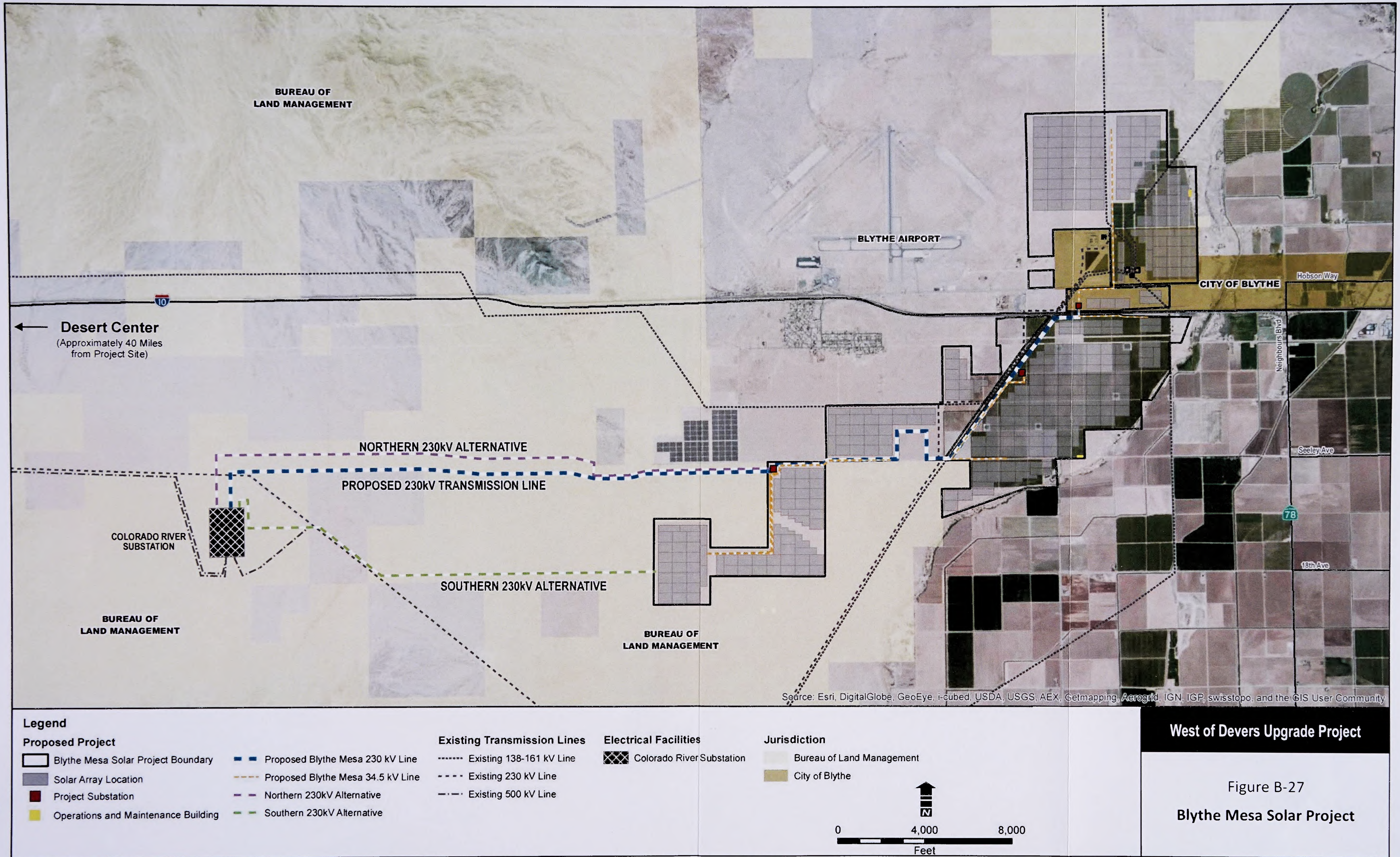


Figure B-27
Blythe Mesa Solar Project

C. Alternatives

This section summarizes the information presented in EIS Appendix 5, Alternatives Screening Report, which contains detailed documentation and maps of all alternatives suggested for EIS consideration. This section is organized as follows: Section C.1 is an overview of the alternatives screening process; Section C.2 describes the methodology used for alternatives evaluation; Section C.3 presents a summary of the alternatives selected for full EIS analysis and those alternative that have been eliminated from further consideration based on National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) criteria; Section C.4 then describes in detail the alternatives that have been retained for full EIS analysis within each Section D topical area; and Section C.5 presents descriptions of each alternative that was eliminated from EIS analysis and explains why each was eliminated. Section C.6 describes the No Action Alternative.

C.1 Alternatives Development and Screening Process

An important aspect of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a proposed project.

The Proposed Project is described in detail in Section B of this EIS. Appendix 5 describes the alternatives screening analysis that has been conducted for the Proposed Project and provides a record of the screening criteria and results that were reached regarding alternatives carried forward for full EIS analysis and alternatives eliminated. Appendix 5 documents: (1) the range of alternatives that was suggested and evaluated; (2) the approach and methods used to screen the feasibility of these alternatives according to guidelines established under NEPA; and (3) the results of the alternatives screening. For alternatives that were eliminated from EIS consideration, Appendix 5 explains in detail the rationale for elimination.

Alternatives to the Proposed Project were suggested during two scoping periods (May 12 to June 12, 2014 and July 1 to July 31, 2014) by federal, State and local agencies and members of the general public after SCE filed its Application for a Certificate of Public Convenience and Necessity (CPCN). Other alternatives were developed by EIS preparers or presented by SCE in its Proponent's Environmental Assessment (PEA).

In total, the alternatives screening process has culminated in the identification and preliminary screening of over 15 potential alternatives. These alternatives encompass both the 220 kV and 66 kV lines and range from minor structure location adjustments within SCE's existing right-of-way (ROW) to reduced build alternatives for the 220 kV transmission component.

C.2 Alternatives Screening Methodology Under NEPA

The evaluation of the alternatives used a screening process that consisted of three steps:

Step 1: Clearly define each alternative to allow comparative evaluation

Step 2: Evaluate each alternative in comparison with the Proposed Project, using NEPA criteria (defined below)

Step 3: Based on the results of Step 2, determine the suitability of the each alternative for full analysis in the EIS. If the alternative is unsuitable, eliminate it from further consideration.

After completion of the steps defined above, the advantages and disadvantages of the alternatives are carefully weighed with respect to NEPA criteria for consideration of alternatives. NEPA provides guidance on selecting a reasonable range of alternatives for evaluation in an EIS, as described below.

According to the Council on Environmental Quality's (CEQ) NEPA Regulations (40 C.F.R. 1502.14), an EIS must present the environmental impacts of the proposed action and alternatives in comparative form, defining the issues and providing a clear basis for choice by decisionmakers and the public. The alternatives section shall:

(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

(b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.

(c) Include reasonable alternatives not within the jurisdiction of the lead agency.

(d) Include the alternative of no action.

(e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.

(f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

The CEQ has stated that reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and selected alternatives using common sense rather than simply selecting those alternatives that are desirable from the standpoint of the applicant (CEQ, 1987).

In addition to the CEQ NEPA regulations, CEQ has issued a variety of general guidance memoranda and reports that concern the implementation of NEPA. One of the most frequently cited resources for NEPA practice is CEQ's *Forty Most Asked Questions Concerning CEQ's NEPA Regulations* (Forty Questions). Although a reviewing federal court does not always give the Forty Questions the same deference as it does the CEQ NEPA Regulations, in some situations the Forty Questions have been persuasive to the judiciary. For example in one decision, a federal court relied heavily on one of the Forty Questions in interpreting the treatment of alternatives under NEPA [*American Rivers et al. v. Federal Energy Regulatory Commission*, 187 F.3d 1007 (9th Cir. 1999)] (Bass et al., 2001).

In general, alternatives are discussed in Forty Questions Nos. 1 through 7. Question No. 5b asks if the analysis of the "proposed action" in an EIS is to be treated differently than the analysis of alternatives. The response states:

> *The degree of analysis devoted to each alternative in the EIS is to be substantially similar to that devoted to the "proposed action." Section 1502.14 is titled "Alternatives, including the proposed action" to reflect such comparable treatment. Section 1502.14(b) specifically requires "substantial treatment" in the EIS of each alternative including the proposed action. This regulation does not dictate an amount of information to be provided, but rather, prescribes a level of treatment, which may in turn require varying amounts of information, to enable a reviewer to evaluate and compare alternatives.*

C.2.1 Consistency with Purpose and Need

CEQ NEPA Regulations (40 C.F.R. 1502.13) require a statement to "briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." The October 2013 PEA includes the following six objectives stated by SCE for the Proposed Project:

- Allow SCE to meet its obligation to integrate and fully deliver the output of new generation projects located in the Blythe and Desert Center areas that have requested to interconnect to the electrical transmission grid.
- Consistent with prudent transmission planning, maximize the use of existing transmission line rights-of-way to the extent practicable.
- Meet project need while minimizing environmental impacts.
- Facilitate progress toward achieving California's Renewables Portfolio Standard (RPS) goals in a timely and cost-effective manner by SCE and other California utilities.
- Comply with applicable Reliability Standards and Regional Business Practices developed by the North American Electric Reliability Corporation (NERC), the Western Electricity Coordinating Council (WECC), and the CAISO; and design and construct the project in conformance with SCE's approved engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects.
- Construct facilities in a timely and cost-effective manner by minimizing service interruptions to the extent practicable.

This EIS in Section A, Introduction, describes how the 6 objectives set forth by SCE above were considered by the CPUC and BLM and identifies the 3 basic project objectives listed below. Each alternative considered in this EIS has been evaluated for its ability to meet these 3 basic objectives.

- **Basic Project Objective 1:** to upgrade the WOD 220 kV transmission lines between Devers, El Casco, Vista, and San Bernardino Substations to increase system deliverability by at least 2,200 MW.
- **Basic Project Objective 2:** to support achievement of State and federal renewable energy goals.
- **Basic Project Objective 3:** to maximize the availability of remaining space in the corridor to the extent practicable, so future use of the corridor for additional transmission line upgrades is not precluded.

In addition to SCE's project objectives listed above, the October 2013 PEA provides a full chapter on the Purpose and Need (PEA Chapter 1.0) for the West of Devers Upgrade Project, including the following six statements by SCE:

- The Proposed Project is Needed to Integrate and Interconnect Generation Resources within the Blythe and Desert Center Areas.
- The Proposed Project is Needed to Comply With Executed Large Generator Interconnection Agreements (LGIAs).
- The Proposed Project is Needed to Support Integration of Generation with Executed Power Purchase Agreements (PPAs).
- The Proposed Project is Needed to Facilitate Integration of Renewable Generation Resource[s] Being Developed in the Coachella Valley Area.
- The Proposed Project is Needed to Comply with Reliability Standards.
- The Proposed Project Facilitates Progress Toward California's RPS Goals.

C.2.2 Feasibility

The environmental consequences of the alternatives, including the proposed action, are to be discussed in the EIS in accordance with CEQ NEPA Regulations (40 C.F.R. 1502.16). The discussion shall include "[p]ossible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." Other feasibility factors to be considered may include cost, logistics, technology, and social, environmental, and legal factors (Bass et al., 2001). Among the factors that may be taken into account when addressing the feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or other regulatory limitations, jurisdictional boundaries, and proponent's control over alternative sites in determining the range of alternatives to be evaluated in the EIS. For the screening analysis, the feasibility of potential alternatives was assessed taking the following factors into consideration:

- **Economic Feasibility.** Is the alternative so costly that implementation would be prohibitive? Is there evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with project?
- **Environmental Feasibility.** Would implementation of the alternative cause substantially greater environmental damage than the Proposed Project, thereby making the alternative clearly inferior from an environmental standpoint? This issue is primarily addressed in terms of the alternative's potential to eliminate significant effects of the Proposed Project.
- **Legal Feasibility.** Does the alternative have the potential to avoid lands that have legal protection that may prohibit or substantially limit the feasibility of permitting a high-voltage transmission line?
- **Regulatory Feasibility.** Do regulatory restrictions substantially limit the likelihood of successful permitting of a high-voltage transmission line? Is the alternative consistent with regulatory standards for transmission system design, operation, and maintenance?

  Lands that are afforded legal protections that would prohibit the construction of the project, or require an act of Congress for permitting, are considered less feasible locations for the project. These land use designations include wilderness areas, wilderness study areas, restricted military bases, airports and Indian reservations. Information on potential legal constraints of each alternative has been compiled from laws, regulations, and local jurisdictions, as well as a review of federal, State, and local agency land management plans and policies.
- **Social Feasibility.** Would the alternative cause significant damage to the socioeconomic structure of the community and be inconsistent with important community values and needs? Similar to the environmental feasibility addressed above, this issue pertains to the alternative's potential to eliminate adverse economic and social effects of a physical change in the environment caused by the Proposed Project.
- **Technical Feasibility.** Is the alternative feasible from a technological perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome?

C.3 Summary of Screening Results

Alternatives identified by the Applicant, agencies, EIS preparers, and the public are listed below according to the determination made for analysis. Alternatives considered included alternative route alignments and other transmission alternatives, alternatives that could replace the Proposed Project as a whole, Non-Wire Alternatives, and the No Action Alternative.

C.3.1 Alternatives Fully Analyzed in the EIS

The three alternatives listed below have been chosen for detailed analysis in this EIS through the alternative screening process. These alternatives are briefly described in Section C.4 and in greater detail in Sections 4 and 5 of Appendix 5. The preliminary conclusions generated during the screening process are presented briefly below and each of these alternatives is evaluated within each environmental issue area of Part D of this EIS. An overview map of these alternatives is included in this section as Figure C-1, but more detailed, individual maps of each alternative are in Sections 4 and 5 of Appendix 5 of this EIS, as well as Section D.

Table C-1 summarizes the rationale for carrying forward each of these alternatives.

Table C-1. Alternatives Fully Analyzed in EIS

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects
Tower Relocation Alternative	Fully meets all basic project objectives.	Meets legal, regulatory, and technical feasibility criteria, as well as construction timeframe and reliability criteria.	Meets environmental criteria. Reduces visual and construction-related disturbance impacts to residences in Segments 4 and 6.
Iowa Street 66 kV Underground Alternative	Fully meets all basic project objectives.	Meets legal, regulatory, and technical feasibility criteria, as well as construction timeframe and reliability criteria.	Meets environmental criteria. Reduces significant visual impacts of the new 66 kV line to residences in Redlands along Iowa Street.
Phased Build Alternative	Fully meets all basic project objectives.	Meets legal, regulatory, and technical feasibility criteria, as well as construction timeframe and reliability criteria.	Meets environmental criteria. Reduces amount of disturbance due to structure removal and would require the construction of fewer new towers and poles.

C.3.2 Alternatives Eliminated from Full Consideration in the EIS

There were 12 alternatives eliminated after a detailed alternatives screening process (Section 2 of Appendix 5 describes screening methodology). Table C-2 summarizes the rationale for eliminating each of these alternatives from further consideration and they are shown on Figures C-2a through C-2c (Alternatives Eliminated).

Table C-2. Alternatives Eliminated from EIS Consideration After Detailed Screening

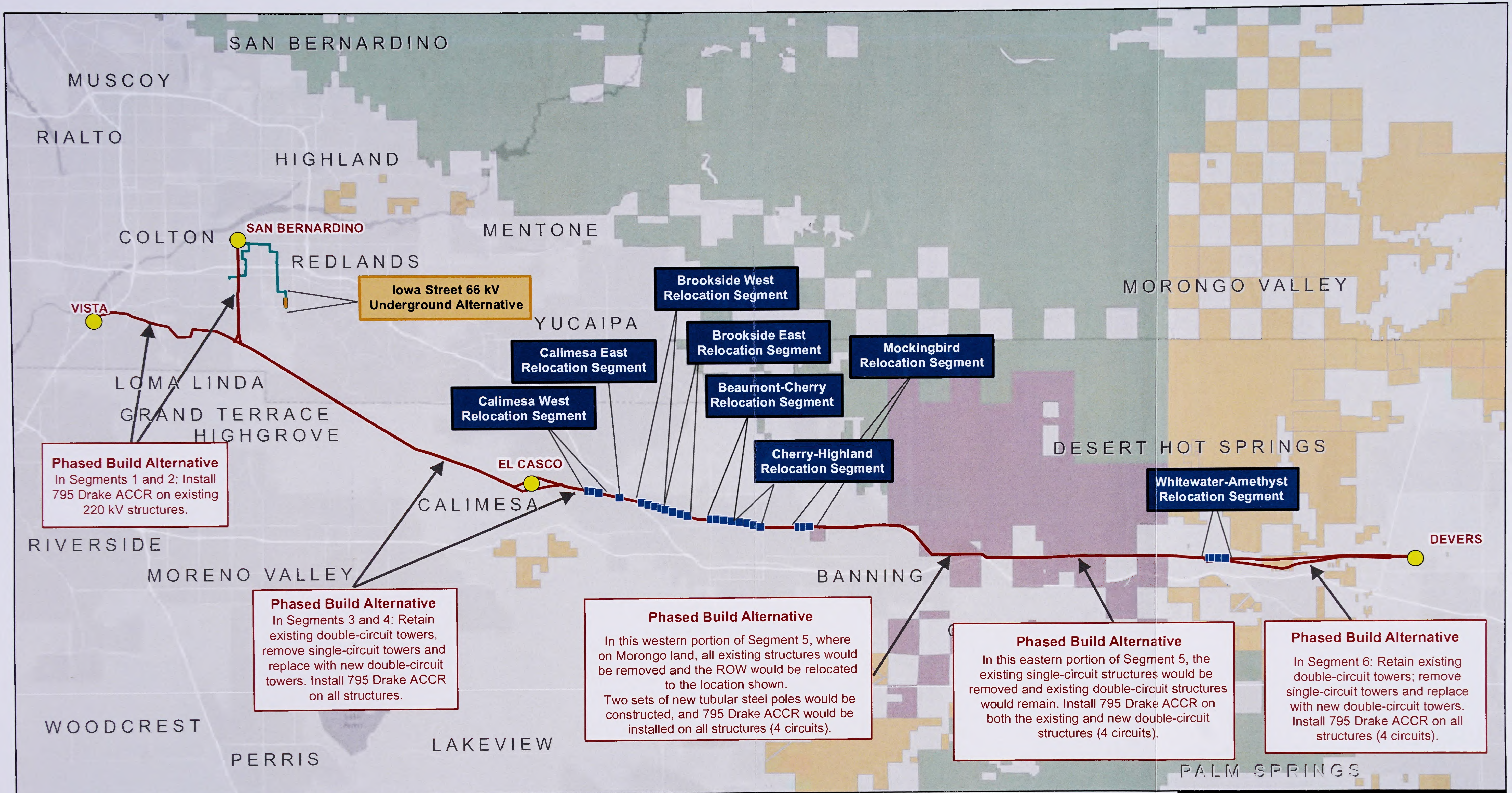
Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
500 kV Towers Alternative	Fully meets all basic project objectives.	If Morongo Tribe does not approve a 500 kV line when it is needed in the future, then this alternative would not be legally feasible.	May avoid or delay the environmental impacts of future transmission expansion, but larger 500 kV structures would be installed initially.	Not analyzed because future service of the line at 500 kV would not be legally feasible without approval by the Morongo Tribe.

Table C-2. Alternatives Eliminated from EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
Segment 4 Underground Alternatives in Calimesa, Beaumont, and Banning	Fully meets all basic project objectives.	Meets legal, regulatory, and technical feasibility criteria, as well as construction timeframe and reliability criteria.	Reduces or avoids visual impacts, but it would result in much more severe construction impacts related to dust, ground disturbance, and traffic and would cross by two schools. Maintenance and repair times would also be increased.	Not analyzed due to greater level of environmental impacts and because another alternative, the Tower Relocation Alternative, has been identified to reduce significant visual impacts in these areas.
Segment 5 Morongo Central Route Alternative (original PEA Proposed Route)	Fully meets all basic project objectives.	Meets technical and regulatory criteria. Appears to be legally infeasible given the stated preference and approval by the Morongo Tribe for the proposed route.	Shorter route and farther from Banning Airport, but it would be closer to residences resulting in greater visual and construction-related disturbance impacts.	Not analyzed because of legal infeasibility on Morongo Reservation without tribal approval.
Segment 5 Morongo Existing 220 kV Route Alternative (Existing ROW)	Fully meets all basic project objectives.	Meets technical and regulatory criteria. Appears to be legally infeasible given the stated preference and approval by the Morongo Tribe for the proposed route.	Utilizes existing corridor and farther from Banning Airport, but it would be closer to residences resulting in greater visual and construction-related disturbance impacts.	Not analyzed because of legal infeasibility on Morongo Reservation.
East Banning/Morongo Alternative	Fully meets all basic project objectives.	Meets technical and regulatory criteria. Appears to be legally infeasible given the stated preference and approval by the Morongo Tribe for the proposed route.	Meets environmental criteria. Shorter route, farther from residences, and reduces visual impacts and construction-related disturbance impacts.	Not analyzed because of legal infeasibility on Morongo Reservation.
Devers-Beaumont 500 kV Alternative (SCE System Alternative 1)	Fully meets all basic project objectives.	Meets technical criterion. However, regulatory feasibility would be questionable if located within Potrero Area of Critical Environmental Concern (ACEC) and San Jacinto Wilderness.	Similar types of impacts to the Proposed Project would be transferred to a different, new location. Much greater construction disturbance and visual impacts to residences and sensitive receptors along the Devers-Valley corridor and from new substation southwest of Beaumont.	Not analyzed because impacts would be substantially more severe: greater construction disturbance and visual impacts. It would have no environmental advantages over the Proposed Project.
Red Bluff-Valley-Serrano 500 kV Alternative (SCE System Alternative 2)	Fully meets all basic project objectives.	Meets technical criterion. Regulatory and legal feasibility would be highly questionable due to likely location within designated San Jacinto Wilderness, tribal land, and National Monument.	Similar types of impacts to the Proposed Project would be transferred to a different, new location. Substantially greater construction disturbance and long-term visual impacts to sensitive land uses along a new and much longer corridor.	Not analyzed due to regulatory and legal feasibility issues and substantially more severe impacts of the much longer route without any environmental advantages over the Proposed Project.

Table C-2. Alternatives Eliminated from EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
Reduced Build Option 1 Alternative	Fully meets all basic project objectives.	Meets technical, legal, and regulatory criteria.	Avoids the need to remove and rebuild all towers by reusing many of the existing structures, but 60% of existing double-circuit structures would still require upgrades or replacement.	Not analyzed, because it would not avoid or eliminate a substantial amount of the environmental impacts of the Proposed Project.
Reduced Build Option 2a Alternative	Fully meets all basic project objectives.	Meets technical, legal, and regulatory criteria.	Avoids the need to remove and rebuild all towers by reusing many of the existing structures, but 60% of existing double-circuit structures would still require upgrades or replacement.	Not analyzed, because it would not avoid or eliminate a substantial amount of the environmental impacts of the Proposed Project.
Reduced Build Option 2b Alternative	Partially meets Basic Project Objectives 1 or 2. Satisfies Basic Project Objective 3.	Meets technical, legal, and regulatory criteria.	Avoids near-term construction related to removing all towers.	Not analyzed, because it would not meet most Basic Project Objectives.
High-Performance Conductor Alternative	Fully meets all basic project objectives.	Meets technical and regulatory criteria. Highly unlikely to be legally feasible given the stated preference and approval by the Morongo Tribe for the proposed route.	Construction disturbance comparable to Proposed Project. May delay the cumulative impacts of installing a future 500 kV line in the corridor.	Not analyzed, because it would not reduce or avoid any project-related impacts and it would incur higher costs.
Retain WOD Interim Facility Alternative	Would not meet Basic Project Objectives	Meets technical and regulatory criteria. May not be legally feasible given the stated preference and approval by the Morongo Tribe for the proposed route.	Substantial reduction in construction impacts. Eliminates the visual benefit of the Proposed Project's consolidation of towers and removal of older structures.	Not analyzed, because it would not meet project objectives.



Sources: SCE 2014

N W E S

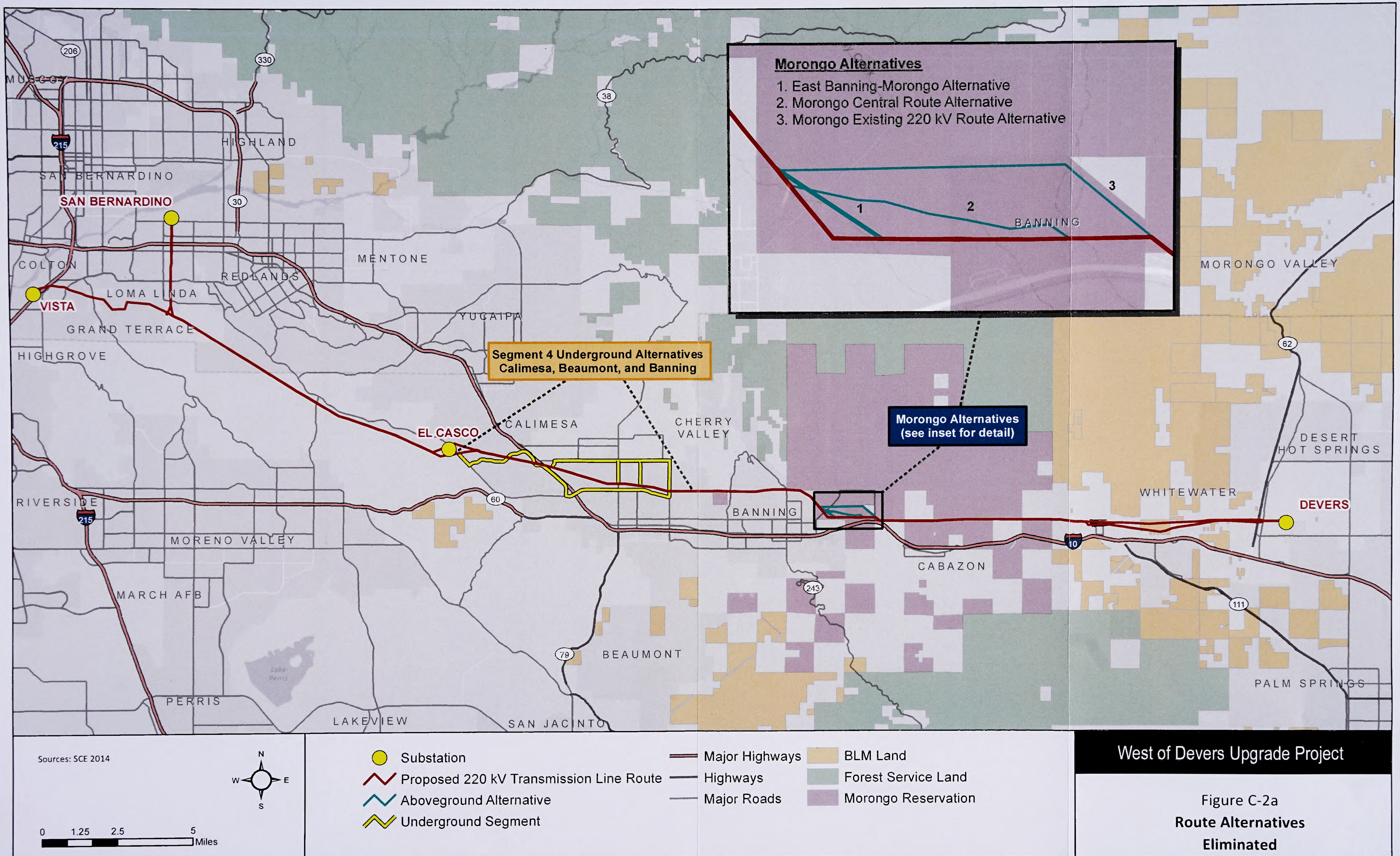
0 2 4 8 Miles

Substation
Tower Relocation Alternative
Phased Build Alternative (Described in text boxes)
Proposed 220 kV Transmission Line Route
Proposed 66 kV Subtransmission Line Route
Iowa Street 66kV Underground Alternative
BLM Land
Forest Service Land
Morongo Reservation

West of Devers Upgrade Project

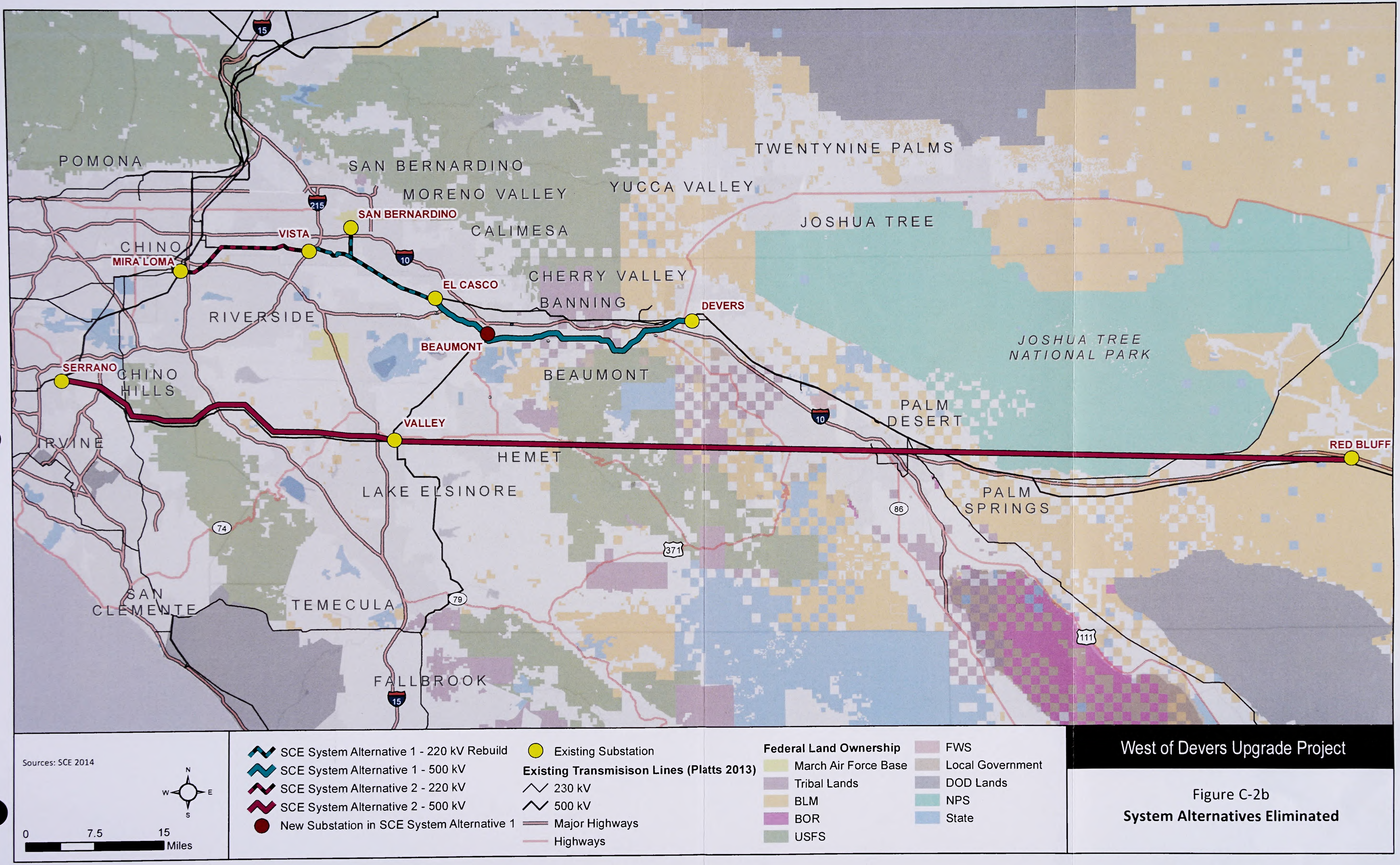
Figure C-1

Alternatives Retained



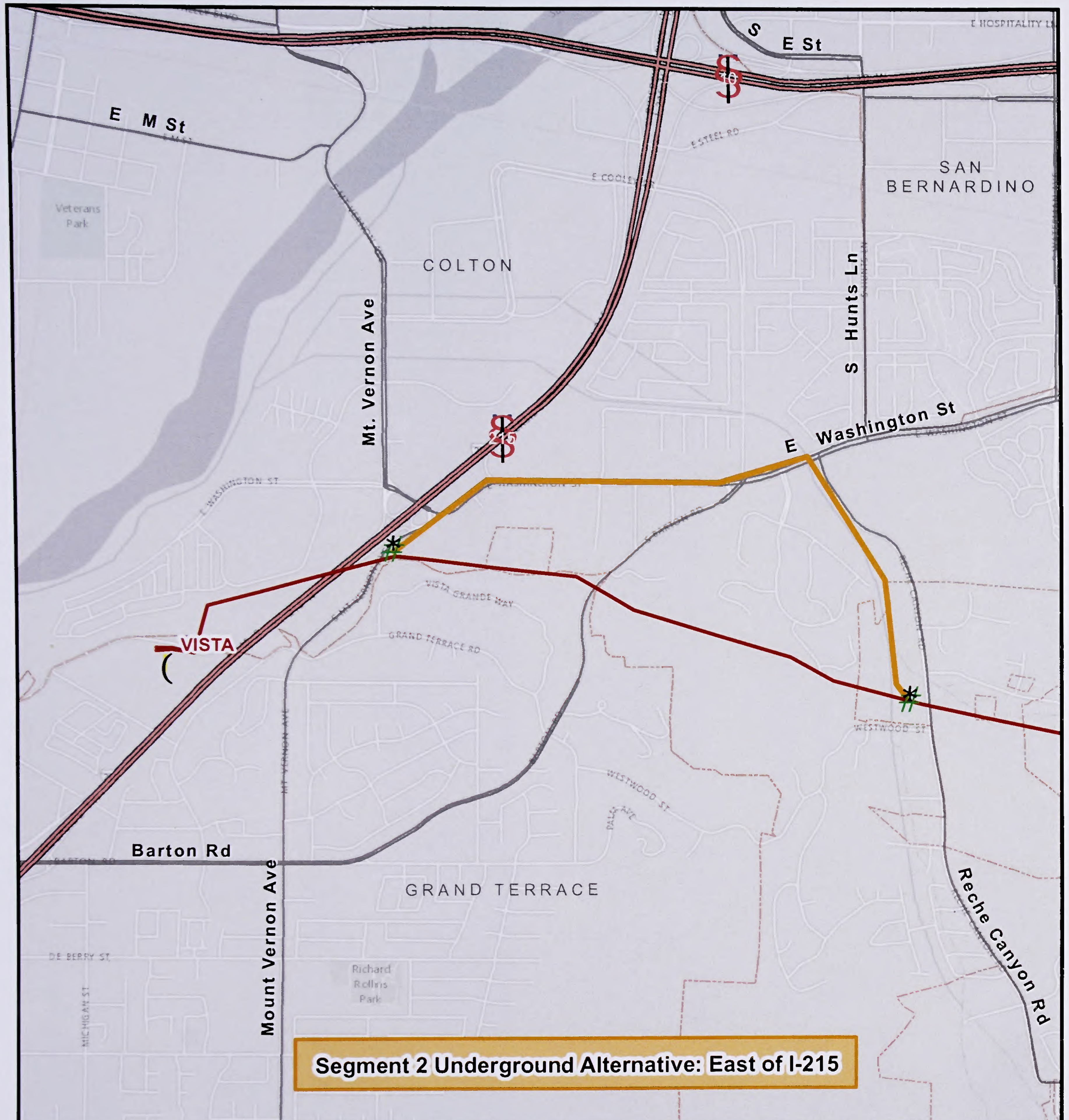
West of Devers Upgrade Project

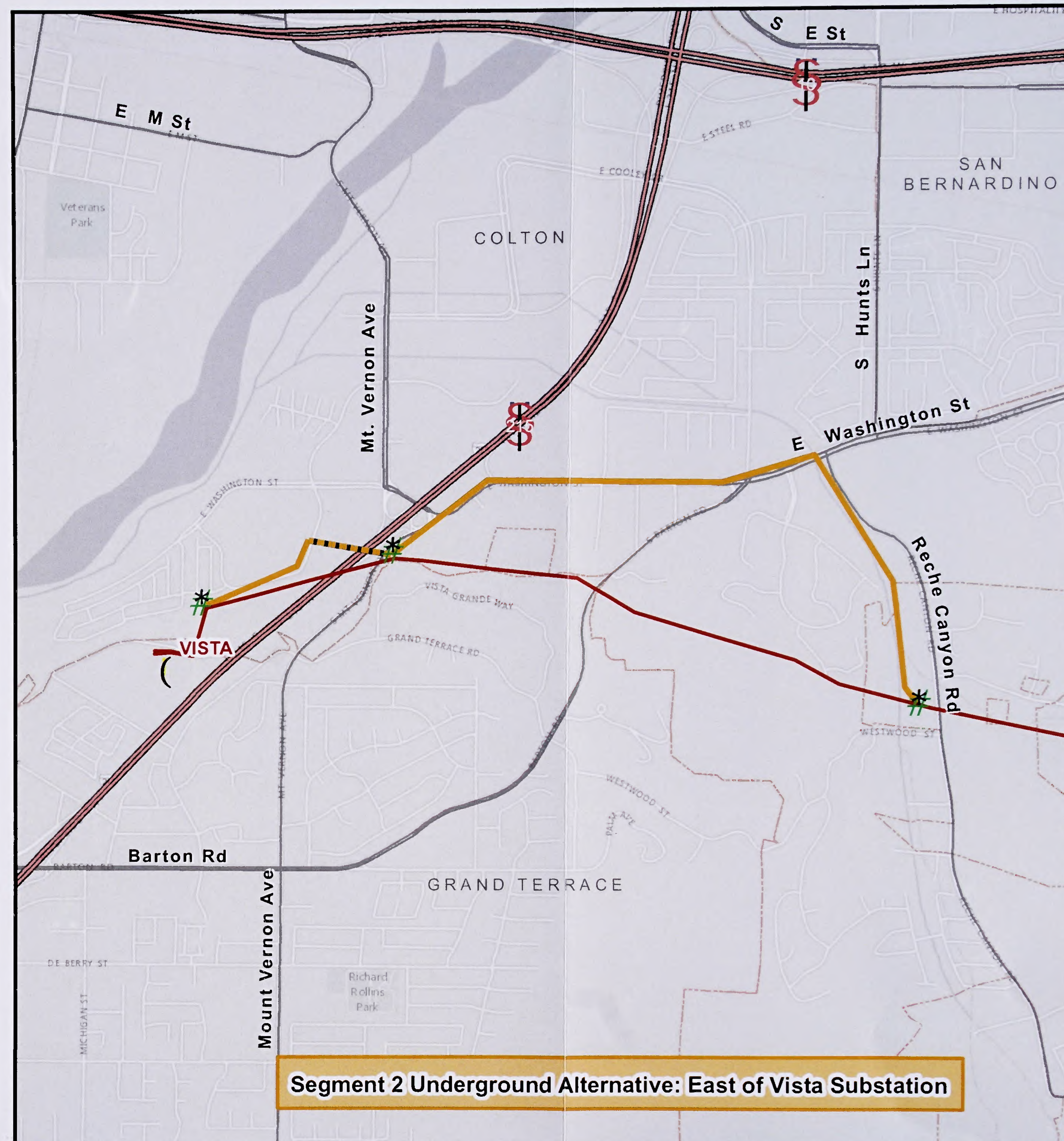
Figure C-2a
Route Alternatives Eliminated



West of Devers Upgrade Project

Figure C-2b
System Alternatives Eliminated





Sources: SCE 2014

2

0 0.25 0.5 1 Miles

- Underground Transition Structures
- Substation
- City Boundary
- Proposed 220 kV Transmission Line Route
- Underground Segment
- HDD (Horizontal Directional Drill)
- Major Highways
- Highways
- Major Roads
- Local Roads

West of Devers Upgrade Project

Figure C-2c
Alternatives Considered
but Not Screened for EIR/EIS Analysis

C.4 Alternatives Evaluated in this EIS

As discussed in Section C.2, alternatives were assessed for their feasibility, their ability to reasonably achieve the basic project objectives, and their potential to reduce the significant environmental impacts of the Proposed Project. Based on these screening criteria, the alternatives described in this section were selected for detailed analysis within this EIS.

C.4.1 Tower Relocation Alternative

This alternative was developed in response to scoping comments of residents who expressed concerns that some proposed towers would be closer to their homes than the existing structures.

Description

The Tower Relocation Alternative would place towers about 50 feet farther from adjacent residences in Segment 4 (Beaumont and Banning), Segment 5 (East Banning/Morongo), and Segment 6 (Whitewater) where potentially significant visual impacts have been identified. In general, the alternative would relocate 25 pairs of structures in Segment 4, 1 pair of structures in Segment 5, and 4 individual structures in Segment 6 approximately 50 feet to the north of the proposed tower locations. The general locations of the relocated towers defined in the Tower Relocation Alternative are illustrated in Figure C-1 and in detail on Figure C-3. Additional detail for each relocation segment is shown in Appendix 5 on Figures Ap.5-3a through Ap.5-3h.

Rationale for Full Analysis

The Tower Relocation Alternative would be feasible with respect to its constructability, reliability, and legal and regulatory factors. In addition, this alternative would reduce significant visual impacts of the Proposed Project and would reduce construction-related disturbance near sensitive residential receptors associated with the upgraded 220 kV lines by ensuring that relocated towers would be no closer to residences than the existing structures. It would meet the three Basic Project Objectives as follows:

- **Basic Project Objective 1, Increase system deliverability:** The Tower Relocation Alternative would meet this objective by providing the same transfer capability and deliverability as the Proposed Project. The resulting capacity of 4,800 MW would exceed the 2,200 MW of increased deliverability defined in this objective.
- **Basic Project Objective 2, Support renewable energy goals:** Because the Tower Relocation Alternative would have the same transfer capacity as the Proposed Project, it would support renewable energy goals in the same manner.
- **Basic Project Objective 3, Maximize remaining space in the corridor:** The Tower Relocation Alternative would be located within SCE's existing ROW. Even when shifting the structures 50 feet farther from residences in Segments 4 and 6, there would remain adequate space within the ROW (up to 175 feet) for transmission expansion, if needed by SCE in the future.

Because this alternative would reduce potentially significant impacts of the Proposed Project, it has been retained for full evaluation in this EIS.

C.4.2 Iowa Street 66 kV Underground Alternative

This 1,600-foot underground alternative was developed by the EIS team to eliminate significant visual impacts of the proposed new 66 kV San Bernardino–Redlands-Tennessee subtransmission line to residences along Iowa Street in the City of Redlands.

Description

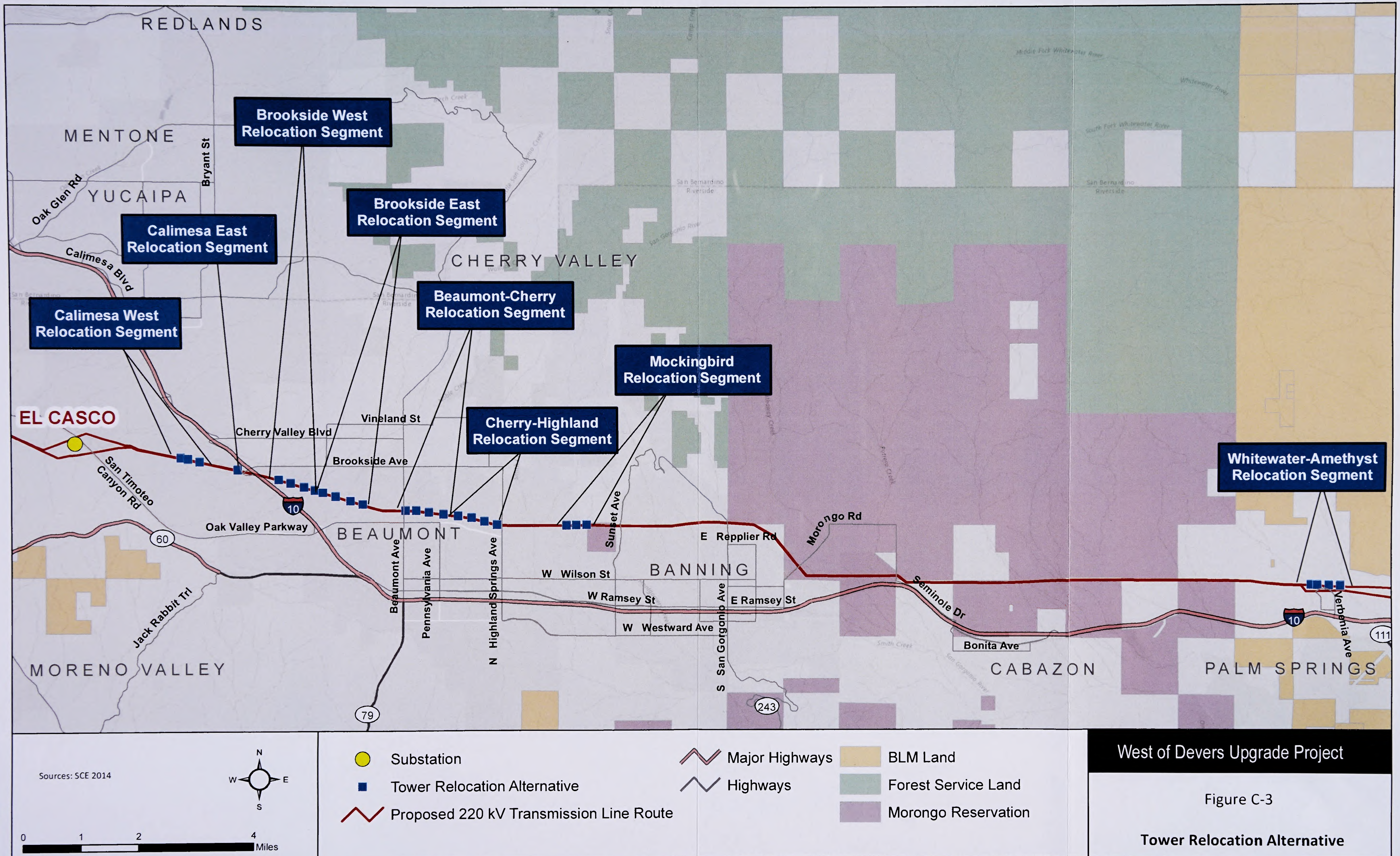
The Iowa Street 66 kV Underground Alternative would require that the 66 kV subtransmission line transition from overhead to underground in Iowa Street just south of the single-lane bridge, approximately 275 feet north of Iowa Street's intersection with Orange Avenue. The subtransmission line would travel underground in new conduit in Iowa Street for approximately 1,600 feet before transitioning from underground to overhead on the south side of Barton Road in line with the existing overhead San Bernardino–Redlands-Tennessee 66 kV subtransmission line running east-west along Barton Road. This underground alternative would replace a similar length of proposed new overhead subtransmission line that is part of the Proposed Project. The general location of this alternative is shown in Figure C-1 and the alternative is shown in detail in Figure C-4.

Rationale for Full Analysis

This alternative would meet the two project objectives applicable to the 66 kV subtransmission line component of the Proposed Project (Basic Project Objectives 1 and 2), as follows:

- **Basic Project Objective 1, Increase system deliverability:** The Iowa Street 66 kV Underground Alternative would meet this objective by providing the same transfer capability and deliverability as the Proposed Project. Therefore, this alternative would exceed the 2,200 MW of increased deliverability defined in this objective.
- **Basic Project Objective 2, Support renewable energy goals:** This alternative would facilitate progress toward achieving California's RPS goals in the same manner as the Proposed Project.
- **Basic Project Objective 3, Maximize remaining space in the corridor:** This objective does not apply to the 66 kV subtransmission system.

In addition, the Iowa Street 66 kV Alternative would eliminate significant visual impacts associated with the new overhead 66 kV subtransmission line. The alternative would be feasible, since SCE is already proposing approximately 4,800 feet of underground 66 kV subtransmission line as part of the Proposed Project. The alternative is technically feasible, but SCE would evaluate the existing underground utilities in Iowa Street to determine the specific location of the 66 kV line within the roadway during engineering.



West of Devers Upgrade Project

Figure C-3

Tower Relocation Alternative

July 2016

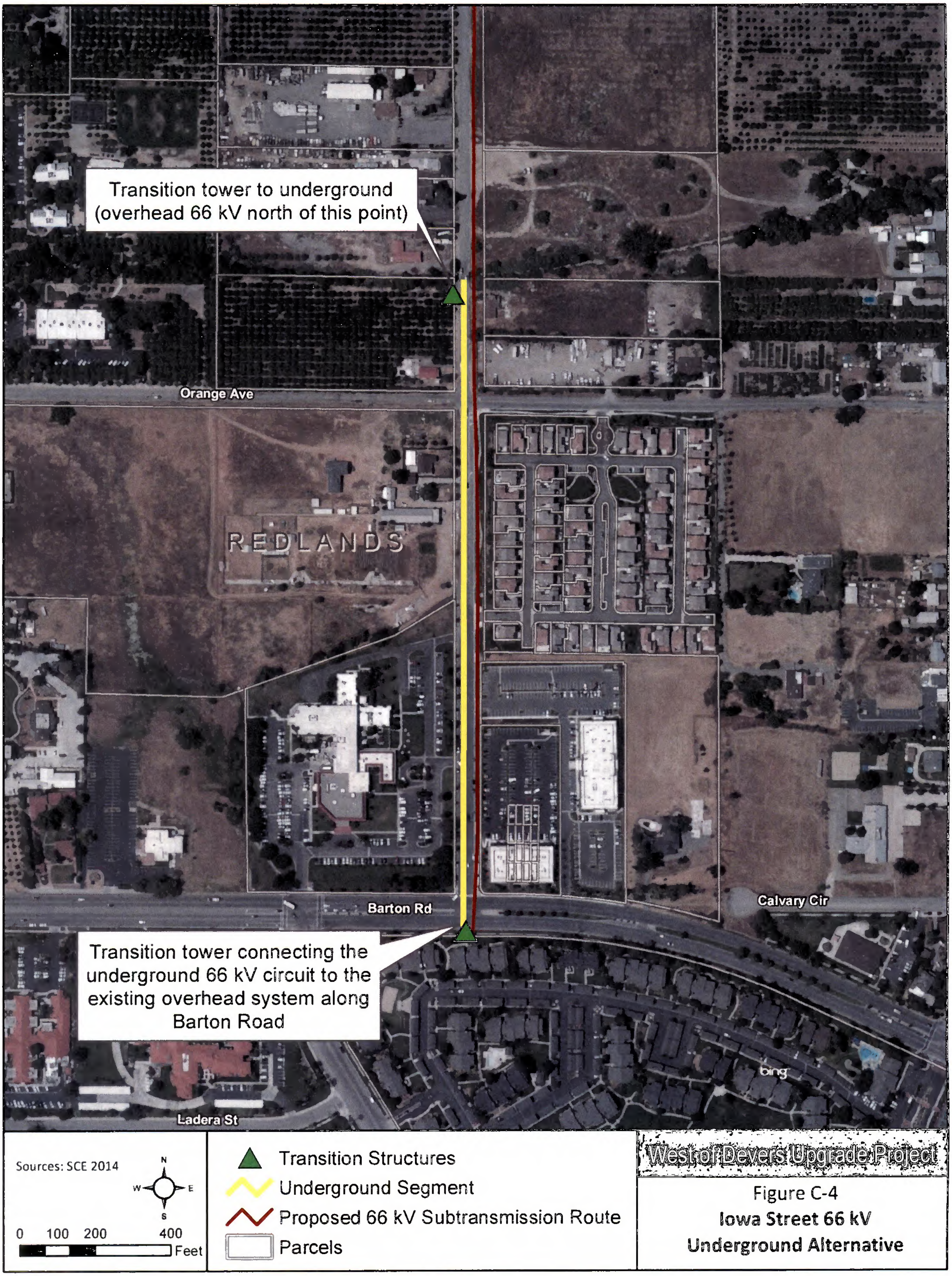


Figure C-4
Iowa Street 66 kV Underground Alternative

July 2016

C.4.3 Phased Build Alternative

This alternative was developed to avoid most of the environmental impacts associated with removal of the existing double-circuit towers and construction of new double-circuit towers. The reduced transmission capacity (in comparison with the Proposed Project) was evaluated by the EIS team in power flow models to ensure that it would meet the Basic Project Objectives. This analysis is presented in detail in Appendix 5, Section 4.4 and in additional detail in Attachment 2 to Appendix 5 (Project Alternatives Assessment: A Power Flow Analysis). The alternative would reduce environmental impacts, while still providing capacity for all the generation included in the CAISO 2024 Reliability Base Case. This scenario includes 3,754 MW of Total Generation On-line and 6,901 MW of Total Generation Capacity from all renewable and conventional resources, as well as the power flow on the system resulting from import of 1,400 MW from the Imperial Irrigation District into the Los Angeles Basin. The alternative components are illustrated in Figure C-5.

Description

This alternative is derived from the project proposed by SCE in 2005 as the West of Devers System Upgrades. The purpose of this alternative is to reduce construction by retaining as many existing tower structures as possible and installing lighter-weight but higher-performance conductors on the retained towers. The high-performance conductors would maximize power transfer and avoid structurally overloading the existing towers. The alternative would:

- **Remove and replace existing single-circuit towers.** In most of the existing right-of-way (ROW), the two sets of existing single-circuit towers would be removed and one set of new double-circuit towers would be constructed to replace the removed towers. The new set of double-circuit towers would be constructed in the existing ROW paired with existing/retained structures, generally immediately north or south of the existing double-circuit towers, as detailed by segment below. The new set of double-circuit structures would be installed with an approximately 50-foot separation from the centerline of the existing (retained) structures, as defined for the Proposed Project.
- **Install interset towers where required.** Up to 110 interset structures would be required in Segments 3, 4, and 6. These structures would be required where the spans between retained towers exceed the strength of existing towers, and at locations where conductor blowout (where conductors could sway horizontally, potentially result in insufficient horizontal safety clearance to the adjacent line) could occur.
- **Ensure compliance with the requirements of the Tower Relocation Alternative** (as described in Final EIR Section 4.2). The Phased Build Alternative would retain (and not remove) most existing double-circuit structures near the center of the ROW. Constructing the second line adjacent to the retained structures ensures that no new structure would be located nearer to the edge of the ROW than is currently the case.
- **Retain existing double-circuit towers.** Most of the existing double-circuit towers would be retained.
- **Install high-capacity conductors on all four circuits.** Both the new and existing 220 kV double-circuit towers would have the "795 Drake" Aluminum Conductor Composite Reinforced (ACCR) installed, with the exception of Segment 1, where only two of the existing four circuits would be modified.
- **Allow for future capacity expansion of the existing corridor** with several optional future phases. These phases would be implemented as generation projects become certain and capacity is clearly required. Because the Phased Build Alternative would accommodate projects now defined in the CAISO's 2024 Reliability Base Case, it may be 10 years before additional upgrades are needed. The

configuration of future transmission expansion that may be required cannot now be predicted, and would depend on many factors, including type and location of future renewable generation, the type and location of future transmission upgrades by SCE or other parties, and the regulatory systems and policies in place to define prudent investment in transmission capacity for renewable energy (e.g., policies differentiating between energy only procurement versus full capacity deliverability). The future phases could include:

- Reconductoring of the newly constructed 220 kV structures with higher capacity conductors;
- If required (based on assessment of structure strength with added interset structures), replacing some of the retained 220 kV structures with new, stronger 220 kV structures in order to carry heavier, higher capacity conductors;
- Installation of a single- or double-circuit 500 kV or 220 kV line in the vacant space remaining in the ROW.

In Appendix B of its Opening Brief, SCE stated that installation of the Phased Build Alternative's 795 ACCR conductor would require modification of SCE's planned wire stringing plan. The CEQA team agrees that the use of ACCR conductor would require changes to SCE's existing wire stringing plan, and that the PBA would likely result in a larger overall number of wire stringing sites due to the lower bending angle that ACCR allows. The majority of the stringing sites that SCE has defined for the Proposed Project would still be usable for the ACCR used in the Phased Build Alternative. Some different wire stringing sites would likely be required for ACCR, which would replace sites originally defined for the Proposed Project (ACSR) conductor, and some new sites would also be required.

In Segment 5 on Morongo land, the Phased Build Alternative structures would be exactly the same as those of the Proposed Project, as illustrated in Figure Ap.5-5b, and would incorporate the Morongo relocation of a part of the ROW and use of tubular steel poles. While the Morongo Band has a conditional contractual right to terminate its ROW Agreement with SCE, the Phased Build Alternative appears to be preliminarily feasible considering legal and regulatory factors, because it is currently uncertain whether the Morongo Band may or will exercise that right, and particularly because on Morongo lands the alternative is entirely consistent with the Project (as defined in Exhibit A to the DCA). Although the alternative is designed to meet the same project objectives as the Project described in the ROW Agreement and DCA and the tower structures would be exactly the same as SCE's Proposed Project on Reservation lands, comments from the Morongo Band assert that this alternative may be legally infeasible given the right of the Morongo Band to terminate the ROW Agreement if the SCE does not secure approvals by January 1, 2017 for the project described in the DCA (which arguably differs from the Phased Build Alternative in the tower locations off the Morongo Band lands, but is wholly consistent on Morongo Band lands). That termination right, however, has not been exercised and thus no such legal infeasibility currently exists. If that right is properly and timely exercised by the Morongo Band in the future, no transmission upgrades could be constructed across the Reservation absent the subsequent execution of a replacement ROW Agreement.

The Phased Build Alternative would use a composite reinforced conductor in an appropriate size to allow import from all generation projects that are reasonably foreseeable (i.e., included in the CASIO's 2024 Reliability Base Case, as well as allowing import of an additional 1,400 MW from the Imperial Valley). A high-performance conductor weighs less and has lower thermal expansion than the SCE-standard ACSR conductor, resulting in less sag for an equivalent strength and durability as the ACSR conductor. Therefore, using an alternative conductor in conjunction with interset towers would satisfy the basic project objectives while simultaneously avoiding the need to rebuild towers in the corridor.

The specific configuration of the Phased Build Alternative for each project segment is described in Section 4.4 in Appendix 5 of this EIS.

Rationale for Full Analysis

The Phased Build Alternative is retained for analysis because it would reduce the environmental impacts of the Proposed Project. Overall, the reduced construction required for the Phased Build Alternative would result in 20 percent to 25 percent less new structure construction than the Proposed Project and it would avoid the need to demolish nearly 160 structures. Both permanent and temporary ground disturbance would also be reduced by 20 percent to 25 percent. In addition, the new double-circuit structures would be moved further from the edge of the ROW than the Proposed Project. In addition, this alternative is technically feasible, based on data provided by SCE to the EIS team through formal data requests. The alternative conductor type has been proven and is in use by other utilities.

The Phased Build Alternative would achieve all three Basic Project Objectives as follows:

- **Basic Project Objective 1, Increase system deliverability:** The Phased Build Alternative would allow SCE to fully deliver about 3,000 MW of the output from new generation projects, by providing an increase in deliverability that is 1,400 MW over the present capability of 1,600 MW and at least 2,200 MW over the capability of the WOD 220 kV corridor before the Proposed Project was planned, which was limited to approximately 550 MW. Based on power flow modeling completed for this alternative (see results in Table A-3 in Attachment 2 to EIS Appendix 5), this alternative satisfies the CAISO's 2024 Reliability Base Case, which includes specific generation projects that the CAISO has determined to be most likely to be constructed plus a scenario of 1,400 MW from IID to the CAISO.
- **Basic Project Objective 2, Support renewable energy goals:** This alternative would facilitate progress toward achieving California's RPS goals by adding more than 800 MW of transfer capacity for renewable energy projects located east of Devers Substation while accommodating at least 1,000 MW of future growth. This would support increased import of renewable generation into the Los Angeles basin.
- **Basic Project Objective 3, Maximize remaining space in the corridor:** The Phased Build Alternative would meet this objective by removing the existing single-circuit towers to create space for future transmission lines, including a 500 kV line within the ROW, although less space would be available than with the Proposed Project. There would remain adequate space within the ROW (up to 175 feet) for transmission expansion, if needed by SCE in the future.

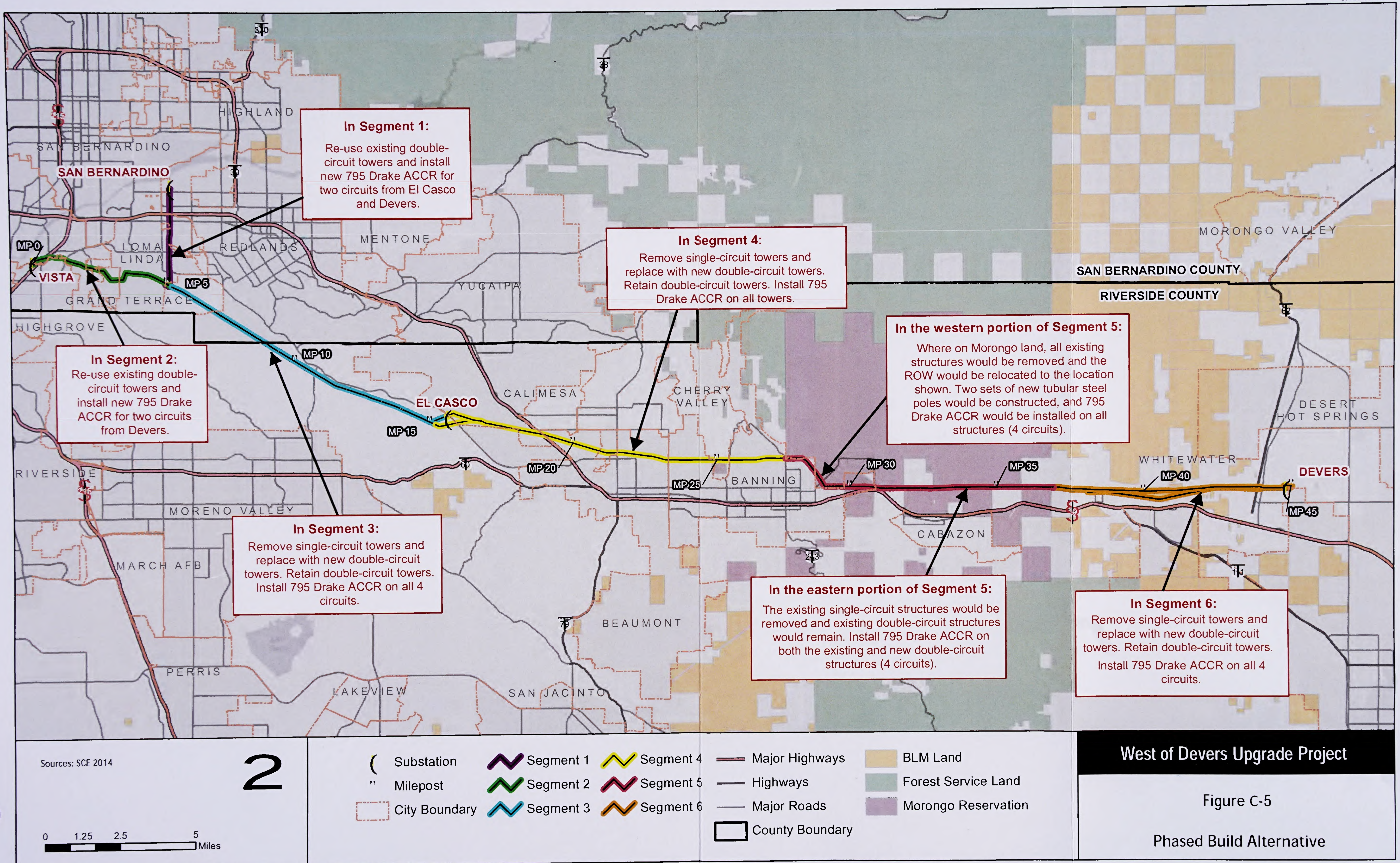


Figure C-5

Phased Build Alternative

C.5 Alternatives Eliminated from Full EIS Evaluation

C.5.1 500 kV Towers Alternative

This alternative was developed to reduce the potential cumulative impacts resulting from construction of a future 500 kV transmission line in addition to the 220 kV upgrades that would be in place at that time. The alternative was eliminated because the Morongo Agreement specifically defines installation of 220 kV towers. Because the Tribe has not agreed to allow a 500 kV line across its land, the alternative would be infeasible.

Description

The 500 kV Towers Alternative anticipates a future 500 kV line being developed in the ROW, and would erect structures suitable for eventual use at 500 kV near the center of the ROW. In contrast to the pairs of 220 kV towers of the Proposed Project, the outer tower in this alternative would be a 220 kV tower, and the one nearer the center of the ROW would be a 500 kV structure. Initially, the lines on both structures would be energized at 220 kV, but eventually the 500 kV structure would be energized at 500 kV.

Segment 1. This alternative would not facilitate adding 500 kV service through Segment 1 (San Bernardino Substation to San Bernardino Junction) where the potential for blow-out (swinging) of lines over the edge of the ROW would preclude using taller and wider-spaced structures.

Segments 2, 3, 4, and 6. This alternative would allow the future 500 kV line to be farther from the edge of the ROW in Segments 2, 3, 4, and 6, between the Devers Substation and the Vista Substation. The 500 kV structure line in this alternative would be located at least 75 feet from the edge of the ROW in the areas where the ROW is split. At some future time when 500 kV service becomes needed in addition to the existing 220 kV service, SCE would presumably construct the second set of double-circuit 220 kV towers on the opposite side of the ROW from the initial 220 kV towers.

In Segment 2 (Vista Substation to San Bernardino Junction), existing lower-voltage (115 kV) circuits would need to be relocated to allow placement of the 500 kV structures in the widest portions of the ROW, and existing 220 kV structures in the northern portion of the ROW would need to be retained and used by the relocated lower-voltage circuits.

Segment 5. This alternative would not change the SCE Proposed Project for Segment 5 on the Morongo reservation, where only the Proposed Project has been approved by the Morongo Tribe in a ROW Agreement with SCE (see EIS Appendix 3). This alternative could proceed on the Morongo reservation only if it were recommended and approved by the Morongo Band of Mission Indians and a new ROW Agreement would need to be issued in order for it to move forward. Since the Morongo Tribe has not approved 500 kV service at this time, this alternative is not being contemplated for Segment 5. In the future, 500 kV structures would have to be constructed in or around Segment 5 to connect to the 500 kV structures at the western and eastern ends of the reservation. If the Morongo Tribe does not approve construction of a 500 kV line across tribal land in the future, a route around the reservation would need to be constructed.

Figures Ap.5-6a through Ap.5-6e in Appendix 5 shows the segments of the WOD corridor that would have 500 kV components installed rather than the proposed 220 kV towers. These figures also provide an example of a double-circuit 500 kV structure design, which would be approximately 190 feet tall. For additional information and a discussion of the cumulative impacts of the future 500 kV transmission line, see EIS Section E.2.3 (Future 500 kV Transmission Line in WOD Corridor).

Rationale for Elimination

This alternative would meet all three Basic Project Objectives. It is potentially economically feasible, although a future determination would need to be made as to the cost allocation. Installation of 500 kV structures and operation at 500 kV in the future would require a new agreement between SCE and the Morongo Tribe to be legally feasible. If an agreement for the 500 kV line is reached with the Morongo Tribe, the cumulative impacts of future transmission expansion would be reduced with the implementation of the alternative now. However, if the Morongo Tribe does not approve a 500 kV line when it is needed in the future, then it would not be legally feasible to construct a 500 kV line across tribal land. Because future use of the corridor at 500 kV would not be legally feasible without approval by the Morongo Tribe, this alternative has been eliminated from full evaluation in this EIS.

C.5.2 Segment 4 Underground Alternatives in Calimesa, Beaumont, and Banning

This alternative was developed in response to scoping comments requesting consideration of underground segments. It was eliminated because construction impacts would be substantially more severe, and the impacts of the overhead Proposed Project can be mitigated with other overhead alternatives (see Section C.4, Alternatives Evaluated in this EIS).

Description

Three underground route options have been considered to reduce visual impacts to residences in these areas, as shown in Figure Ap.5-7 in Appendix 5 and on Figure C-2a.

- **Underground in Transmission Corridor.** Within the vicinity of residences in the Cities of Calimesa, Beaumont, and Banning, the transmission line would transition from overhead to underground and would be installed underground within SCE's existing ROW.
- **Underground North of Transmission Corridor (Beaumont).** This underground route option would transition from overhead to underground at North Deodar Drive near MP 19.2. From there the route would travel north in North Deodar Drive to Brookside Avenue where it would turn east and be installed within Brookside Avenue. At Beaumont Avenue, Cherry Avenue or Highland Springs Avenue the route would turn south within the roadway until it rejoins the proposed transmission corridor. At this point, the line would transition from underground to overhead within the transmission corridor on the eastern side of Beaumont Avenue, Cherry Avenue or Highland Springs Avenue.
- **Underground South of Transmission Corridor (Calimesa and Beaumont).** The alternative route option would transition from overhead to underground near MP 16.0. It would travel southeast in Oak Valley Parkway, east in Palmer Drive and east then southeast in Desert Lawn Drive to Oak Valley Parkway. From Oak Valley Parkway, the lines would be horizontally directional drilled for 800 to 1,200 feet to cross under I-10 to the east. The route would continue for 3.3 miles in Oak Valley Parkway to Highland Springs Avenue. At Highland Springs Avenue the route would turn north for 0.2 miles until it would rejoin the proposed transmission corridor and would transition from underground to overhead just east of Highland Springs Road (MP 23.3).

Two separate alignments of concrete duct banks would need to be installed in continuous trenches at least 8 feet wide, and underground vaults would be required approximately every 1,500 feet, in order to place the four 220 kV circuits in Segment 4 underground. Once the alternative was energized, SCE would remove the conductors from the existing overhead towers and may choose to remove the existing towers, but retain its ROW for future use, or have the towers remain in place for other uses within the ROW.

Rationale for Elimination

This alternative would meet most project objectives and would be feasible considering technical, legal, and regulatory factors. Undergrounding the proposed 220 kV lines would reduce or avoid visual impacts, but it would result in much more severe construction impacts related to dust, ground disturbance, and traffic and would pass two schools. Maintenance and repair times would also be increased. Furthermore, this segment of the ROW for the Proposed Project is 400 feet wide. Therefore, there is room within the ROW to modify structure locations to reduce impacts to residences, as has been considered under the Tower Relocation Alternative (see Section C.4.1), which would reduce the significant visual impacts in this area without creating new impacts of its own.

C.5.3 Segment 5 Morongo Central Route Alternative (original PEA Proposed Route)

This alternative segment was evaluated because it was the original route presented in SCE's PEA. The route segment across tribal land was eliminated because the Morongo Tribe indicated its preference for the Proposed Project route, so this segment would not be feasible.

Description

This alternative was proposed by SCE in its PEA (PEA Section 2.2.1.1; SCE, 2013). The Segment 5 Morongo Central Route Alternative would depart from the Proposed Project immediately west of the Morongo reservation at North Hathaway Street (MP 27.4). The alternative route would continue to the southeast on a diagonal route, south of the existing transmission corridor and approximately 500 to 1,500 feet north of the currently proposed route, for approximately 3 miles. It would rejoin the Proposed Project west of Malki Road on the Morongo reservation land (see Figures C-2a and Ap.5-8 in Appendix 5). The alternative route would be approximately 0.13 miles shorter than the Proposed Project.

Rationale for Elimination

This alternative would meet all three Basic Project Objectives and would be feasible considering technical and regulatory factors. However, given the stated preference and approval by the Morongo Tribe for the proposed southern route and that approval of this alternative by the Morongo Tribe would be required, this alternative is highly unlikely to be legally feasible.

C.5.4 Segment 5 Morongo Existing 220 kV Route Alternative (Existing ROW)

This alternative segment was evaluated because it is the existing ROW across the westernmost portion of Morongo tribal land. It was eliminated because the Morongo Tribe indicated its preference for the Proposed Project route, so this segment would not be feasible.

Description

Under this alternative, SCE's proposed 220 kV transmission upgrades would occur within the existing transmission corridor and SCE's ROW would not be relocated on the Morongo reservation. The Segment 5 Morongo Existing 220 kV Route Alternative would depart from the Proposed Project immediately west of the Morongo reservation at North Hathaway Street (MP 27.4). The alternative route would continue to the southeast then east for 1.6 miles before turning southeast on a diagonal to rejoin the Proposed Project west of Malki Road on the Morongo reservation land (see Figures C-2a and Ap.5-8 in Appendix 5). The alternative route would be approximately the same length as the Proposed Project.

Rationale for Elimination

This alternative would all Basic Project Objectives and would be feasible considering technical and regulatory factors. However, given the stated preference and approval by the Morongo Tribe for the proposed southern route and that approval of this alternative by the Morongo Tribe would be required, this alternative is highly unlikely to be legally feasible.

C.5.5 East Banning/Morongo Alternative

This alternative segment was developed by the EIS Team to reduce significant visual impacts to residences in Banning. The route across tribal land was eliminated because the Morongo Tribe indicated its preference for the Proposed Project route, so this segment would not be feasible.

Description

This alternative was developed by the EIS Team to reduce significant visual impacts of the new tubular steel poles (TSPs) from residences on North Hathaway Street and North Evans Street in the City of Banning. The existing lattice towers are located 2,500 feet away from these residences. At the Morongo Tribe's request, the proposed towers would be 1,700 feet away and would be TSPs, which have greater bulk, making them more visible.

As shown in Figures C-2a and Figure Ap.5-9 in Appendix 5, this 0.6-mile alternative would replace 0.7 miles of the proposed route and would involve moving the TSPs farther from residences. The alternative would begin at approximately Milepost 28.8 where the route would diverge from the Proposed Project by continuing in a southeast direction to the east and north of the proposed route. The alternative would continue in a straight line rejoin the Proposed Project at MP 29.5 after the proposed route would turn from southeast to east on Morongo land.

Rationale for Elimination

This alternative would meet all of the Basic Project Objectives and would be feasible considering technical and regulatory factors. However, given the stated preference and approval by the Morongo Tribe for the proposed southern route and that approval of this alternative by the Morongo Tribe would be required, this alternative is highly unlikely to be legally feasible.

C.5.6 Devers-Beaumont 500 kV Alternative (SCE System Alternative 1)

This alternative was evaluated because SCE presented it as a potential alternative in its PEA. It has been eliminated because it would have substantially more severe environmental impacts than the Proposed Project. Note that this alternative is described in Section C.6.3.1 as the No Action Alternative, Option 1. Impacts of that alternative are analyzed in Section D.

Description

This alternative was proposed by SCE in its PEA as System Alternative 1, New 500/220 kV Substation and New 500 and 220 kV Transmission Lines (PEA Section 2.1.2.2; SCE, 2013). This alternative would include removal of approximately 30 miles of existing 220 kV lines and structures in the WOD corridor between Devers and El Casco Substations, which would eliminate impacts of the existing transmission lines and the Proposed Project to the Morongo Tribe, and the cities and communities from Beaumont to the eastern end of the project.

The Devers-Beaumont 500 kV Alternative would require construction of a new 500/220 kV substation near the City of Beaumont, a new 500 kV transmission line in new and existing ROW between Devers Substation and the new 500/220 kV substation, four new 220 kV transmission lines in a new ROW between the new 500/220 kV substation to the existing WOD corridor, and upgrades to the existing WOD 220 kV transmission lines and associated existing substations between El Casco, San Bernardino, and Vista Substations (see Figures C-2b and Ap.5-10 in Appendix 5). The Devers-Beaumont 500 kV Alternative would also require acquisition of property to construct a new 500/220 kV substation that would be located near the City of Beaumont. Finally, the Devers-Beaumont 500 kV Alternative would require construction of upgrades to the existing 220 kV transmission lines between the existing El Casco, San Bernardino, and Vista Substations. Specific components of this alternative are described in Section 5.7 in Appendix 5 of this EIS.

Rationale for Elimination

This alternative would meet all three Basic Project Objectives and has the potential to be technically and legally feasible. Construction of a new corridor and 500 kV/220 kV substation in the sensitive environment of the San Jacinto-Santa Rosa National Monument and the San Bernardino National Forest, as well as through the developed areas of Banning and Beaumont would create construction disturbance and greater visual impacts to residences and sensitive receptors in these areas without providing any environmental advantages over the Proposed Project. Therefore, this alternative was eliminated from full consideration in this EIS.

C.5.7 Red Bluff–Valley-Serrano 500 kV Alternative (SCE System Alternative 2)

This alternative was considered because it was presented as a potential alternative in SCE's PEA. It was eliminated because it would have substantially more severe environmental impacts than the Proposed Project, and is likely infeasible to permit given the federal and tribal jurisdictions it would likely have to cross. Note that one segment of this alternative, the addition of a second 500 kV circuit from SCE's Valley Substation to its Serrano Substation, is considered as a component of the No Action Alternative, Option 2. This alternative is described in Section C.6.3.2, and impacts are analyzed in Section D.

Description

This alternative was proposed by SCE in its PEA as System Alternative 2, New 500 kV Transmission Line (PEA Section 2.1.2.3; SCE, 2013) and is shown in Figures C-2b and Ap.5-11 in Appendix 5. Under the Red Bluff-Valley-Serrano 500 kV Alternative, a new 500 kV transmission line would be constructed on new ROW between the existing Red Bluff, Valley, and Serrano Substations. The alternative would also require reconfiguration of the existing 220 kV circuits between El Casco, Vista, and San Bernardino Substations. Finally, the Red Bluff–Valley-Serrano 500 kV Alternative would require construction of 220 kV transmission line between Mira Loma and Vista Substations, and would require upgrades to Serrano Substation to increase the substation transfer capability. Specific components of this alternative are described in Section 5.8 in Appendix 5 of this EIS.

Rationale for Elimination

This alternative would meet all three Basic Project Objectives and has the potential to be technically feasible. If the route were proposed through the wilderness areas and tribal lands (which would be very difficult to avoid based on SCE's schematic map), the regulatory and legal feasibility of this alternative would be highly improbable. In addition, construction of new, much longer corridors especially in the developed areas of the Inland Empire would create greater construction disturbance and visual impacts to residences and sensitive receptors in these areas without providing any environmental advantages over the Proposed Project. Therefore, this alternative was eliminated from full consideration in this EIS.

C.5.8 Reduced Build Alternative Option 1

This alternative was developed to consider the feasibility of the West of Devers project as proposed in 2005. The alternative would reduce the impacts of the Proposed Project by retaining the existing double-circuit towers rather than removing and rebuilding them. However, the Reduced Build Alternative Option 1 is eliminated because the double-bundled 1033.5 kcmil conductors proposed in 2005 could not now be safely supported on these towers given SCE's updated wind loading criteria. Due to the tower replacement and strengthening required for 60 percent of existing structures, the alternative would require nearly as much construction as the Proposed Project. As a result, it would not significantly reduce the environmental impacts of the project as proposed.

Description

This alternative is similar to the project proposed by SCE in the 2005 West of Devers System Upgrades and analyzed as the Proposed Project in the DPV2 EIR/EIS (CPUC and BLM, 2006). In this option:

- The two sets of existing single-circuit towers would be removed and one set of new double-circuit towers would replace those towers; and,
- The existing double-circuit towers would be retained and reconductored, with double-bundled 1033.5 kcmil ACSR. Reconductoring the 40 miles of existing double-circuit towers would involve tower replacement and strengthening for 60 percent of existing structures (SCE, 2015).

When compared with the Proposed Project, each of the four circuits would consist of smaller double-bundled 1033.5 kcmil ACSR (2B-1033 ACSR) for their entire length, which was SCE's design for the corridor in 2005. SCE Response to DR ALT-18a indicates that under this alternative, 60 percent of the existing double-circuit structures would need to be replaced. Specific components and configuration of this alternative are described in Section 5.9 in Appendix 5 of this EIS.

Rationale for Elimination

The Reduced Build Alternative Option 1 is technically and legally feasible. It would meet the three Basic Project Objectives as follows:

- **Basic Project Objective 1, Increase system deliverability:** The Reduced Build Alternative Option 1 Alternative would achieve Basic Project Objective 1 by exceeding 2,200 MW of increased deliverability. This alternative would result in a corridor system rating of about 3,400 MW.
- **Basic Project Objective 2, Support renewable energy goals:** This alternative would facilitate progress toward achieving California's RPS goals by increasing the capacity of the WOD corridor by roughly 1,800 MW. This would support increased import of renewable generation into the Los Angeles basin.
- **Basic Project Objective 3, Maximize remaining space in the corridor:** This alternative would retain adequate space within the ROW (up to 175 feet) for transmission expansion, if needed by SCE in the future.

The Reduced Build Alternative Option 1 is eliminated from detailed analysis because the required replacement of 60 percent of existing towers would not substantially avoid or reduce the environmental impacts of the Proposed Project.

C.5.9 Reduced Build Alternative Option 2a

The Reduced Build Alternative Option 2a was developed to maximize the conventional conductor size that could be installed on the new and existing towers, while minimizing the need for new construction in Segments 3 through 6. However, it was eliminated because data from SCE indicated that the larger conductors could not be supported on the existing towers, requiring approximately 60 percent of them to be replaced or strengthened. As a result, the alternative would not significantly reduce the environmental impacts of the project as proposed.

Description

Reduced Build Option 2a would reuse and reconductor the existing double-circuit towers with a two-conductor bundle of 1033.5 kcmil ACSR (as proposed in 2005), and install one set of new double-circuit towers with 2B-1590 ACSR, as in the Proposed Project. Specific components and configuration of this alternative are described in Section 5.10 in Appendix 5 of this EIS.

Rationale for Elimination

The Reduced Build Alternative Option 2a is technically and legally feasible. It would meet all three Project Objectives as follows:

- **Basic Project Objective 1, Increase system deliverability:** The Reduced Build Alternative Option 2a would achieve Basic Project Objective 1 and would exceed 2,200 MW of increased deliverability. This alternative would result in a corridor system rating of about 3,400 MW.
- **Basic Project Objective 2, Support renewable energy goals:** This alternative would facilitate progress toward achieving California's RPS goals. The alternative would meet this objective by increasing the capacity of the WOD corridor by roughly 1,800 MW. This would support increased import of renewable generation into the Los Angeles basin.
- **Basic Project Objective 3, Maximize remaining space in the corridor:** This alternative would retain adequate space within the ROW (up to 175 feet) for transmission expansion, if needed by SCE in the future.

It is eliminated from detailed analysis because the requirement to rebuild 60 percent of existing structures results in it being unlikely to avoid or eliminate the significant environmental impacts of the Proposed Project.

C.5.10 Reduced Build Alternative Option 2b

The Reduced Build Alternative Option 2b was developed to maximize the size of conventional conductors that could be installed on the new and existing towers while still staying within SCE's new wind loading guidelines. It was eliminated because SCE's wind guidelines would allow only smaller (1033.5 kcmil) and single-bundled conductors on the existing towers, and this conductor scheme would not carry enough electricity to meet the first basic project objective's minimum deliverability requirements.

Description

Reduced Build Alternative Option 2b would retain the existing conductors on existing double-circuit towers without modification, and install one set of new double-circuit towers with 2B-1590 ACSR, as in the Proposed Project. Specific components and configuration of this alternative are described in Section 5.11 in Appendix 5 of this EIS.

Rationale for Elimination

The Reduced Build Alternative Option 2b is feasible, and it has the potential to reduce the environmental impacts of the Proposed Project. It would not meet all three Basic Project Objectives, as follows:

- **Basic Project Objective 1, Increase system deliverability:** The Reduced Build Alternative Option 2b only partially meets Basic Project Objective 1, but cannot fully achieve it due to the small conductor size on the retained double-circuit towers. This alternative would result in a corridor system rating of about 2,300 MW, which would not sufficiently increase deliverability, as defined in this objective.
- **Basic Project Objective 2, Support renewable energy goals:** This alternative would partially meet this objective by adding roughly 700 MW of capacity for renewable projects. This would only partially support increased import of renewable generation into the Los Angeles basin.
- **Basic Project Objective 3, Maximize remaining space in the corridor:** This alternative would retain adequate space within the ROW (up to 175 feet) for transmission expansion, if needed by SCE in the future.

The Reduced Build Alternative Option 2b is eliminated from detailed analysis because it would not meet most of the Basic Project Objectives.

C.5.11 High-Performance Conductor Alternative

This alternative was developed to evaluate the potential use of 4 circuits of double-bundled high-performance conductors of a similar size to SCE's proposed ACSR conductors. It is eliminated because it would not reduce or avoid the impacts of the Proposed Project.

Description

The High-Performance Conductor Alternative would upgrade the 220 kV corridor by replacing the existing towers as proposed and installing aluminum conductor composite reinforced (ACCR) or aluminum conductor composite core (ACCC) conductors instead of the proposed ACSR conductors. The conductors in this alternative would be double-bundled conductors of comparable physical size to those in the Proposed Project. The alternative conductor for the four primary circuits in this case would be 2B-1590 Lapwing ACCR, which would be capable of achieving 158% of Proposed Project electrical capacity. When compared with construction of the Proposed Project, which would upgrade the existing 220 kV transmission lines to carry 5,168 MW under normal conditions (with all lines in service) for the four primary circuits combined, this alternative would carry 8,163 MW.

Rationale for Elimination

The High-Performance Conductor Alternative is eliminated from detailed analysis because it would be unlikely to reduce or avoid any project-related impacts. Additionally, it would incur higher costs than the Proposed Project without having any potential to avoid or substantially lessen the environmental impacts of the Proposed Project.

C.5.12 Retain WOD Interim Facility Alternative

This alternative was suggested in a comment on the Draft EIR/EIS by the CPUC's Office of Ratepayer Advocates (ORA). ORA requested evaluation of a smaller capacity alternative than those retained for analysis (Section C.4). ORA believes there is no need for system capacity in California to justify a major transmission expansion to increase the pool of capacity resources.

Description

This alternative would retain the existing SCE 220 kV system between Devers Substation and the Vista and San Bernardino Substations, with no removal or upgrades to existing transmission circuits. However, rather than removing the WOD Interim Facility as proposed by SCE, this facility would remain in place. As described in Section B.1.1, the West of Devers Interim Project was constructed in response to requests from several generators for interconnection earlier than the Proposed Project's estimated completion date in 2020. Therefore, SCE constructed the interim facility, which added approximately 1,050 MW of additional transfer capability, yielding a total of approximately 1,600 MW of capability for the WOD 220 kV corridor. This facility is located in a separately fenced yard, just west of the Devers Substation.

ORA suggests that this alternative would also include the 3-mile transmission line relocation defined by the Morongo Band in the area just west of the Outlet Mall, where the existing ROW would be relocated to the south, paralleling the I-10 freeway. This relocation includes installation of tubular steel poles rather than lattice towers in some locations.

Rationale for Elimination

The Retain WOD Interim Facility Alternative is eliminated from detailed analysis because it would not meet any project objectives. While it would eliminate short-term construction impacts, it would create the need for increased system maintenance.

C.6 No Action Alternative

NEPA requires an evaluation of a No Action Alternative in order for decision-makers to compare the impacts of approving a project with the impacts of not approving a project.

Section C.6.1 provides background on the requirements for a No Action Alternative under NEPA. Section C.6.2 provides background information on the current electric transmission plans and the existing transmission infrastructure that form the context of the proposed WOD Upgrade Project. Section C.6.3 describes what would be reasonably expected to occur in the foreseeable future if the WOD Upgrade Project were not approved. This section describes a scenario for determining the environmental effects that would likely occur if the project were not approved.

C.6.1 Analysis Requirements

The **No Action Alternative** required under NEPA [40 C.F.R. 1502.14(c)] serves as a basis for comparison even if it would not satisfy the proposed action's purpose and need. The definition of the No Action Alternative depends on the nature of the project and in the case of the Proposed Project the No Action Alternative describes what would occur without BLM's approval.

C.6.2 Background and Current Plans

There are two main planning issues that must be considered in development of the No Action Alternative scenario.

1. **CAISO Transmission Plan.** This plan identifies new transmission needs to ensure system reliability and ensure compliance with California's public policy goals to reduce greenhouse gas emissions and increase development of renewable resources. Because recent CAISO Transmission Plans show that the currently proposed West of Devers Upgrade Project would connect urban load centers with gen-

erators in the Riverside East, Imperial North, and Palm Springs areas and in Arizona (CAISO, 2011), the No Action Alternative scenario must consider how the new generators might be impacted if the Proposed Project does not materialize. The relevant aspects of the CAISO Transmission Plan is described in Section C.6.2.1.

2. **Morongo Band of Mission Indians Authorizations.** The Morongo Band has authorized SCE to renew rights-of-way across tribal land, and these ROWs are contingent upon the tribe's ability to invest in the Proposed Project. Accordingly, the No Action Alternative scenario must consider the potential effect on tribal agreements if the Proposed Project does not move ahead. These agreements are described in Section C.6.2.2.

C.6.2.1 Current Transmission Plans

The concepts for the Proposed Project originated in SCE's 2005 proposal for the Devers–Palo Verde No.2 Project (DPV2). As described in EIS Section A.1.2, Project History, and EIS Section B.1.1, Historical Background in Project Area, SCE did not receive approval for the West of Devers portions of the DPV2 Project in the 2007 CPUC Decision D.07-01-040. Instead, SCE built the second 500 kV circuit from Devers to the Valley Substation (Devers-Valley No.2 500 kV) and then later, in 2013, SCE installed the West of Devers Interim Project, as also described in Section B.1.1.

Rebuilding the West of Devers corridor was the subject of study in the CAISO's formal annual transmission plans released in 2007, 2008, and 2009. In those earlier studies, rebuilding the corridor was characterized by the CAISO as being "reliability-driven" to address potential overloads on the individual lines. SCE implemented an overload protection scheme in 2007 to address reliability concerns defined by the CAISO: the West of Devers Remedial Action Scheme.

The 2010-2011 CAISO Transmission Plan (May 2011) included the first transmission assessments that accommodated new renewable power to help meet California's 33 percent Renewable Portfolio Standard (RPS). Since that time, CAISO has showed the currently proposed West of Devers Upgrade Project as preceding other "policy-driven" upgrades to deliver power from the new generators in the Riverside East, Imperial North, and Palm Springs areas and from Arizona (CAISO, 2011). In 2013, the West of Devers Interim Project went into service (see Section B.1.1, Historical Background in Project Area), as a "short-term solution" allowing renewable project owners to deliver their generation to load. This facility was always intended to be temporary, in advance of the Proposed Project.

The most-recent CAISO Transmission Plan (March 2015) continues to define the Proposed Project as a base case upgrade that supports the interconnection agreements for development of renewable generation resources, primarily in eastern Riverside County.

Although the Proposed Project is shown to precede "policy-driven" upgrades by CAISO, the West of Devers corridor continues to include components that include temporary or interim measures to preserve reliability. This means that corridor loading must continue to be monitored by CAISO, and certain operating procedures, including re-dispatching generation in the L.A. Basin, remain in effect to prevent overloading that could occur in the absence of the Proposed Project (CAISO, 2012). The solutions that SCE has implemented to prevent overloading the existing WOD lines include:

- **West of Devers Recommended Operating Temperatures.** Existing circuits in the corridor are operated at temperature of that do not exceed 201 degrees F to avoid the potential for the conductors to sag too close to the ground in high temperatures (SCE, 2015; SCE Response to ALT-21b and ALT-21c). These possible "clearance violations" are prohibited by CPUC's General Order 95.

- **West of Devers Remedial Action Scheme.** In 2007, CAISO found a need to establish a Special Protection Scheme (SPS)[1] that would require certain generators to be turned offline during certain conditions (CAISO, 2013). The SPS is also known as the Devers Remedial Action Scheme. The SPS exists to protect the Devers–San Bernardino No.1 220 kV line from overloading during outages of the other 220 kV lines in the WOD corridor or an outage of the Devers-Valley 500 kV system. If these outages occur, specific generators in eastern Riverside County have to be taken offline. As a result, a corresponding increase in the use of power plants inside the Los Angeles basin may occur. The result is increased reliance on less-efficient power plants or those using fossil fuels and causing greater emissions than would otherwise occur during a normal merit-based or economic dispatch order.
- **West of Devers Interim Project.** In 2011, CAISO found that placing series reactors on the Devers–San Bernardino 230 kV line and Devers–El Casco 230 kV line could balance the line loading on the existing WOD transmission lines. These reactors were installed in 2013; these reactors have been redirecting power flows onto the 500 kV system between the Devers and Valley Substations (also see Section B.1.1, Historical Background in Project Area).

C.6.2.2 Morongo Band of Mission Indians

The existing West of Devers 220 kV ROW crosses approximately 3 miles of Morongo Band tribal lands west of Palm Springs within San Gorgonio Pass. SCE's ROW across Morongo tribal lands is 450 feet wide with 150 feet for the Devers-Vista No. 1 line and 300 feet for both the Devers–San Bernardino No. 1 line and the double-circuit Devers–San Bernardino No. 2 and Devers-Vista No. 2 lines. The Morongo Tribe lease for the 150-foot Devers-Vista No. 1 ROW expired in 2010 and the lease for the 300-foot ROW expires in 2019.

SCE and Morongo entered into a new 50-year ROW agreement in November 2012 that covers the entire Proposed Project Morongo segment. As part of the SCE-Morongo ROW agreement, SCE and Morongo have requested authorization from the Federal Energy Regulatory Commission (FERC) and the CPUC that would allow the Tribe to lease transfer capability of the Proposed Project. If FERC and CPUC regulatory approvals are not obtained, the tribe would have the right to terminate the SCE-Morongo ROW agreement. Without this ROW agreement, SCE would need to negotiate a new agreement, or to design and propose a different project that does not cross the reservation. Based on the SCE-Morongo ROW agreement, SCE will also apply to the Federal Bureau of Indian Affairs (BIA) for the grant of ROW along the Proposed Project alignment across Morongo tribal trust lands, and Morongo will consent to SCE's application.

The Proposed Project could be affected in two ways related to the arrangements between SCE and the Morongo Band. First, if CPUC and/or FERC do not approve the Morongo Band's requested lease of transfer capacity for the Proposed Project, the tribe has no obligation to approve a modified and extended ROW for SCE's existing transmission lines. Second, if the Proposed Project is not approved as proposed, the terms of the ROW agreement give the Morongo the right to terminate the new ROW agreement. Because SCE does not have the power of eminent domain over the Morongo trust lands, in the event the Morongo terminate the ROW agreement, the Morongo Band has the right to require the lines within expired ROWs to be removed at any time (SCE, 2014; SCE Response to ALT-6).

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[1] An SPS is designed to detect abnormal system conditions and take automatic, pre-planned, corrective action (other than the isolation of faulted elements) to provide acceptable system performance. SPS actions may result in reduction in load or generation, or changes in system configuration to maintain system stability, acceptable voltages, or acceptable facility loading (SCE PEA, p.1-12, October 2013).

C.6.3 No Action Alternative Scenario

Under the No Action Alternative, construction and operation of the proposed WOD Upgrade Project would not occur. However, as described in Section A, there is a well-defined need for at least an additional 2,200 MW of additional deliverability of electricity from the area east of the Devers Substation to the Los Angeles Basin. Therefore, if the Proposed Project is not approved by the CPUC or BLM, or if the Morongo Agreement is not approved by FERC allowing the tribe to act as a partial project owner, it is reasonable to assume that a different transmission system improvement would be implemented.

SCE's PEA did not present specific No Action options. The description of the No Action Alternative provided by SCE in its PEA is brief, as follows:

> *Under the No Project Alternotive, the Proposed Project would not be constructed. Given thot the existing WOD tronsmission lines limit the obility to sofely and reliobly deliver the output of new generotion, SCE would not be oble to meet its PPA [Power Purchase Agreement] ond GIA [Generotor Interconnection Agreement] obligotions.* (SCE, 2013; PEA, p. 2-11.)

Because it is not possible to know with certainty whether the Morongo agreement could be renegotiated in the absence of the Proposed Project, two options for the No Action Alternative are defined. Two options are considered to be the most likely actions if the Proposed Project or an alternative does not proceed: No Action Alternative Option 1 (described in Section C.6.3.1) and No Action Alternative Option 2 (described in Section C.6.3.2).

C.6.3.1 No Action Alternative Option 1

In SCE's 2014 Response to EIR/EIS Data Requests (SCE, 2014; Response to ALT-6), SCE states that in the absence of a new agreement, SCE would propose to construct an alternative transmission system upgrade. SCE states that the alternative transmission system upgrade that is most likely would be the SCE PEA "System Alternative 1," which would include a new Devers-to-Beaumont 500 kV system. No Action Alternative Option 1 is based on SCE's description, but is modified slightly to account for land use or engineering constraints defined by the EIS team.

In SCE's response to Data Request 7, SCE states, "... it is unlikely that SCE and the Morongo could reach an agreement for SCE's facilities to remain on the reservation in the absence of the WOD Upgrade Project." As a result of this stated expectation, this option would include removal of all SCE facilities from Morongo land, and require the development of a transmission route from the Devers Substation to the El Casco Substation that would not require use of any Morongo land. The main components of No Action Alternative Option 1 include:

- Removal of existing 220 kV SCE transmission facilities between the Devers Substation and the El Casco Substation, on Morongo land and on private land
- Removal of the WOD Interim Project
- Construction of 26 miles of new 500 kV transmission line from Devers to new Beaumont Substation
- Construction of new Beaumont Substation
- Construction of 4 new 220 kV circuits from Beaumont Substation to El Casco Substation
- Construction of replacement 220 kV lines between El Casco Substation to Vista and San Bernardino Substations (as in Proposed Project).

No Action Alternative Option 1B. An additional sub-option was also considered, but it was eliminated because it did not perform adequately based on the power flow analysis (see EIS Appendix 5, Attachment 2). In this option, there would be no new 500 kV circuit between Devers and Beaumont, but SCE would use the available capacity of the two existing Devers-Valley lines to carry all flow out of the Devers Substation. There would be a new Beaumont Substation added (about 7 miles east of El Casco) and both of the Devers-Valley circuits would be looped into that new substation. There would be 4-220 kV circuits (with 1590 ACSR conductor as proposed) to the El Casco/Vista/San Bernardino as currently proposed.

Route Description

According to SCE (PEA Section 2.1.2.2; SCE, 2013), SCE would design, permit, and build a new 500/220 kV transmission system located south of the Proposed Project. The alternative is defined in 3 segments: the new 500 kV circuit, the new "Beaumont Substation," and the new 220 kV line between the Beaumont Substation and the El Casco Substation. The new transmission system is illustrated on Figure C-6a.

New 500 kV Circuit from Devers Substation to Beaumont Substation. SCE would acquire approximately 23.5 miles of ROW and construct a new 500 kV transmission line between Devers Substation and a new Beaumont Substation. The route is assumed to follow the easternmost 25 miles of the existing Devers-Valley corridor, which currently holds 2 single-circuit 500 kV lines. The first Devers-Valley 500 kV circuit was constructed in 1986, and the second Devers-Valley circuit was constructed after completion of the 2006 Devers–Palo Verde No. 2 EIR/EIS, which evaluated this line as an alternative to the West of Devers segment initially included as part of that project. The Devers-Valley #2 line was energized in 2013.

In order to follow this existing corridor that already has two 500 kV lines (Devers-Valley No. 1 and No. 2), the third circuit is assumed to be installed as follows:

- From Milepost (MP) DV1 to DV9 (Devers Substation to the border of the San Bernardino National Forest), a new single-circuit 500 kV line would be constructed north of and adjacent to the existing Devers-Valley No. 1 and 2 lines. This line segment crosses private land, BLM-managed public lands, and the Santa Rosa and San Jacinto National Monument.
- From MP DV9 to DV14 (through the National Forest and the community of Cabazon), the existing Devers-Valley No. 2 structures would be removed and replaced with double-circuit structures. There is not adequate space in the ROW for addition of a third circuit north of the existing two circuits. The corridor is constrained through the National Forest because it passes through Congressionally designated Wilderness, and the corridor cannot be widened for a 3rd circuit. Just west of the National Forest segment, the route passes through the community of Cabazon, where proximity of residences would likely prohibit installation of a separate third 500 kV circuit.
- From MP DV14 to DV26, the new line would be on private land, with single-circuit 500 kV structures installed adjacent to the two existing circuits. In specific locations where nearby residences prohibit the addition of a third separate circuit, the northern structures of the Devers-Valley No. 2 line would be removed and replaced with double-circuit structures, as would be done through the Forest.

Beaumont Substation: North of MP DV26 and just outside of the southwestern Beaumont City limits, SCE would acquire property rights for and construct a new 500/220 kV substation of about 40 acres. The new 500 kV circuit would terminate at the Beaumont Substation, and the existing Devers–Valley 500 kV No. 2 transmission line would loop into the new substation. Four circuits of 220 kV line would exit the substation to the north.

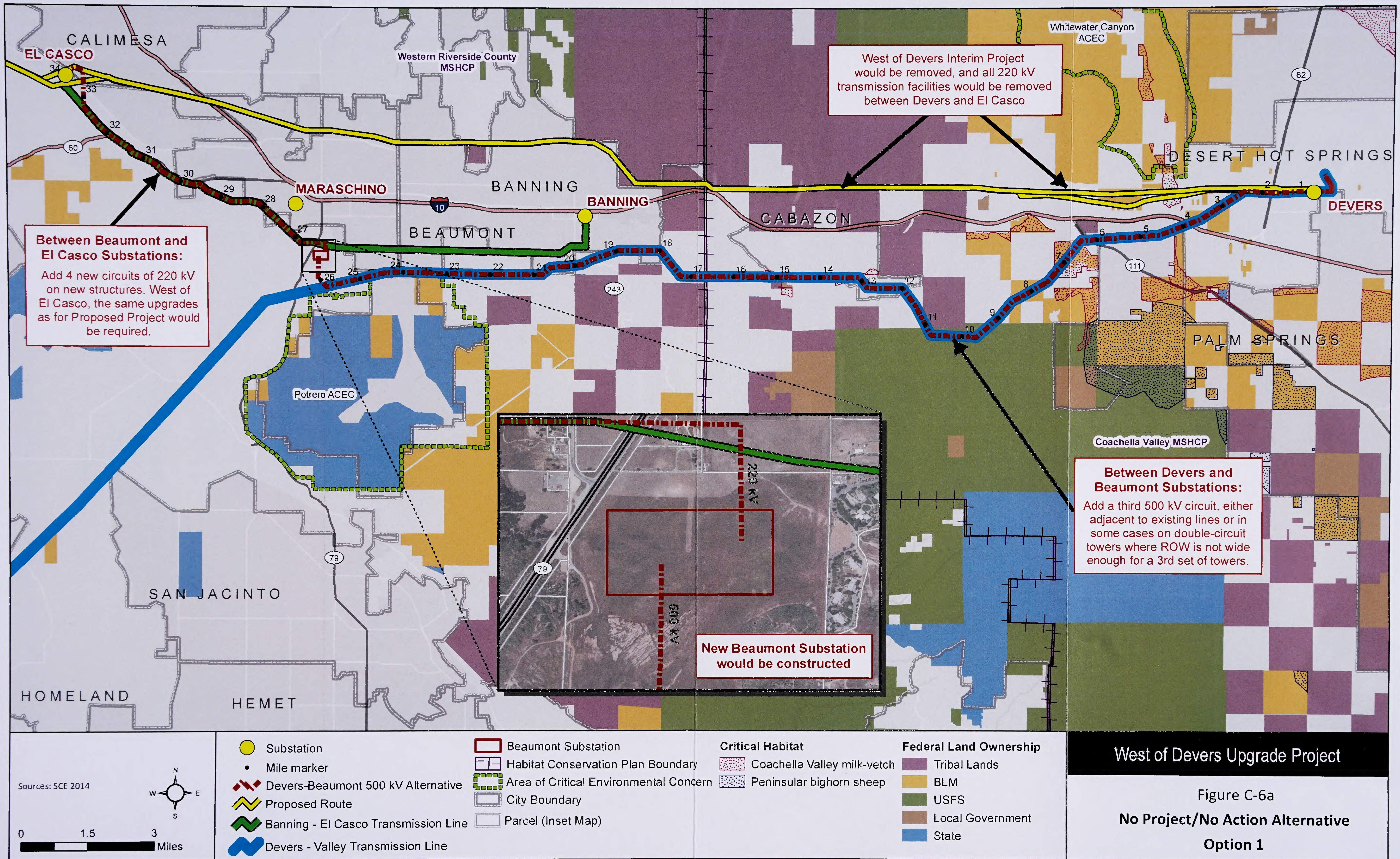

Figure C-6a
No Project/No Action Alternative Option 1

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Beaumont Substation to El Casco Substation: Approximately 1.5 miles north of the Beaumont Substation, the new lines would reach the existing SCE 115 kV El Casco transmission line, and would follow that corridor for an additional 7 miles to the El Casco Substation. SCE would have to acquire approximately 7 miles of new ROW (assumed to be adjacent to the existing El Casco line), and construct two new double-circuit 220 kV transmission lines from the new Beaumont Substation to the area of the existing El Casco Substation.

West of the El Casco Substation, the No Action Alternative would be the same as the Proposed Project:

- **El Casco to Vista Substation:** Tear down and rebuild approximately 15 miles of existing 220 kV transmission lines and structures within the existing WOD corridor between the existing El Casco and Vista Substations.
- **El Casco to San Bernardino Substation:** Tear down and rebuild approximately 13 miles of existing 220 kV transmission lines and structures within the existing WOD corridor between the existing El Casco and San Bernardino Substations.
- **San Bernardino Junction to San Bernardino Substation:** Tear down and rebuild approximately 3.5 miles of existing 220 kV transmission lines and structures within the existing WOD corridor between San Bernardino Substation and the San Bernardino Junction.
- The **telecommunication lines, and subtransmission and distribution lines** included in the Proposed Project would be upgraded as currently proposed.

Until the alternative system upgrade could be designed, permitted, and built, SCE states that:

- The existing West of Devers Recommended Operating Temperatures, Remedial Action Scheme and the 2013 Interim Project would remain in place to prevent overloading the four 220 kV transmission lines in the WOD corridor. Some existing and proposed generation, primarily in eastern Riverside County would continue to need to be curtailed during certain conditions to protect the existing Devers–San Bernardino No. 1 220 kV line from overloading. This may increase the reliance on non-renewable energy and increase the dispatch and use of more-costly or less-efficient power plants within the Los Angeles Basin during the development of the alternative system upgrade.
- The CAISO Transmission Plan, which anticipates rebuilding the West of Devers corridor for "policy-driven" purposes, would not be fully implemented until the alternative system upgrade is designed, permitted, and built. Power plants presently planning to use the Proposed Project could be delayed or face eventual cancellation while exploring other options such as operating with an "energy-only" status or building their own transmission facilities to improve deliverability of generation that is not local to load.
- Because no alternative transmission project is presently planned to "fully deliver the output of new generation projects located in the Blythe and Desert Center areas..." the planned generation resources could be designated as "energy-only" while the alternative system upgrade can be designed, permitted, and built. Some planned renewable energy power plants would likely be cancelled as not being fully deliverable.

Land Uses along the Alternative Route

The route would traverse private lands, BLM-managed public lands, a small portion of the San Bernardino National Forest (SBNF) and the Santa Rosa and San Jacinto Mountains National Monument (National Monument). It would cross the Pacific Crest National Scenic Trail (PCT). Details of each segment are as follows:

Devers Substation to Highway 111. The alternative would depart the Devers Substation and head west along the Devers-Valley transmission line corridor, with each new alternative tower being located about 130 feet south of the existing D-V towers, where feasible. For the first 2.7 miles out of the Devers Substation, the new 500 kV corridor is assumed to share the same corridor as the existing D-V towers. The alternative would cross Highway 62 within the D-V and the WOD corridor and would traverse an area predominated by the wind farms in the San Gorgonio Pass. The D-V ROW in this area ranges between 200 feet (where BLM lands are traversed) and 330 feet (SCE fee lands/easements) so additional ROW would have to be acquired in some areas.

After crossing Highway 62, the route would parallel 16th Avenue and the community of Painted Hills to the south for 1 mile before crossing Garnet Creek and paralleling Painted Hills Road, a dirt road over a hill towards the Whitewater River. East of the river valley, the alternative route would turn southwest and cross Interstate 10. The alternative route would continue southwest along the D-V corridor, passing through undeveloped areas within the jurisdiction of the City of Palm Springs for approximately 1.4 miles. The route would cross the Union Pacific Railroad and Highway 111.

National Monument and National Forest Lands. At the Highway 111 crossing, the corridor enters the Santa Rosa and San Jacinto Mountains National Monument. The route would traverse 1.3 miles (six towers) on the valley floor, then travel southwest up the San Jacinto Mountains and through the rugged terrain of the National Monument. There is a University of California community off Snow Creek Road at the base of the mountains that studies bighorn sheep, among other species, located in the steep hills. It would cross Snow Creek (the ROW is adjacent to Snow Creek Road on the flat portion of the Monument lands) and the Pacific Crest Trail, and would enter the San Jacinto Wilderness[2] at MP DV9 in the SBNF (although the transmission corridor itself has been removed from the wilderness). After approximately 0.5 miles within the San Jacinto Wilderness, the alternative would turn west-northwest and would travel an estimated 0.8 miles to exit the National Monument and an additional 0.4 miles to exit the SBNF and Wilderness area.

The addition of a new line or circuit to the D-V corridor would require a Special Use authorization from the USDA Forest Service for the portion of the alternative located on National Forest System lands. In order to consider issuance of the authorization (easement) to allow construction of the new circuit, the Forest Service must comply with NEPA. After the completion of its NEPA document, the Forest Service would issue a Record of Decision (ROD) that documents the Forest Service decision on whether to approve authorizing a Special Use Easement as proposed, approve an alternative to the proposed action, or deny SCE's application and the rationale for that decision. If appropriate, the ROD would also address whether Forest Plan amendments would be necessary before a Special Use Easement can be issued to SCE for this alternative.

Amendments to the following plans may also be necessary for approval of this new transmission line: San Bernardino National Forest Land Management Plan; Santa Rosa and San Jacinto Mountains National Monument Proposed Management Plan and Final EIS; and Memorandum of Understanding (MOU) between BLM, Forest Service, and the Pacific Crest Trail Association (PCTA). The USDA Forest Service would need to determine whether the new D-V circuit would be consistent with management direction in the governing Forest Plan. For example, conflicts with the defined scenic integrity objectives that apply to the route would require a Forest Plan amendment. It is likely that installation of a new double-circuit line segment such as the No Action Alternative transmission line and associated facilities may not

2 While the corridor is within the overall designated wilderness area, this corridor was removed from wilderness by Congress because of the existence of the transmission corridor.

be consistent with Forest Plan direction for desired landscape character or scenic integrity objectives. If an amendment is required by the Forest Service, the Forest Service would determine the changes that would be necessary to the desired landscape character of the Santa Rosa and San Jacinto Mountains National Monument geographical unit of the San Bernardino National Forest, as established in the Forest Plan.

Cabazon Area. After dropping down from the mountains and leaving National Forest/National Monument lands, the route would continue northwest for 0.9 miles, passing through the unincorporated residential area known as Cabazon Estates, which includes a community of existing homes north of Ida Avenue, south of Esperanza Avenue, and east of Peach Street, as well as additional lots that are likely to be developed. The corridor is located on the south of Ella Street, a two-lane dirt road approximately 400 feet north of Riza Street, which is newly paved. Homes and vacant lots are located on the north side of Ella Street and the south side of Riza Street, but SCE owns the ROW between the two streets. The alternative route would then turn west and would cross Esperanza Avenue and the Colorado River Aqueduct.

The D-V corridor parallels Esperanza Avenue to the south and proceeds into the San Gorgonio River at the western end of Esperanza Avenue, traveling approximately 1.7 miles. Along Esperanza Avenue, SCE relocated the D-V 1 tower when D-V 2 was built, moving the D-V1 tower (located at the southern end of Orange Street) and the new D-V2 tower approximately 500 feet to the north. SCE relocated the tower to properties north of the northwest quarter of the northeast quarter of Section 20 that had already been purchased by SCE.

Areas South of Banning and Beaumont. Traveling west an additional 2 miles, the route turns northwest and would pass between two parcels owned by the Morongo Indian Tribe. For approximately 1.1 miles, the route traverses the City of Banning, north of and parallel to Porter Street within Smith Creek. At Hathaway Street, the route turns west-southwest and crosses Highway 243 (Idyllwild Highway), which is a designated California Scenic Highway. Continuing west-southwest for another 0.7 miles through the City of Banning, the route turns west and traverse a mile of open space and scattered rural residential land.

Potrero ACEC to Beaumont Substation. The route continues west for 1 mile adjacent to and traversing Smith Creek, at which point it traverses the northern boundary of the Potrero ACEC. The alternative route would be within the ACEC for approximately 1.7 miles, as are the two existing circuits. The Potrero ACEC is a 1,030-acre area under the jurisdiction of the BLM. At least 5 species of wildlife that are listed as threatened or endangered may occur within the Potrero ACEC. The route crosses Highland Springs Avenue (which is the boundary between the Cities of Banning and Beaumont) going west, and passes south of large housing developments (Four Seasons and Potrero Creek Estates) in the City of Beaumont. Two miles west of the crossing of Highland Springs Road, the new 500 kV line would turn north for approximately 0.6 miles into the new Beaumont Substation.

The Beaumont Substation would be about 40 acres in size. Its eastern edge would be about 500 feet west of Manzanita Park Road and its western edge would be near the intersection of California Avenue and Beaumont Avenue (State Highway 79). Access would be via California Avenue, or directly off of Beaumont Avenue.

Beaumont Substation to El Casco Substation. The new 220 kV lines exiting the Beaumont Substation would head north for about 1,000 feet, then turn west and follow the 115 kV El Casco line for 7 miles to El Casco Substation. The first 3 miles head northwest, along the eastern base of the hills. The route then follows Highway 60 for about 2.3 miles, before crossing north of the freeway and continuing for 2 miles to the El Casco Substation.

C.6.3.2 No Action Alternative Option 2

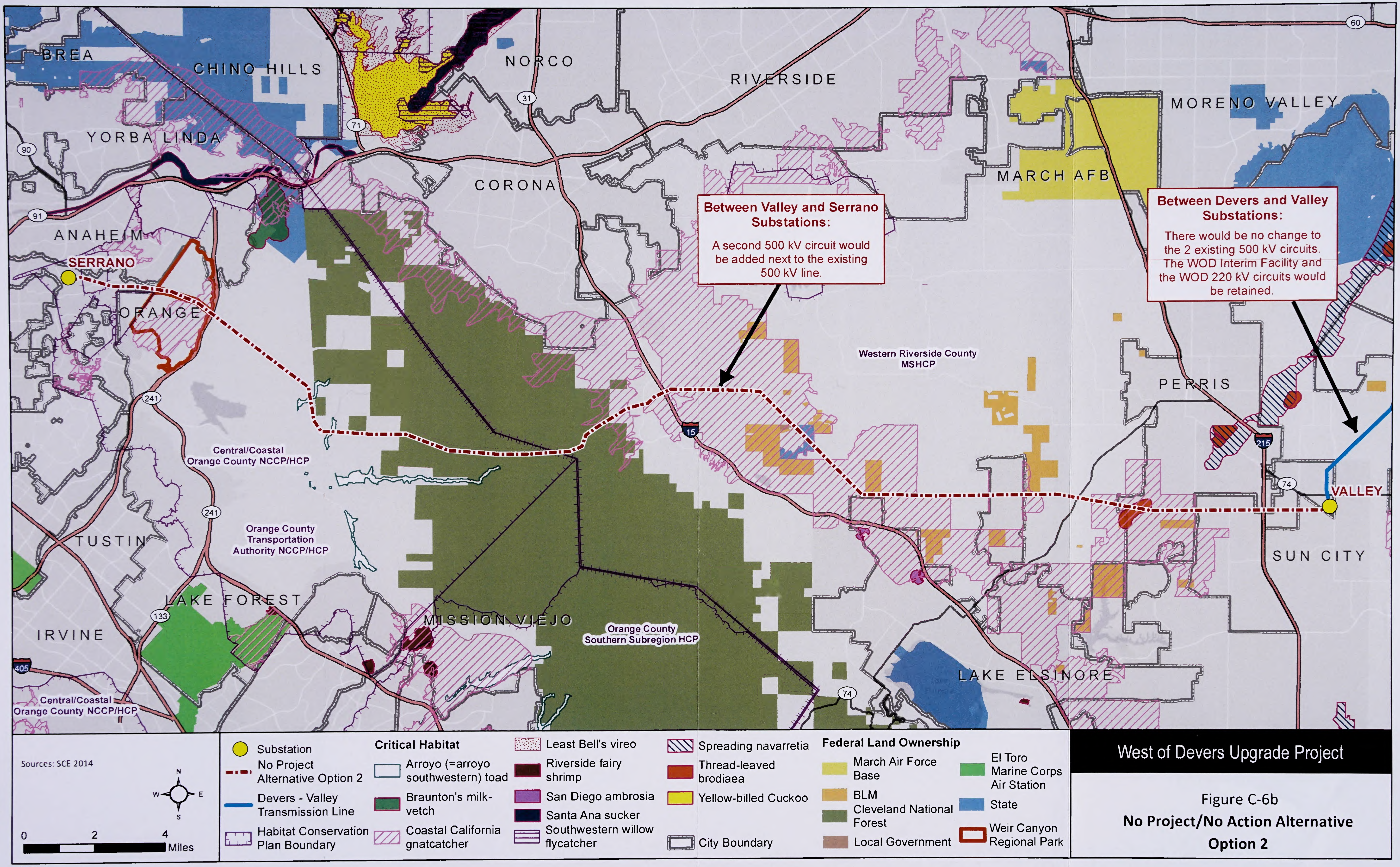
The second No Action Alternative, Option 2, was defined because power flow modeling identified that there is currently available capacity in the Devers-Valley No. 1 and No. 2 500 kV lines. However, this capacity cannot now be well used because the transmission system is constrained west of the Valley Substation, where there is only one 500 kV circuit between the Valley and Serrano Substations. The power flows related to this alternative were studied in detail by the EIS team, and results are documented in EIS Appendix 5, Attachment 2 (Power Flow Analysis).

In this No Action Alternative option, there would be minor changes to the 220 kV system on tribal land, and a new 500 kV circuit between the Valley Substation and the Serrano Substation in Orange County. This alternative is illustrated on Figure C-6b.

- **No major upgrades to 220 kV system West of Devers.** The SCE WOD 220 kV system would be unchanged from the current system (4 circuits with current capacity; no removal of single-circuit towers; no construction of new towers). However, as defined in the approved Morongo agreement, the 220 kV segment between the Outlet Mall and the eastern border of the City of Banning would move south from its current location to be adjacent to I-10 and would be installed on new tubular steel poles.
- **Retain the WOD Interim Project.** Just west of the Devers Substation, SCE has installed series reactors on the four 220 kV transmission lines that extend west of Devers Substation and a Special Protection System (SPS) to prevent overloading of the existing WOD transmission lines. This equipment would be retained in the No Action Alternative Option 2.
- **No upgrades to 500 kV Devers-Valley System and no new substation.** The existing Devers-Valley No. 1 and No. 2 circuits are currently operating well below capacity, as shown in the power flow modeling attached to Appendix 5 (Alternatives Screening Report, Attachment 2). Additional power could be delivered to Valley Substation through these lines by making improvements west of the Valley Substation. As shown in modeled Case 2 (CAISO 2024 Reliability Base Case with an added 1,400 MW imported from the Imperial Irrigation District), each Devers-Valley 500 kV circuit would use only 44% of its capacity, leaving over 2,000 MW available.
- **New 500 kV line from Valley to Serrano Substations.** A new single-circuit 500 kV transmission line would be constructed along approximately 40.4 miles of existing transmission corridor from SCE's Valley Substation in the City of Romoland to its Serrano Substation in the City of Orange. The existing Valley-Serrano No. 1 transmission line occupies this corridor, and was constructed in 1986. The route includes about 9 miles within the Cleveland National Forest, in a designated utility corridor, where construction would have to be completed via helicopter. Upgrades would be required at the Valley and Serrano Substation.

Route Description

From Valley Substation, the Valley-Serrano corridor heads south for approximately 0.1 miles then turns west and traverses unincorporated Riverside County and the Cities of Romoland, Sun City, and Perris in the southern Perris Valley. The route crosses Interstate 215 at approximately MP 1.9 in the City of Perris. At approximately MP 5.5, the corridor crosses the San Jacinto River, then leaves the City of Perris and again enters unincorporated Riverside County at approximately MP 6.2. The corridor crosses California State Route (SR) 74 at approximately MP 7.4 then enters the City of Lake Elsinore at approximately MP 8.9.



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West of Devers Upgrade Project

Figure C-6b
No Project/No Action Alternative Option 2

From MP 9.9, the corridor continues west through rugged foothills south of the Gavilan Plateau in unincorporated Riverside County. These foothills contain both the Lake Mathews-Estelle Mountain reserve and Regional Conservation Agency MSHCP Conserved Lands. Several special-status species are found in the area, including Stephens' kangaroo rat. At approximately MP 13.6, the corridor turns northwest through the foothills and runs roughly parallel to and northeast of Interstate 15. California Department of Fish and Wildlife lands that surround Estelle Mountain are crossed from approximately MP 15.6 to MP 16.3.

At approximately MP 17.9 the corridor turns west again, remaining in the foothills south of Lake Mathews until it crosses Temescal Wash at MP 20.4 and Interstate 15 at MP 20.6. From there, the corridor heads southwest and enters the CNF administrative boundary at approximately MP 21.4 and Forest Service land at approximately MP 22.5. Near MP 24 the corridor enters Orange County and again turns west, continuing across CNF for approximately 7 miles, leaving Forest Service land at MP 29 and the CNF administrative boundary at approximately MP 31.3. The CNF portion would be within a designated utility corridor.

After leaving CNF, the corridor continues west through the Santa Ana Mountains before turning sharply to the north at MP 31.3. From that point, it heads north-northwest through the mountains and crosses SR 241 at approximately MP 36.2. Shortly thereafter, the corridor enters Weir Canyon Regional Park at MP 37.3 and then the City of Orange at approximately MP 37.8. At MP 38, the corridor exits Weir Canyon Regional Park and continues west through the City of Orange and the Peralta Hills to its terminus at Serrano Substation.

Valley and Serrano Substation Improvements. Upgrades likely would be required at both the Valley and Serrano Substations to interconnect the new 500 kV circuit into the existing electrical transmission system. A detailed description of these upgrades would be developed prior to the environmental review for the new 500 kV circuit.

Land Uses Along the Alternative Route

The eastern 24.4 miles of the corridor are in Riverside County, and the western 16 miles are in Orange County. Approximately 9.9 miles of the route is located in the Cleveland National Forest (CNF), where the route would be within a designated utility corridor defined in the federal Westwide Energy Corridors program. On the eastern and western edges of the forest, this designated utility corridor is surrounded by Non-Motorized Back Country land in the Coldwater and Ladd Inventoried Roadless Areas (IRAs). Construction by helicopter would be required in the CNF. Figure C-6b illustrates the route and the land jurisdictions.

Major topographic features along the corridor, from east to west, include: the southern Perris Valley, the foothills surrounding Steele Peak, Estelle Mountain and the surrounding foothills southwest of the Gavilan Plateau, the Santa Ana Mountains, and the Peralta Hills on the eastern border of the Los Angeles Basin.

On the CNF and on private lands where SCE's existing ROW is wide enough to accommodate an additional set of single-circuit 500 kV towers, the new circuit would be constructed within the existing ROW. However, at some locations along the Valley to Serrano corridor, additional easements or land acquisition to establish a wider ROW may be required.

C.7 References

Bass et al. (Ronald E. Bass, Albert I. Herson, and Kenneth M. Bogdan). 2001. The NEPA Book: A Step-By-Step Guide on How to Comply With the National Environmental Policy Act. Solano Press Books. April.

CAISO (California Independent System Operator). 2015. 2014-2015 Transmission Plan, p. 206. Board Approved on March 27, 2015.

_____. 2013. 2012-2013 CAISO Transmission Plan, p. 209. Board Approved on March 20, 2013.

_____. 2012. 2011-2012 CAISO Transmission Plan, p. 183. Board Approved on March 23, 2012.

_____. 2011. 2010-2011 CAISO Transmission Plan, p. 289. Board Approved on May 18, 2011.

CEQ (Council on Environmental Quality). 1987. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. 40 CFR Parts 1500 – 1508. https://ceq.doe.gov/ceq regulations/guidance.html. Accessed March, 2, 2015.

CPUC. 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm Accessed April 15, 2015.

CPUC and BLM. 2006. SCE Devers–Palo Verde 500 kV No. 2 Project EIR/EIS, Sections on West of Devers Alternative. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-deir.htm Accessed April 15, 2015.

CPUC and USDA Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

Morongo (Morongo Band of Mission Indians). 2014. Morongo Band of Mission Indians' Responses to CPUC Data Requests #1 and #2. Dated May and September 2014. http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm. Accessed February 23, 2015.

SCE (Southern California Edison). 2014. SCE Responses to CPUC Data Requests 1 through 13 (dated December 2013 through February 2015) http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm. Accessed February 19, 2015.

_____. 2013. Proponent's Environmental Assessment. http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm. Accessed November 7, 2014.

D.1 Introduction to Environmental Analysis

This section explains the organization and purpose of each part of Section D.

D.1.1 Organization of Each Section

Section D of this EIS examines the environmental consequences associated with the Proposed Project and the alternatives to it. Section D includes analyses of the 20 environmental disciplines listed below:

D.2	Agriculture
D.3	Air Quality
D.4	Biological Resources: Vegetation
D.5	Biological Resources: Wildlife
D.6	Climate Change
D.7	Cultural Resources
D.8	Socioeconomics and Environmental Justice
D.9	Geology and Soils
D.10	Hazards and Hazardous Materials
D.11	Land Use and BLM Realty
D.12	Mineral Resources
D.13	Noise
D.14	Paleontological Resources
D.15	Recreation
D.16	Transportation and Traffic
D.17	Utilities and Public Services
D.18	Visual Resources
D.19	Water Resources and Hydrology
D.20	Wildland Fire
D.21	Electrical Interference and Safety

Within each environmental discipline, discussions are presented in the following order:

- Environmental Setting / Affected Environment
- Applicable Regulations, Plans, and Standards
- Environmental Impacts of the Proposed Project (including Connected Actions)
- Environmental Impacts of Project Alternatives
- Environmental Impacts of No Action Alternatives (Options 1 and 2)
- Mitigation Monitoring, Compliance, and Reporting
- References

By identifying the impacts associated with each environmental discipline and the offsetting mitigation measures, the regulatory agencies and the general public are offered a discussion and full disclosure of the severity of environmental impacts of this Proposed Project and its alternatives, including the No Action Alternative.

Analysis sections in BLM EIS documents typically include Grazing and consideration of impacts on Wild Horse and Burros. These sections are not addressed in this EIS because there is no grazing on the affected BLM-managed lands, and there are no wild horses or burros.

Cumulative impacts for all disciplines are presented in Section E, and other NEPA analysis requirements are addressed in Section F.

D.1.2 Alternatives

As explained in Section C (Alternatives) and in more detail in Appendix 5 (Alternatives Screening Report), the following alternatives are evaluated in each section:

- Tower Relocation Alternative
- Iowa Street 66 kV Underground Alternative
- Phased Build Alternative
- No Action Alternative

The impacts of the alternatives are described in each analysis section in Section D, and the overall impacts of the alternatives are compared in Section G (Comparison of Alternatives) of this EIS.

D.1.3 NEPA Requirements

NEPA strives to facilitate informed governmental decisions regarding projects and operations that may affect the environment.

The methodology used in this EIS conforms to the guidance found in the Council on Environmental Quality (CEQ) regulations for implementing NEPA — methodology and scientific accuracy (40 CFR 1502.24), cumulative impact (40 CFR 1508.7), and effects (40 CFR 1508.8). In addition, guidance from the BLM NEPA Handbook (H-1790-1) was followed.

The CEQ NEPA regulations use the terms "effects" and "impacts" synonymously. Under NEPA, the environmental consequences section of an EIS must discuss direct and indirect impacts of the proposed project (40 CFR 1502.16[a]-[b]). The regulations define "effects" as "direct effects, which are caused by the action and occur at the same time and place" (40 CFR 1508.8[a]). Indirect effects consider effects "later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8[b]). "Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8).

Under NEPA, impacts are addressed in proportion to their significance (40 CFR 1502.2[b]), meaning that severe impacts should be described in more detail than less consequential impacts. The intention is to help decision makers and the public focus on the project's key effects.

D.1.4 Impact Analysis and Mitigation Measures

The analysis completed for each environmental discipline follows the NEPA requirements defined above. In each section, there may be Applicant Proposed Measures (APMs) developed by SCE and/or mitigation measures recommended in this EIS.

D.1.4.1 Applicant Proposed Measures

The Applicant has incorporated a substantial number of measures and procedures to avoid or reduce impacts into the description of its Proposed Project. In the assessment of the impacts, these Applicant Proposed Measures (APMs) have been assumed to be part of the Proposed Project, and therefore are not included as recommended mitigation measures. However, implementation of each APM will be monitored by the BLM and CPUC. The APMs that are intended to reduce the potential impacts in a particular environmental discipline (such as air quality, biology, etc.) are listed in the section addressing that environmental discipline. In some instances, APMs are superseded by mitigation measures that provide greater specificity and direction or include actions omitted in the original APM.

D.1.4.2 Mitigation Measures

Under NEPA, mitigation measures would be considered even for impacts that are not found to be significant. The federal Council on Environmental Quality's (CEQ) *Forty Most Asked Questions Concerning CEQ's NEPA Regulations* (Forty Questions), Question No. 19a asks about the scope of mitigation measures that must be discussed. The response states:

> *The mitigotion meosures discussed in on EIS must cover the range af impocts of the proposol. The meosures must include such things os design olternatives thot would decreose pollution emissions, construction impocts, esthetic intrusion, as well as relacatian assistance, possible lond use controls thot could be enocted, ond other passible efforts.* ***Mitigotion measures must be considered even for impacts that by themselves would not be considered "significant."*** *[emphosis odded] Once the proposol itself is considered as o whole to have significont effects, oll of its specific effects on the environment (whether or not "significont") must be considered, ond mitigotion meosures must be developed where it is feosible to do so. Sections 1502.14(f), 1502.16(h), 1508.14.*

Because CEQ's NEPA guidelines require a demonstration of reduction of impacts to the maximum extent possible, mitigation measures were identified for all classes of impacts (except beneficial impacts). The mitigation measures recommended by this study have been identified in the impact assessment sections and presented in a Mitigation Monitoring Program table at the end of the analysis for each environmental discipline (also see Section G for discussion of the Mitigation Monitoring Program).

D.1.5 Analysis of Connected Actions

As explained in Section B.7.1, the BLM has defined specific projects that have been found to be so closely related to the Proposed Project as to be considered "connected actions" under the National Environmental Policy Act (NEPA). Projects that are considered "connected actions" under NEPA (40 CFR 1508.25(a)(l)) include actions that cannot proceed unless the proposed action occurs first or simultaneously. Table B-22 describes these projects, and explains why each has been found to be "connected." Within each discipline's analysis in Sections D.2 through D.21, this EIS includes both a description of the environmental setting for the connected actions and analysis of the impacts of these actions. Any mitigation for impacts of a connected project would be imposed on that project by the agency having jurisdiction and would not be the responsibility of SCE under the West of Devers Upgrade Project.

D.1.6 Cumulative Impact Assessment

NEPA requires that cumulative impacts be considered. A "cumulative impact" is the environmental impact resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions that can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). Cumulative effects are considered in Section E of this EIS. The cumulative impacts of the project taken together with the related cumulative projects (listed in Section E) are assessed, and mitigation measures for each impact were identified, if applicable. The focus in the cumulative impact analysis is to identify those project impacts that might not be significant when considered alone, but contribute to a significant impact when viewed in conjunction with future planned or foreseeable projects.

D.1.7 Other NEPA Requirements

Section F of this EIS presents the analysis required by NEPA for the following topics:

- Indirect effects, including growth-inducing effects (40 CFR 1502.16[b], 1508.8[b])
- Irreversible and irretrievable commitment of resources (40 CFR 1502.16)
- Adverse environmental effects that cannot be avoided should the Proposed Project be implemented (40 CFR 1502.16)

- Relationship between short-term uses and long-term productivity of the environment (40 CFR 1502.16)
- Energy requirements and conservation potential of various alternatives and mitigation measures (40 CFR 1502.16[e]).

Appendix 9 (Policy Screening Report) of this EIS addresses NEPA's requirement to discuss possible conflicts between proposed actions and the objectives of federal, state, local, or tribal land use plans, policies, and controls (40 CFR 1502.16[c]).

D.2 Agriculture

This section describes the affected environment for Agriculture in Section D.2.1 and presents the relevant regulations and standards in Section D.2.2. Sections D.2.3 through D.2.5 describe the impacts of the Proposed Project and the alternatives. Section D.2.6 presents the mitigation measures and mitigation monitoring requirements, and D.2.7 lists references cited.

D.2.1 Environmental Setting / Affected Environment

D.2.1.1 Regional Setting and Approach to Data Collection

This analysis uses data from the California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program (FMMP) to assess impacts to designated Important Farmland. There is no forest land or Williamson Act land in the project vicinity. Information used for this analysis was obtained from DOC maps and metadata, interpretation of aerial photographs, and review of planning documents.

For purposes of this analysis, the project vicinity is defined as locations where work described in Chapter 3, Project Description, would be performed, plus a buffer of 500 feet from the centerline on each side of all Proposed Project components, for a total buffer width of 1,000 feet. The buffer was selected for the purpose of documenting resources adjacent to the Proposed Project to address any future minor modifications.

The project vicinity includes portions of the cities of Banning, Beaumont, Calimesa, Colton, Grand Terrace, Loma Linda, Palm Springs, Rancho Cucamonga, Redlands, San Bernardino, and Yucaipa, and unincorporated areas of Riverside and San Bernardino Counties. In the City of Rancho Cucamonga, the Proposed Project is limited to improvements within the Mechanical Electrical Equipment Room (MEER) at Etiwanda Substation. This work within an existing facility would not affect agricultural or forestry resources in the City of Rancho Cucamonga; therefore, the City of Rancho Cucamonga is not included for further discussion. In addition, there is no designated Important Farmland or agricultural zoning in in the cities of Calimesa, Colton, Palm Springs, San Bernardino, and Yucaipa; therefore, these jurisdictions are also not addressed further.

NRCS Important Farmland Map Categories

The Natural Resources Conservation Service (NRCS, originally called the Soil Conservation Service) produces agricultural resource maps based on soil quality and land use. As part of this mapping project, the NRCS created a set of definitions known as the Land Inventory and Monitoring (LIM) criteria. These criteria classify the land's suitability for agricultural production, including physical and chemical characteristics of soils as derived from NRCS soil survey data and maps, as well as specific land uses. Technical ratings of the soils and the land use information were combined to establish the appropriate map category (USDA, 2014). The NRCS Important Farmland categories are:

- **Prime Farmland.** Land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses.
- **Farmland of Statewide Importance.** Land that does not meet the criteria for Prime or Unique Farmland, and is defined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for Prime Farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

- **Unique Farmland.** Land other than Prime Farmland that has the soil characteristics needed to economically produce sustainable high yields of specific high-value food and fiber crops when properly managed. Unique Farmland is not based on national criteria, and therefore can differ by area.
- **Farmland of Local Importance.** Lands that are not identified as having national or statewide importance, but are identified by the appropriate local agencies as important for the production of food, feed, fiber, forage, and oilseed crops.

Farmland Mapping and Monitoring Program

The DOC established the FMMP to assess the location and quality of agricultural lands and conversion of these lands to other uses. The DOC uses the USDA NRCS soil classifications described above with slight modifications to identify agricultural lands in California. Modifications made by the DOC to NRCS important farmland classifications include the following: Prime Farmland and Farmland of Statewide Importance must be irrigated; Farmland of Local Importance is identified by local advisory committees and varies by county; and the development and use of the "Grazing Land" designation, which is unique to California (DOC, 2014).

- In Riverside County, Farmland of Local Importance includes:
  - Soils that would be classified as Prime and Statewide but lack available irrigation water.
  - Lands planted to dryland crops of barley, oats, and wheat.
  - Lands producing major crops for Riverside County but that are not listed as Unique crops. These crops are identified as returning 1 million or more dollars in the 1980 Riverside County Agricultural Crop Report.
  - Crops identified are permanent pasture (irrigated), summer squash, okra, eggplant, radishes, and watermelons.
  - Dairylands, including corrals, pasture, milking facilities, hay and manure storage areas if accompanied with permanent pasture or hayland of 10 acres or more.
  - Lands identified by city or county ordinance as Agricultural Zones or Contracts, which includes Riverside City "Proposition R" lands.
  - Lands planted to jojoba, which are under cultivation and are of producing age.
- In San Bernardino County, No Farmland of Local Importance is traversed by the Proposed Project.

D.2.1.2 Environmental Setting by Jurisdiction

In 2012, California's 80,500 farms and ranches received $44.7 billion in revenue for producing over 400 agricultural commodities (CDFA, 2014). California remained the leading state in farm revenues in 2012, representing 11 percent of the U.S. total (CDFA, 2014). California produced over a third of the country's vegetables and nearly two-thirds of the country's fruits and nuts (CDFA, 2014).

Agriculture plays a large economic role in both Riverside and San Bernardino Counties. In Riverside County, approximately 5 percent of the County's unincorporated areas are designated for agricultural use (County of Riverside 2008a, 2008b). In the 2007 USDA Agricultural Census, there were 3,463 farms in Riverside County with an average size of 102 acres (USDA, 2008). The gross value of the County's agricultural commodities was $1.25 billion in 2012 (14th in the state). Riverside County's top agricultural commodities were milk, ornamental nursery plants, grapes, and hay.

In San Bernardino County, approximately 2 percent of the County's unincorporated areas are designated for agriculture (County of San Bernardino, 2009). In 2007, there were 1,405 farms in the County with an average size of 366 acres. The gross value of the County's agricultural commodities was $582,290,000 (18th in the state). San Bernardino County's top agricultural commodities were milk, eggs, cattle, and hay.

California's farm and ranch lands cover nearly 31.5 million acres (DOC, 2014). Irrigated farmland in California decreased by nearly 263 square miles (168,040 acres) between 2008 and 2010 (DOC, 2014b). Table D.2-1 shows the acres of farmland inventoried by the Farmland Mapping and Monitoring Program (FMMP) in 2008 and 2010.

Table D.2-1. California Farmland Inventory 2008 and 2010 (acres)

	Riverside County		San Bernardino County		California Total	
	2008	2010	2008	2010	2008	2010
Prime Farmland	122,935	119,635	14,090	12,848	5,249,116	5,146,562
Farmland of Statewide Importance	44,653	44,086	6,747	6,242	2,683,573	2,621,601
Unique Farmland	37,133	35,391	2,661	2,511	1,335,387	1,331,874
Farmland of Local Importance	229,156	229,877	1,828	22,761	3,120,2778	3,186,017
Important Farmland Subtotal	**433,877**	**428,989**	**25,326**	**22,761**	**12,388,354**	**12,286,054**
Grazing Land	111,219	110,841	901,666	902,590	19,175,956	19,200,602
Agricultural Land Subtotal	**545,096**	**539,830**	**926,992**	**925,351**	**31,564,310**	**31,486,656**

Source: DOC, 2014b (FMMP).

The project vicinity includes Important Farmland in unincorporated areas of Riverside and San Bernardino counties and in the cities of Beaumont, Loma Linda, and Redlands.

City of Beaumont. There are 3.8 acres of Unique Farmland within the project vicinity, in the City of Beaumont, of which 0.6 acres is within the boundaries of the Proposed Project. The 3.8 acres of Important Farmland represents 8.9 percent of the total area of Important Farmland in the City. The Important Farmland within the boundaries of the Proposed Project is 1.1 percent of the total designated Important Farmland in the City of Beaumont.

City of Loma Linda. There are approximately 59.8 acres of Prime Farmland within the project vicinity in the City of Loma Linda, of which approximately 9.8 acres are within the boundaries of the Proposed Project. The 59.8 acres of Prime Farmland in the City of Loma Linda represents 17.9 percent of the total area of Important Farmland in the City. The 9.8 acres of Important Farmland within the boundaries of the Proposed Project is 2.9 percent of the total designated Important Farmland in the City of Loma Linda.

City of Redlands. There are 185.8 acres of Prime Farmland within the project vicinity in the City of Redlands, of which 30.2 acres are within the boundaries of the Proposed Project. There are also 40.9 acres of Unique Farmland in the City of Redlands, of which 2.7 acres are within the boundaries of the Proposed Project. The 226.7 acres of Important Farmland in the City of Redlands represents 34.8 percent of the total area of Important Farmland in the City. The 32.9 acres of Important Farmland within the boundaries of the Proposed Project is 4.4 percent of the total designated Important Farmland in the City of Redlands.

Riverside County. There are 6.8 acres of Prime Farmland within the project vicinity in Riverside County, none of which is within the boundaries of the Proposed Project. There are 46.7 acres of Farmland of Statewide Importance within the project vicinity in Riverside County, of which 6.7 acres are within the boundaries of the Proposed Project. There are 1.1 acres of Unique Farmland in the project vicinity, none of which is within the boundaries of the Proposed Project. The 54.6 acres of Important Farmland represent

0.1 percent of the total area of Important Farmland in the County. The 6.7 acres of Important Farmland within the boundaries of the Proposed Project in Riverside County represent a negligible fraction of 1 percent of the total designated Important Farmland in the County.

San Bernardino County. There are 67.9 acres of Prime Farmland within the project vicinity in San Bernardino County, of which 18.5 acres are within the boundaries of the Proposed Project. There are 1.6 acres of Farmland of Statewide Importance within the project vicinity in the County, of which 1.2 acres are within the boundaries of the Proposed Project. There also are 0.7 acres designated as Unique Farmland within the project vicinity. The 70.2 acres of Important Farmland represent 0.5 percent of the total area of Important Farmland in the County. The total of 19.7 acres of Important Farmland within the boundaries of the Proposed Project represents 0.1 percent of the total designated Important Farmland in San Bernardino County.

Zoning Designations

The portions of project vicinity that are zoned for agricultural use are within unincorporated parts of Riverside County and the cities of Banning, Grand Terrace, Loma Linda, and Redlands. The Proposed Project would be located within a variety of agricultural zoning designations, as discussed further, by jurisdiction below:

City of Banning. The City of Banning identifies two combination residential and agriculture use districts: the Ranch/Agriculture (R/A) District and the Ranch/Agriculture Residential–Hillside District (RAR-H). Both districts allow detached single family homes at a density of one dwelling unit per 10 acres, as well as agricultural and ranching activities. The RAR-H District is assigned to lands in the foothills and requires that portions of the site exceeding 25% slope, as well as the ridgelines, be preserved as open space. The Proposed Project would cross land zoned Ranch/Agriculture–Hillside in the City of Banning. The zoning is located at the eastern edge of Segment 4, north of Gilman Street and between Sunset Avenue on the west and San Gorgonio Avenue on the east.

City of Grand Terrace. The City of Grand Terrace includes an Agricultural Overlay District as part of its City zoning. The purpose of the Agricultural Overlay District is to permit limited agricultural uses in areas of the City that have historically contained such uses and where current lot size is sufficient to provide a compatible relationship between the limited agricultural uses and the underlying district's residential uses. In the case of a conflict between the regulations of the overlay district and the underlying district, the regulations of the overlay district take precedence. The agricultural overlay zoning is located at the west end of the project vicinity in Segment 2, between Mount Vernon Avenue on the west and Barton Road on the east.

City of Loma Linda. The City of Loma Linda includes an Agricultural Estates Zone (A-1) as part of its Zoning Code. The purpose of the A-1 zone is to provide for dispersed residential and agricultural uses. It is intended to preserve prime agricultural lands. The project vicinity crosses an area zoned for agricultural uses in the City of Loma Linda in Segment 1 of the existing WOD corridor and south of Barton Road.

City of Redlands. The City of Redlands has three Agricultural Zoning Districts: Agricultural Districts A-1, A-1-20, and A-2. The purpose of the A-1 agricultural zoning district is to provide for the proper utilization of those lands best suited for agricultural purposes and to prevent the encroachment of incompatible uses. The Proposed Project crosses land that is zoned A-1 southwest of San Timoteo Canyon Road in the southwest corner of the City.

Riverside County. The existing WOD corridor crosses a small parcel of land that is zoned for Light Agriculture with Poultry in unincorporated western Riverside County, west of the City of Calimesa and northwest of the City of Beaumont. The Light Agriculture with Poultry designation allows for single-family dwellings, the raising of poultry or crops, and the limited raising of livestock, except for hogs. The Proposed Project alignment does not cross any agriculturally zoned land in Riverside County east of the City of Banning.

Important Farmland in the Project Vicinity

As shown in Table D.2-2, Important Farmland in the Project Vicinity, approximately 415 acres of the 4,089 acres (10 percent) in the area are classified as Important Farmland by the FMMP. Of this, 320 acres are Prime Farmland, 48 acres are Farmland of Statewide Importance, and 46 acres are Unique Farmland. Farmland within the Proposed Project boundary is shown in Figure D.2-1a through Figure D.2-1k, found at the end of this section. The figures include the existing WOD corridor, substations, access roads, relocated distribution line routes, relocated subtransmission line routes, telecommunications lines routes, and staging yards. There are 70 acres of Important Farmland within the Proposed Project boundaries (1.7 percent of the total area within the Proposed Project boundaries). Prime Farmland and Farmland of Statewide Importance are primarily located in the northwest portion of the project area in the vicinity of Segment 1 (adjacent to the existing WOD corridor and relocated subtransmission and distribution lines), Segment 2 (on either side of Reche Canyon Road), and Segment 3 (within the existing WOD corridor between San Bernardino Substation and El Casco Substation). Unique Farmland is located in Segments 3 and 4 in the cities of Beaumont and Redlands.

Table D.2-2. Important Farmland in the Project Vicinity (Farmland Mapping and Monitoring Program)

		Within Project Boundaries		Project Vicinity	
Jurisdiction	Farmland Type	Acres	Percentage	Acres	Percentage
City of Beaumont	Unique Farmland (U)	0.6	1.1%	3.8	8.9%
Total		**0.6**	**1.1%**	**3.8**	**8.9%**
City of Loma Linda	Prime Farmland (P)	9.8	2.9%	59.8	17.9%
Total		**9.8**	**2.9%**	**59.8**	**17.9%**
City of Redlands	Prime Farmland (P)	30.2	3.0%	185.8	18.2%
	Unique Farmland (U)	2.7	1.4%	40.9	16.6%
Total		**32.9**	**4.4%**	**226.7**	**34.8%**
Riverside County	Prime Farmland (P)	0	0%	6.8	0.00%
	Farmland of Statewide Importance (S)	6.7	0.0%	46.7	0.1%
	Unique Farmland (U)	0	0%	1.1	0.00%
Total		**6.7**	**0.0%**	**54.6**	**0.1%**
San Bernardino County	Prime Farmland (P)	18.5	0.1%	67.9	0.5%
	Farmland of Statewide Importance (S)	1.2	0.0%	1.6	0.0%
	Unique Farmland (U)	0	0%	0.7	0.0%
Total		**19.7**	**0.1%**	**70.2**	**0.5%**
Entire Project Vicinity	Prime Farmland (P)	58.4	1.4%	320.3	7.8%
	Farmland of Statewide Importance (S)	7.9	0.2%	48.3	1.2%
	Unique Farmland (U)	3.6	0.1%	46.5	1.2%
Total		**69.9**	**1.7%**	**415.1**	**10.2%**

D.2.1.3 Environmental Setting for Connected Actions

The solar projects identified as connected actions in Table B-22 (see Section B.7.1) would require a total of approximately 9,760 acres for development, and would occur in the Desert Center area and the Blythe area. The following is a discussion of the agricultural resources that are within each of these areas.

Desert Center Area. The solar projects identified as connected actions in the Desert Center area would require approximately 4,000 acres for the proposed Palen Solar Power Project, 1,208 acres for the proposed Desert Harvest Project, and approximately 2,400 acres for other solar PV developments. This region of the Colorado Desert is within a relatively flat portion of the Chuckwalla Valley. It is generally undeveloped with the exception of high-voltage transmission lines that cross the area (CEC, 2013). While some agricultural uses are scattered across the Desert Center area, farming that does occur is limited primarily to jojoba and palm tree production. The Desert Center area also includes land that is enrolled in a Williamson Act contract and is classified as Non-Prime Agricultural Land per the criteria set forth in the Land Conservation Act (i.e., Williamson Act) (BLM, 2012). Most non-prime agricultural lands are used for grazing or non-irrigated crops. While no Prime Farmland has been identified in this area, there are parcels zoned for agricultural use (BLM, 2012).

Blythe Area. Connected solar PV development projects in the Blythe area would involve approximately 4,200 acres. This area includes Palo Verde Valley, which is one of the richest agricultural regions in California, producing alfalfa, cotton, wheat, barley, Sudan grass, Bermuda grass, hay, and orchards (POWER Engineers, 2014). Agriculture is irrigated by water from the Colorado River, which is supplied through canals and laterals operated by the Palo Verde Irrigation District. Other areas to the east of the Palo Verde Valley are suitable for seasonal livestock grazing (e.g., sheep). Soils in the Blythe Area are classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Some of these agricultural lands are also under Williamson Act contracts (POWER Engineers, 2014).

D.2.2 Applicable Regulations, Plans, and Standards

D.2.2.1 Federal

Farmland Protection Policy Act. The Farmland Protection Policy Act (FPPA) is intended to minimize the impact that federal programs have related to conversion of farmland to nonagricultural uses. Projects are subject to FPPA requirements if they may irreversibly convert farmland, either directly or indirectly, to a nonagricultural use and are completed by a federal agency or with assistance from a federal agency.

Federal Definition of Prime Farmland. According to the federal definition in the Code of Federal Regulations Title 7 (Agriculture) Section 657.5(a)(1), Prime Farmland is "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses." The NRCS uses the following classifications for agricultural land: Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, Unique Farmland, and Not Prime Farmland.

The NRCS Web Soil Survey provides soil data and information produced by the National Cooperative Soil Survey. The NRCS Web Soil Survey has soil maps and data available online for more than 95 percent of the nation's counties. The USDA has been publishing soil surveys since 1899. Published soil surveys for California counties are dated from 1900 to 2014 (NRCS, 2014).

Clean Water Act of 1972. The Clean Water Act is intended to restore and maintain the chemical, physical, and biological integrity of U.S. waters. The Clean Water Act addresses both point sources (associated with a specific identifiable activity such as a pipe from an industrial plant) and nonpoint sources (associated with general areas or activities such as agriculture or timber harvesting). See EIS Section 10.14 (Groundwater Resources) and EIS Section 10.15 (Surface Water Resources) for additional detail regarding the Clean Water Act.

D.2.2.2 State

California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP). The California Department of Conservation established the FMMP to help assess the location, quantity, and quality of agricultural lands and the conversion of these lands to nonagricultural uses (CDC, 2004). The FMMP uses Natural Resources Conservation Service (NRCS) soil classifications, land inventories, and monitoring criteria to prepare digitized maps of farmland in California. These maps and associated statistics are updated every two years and are used in general plans, regional studies of agricultural land conversion, and in assessing project impacts on farmland. The FMMP categories are described above in Section D.2.1.1.

California Land Conservation Act (Williamson Act). The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, was enacted to encourage preservation of agricultural and open space lands. The Williamson Act facilitates voluntary agreements through which private landowners enter into 10-year contracts with counties and cities to restrict their land to agricultural and compatible open space uses. In return, restricted parcels are taxed at a lower rate. Contracts are automatically renewed unless the landowner files for nonrenewal or petitions for cancellation. Section 51238 of the Williamson Act indicates that, unless local organizations declare otherwise, the erection, construction, alteration, or maintenance of gas, electric, water, or communication facilities are compatible with Williamson Act contracts. The nearest property under a Williamson Act contract is located 0.8 miles north of the Proposed Project, in Beaumont.

D.2.2.3 Local

The California Public Utilities Commission (CPUC) has jurisdiction over the siting and design of the Proposed Project because the CPUC regulates and authorizes the construction of investor-owned public utility (IOU) facilities. Although such projects are exempt from local land use and zoning regulations and permitting, General Order (GO) No. 131-D, Section III.C requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain any nondiscretionary local permits." Appendix 9 (Policy Screening Report) identifies county and city plans and policies regarding agriculture and other resources of concern to planners. The Appendix indicates policies that are potentially applicable to the Proposed Project and whether the project would be consistent with the plan or policy. These policies are numerous and are not repeated here.

D.2.3 Environmental Impacts of the Proposed Project

D.2.3.1 Approach to Impact Assessment

This analysis addresses impacts to designated Important Farmland (which includes Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance). The conversion of Important Farmland would be considered significant if more than 10 acres of Prime Farmland or more than 40 acres of non-Prime Farmland (Farmland of Statewide Importance or Unique Farmland) is converted to non-agricultural use. These thresholds are used because they are the minimum acreage requirements for individual parcels able to enter into Williamson Act contracts as stated in Section 51222 of the

California Government Code and represent parcels or areas of agricultural land that are large enough to sustain agricultural operations.

D.2.3.1.1 Applicant Proposed Measures

SCE proposed no Applicant Proposed Measures related to agriculture.

D.2.3.2 Impact Criteria

NEPA does not have specific significance criteria. However, NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). Using the following criteria for the purposes of analysis, the project or an alternative would impact agricultural resources if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, would impair the use of agricultural land.

The project vicinity does not contain forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).[1] Therefore, impacts to forest land are not addressed further in this EIS. Impacts related to Williamson Act lands are also not addressed further because the nearest Williamson Act lands are 0.8 miles from the Proposed Project.

D.2.3.3 Impacts and Mitigation Measures

Impact AG-1: Project would permanently convert Important Farmland to non-agricultural use

There are 70 acres of Important Farmland within the Proposed Project boundaries (1.7 percent of the total area within the Proposed Project boundaries). Prime Farmland and Farmland of Statewide Importance are primarily located in the northwest portion of the project area in the vicinity of Segment 1 (adjacent to the existing WOD corridor and relocated subtransmission and distribution lines), Segment 2 (on

[1] "Forest land" is "land that can support, under natural conditions, 10 percent native tree cover of any species, including hardwoods, and that allows for the preservation or management of forest-related resources such as timber, aesthetic value, fish and wildlife, biodiversity, water quality, recreational facilities, and other public benefits" (California Public Resources Code Section 12220(g)). Timberland is defined in Public Resources Code Section 4526 as "Land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."

either side of Reche Canyon Road), and Segment 3 (within the existing WOD corridor between San Bernardino Substation and El Casco Substation). Unique Farmland is located in Segments 3 and 4 in the Cities of Beaumont and Redlands.

Construction of the Proposed Project includes the removal and upgrade of existing 220 kV transmission line facilities along 48 miles of corridor, primarily within the existing WOD right-of-way. Other components of the Proposed Project, such as upgrading substation, relocating subtransmission and distribution lines, and temporary use of some lands for staging, would not permanently convert Important Farmland to non-agricultural use. New and existing access and spur roads would be used to transport personnel and equipment to construction areas for the 220 kV transmission line work. Transmission infrastructure and new roads would permanently convert 3.5 acres of Important Farmland to non-agricultural use. These 3.5 acres represent 2 acres of Prime Farmland, 0.7 acres of Farmland of Statewide Importance, and 0.8 acres of Unique Farmland. Of the 3.5 acres of Important Farmland that would be converted to non-agricultural use, 2.2 acres are not currently used for agriculture but are designated as Important Farmland. With removal of existing structures, some areas of previously occupied Important Farmland may become unoccupied.

Because of the very small scale of permanent impacts, mitigation would not be required. Regular operations and maintenance activities would generally be performed from existing access roads. Although some repairs could temporarily disturb active agricultural land, impacts would be very minimal.

Impact AG-2: Project would conflict with existing zoning for agricultural use

The Proposed Project would cross 267 acres of land zoned for agricultural use. The Proposed Project would be located on land zoned for agriculture in the cities of Banning, Loma Linda, and Redlands and in Riverside County. Agricultural zoning in the project vicinity is described in more detail in Section D.2.1 (Environmental Setting). In addition, City of Grand Terrace uses an Agriculture Overlay Zone in some areas under its jurisdiction, including portions of the project vicinity. Public utility transmission lines and poles are an allowable use in all of the agriculture zones affected by the Proposed Project. Therefore, the Proposed Project would not conflict with the use of lands zoned for agriculture. Potential construction impacts to agricultural operations would be temporary and would not conflict with zoning designations. The use of the transmission line and access roads during operations would be consistent with agricultural zoning.

Impact AG-3: Project would involve changes in the existing environment which would impair the use of agricultural land

As shown in Table D.2-2, approximately 415 acres of the project vicinity's 4,089 acres are classified as Important Farmland by the FMMP. Of this, 320 acres are Prime Farmland, 48 acres are Farmland of Statewide Importance, and 46 acres are Unique Farmland. There are 70 acres of Important Farmland within the Proposed Project boundaries. Prime Farmland and Farmland of Statewide Importance are primarily located in the northwest portion of the project vicinity of Segment 1 (adjacent to the existing WOD corridor and relocated subtransmission and distribution lines), Segment 2 (on either side of Reche Canyon Road), and Segment 3 (within the existing WOD corridor between San Bernardino Substation and El Casco Substation). Unique Farmland is located in Segments 3 and 4 in the cities of Beaumont and Redlands.

Work associated with the 220 kV transmission lines would temporarily disturb 16.5 acres of Important Farmland (11 acres of Prime Farmland, 4.7 acres of Farmland of Statewide Importance, and 0.8 acres of Unique Farmland). Relocation of 66 kV subtransmission lines in Segment 1 would temporarily disturb 15.1

acres of Prime Farmland. Existing substations, proposed telecommunications facilities and potential staging yards would not affect designated Important Farmland. Therefore, these components of the Proposed Project are not discussed further.

The Proposed Project would temporarily disturb a total of 31.6 acres of designated Important Farmland (26.1 acres of Prime Farmland, 4.7 acres of Farmland of Statewide Importance, and 0.8 acres of Unique Farmland). These areas would be available for agricultural use again after construction is complete. In addition, surrounding agricultural land in the project vicinity may be affected by temporary construction impacts. Temporary impacts could include damage to equipment, crops, and livestock from traffic on farm roads; water and soil contamination; suppression of plant growth by fugitive dust; soil erosion; and the spread of weeds.

These impacts would be minimized through the implementation Mitigation Measures AQ-1a (Control Fugitive Dust), AQ-1b (Control Off-Road Equipment Emissions), LU-2a (Prepare construction notification plan), HH-1a (Prepare a hazardous materials and waste management plan), HH-2a (Prepare a soil management plan), and HH-3a (Identify pesticide/herbicide contamination). In addition, Mitigation Measure LU-2a would help minimize interference with temporarily affected agricultural lands. In order to address the specific coordination needs of agricultural landowners, Mitigation Measure AG-3a (Establish agreement and coordinate construction activities with agricultural landowners) would be required.

With completion of construction, agricultural lands temporarily affected would return to their original use. Because the project would be in an existing ROW, and overall there would be fewer transmission structures, project operation is not expected to change or affect agricultural uses. A new segment of ROW on Morongo tribal lands would be in an area used for grazing, as is the ROW that would be abandoned, resulting in no overall adverse effect on agricultural use of the Morongo land. During operation, routine and emergency maintenance would occur. From time to time this may affect agricultural use in the immediate vicinity if the work required use of equipment outside of existing access roads or pad areas. This would be a temporary condition and the land would return to agricultural use thereafter.

Mitigation Measures for Impact AG-3: Project would involve changes in the existing environment which would impair the use of agricultural land

AG-3a **Establish agreement and coordinate construction activities with agricultural landowners.** Sixty (60) days prior to the start of project construction, Southern California Edison (SCE) shall coordinate with property owners of Important Farmland (Prime Farmland, Farmland of Statewide Importance, Unique Farmland) that currently is being used for agricultural purposes and that will be used for construction and operation of the project, access and spur roads, staging areas, and other project-related activities. Should SCE require an additional agreement in addition to any new or existing agreement in force, the additional agreement would be for temporary purposes outside of the existing SCE ROW where SCE does not have an existing or newly acquired or modified easement right to perform construction activities.

The purpose of this agreement will be to set forth the use of agriculturally utilized Prime Farmland, Farmland of Statewide Importance, Unique Farmland during construction in order to: (1) schedule proposed construction activities at a location and time when damage to agricultural operations would be minimized, and (2) ensure that any areas damaged or disturbed by construction are restored to a condition mutually agreed upon by the landowner and SCE and in accordance with the existing easement language.

SCE shall coordinate with the agricultural landowners in the affected areas where Important Farmland will be temporarily disturbed in order to determine when and where construction should occur in order to minimize damage to agricultural operations. This includes avoiding construction during peak planting, growing, and harvest seasons as feasible. If damage or destruction does occur, SCE shall perform restoration activities on the disturbed area in order to return the area to a pre-determined condition or the pre-construction condition, whichever option is agreed upon by the landowner and SCE and in accordance with the existing easement language. This could include activities such as soil preparation, regrading, and reseeding. Restoration activities performed by SCE will vary, depending on the language in existing or newly acquired or revised easement documents. This measure applies to landowners with agriculturally utilized land that is impacted by the Proposed Project. SCE shall provide proof of the continued use of Important Farmland currently used for agriculture through the submittal of a signed temporary construction easement or grant of easement agreement between an individual property owner and SCE. The signed agreements shall be submitted to the CPUC for review and approval prior to the start of construction.

LU-2a **Prepare Construction Notification Plan** (Full text presented in Section D.11.6, Land Use and BLM Realty).

D.2.3.3 Impacts of Connected Actions

Impact AG-1: Project would permanently convert Important Farmland to non-agricultural use

Desert Center Area. While parcels of unincorporated Riverside County have been zoned for agricultural use in the Desert Center area, no Important Farmland has been identified. Any construction of connected solar projects in this area would not impact designated Farmland.

Blythe Area. Agricultural uses occur around the City of Blythe, and soils have been classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Depending on the final location of the solar projects identified as connected projects, construction could disturb existing agriculture and result in a direct loss of Important Farmland. Given the extent of the solar PV development (i.e., 4,200 acres), mitigation would be needed to minimize the permanent conversion of Farmland to non-agricultural use. Typical mitigation for impacts to Important Farmland would be similar to that set forth for the Blythe Mesa Project, where the applicant must acquire an agricultural easement or participate in an agricultural land mitigation program (POWER Engineers, 2014). The use of a conservation easement or mitigation program similar to that described in the Blythe Mesa EIR/EA would reduce the severity of impacts to Important Farmland.

Impact AG-2: Project would conflict with existing zoning for agricultural use

Desert Center Area. The Desert Center area includes agricultural parcels that are subject to a Williamson Act contract as well as parcels zoned for agricultural uses. Depending on the location of the connected actions (i.e., Palen Solar Power Project, Desert Harvest Project, and 2,400 acres of other solar PV development), construction could disturb existing agricultural zoning. As the exact location of the confidential solar PV connected actions is unknown, additional mitigation may be needed to minimize conflicts from construction across Williamson Act lands and other parcels zoned for agricultural use. The use of a Williamson Act property for solar PV development may require the cancellation of that contract. Potential mitigation would be similar to that being done for the Blythe Mesa Project, where the applicant must establish a Williamson Act agricultural preserve whose acreage is not less than the acreage of any cancelled Williamson Act contracts (POWER Engineers, 2014). In the event that a connected action would conflict with agricultural zoning, the applicant could reduce the severity of the impact by acquiring an agricultural easement or participating in an agricultural land mitigation program as described under Impact AG-1.

Blythe Area. The Blythe Area includes lands that are zoned for agricultural use, as well as lands that are under a Williamson Act contract. Depending on the location of the various connected actions in this area, construction could conflict with agricultural zoning. As the exact location of the confidential solar PV projects is unknown, additional mitigation may be needed to minimize conflicts from construction across Williamson Act lands and other parcels zoned for agricultural use. The use of a Williamson Act site for solar PV development may require the cancellation of that contract. Suggested mitigation would be similar to that being done for the Blythe Mesa Project, where the applicant must establish a Williamson Act agricultural preserve whose acreage is not less than the acreage of any cancelled Williamson Act contracts. In the event that a connected project would conflict with other agricultural zoning, the applicant could reduce the severity of the impact by acquiring an agricultural easement or participating in an agricultural land mitigation program as described under Impact AG-1

D.2.4 Environmental Impacts of Project Alternatives

Three alternatives are considered in this section; all of these alternatives would be located within the existing WOD ROW. The No Action Alternative is evaluated in Section D.2.5. Alternatives are described in detail in Appendix 5 (Alternatives Screening Report) and are summarized in Section C.

Agricultural resources within the ROW are described by segment in Section D.2.1.2 above; the description of the environmental setting would apply equally to the alternatives.

D.2.4.1 Tower Relocation Alternative

The Tower Relocation Alternative would locate certain transmission structures in Segments 4, 5, and 6 farther from existing homes than would be the case under the Proposed Project.

Three impacts to Agriculture were identified for the Proposed Project; each is considered below for this alternative.

Impact AG-1: Project would permanently convert Important Farmland to non-agricultural use

The relocation of identified transmission tower structures from their position under Proposed Project to a new location under the Tower Relocation Alternative would typically move the towers approximately 50 feet to the north. The only agricultural use in the sections of ROW affected by this alternative would be grazing. In the Calimesa East segment, one of the relocations would occur in an orchard, but this would not increase the amount of agricultural land affected as it would be offset by not locating the tower at the original proposed location. The change in the location of a transmission structure would not change the amount of Important Farmland converted to non-agricultural use, which remain similar to the Proposed Project. An extension of the construction period and the use of temporary shoo-flies also would not convert Important Farmland to other uses.

Impact AG-2: Project would conflict with existing zoning for agricultural use

Limited areas of land zoned for agriculture would be affected under this alternative. Transmission lines and transmission structures are allowed uses in agriculture zoned areas. The amount of agricultural land affected would be similar under both the Proposed Project and the Tower Relocation Alternative. An extended construction period and the use of temporary shoo-flies would not conflict with agricultural zoning.

Impact AG-3: Project would involve changes in the existing environment which would impair the use of agricultural land

Relocating a proposed transmission structure to a new position nearby in the ROW would not impair the use of agricultural land more than it might have been impaired by the Proposed Project. The same mitigation measures applied to the Proposed Project would apply under the Tower Relocation Alternative. These are Mitigation Measure AG-3a, AQ-1a, AQ-1b, LU-2a, HH-1a, HH-2a, and HH-3a, described in Section D.2.3.3. With implementation of these mitigation measures, impacts would be less than significant (Class II).

D.2.4.2 Iowa Street 66 kV Underground Alternative

The Iowa Street 66 kV Underground Alternative would place a 1,600-foot segment of subtransmission line underground, rather than overhead.

Three impacts to Agriculture were identified for the Proposed Project. However, this alternative is limited to a 1,600-foot section of Iowa Street and no agricultural land or agricultural uses would be affected by either the Proposed Project's overhead location of the 66 kV subtransmission line along Iowa Street being on poles or the Iowa Street 66 kV Underground Alternative being underground in a new conduit.

D.2.4.3 Phased Build Alternative

The Phased Build Alternative would retain existing double-circuit 220 kV transmission structures to the extent feasible, remove single-circuit structures, add new double-circuit 220 kV structures, and string all structures with higher-capacity conductors.

Three impacts on agriculture were identified under the Proposed Project. These impacts also would apply to the Phased Build Alternative, which would be located in the same corridor as the Proposed Project and would involve similar, although less intense, construction activities. The full text of all mitigation measures referenced in this section is presented in Section D.2.3.3.

Impact AG-1: Project would permanently convert Important Farmland to non-agricultural use

There are 70 acres of Important Farmland within the Proposed Project boundaries (1.7 percent of the total area within the Proposed Project boundaries). Prime Farmland and Farmland of Statewide Importance are primarily located in the northwest portion of the project area in the vicinity of Segment 1 (adjacent to the existing WOD corridor and relocated subtransmission and distribution lines), Segment 2 (on either side of Reche Canyon Road), and Segment 3 (within the existing WOD corridor between San Bernardino Substation and El Casco Substation). Unique Farmland is located in Segments 3 and 4 in the Cities of Beaumont and Redlands.

Construction of the Phased Build Alternative includes the retaining and upgrading existing 220 kV transmission line facilities along 48 miles of corridor, primarily within the existing WOD right-of-way. Other components of the Proposed Project, such as upgrading substation, relocating subtransmission and distribution lines, and temporary use of some lands for staging, would not permanently convert Important Farmland to non-agricultural use. New and existing access and spur roads would be used to transport personnel and equipment to construction areas for the 220 kV transmission line work. With removal of existing structures, some areas of previously occupied Important Farmland may become unoccupied.

The replacement of the existing single-circuit towers with double-circuit towers (Segments 3 through 6) would be similar in impact to the Proposed Project. At the conclusion of construction, the project would occupy the same amount of land under the alternative or the Proposed Project. Overall, the conversion of Important Farmland would be of the same order of magnitude as the Proposed Project. Because of the very small scale of permanent impacts, mitigation would not be required.

Impact AG-2: Project would conflict with existing zoning for agricultural use

The Proposed Project would cross 267 acres of land zoned for agricultural use. The Proposed Project would be located on land zoned for agriculture in the cities of Banning, Loma Linda, and Redlands and in Riverside County. Agricultural zoning in the project vicinity is described in more detail in Section D.2.1 (Environmental Setting). In addition, City of Grand Terrace uses an Agriculture Overlay Zone in some areas under its jurisdiction, including portions of the project vicinity. Public utility transmission lines and poles are an allowable use in all of the agriculture zones affected by the Proposed Project. Therefore, the Proposed Project would not conflict with the use of lands zoned for agriculture. Potential construction impacts to agricultural operations would be temporary and would not conflict with zoning designations. Limited areas of land zoned for agriculture would be affected under this alternative. Transmission lines and transmission structures are allowed uses in agriculture zoned areas. The amount of agricultural land affected would be similar under both the Proposed Project and the Phased Build Alternative.

Impact AG-3: Project would involve changes in the existing environment which would impair the use of agricultural land

Approximately 415 acres of the project vicinity's 4,089 acres are classified as Important Farmland by the FMMP. The Proposed Project would temporarily disturb a total of 31.6 acres of designated Important Farmland; a similar amount of farmland is expected to be disturbed under the Phased Build Alternative.. These areas would be available for agricultural use again after construction is complete.

The same access roads and a similar number of pads would be required under the Phased Build Alternative as under the Proposed Project. The same mitigation measures applied to the Proposed Project would apply under the Phased Build Alternative. These are Mitigation Measure AG-3a, AQ-1a, AQ-1b, LU-2a, HH-1a, HH-2a, and HH-3a, described in Section D.2.3.3.

D.2.5 Environmental Impacts of No Action Alternative

D.2.5.1 No Action Alternative Option 1

The No Action Alternative Option 1 is described in Section C.6.3.1. It would consist of a new 500 kV circuit, primarily following the Devers-Valley transmission corridor and extending 26 miles between Devers Substation. It would also require a new 40-acre substation south of Beaumont, and 4 new 220 kV circuits extending 7 miles from the new Beaumont Substation to El Casco Substation, primarily following the existing El Casco 115 kV ROW. The remainder of the No Action Alternative, from El Casco Substation to the San Bernardino and Vista Substations, would be identical to the Proposed Project. Information on environmental resources and project impacts is derived from the Devers–Palo Verde 500 kV No. 2 Project EIR/EIS (CPUC and BLM, 2006) and the El Casco System Project Draft EIR (CPUC, 2007); which include nearly all of the No Action alignment.

Devers to Beaumont Substation. In areas south of Cabazon and Banning, the alignment would traverse approximately 3.7 acres of Grazing Land and Farmland of Local Importance. It would not traverse Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. There are no Williamson Act lands crossed by the alignment. After construction, the permanent footprint of new towers would not result in a significant loss of agricultural land or productivity. The Devers to Beaumont Substation alignment would follow the existing Devers to Valley alignment. In the analysis of the Devers to Valley the alignment in the DPV2 EIR/EIS, all impacts to agriculture were less than significant.

Beaumont Substation. The substation site would occupy 40 acres east of Beaumont Avenue (SR 79) and south of Laird Road, south of the City of Beaumont. The site is open grassland and is designated as Farmland of Local Importance. The substation would permanently displace the current grassland use. Because the land is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, this would not be considered a significant impact.

Beaumont to El Casco Substation. The area between the Beaumont and El Casco Substations has little Farmland. The 220 kV route would cross scattered parcels of Farmland of Local Importance. There are no Williamson Act lands in this segment of the alternative. The permanent footprint of new towers would not represent a significant loss of agricultural land or productivity.

D.2.5.2 No Action Alternative Option 2

No Action Alternative Option 2 would require the construction of over 40 miles of new 500 kV transmission line, following the existing Valley-Serrano 500 kV line. The alternative is described in Section C.6.3.2, and illustrated on Figure C-6b. From approximately MP 0.1 to MP 5.5, the corridor is underlain almost entirely by land that is designated as Important Farmland, the majority of which is classified as Farmland of Local Importance. A small amount of Farmland of Statewide Importance and a very small amount of Prime Farmland is also located within this segment of the corridor. From approximately MP 7.4 to MP 20.0, all land within and adjacent to the corridor is designated as Grazing Land, with the exception of a very small amount of Farmland of Local Importance near MP 19. This grazing land occupies the foothills surrounding Steele Peak and Estelle Mountain. In Orange County, the corridor crosses a small parcel of Grazing Land from approximately MP 37.2 to MP 38. There are no Williamson Act lands within or adjacent to the Valley to Serrano corridor.

Construction of the new 500 kV circuit could temporarily disturb agricultural operations near the existing corridor. The permanent disturbance associated with the new transmission structures would not result in the conversion of a substantial amount of Important Farmland or substantially disrupt existing agricultural activities.

D.2.6 Mitigation Monitoring, Compliance, and Reporting

Table D.2-3 presents the mitigation monitoring, compliance, and reporting information for agriculture.

Table D.2-3. Mitigation Monitoring Program – Agriculture

MITIGATION MEASURE	**AG-3a: Establish agreement and coordinate construction activities with agricultural landowners.** Sixty (60) days prior to the start of project construction, Southern California Edison (SCE) shall coordinate with property owners of Important Farmland (Prime Farmland, Farmland of Statewide Importance, Unique Farmland) that currently is being used for agricultural purposes and that will be used for construction and operation of the project, access and spur roads, staging areas, and other project-related activities. Should SCE require an additional agreement in addition to any new or existing agreement in force, the additional agreement would be for temporary purposes outside of the existing SCE ROW where SCE does not have an existing or newly acquired or modified easement right to perform construction activities. The purpose of this agreement will be to set forth the use of agriculturally utilized Prime Farmland, Farmland of Statewide Importance, Unique Farmland during construction in order to: (1) schedule proposed construction activities at a location and time when damage to agricultural operations would be minimized, and (2) ensure that any areas damaged or disturbed by construction are restored to a condition mutually agreed upon by the landowner and SCE and in accordance with the existing easement language. SCE shall coordinate with the agricultural landowners in the affected areas where Important Farmland will be temporarily disturbed in order to determine when and where construction should occur in order to minimize damage to agricultural operations. This includes avoiding construction during peak planting, growing, and harvest seasons as feasible. If damage or destruction does occur, SCE shall perform restoration activities on the disturbed area in order to return the area to a pre-determined condition or the pre-construction condition, whichever option is agreed upon by the landowner and SCE and in accordance with the existing easement language. This could include activities such as soil preparation, regrading, and reseeding. Restoration activities performed by SCE will vary, depending on the language in existing or newly acquired or revised easement documents. This measure applies to landowners with agriculturally utilized land that is impacted by the Proposed Project. SCE shall provide proof of the continued use of Important Farmland currently used for agriculture through the submittal of a signed temporary construction easement or grant of easement agreement between an individual property owner and SCE. The signed agreements shall be submitted to the CPUC for review and approval prior to the start of construction.
Location	Construction activity in all segments with covered farmlands.
Monitoring / Reporting Action	Signed agreements to be submitted to CPUC/BLM.
Effectiveness Criteria	Agreements are executed and SCE is in compliance.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office.
Timing	Sixty days prior to construction.

D.2.7 References

BLM (Bureau of Land Management). 2012. Desert Harvest Solar Project Final Environmental Impact Statement and Proposed California Desert Conservation Area Plan Amendment. CACA #49491. November.

CDFA (California Department of Food and Agriculture). 2014. California Agricultural Production Statistics, Agricultural Statistical Review 2013-2014. http://www.cdfa.ca.gov/statistics/. Accessed October 2014.

CEC (California Energy Commission). 2013. Final Staff Assessment for the Palen Solar Electric Generating System, Part A: Amendment to the Palen Solar Power Project. Docket Number 09-AFC-07C. September.

_____. 2008. Final Staff Assessment for the CPV Sentinel Energy Project. Docket Number 07-AFC-3. October.

CPUC (California Public Utilities Commission). 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm. Accessed April 15, 2015.

CPUC and BLM. 2006. SCE Devers–Palo Verde 500 kV No. 2 Project EIR/EIS, Sections on West of Devers Alternative. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-deir.htm. Accessed April 15, 2015

CPUC and USDA (United States Department of Agriculture) Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

DOC (California Department of Conservation). 2014a. Important Farmland Mapping Categories and Soil Taxonomy Terms. http://www.conservation.ca.gov/dlrp/fmmp/Documents/soil_criteria.pdf. Accessed October 2014.

_____. 2014b. California Farmland Conversion Report 2008-2010. April 2014. http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2008-2010/fcr/FCR%200810%20complete.pdf. Accessed October 2014.

POWER Engineers, Inc. 2014. Blythe Mesa Solar Project Draft Environmental Impact Report/ Environmental Assessment. SCH #2011111056. June.

USDA. 2014. Natural Resources Conservation Service. NSSH Part 622. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054226. Accessed October 2014.

_____. 2008. Agricultural Census. Table 1. California County Summary Highlights: 2007. http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/California/st06_2_001_001.pdf. Accessed October 2014.

Source: SCE, 2013.

N

0 1000 2000
FEET

LEGEND

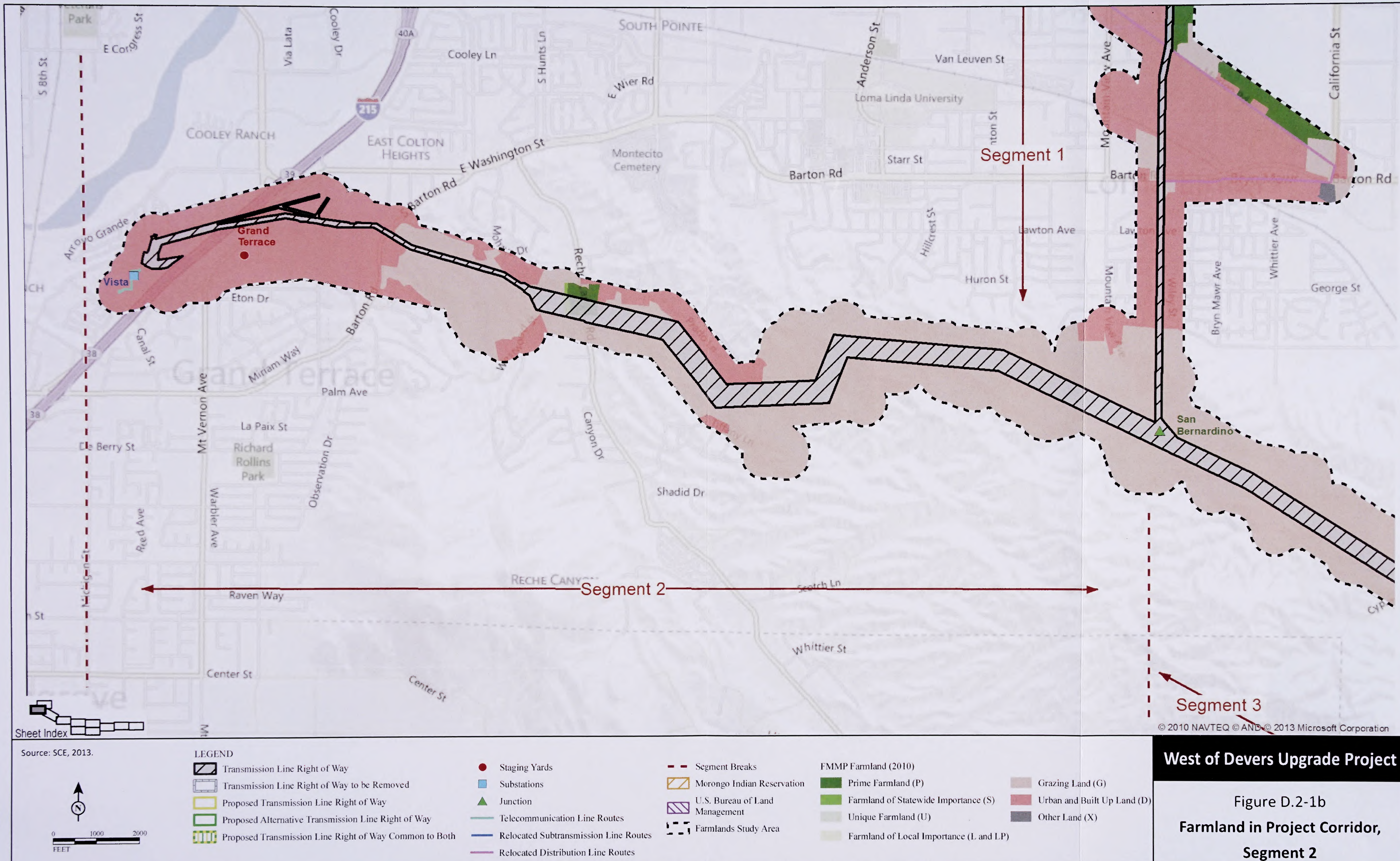
- Transmission Line Right of Way
- Transmission Line Right of Way to be Removed
- Proposed Transmission Line Right of Way
- Proposed Alternative Transmission Line Right of Way
- Proposed Transmission Line Right of Way Common to Both
- Staging Yards
- Substations
- Junction
- Telecommunication Line Routes
- Relocated Subtransmission Line Routes
- Relocated Distribution Line Routes
- Segment Breaks
- Morongo Indian Reservation
- U.S. Bureau of Land Management
- Farmlands Study Area

FMMP Farmland (2010)

- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Farmland of Local Importance (L and LP)
- Grazing Land (G)
- Urban and Built Up Land (D)
- Other Land (X)

West of Devers Upgrade Project

Figure D.2-1a
Farmland in Project Corridor, Segment 1



West of Devers Upgrade Project

Figure D.2-1b
Farmland in Project Corridor, Segment 2

Source: SCE, 2013.

LEGEND

- Transmission Line Right of Way
- Transmission Line Right of Way to be Removed
- Proposed Transmission Line Right of Way
- Proposed Alternative Transmission Line Right of Way
- Proposed Transmission Line Right of Way Common to Both
- Staging Yards
- Substations
- Junction
- Telecommunication Line Routes
- Relocated Subtransmission Line Routes
- Relocated Distribution Line Routes
- Segment Breaks
- Morongo Indian Reservation
- U.S. Bureau of Land Management
- Farmlands Study Area

FMMP Farmland (2010)

- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Farmland of Local Importance (L and LP)
- Grazing Land (G)
- Urban and Built Up Land (D)
- Other Land (X)

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West of Devers Upgrade Project

Figure D.2-1c

Farmland in Project Corridor, Segment 3

Source: SCE, 2013.

LEGEND

- Transmission Line Right of Way
- Transmission Line Right of Way to be Removed
- Proposed Transmission Line Right of Way
- Proposed Alternative Transmission Line Right of Way
- Proposed Transmission Line Right of Way Common to Both
- Staging Yards
- Substations
- Junction
- Telecommunication Line Routes
- Relocated Subtransmission Line Routes
- Relocated Distribution Line Routes
- Segment Breaks
- Morongo Indian Reservation
- U.S. Bureau of Land Management
- Farmlands Study Area

FMMP Farmland (2010)

- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Farmland of Local Importance (L and LP)
- Grazing Land (G)
- Urban and Built Up Land (D)
- Other Land (X)

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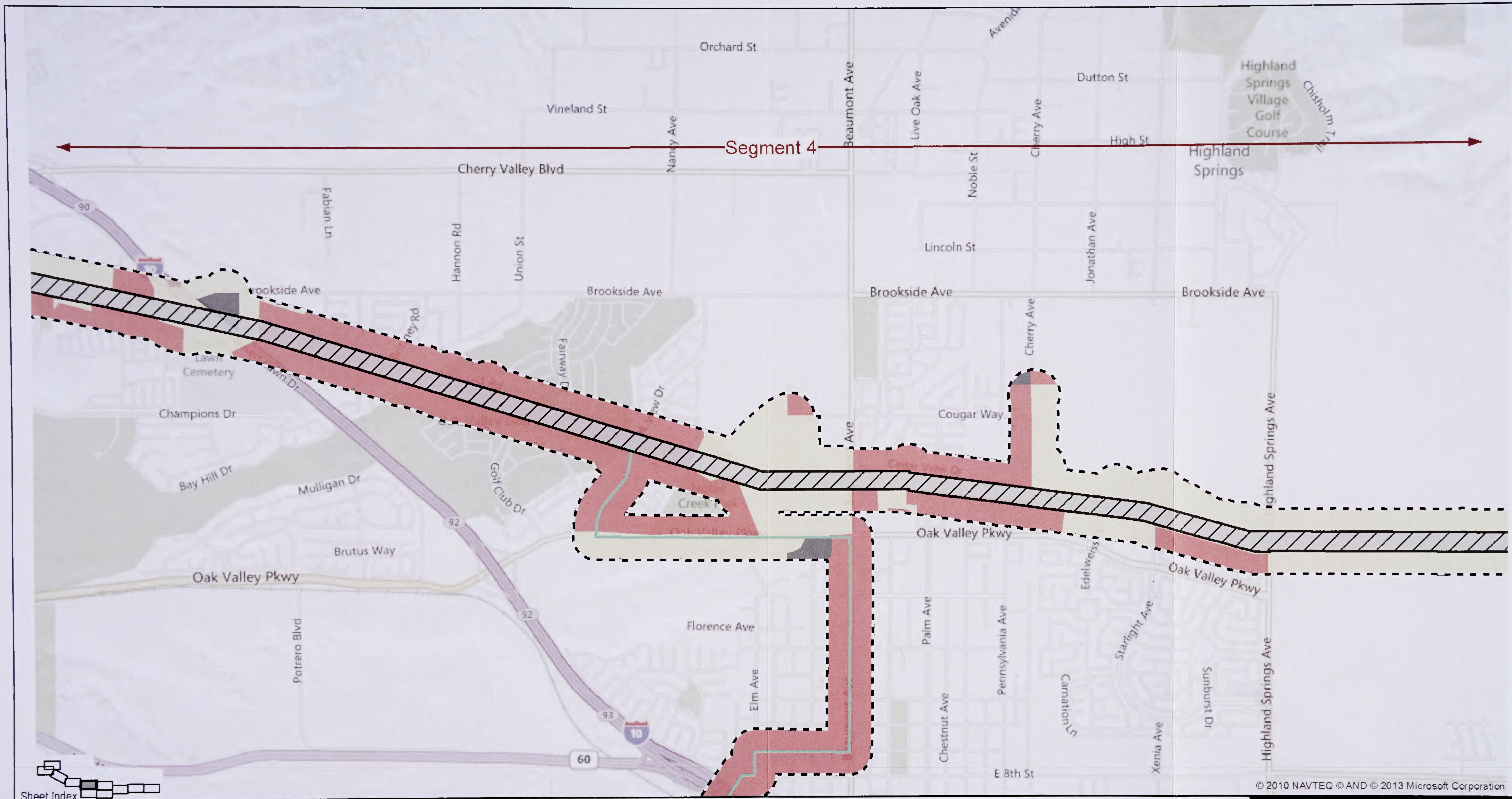
West of Devers Upgrade Project

Figure D.2-1d
Farmland in Project Corridor, Segment 3 & 4



Source: SCE, 2013.

LEGEND
- Transmission Line Right of Way
- Transmission Line Right of Way to be Removed
- Proposed Transmission Line Right of Way
- Proposed Alternative Transmission Line Right of Way
- Proposed Transmission Line Right of Way Common to Both
- Staging Yards
- Substations
- Junction
- Telecommunication Line Routes
- Relocated Subtransmission Line Routes
- Relocated Distribution Line Routes
- Segment Breaks
- Morongo Indian Reservation
- U.S. Bureau of Land Management
- Farmlands Study Area

FMMP Farmland (2010)
- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Farmland of Local Importance (L and LP)
- Grazing Land (G)
- Urban and Built Up Land (D)
- Other Land (X)

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FEET

West of Devers Upgrade Project

Figure D.2-1e
Farmland in Project Corridor, Segment 4

Source: SCE, 2013.

FEET 0 1000 2000

LEGEND

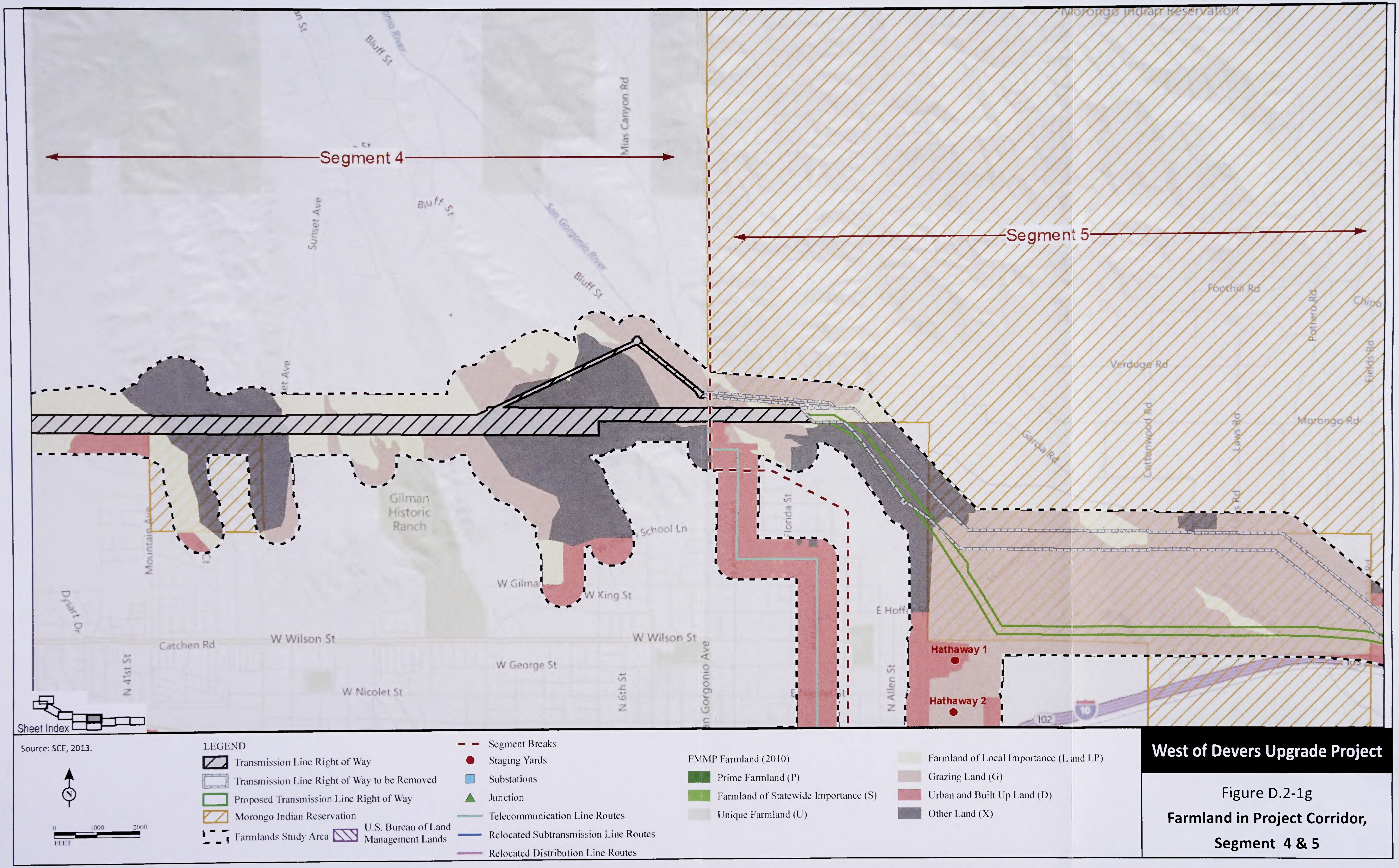
- Transmission Line Right of Way
- Transmission Line Right of Way to be Removed
- Proposed Transmission Line Right of Way
- Proposed Alternative Transmission Line Right of Way
- Proposed Transmission Line Right of Way Common to Both
- Staging Yards
- Substations
- Junction
- Telecommunication Line Routes
- Relocated Subtransmission Line Routes
- Relocated Distribution Line Routes
- Segment Breaks
- Morongo Indian Reservation
- U.S. Bureau of Land Management
- Farmlands Study Area

FMMP Farmland (2010)

- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Farmland of Local Importance (L and LP)
- Grazing Land (G)
- Urban and Built Up Land (D)
- Other Land (X)

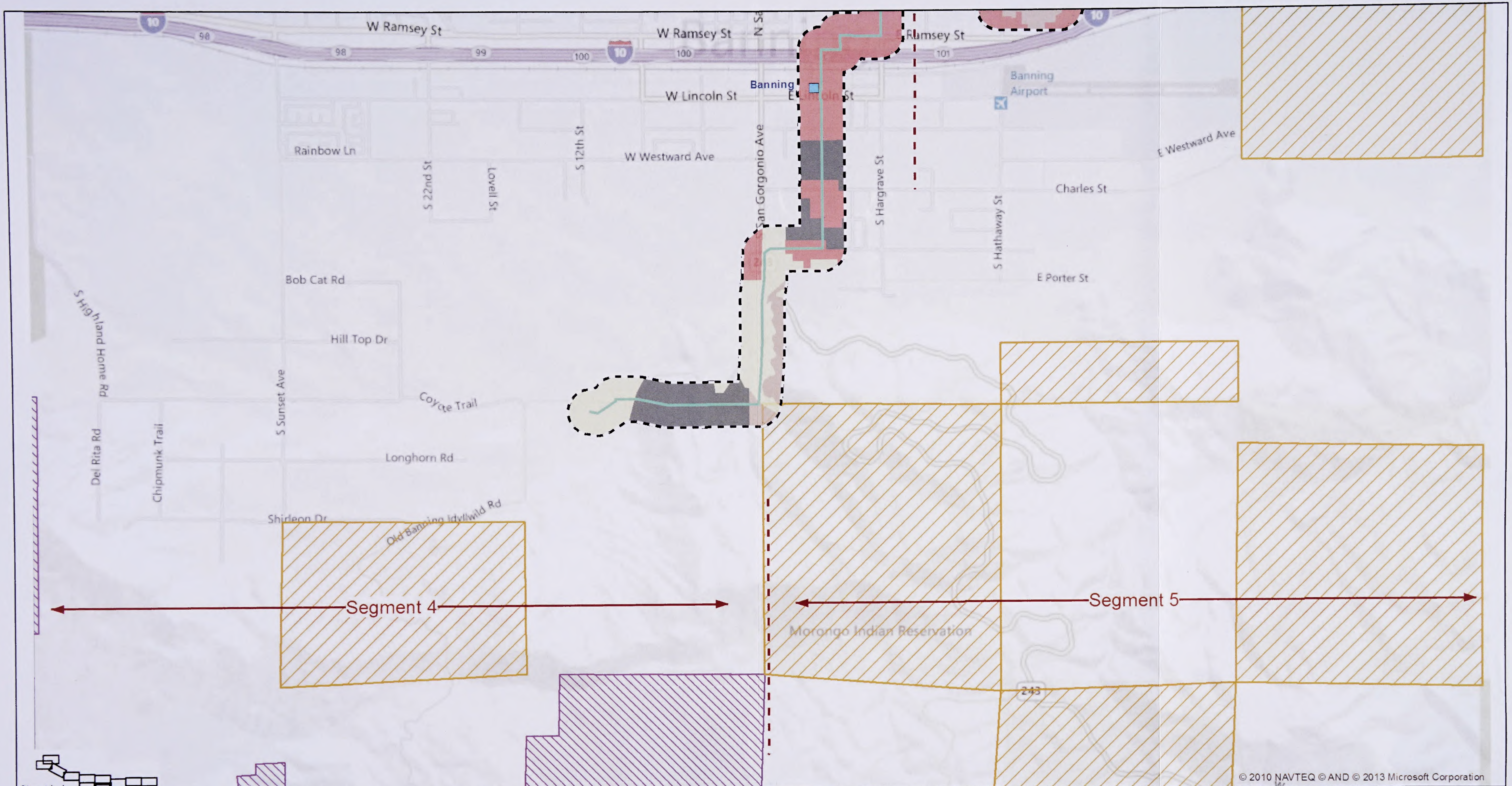
West of Devers Upgrade Project

Figure D.2-1f
Farmland in Project Corridor, Segment 4



West of Devers Upgrade Project

Figure D.2-1g
Farmland in Project Corridor, Segment 4 & 5



Source: SCE, 2013.

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LEGEND

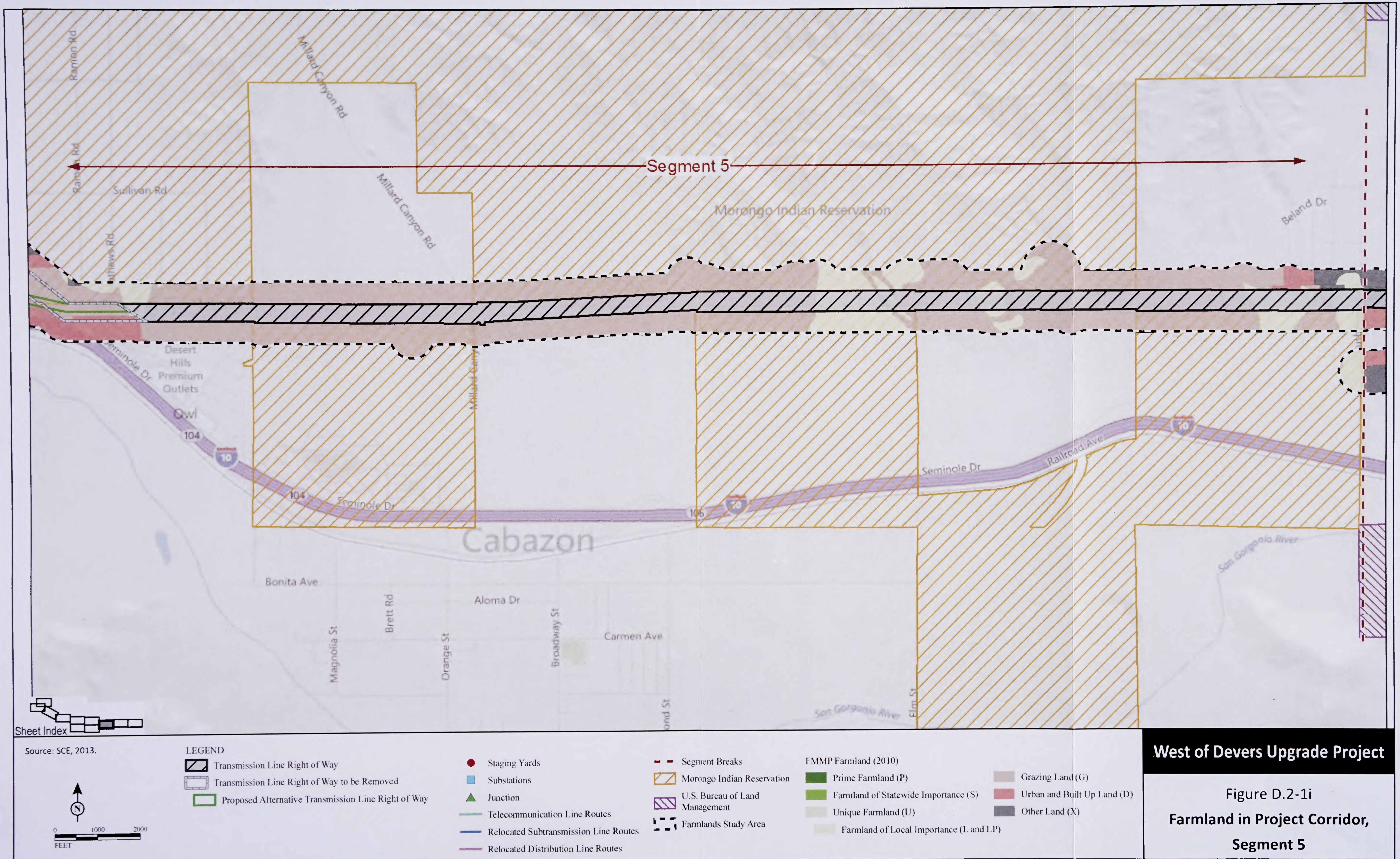
- Transmission Line Right of Way
- Transmission Line Right of Way to be Removed
- Proposed Transmission Line Right of Way
- Proposed Alternative Transmission Line Right of Way
- Proposed Transmission Line Right of Way Common to Both
- Staging Yards
- Substations
- Junction
- Telecommunication Line Routes
- Relocated Subtransmission Line Routes
- Relocated Distribution Line Routes
- Segment Breaks
- Morongo Indian Reservation
- U.S. Bureau of Land Management
- Farmlands Study Area

FMMP Farmland (2010)

- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Farmland of Local Importance (L and LP)
- Grazing Land (G)
- Urban and Built Up Land (D)
- Other Land (X)

West of Devers Upgrade Project

Figure D.2-1h
Farmland in Project Corridor, Segment 4 & 5



West of Devers Upgrade Project

Figure D.2-1i
Farmland in Project Corridor, Segment 5

Source: SCE, 2013.

LEGEND
Transmission Line Right of Way
Transmission Line Right of Way to be Removed
Proposed Transmission Line Right of Way
Proposed Alternative Transmission Line Right of Way
Proposed Transmission Line Right of Way Common to Both
Staging Yards
Substations
Junction
Telecommunication Line Routes
Relocated Subtransmission Line Routes
Relocated Distribution Line Routes
Segment Breaks
Morongo Indian Reservation
U.S. Bureau of Land Management
Farmlands Study Area

FMMP Farmland (2010)
Prime Farmland (P)
Farmland of Statewide Importance (S)
Unique Farmland (U)
Farmland of Local Importance (L and LP)
Grazing Land (G)
Urban and Built Up Land (D)
Other Land (X)

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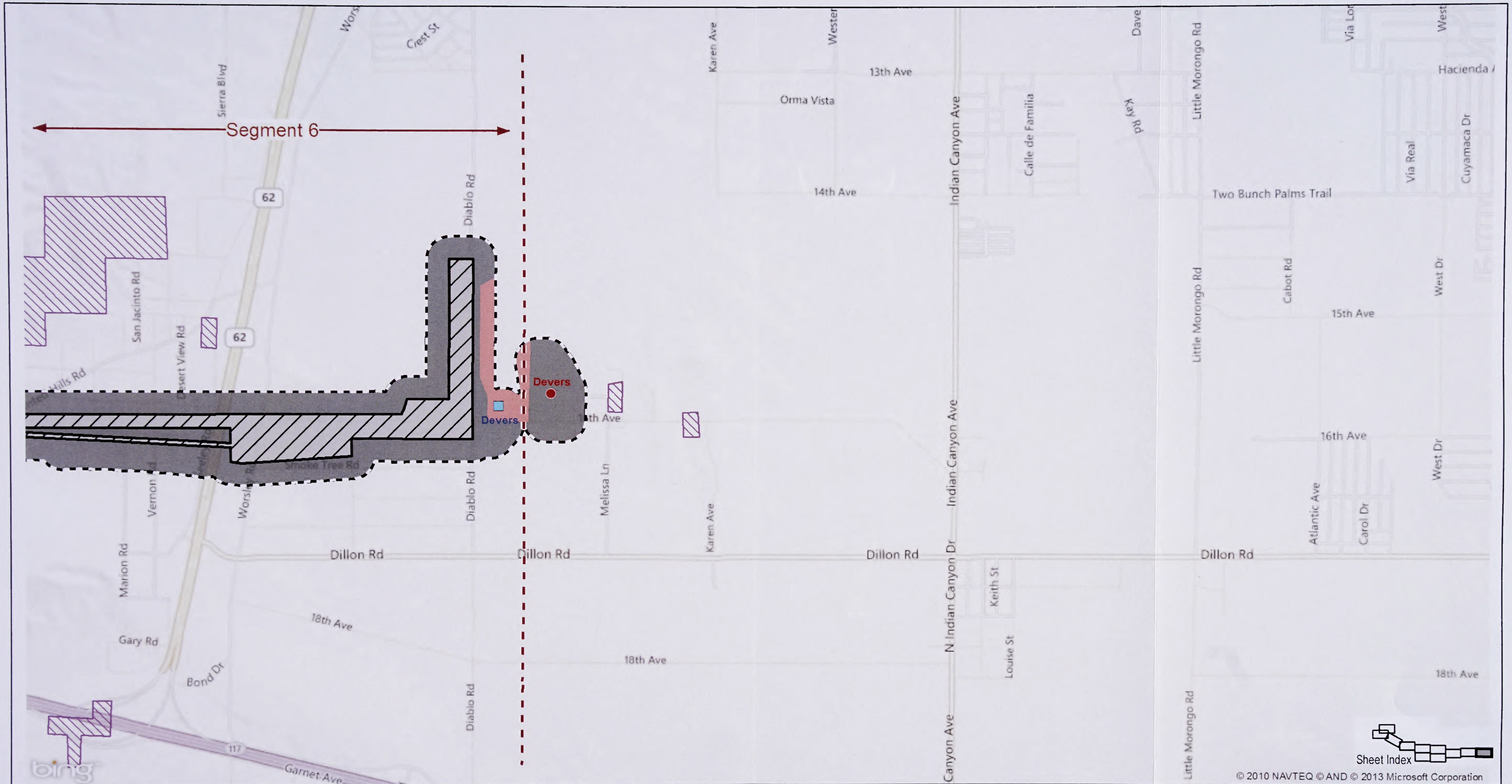
FEET

West of Devers Upgrade Project

Figure D.2-1j
Farmland in Project Corridor, Segment 6



Source: SCE, 2013.

LEGEND

- Transmission Line Right of Way
- Transmission Line Right of Way to be Removed
- Proposed Transmission Line Right of Way
- Proposed Alternative Transmission Line Right of Way
- Proposed Transmission Line Right of Way Common to Both
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- Farmlands Study Area

FMMP Farmland (2010)

- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Farmland of Local Importance (L and LP)
- Grazing Land (G)
- Urban and Built Up Land (D)
- Other Land (X)

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West of Devers Upgrade Project

Figure D.2-1k

Farmland in Project Corridor, Segment 6

D.3 Air Quality

This section describes the affected environment for Air Quality in Section D.3.1 and presents the relevant regulations and standards in Section D.3.2. Sections D.3.3 through D.3.5 describe the impacts of the Proposed Project and the alternatives. Section D.3.6 presents the mitigation measures and mitigation monitoring requirements, and D.3.7 lists references cited.

D.3.1 Environmental Setting / Affected Environment

The Proposed Project would include approximately 48 miles of corridor that occurs within two counties, San Bernardino and Riverside, and two California air basins, the South Coast Air Basin and the Coachella Valley portion of the Salton Sea Air Basin. All project-related activities in these two air basins would occur within the regional jurisdiction of the South Coast Air Quality Management District (SCAQMD).

D.3.1.1 Regional Setting and Approach to Data Collection

The environmental setting for air quality, including available representative ambient air pollutant data, reviews the existing literature from local, State, and federal agencies and the applicant, including the following:

- U.S. Environmental Protection Agency (U.S. EPA),
- State of California, Air Resources Board (CARB),
- South Coast Air Quality Management District (SCAQMD), and
- Other information found in the Proponent's Environmental Assessment (PEA).

D.3.1.2 Environmental Setting by Segment

Most of the Proposed Project would fall within the South Coast Air Basin, which includes Segments 1 through 5. Segment 6 of the Proposed Project would fall within the Salton Sea Air Basin. A brief discussion of the environmental setting for each air basin appears in this section.

Criteria Pollutants. Air quality is determined by measuring ambient concentrations of criteria pollutants. The criteria air pollutants are common pollutants for which acceptable levels of exposure can be determined and for which standards have been set. The degree of air quality degradation is then compared to the current National and California Ambient Air Quality Standards (NAAQS and CAAQS). Unique meteorological conditions in California and differences of opinion by medical panels established by the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (U.S. EPA) cause considerable diversity between State and federal standards. In general, the CAAQS are more stringent than the corresponding NAAQS. The ambient standards currently in effect in California are shown in Table D.3-1.

Table D.3-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	Health Effects
Ozone	1-hour 8-hour	0.09 ppm 0.070 ppm	— 0.075 ppm	Breathing difficulties, lung tissue damage
Respirable Particulate Matter (PM10)	24-hour Annual Mean	50 μg/m^3 20 μg/m^3	150 μg/m^3 —	Increased respiratory disease, lung damage, cancer, premature death

Table D.3-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	Health Effects
Fine Particulate Matter (PM2.5)	24-hour Annual Mean	— 12 μg/m³	35 μg/m³ 12.0 μg/m³	Increased respiratory disease, lung damage, cancer, premature death
Carbon Monoxide (CO)	1-hour 8-hour	20 ppm 9.0 ppm	35 ppm 9 ppm	Chest pain in heart patients, headaches, reduced mental alertness
Nitrogen Dioxide (NO_2)	1-hour Annual Mean	0.18 ppm 0.030 ppm	100 ppb 0.053 ppm	Lung irritation and damage
Sulfur Dioxide (SO_2)	1-hour 24-hour Annual Mean	0.25 ppm 0.04 ppm —	75 ppb 0.14 ppm 0.030 ppm	Increases lung disease and breathing problems for asthmatics

Notes: ppm=parts per million; ppb=parts per billion; μg/m3= micrograms per cubic meter; "—" =no standard
Source: CARB, 2013 (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf).

Attainment Status and Air Quality Plans. The U.S. EPA, CARB, and the local air district classify an area as attainment, unclassified, or nonattainment. The classification depends on whether the monitored ambient air quality data show compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. The Proposed Project would be located within the jurisdiction of the SCAQMD, with a major portion being in the South Coast Air Basin and the remainder in the Salton Sea Air Basin.

Ambient air quality in the project area experiences exceedances of the federal and State ozone, PM10 and PM2.5 standards because concentrations of these contaminants occur or have historically occurred at levels violating the standards. Table D.3-2 summarizes attainment status for the criteria pollutants in these air basins under both the federal and State standards.

Table D.3-2. Attainment Status for South Coast Air Basin and Salton Sea Air Basin

	South Coast Air Basin		Salton Sea Air Basin	
Pollutant	Federal Designation	State Designation	Federal Designation	State Designation
Ozone	Nonattainment (Extreme)	Nonattainment	Nonattainment (Severe)	Nonattainment
PM10	Attainment (Maintenance)	Nonattainment	Nonattainment (Serious)	Nonattainment
PM2.5	Nonattainment	Nonattainment	Attainment	Attainment
CO	Attainment (Maintenance)	Attainment	Attainment	Attainment
NO_2	Unclassified	Attainment	Unclassified	Attainment
SO_2	Unclassified	Attainment	Unclassified	Attainment

Source: CARB, 2014a (Area Designations);U.S. EPA, 2014 (Region 9 Air Quality Maps).

Toxic Air Contaminants. Toxic air contaminants (TACs) are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than that of a different TAC.

TACs are not subject to ambient air quality standards; they are regulated by each local air district using a risk-based approach. If projected emissions of a specific air toxic compound from a proposed new or stationary modified source suggest a potential public health risk, then the proposal is subject to a health risk assessment for the source in question. Such an assessment also evaluates the chronic and acute hazards and the potential increased cancer risk stemming from exposure to a change in airborne TACs.

Mobile sources powered by diesel fuel emit diesel particulate matter (DPM), which is classified as a TAC because many toxic compounds adhere to diesel exhaust particles. Statewide programs for mobile sources and diesel-fired equipment set mandatory exhaust standards for manufacturers of these engines and require equipment owners or operators to register portable equipment. Emissions of DPM have been declining with the introduction of ultra-low sulfur diesel fuel, which reduces particulates and sulfur oxides (SOx), and with the phase-in of particulate filters on vehicle exhaust systems.

Sensitive Receptors. Land uses where people reside are considered to be sensitive to air pollution. Sensitive population groups include children, the elderly, the acutely ill and the chronically ill, especially those with cardio-respiratory diseases. Residential areas are sensitive to air pollution because children and the elderly would be expected to experience sustained exposure to any pollutants. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally brief at a recreational area, exercise creates a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation.

Portions of the Proposed Project would occur near sensitive receptors (e.g., residential areas, schools, day care centers, hospitals, and other places where people reside). Portions of the corridor are situated in developed areas with residences adjacent to potential activities, including construction sites, access roads, and staging yards.

D.3.1.2.1 South Coast Air Basin

Ambient Air Quality Conditions

Ambient air quality in the South Coast Air Basin experiences exceedances of the federal and State ozone, PM10 and PM2.5 standards because concentrations of these contaminants occur or have historically occurred at levels violating the standards, as shown in Table D.3-2.

Sensitive Receptors

The portion of the Proposed Project within the South Coast Air Basin (Segments 1 through 5) includes San Bernardino, Vista, and El Casco Substations, the 220 kV transmission lines, subtransmission lines, distribution lines, telecommunications lines, access roads, and various staging yards. Project components or activities would occur in the following jurisdictions in this air basin: the cities of Banning, Beaumont, Calimesa, Colton, Grand Terrace, Loma Linda, Rancho Cucamonga, Redlands, San Bernardino, and Yucaipa; unincorporated areas of Riverside and San Bernardino Counties; and portions of the reservation trust land (the reservation) of the Morongo Band of Mission Indians (Morongo). The developed areas along the corridor include residential areas, schools, day care centers, hospitals, and other places where people reside. Section D.11, Land Use, identifies the various land uses in additional detail.

D.3.1.2.2 Salton Sea Air Basin

Ambient Air Quality Conditions

Ambient air quality in the Salton Sea Air Basin experiences exceedances of the federal and State ozone and PM10 standards because concentrations of these contaminants occur or have historically occurred at levels violating the standards, as shown in Table D.3-2.

Sensitive Receptors

The portion of the Proposed Project within the Salton Sea Air Basin (Segment 6) includes Devers Substation, the 220 kV transmission lines, telecommunications lines, access roads, and the Devers staging yard. Segment 6 would pass through existing land uses that are primarily residential and open space. Residences are near the Proposed Project in the jurisdiction of the City of Palm Springs, the County of Riverside, and on BLM lands. Single-family homes on large lots are adjacent to and within the transmission line corridor through this portion of unincorporated Riverside County.

D.3.1.3 Environmental Setting for Connected Actions

The solar generation projects identified as connected actions in Table B-22 (see Section B.7.1) would require approximately 9,760 acres and would occur in the Desert Center area and the Blythe area. The following is a discussion of each area's environmental setting and applicable air basins.

Desert Center Area. The Desert Center area is located in the Mojave Desert Air Basin, which is within the jurisdiction of four air districts: Kern County Air Pollution Control District, Antelope Valley Air Quality Management District, Mojave Desert Air Quality Management District (MDAQMD), and SCAQMD (CEC, 2013). Connected actions in this area would include the 500 MW Palen Solar Power Project, the 150 MW Desert Harvest Project, and two confidential solar PV projects that are 50 MW and 250 MW, respectively. The connected actions that are known (i.e., Palen Solar Power Project and Desert Harvest Project) are located within the jurisdiction of the SCAQMD.

Due to the proximity of the basin to coastal and central regions, and due to the blocking nature of the Sierra Nevada Mountains to the north, prevailing winds in the basin are out of the west and southwest (CEC, 2013). Dominant emission sources in the Desert Center Area include: mobile sources (i.e., traffic) on I-10, Highway 177, and other roadways; agricultural operations on private lands; recreational vehicle use on public and private lands; fuel combustion and fugitive dust associated with development (e.g., other energy generation projects); surrounding residential lands uses; and wind erosion from lands with sparse vegetation (BLM, 2012).

Ambient Air Quality Conditions. The Desert Center area of the Mojave Desert Air Basin is designated as non-attainment for State ozone and PM 10 standards, and as attainment or unclassified for all federal standards and for State CO, NO_2, SO_2, and PM2.5 standards.

Sensitive Receptors. Sensitive receptors in the Desert Center area are primarily recreational resources (i.e., national park and wilderness areas), and a few residences located throughout the region. See Sections D.11 (Land Use and BLM Realty) and D.15 (Recreation) for a discussion of sensitive receptors in the area.

Blythe Area. The Blythe area is located in Mojave Desert Air Basin, which is under the jurisdiction of the MDAQMD. Connected actions in this area would include three solar PV projects that total 524 MW. Dominant emission sources in the area include the following: mobile sources (i.e., traffic), recreational vehicle use, mining, agriculture and livestock grazing, and wind erosion (POWER Engineers, 2014).

Ambient Air Quality Conditions. The Mojave Desert Air Basin is designated as non-attainment for State ozone and PM10 standards, and as attainment or unclassified for all federal standards and for State CO, NO_2, SO_2, and PM2.5 standards (POWER Engineers, 2014).

Sensitive Receptors. Sensitive receptors in the Blythe Area include agriculture, recreational resources, and residences in the City of Blythe and unincorporated Riverside County. See Sections D.2 (Agriculture), D.11 (Land Use and BLM Realty), and D.15 (Recreation) for a discussion of sensitive receptors in the area.

D.3.2 Applicable Regulations, Plans, and Standards

D.3.2.1 Federal

Federal Clean Air Act (CAA) and California Clean Air Act. The NAAQS (Table D.3-1) were originally established by the U.S. EPA for criteria air pollutants in 1970, with a mandate for periodic updating of the standards. Criteria pollutants are the most prevalent air pollutants known to be hazardous to human health. Ambient air quality standards are designed to protect people who are most susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The ambient air quality standards also are set to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings.

The relevant local air district rules and regulations to enable the demonstration of attaining the ambient air quality standards are incorporated into the State Implementation Plan (SIP) from each local air quality management plan, as needed for each nonattainment pollutant. Each local air district has the responsibility to develop the necessary regional air quality management plan for attaining and maintaining the standards. Each air district also has the authority to issue permits through its rules and regulations by requiring that new stationary sources be subject to New Source Review (NSR). The NSR program ensures that the new stationary sources would not interfere with progress to attain the ambient air quality standards. No new stationary sources would be associated with the Proposed Project or subject to permitting. Emissions from mobile and portable sources and temporary activities (such as construction) are managed through a range of State and federal programs that control mobile sources, motor vehicle emissions, and emissions from equipment powered by diesel engines.

The federal Clean Air Act provides protection of federally designated wilderness areas, called Class I Areas, as shown on Figure D.3-1. New or modified major stationary sources near Class I Areas must assess potential impacts to air quality related values, including long-range visibility of pollution and deposition of air pollutants to soil and water. While the San Gorgonio Wilderness and San Jacinto Wilderness are within 3 to 4 miles of the Proposed Project, there is no requirement to evaluate impacts to Class I Areas because the Proposed Project does not include any new or modified stationary sources of emissions.

General Conformity Rule. Under Section 176(c) of the Clean Air Act Amendments (CAAA) of 1990, the BLM must make a determination of whether approval of the Proposed Project (i.e., a federal action) would cause or contribute to a violation of the NAAQS or interfere with the purpose of a SIP. The determination must be based on the General Conformity requirements (40 CFR Part 93 et seq.; March 2010). General Conformity applies to federal actions in areas that are designated as nonattainment or maintenance areas for the NAAQS, to ensure that activities will not:

- Cause or contribute to any new violation of any standard;
- Interfere with provisions in the applicable SIP for maintenance of any standard;
- Increase the frequency or severity of any violation of any standard in any area; or

- Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

If the total direct and indirect emissions from the federal action are below the applicability levels of the rule, the project would be exempt from performing a comprehensive Air Quality Conformity Analysis and Determination, and would be considered to be in conformity with the SIP. If an Air Quality Conformity Analysis and Determination is necessary, it must be certified prior to the project's Record of Decision (ROD).

The South Coast Air Basin portions of the Proposed Project are within an "extreme" ozone nonattainment area, and the Salton Sea Air Basin portions of the Proposed Project are within a "severe" ozone nonattainment area under the federal standards. The general conformity emissions applicability thresholds for ozone nonattainment classifications apply to ozone precursor emissions (NOx and VOC), and comparable thresholds apply to PM10 or PM2.5 emissions, depending on the federal designation. Table D.3-3 shows the thresholds for when a General Conformity determination is required.

Table D.3-3. General Conformity Rule Applicability Thresholds

	South Coast Air Basin		Salton Sea Air Basin	
Pollutant	Federal Designation	Applicability Threshold	Federal Designation	Applicability Threshold
Ozone (NOx or VOC)	Nonattainment (Extreme)	10 tons per year	Nonattainment (Severe)	25 tons per year
PM10	Attainment (Maintenance)	100 tons per year	Nonattainment (Serious)	70 tons per year
PM2.5	Nonattainment	100 tons per year	No threshold	No threshold
CO	Attainment (Maintenance)	100 tons per year	No threshold	No threshold

Source: U.S. EPA (40 CFR §93.153).

D.3.2.2 State

U.S. EPA/CARB Off-Road Mobile Sources Emission Reduction Program. The California CAA mandates CARB to achieve the maximum degree of emission reductions from all off-road mobile sources in order to attain the State ambient air quality standards. Off-road mobile sources include construction and farming equipment. Tier 1, Tier 2, and Tier 3 standards for large compression-ignition engines used in off-road mobile sources went into effect in California in 1996, 2001, and 2006 respectively. Tier 4 or Interim Tier 4 standards apply to all off-road diesel engines model year 2012 or newer. In addition, equipment can be retrofitted to achieve lower emissions using the CARB-verified retrofit technologies. The engine standards and ongoing rulemaking jointly address NOx emissions and toxic diesel particulate matter (DPM) from diesel fuel combustion.

CARB In-Use Off-Road Diesel-Fueled Fleet Regulation. The regulations for in-use off-road diesel equipment are designed to reduce NOx and DPM from existing fleets of equipment. CARB is gradually enforcing this rule with emissions performance requirements for large fleets starting on July 1, 2014, medium fleets in 2017 and small fleets in 2019 (CARB, 2014b). Depending on the size of the fleet, the owner must ensure that the average emissions performance of the fleet meets targeted standards. The rule also prohibits owners from adding older Tier 0 or Tier 1 equipment to an existing large or medium fleet. In lieu of improving the average emissions performance of the fleet, electric systems can be installed to replace diesel equipment in the fleet average calculations. Presently, all equipment owners are subject to a five-minute idling restriction in the rule (13 California Code of Regulations, Chapter 10, Section 2449).

California Diesel Fuel Regulations. In 2004, the CARB set limits on the sulfur content of diesel fuel sold in California for use in on-road and off-road motor vehicles (13 California Code of Regulations, Sections 2281-2285 and 17 California Code of Regulations Section 93114). Under this rule, the sulfur content of diesel fuel was not to exceed 15 ppm after June 2006; this mandates use of ultra-low sulfur diesel fuel.

CARB Portable Equipment Registration Program. This program allows owners or operators of portable engines and associated equipment commonly used for construction or farming to register their units under a statewide portable program that allows them to operate their equipment throughout California without having to obtain individual permits from local air districts.

CARB Airborne Toxic Control Measures (ATCM). Diesel engines on portable equipment and vehicles are subject to various ATCM that dictate how diesel sources must be controlled statewide. For example, the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling generally limits idling of commercial motor vehicles (including buses and trucks) within 100 feet of a school or residential area for more than five consecutive minutes or periods aggregating more than five minutes in any one hour (13 California Code of Regulations, Chapter 10, Section 2485). Diesel engines used in portable equipment fleets also are subject to stringent DPM emissions standards, generally requiring use of only newer engines or verified add-on particulate filters (17 California Code of Regulations Section 93116). Certain stationary compression-ignition engines running on diesel fuel, including emergency standby engines, must also control particulate matter emissions by installing verified add-on equipment (17 California Code of Regulations Sections 93115.4 and 93115.6).

D.3.2.3 Local

South Coast Air Quality Management District

The SCAQMD is responsible for attaining timely compliance with federal standards within the South Coast Air Basin and the Coachella Valley portion of the Salton Sea Air Basin. As such, SCAQMD is responsible for developing those portions of the State Implementation Plan (SIP). The Air Quality Management Plan (AQMP) describes all sources, identifies trends in future emissions, and outlines the attainment strategy in terms of stationary and area source controls. The SCAQMD also coordinates with metropolitan transportation planning agencies to develop transportation control measures for mobile sources.

SCAQMD Air Quality Management Plan. The AQMP is the current (2012) comprehensive attainment strategy for ozone and PM2.5. The AQMP identifies the rules and regulations and contingency measures that demonstrate how the region will achieve the necessary overall emission reductions to attain the federal 24-hour PM2.5 standard in 2014, with a possibility of up to a five-year extension by U.S. EPA to 2019, if needed. An update of the plan is planned for 2016. The 2012 AQMP also provides an update to demonstrate progress in attaining the 8-hour ozone standard in 2023 (SCAQMD, 2013).

Coachella Valley PM10 Attainment Plan. The Coachella Valley PM10 State Implementation Plan (most recently updated in 2003) includes fugitive dust control measures that have been implemented through the adoption of SCAQMD Rule 403.1, which is supplemental to SCAQMD Rule 403. The Coachella Valley PM10 SIP also outlines enhancements for local ordinances to include dust controls as part of local building permits and for unpaved parking lots and unpaved access roads. Emission reductions implemented in the upwind South Coast Air Basin are expected to ensure timely attainment of existing standards in the Coachella Valley portion of the Salton Sea Air Basin (SCAQMD, 2013).

SCAQMD Rules and Regulations. The following SCAQMD rules limit the amount of visible dust emissions from construction sites, prohibit emissions that can cause a public nuisance, and require the prevention and reduction of fugitive dust emissions. Additionally, depending on the location and size of construction or disturbed surface areas a Fugitive Dust Control Plan may need to be submitted to SCAQMD for approval before initiating construction, per SCAQMD Rule 403, Rule 403.1 and the Rule 403.1 Implementation Handbook. The fugitive dust rules include measures that aim to reduce fugitive dust emissions from specific dust causing activities. The dust measures include, adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities (such as during periods of high winds).

- Rule 401 – Visible Emissions
- Rule 402 – Nuisance
- Rule 403 – Fugitive Dust
- Rule 403.1 – Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources
- Rule 1107 – Coating of Metal Parts and Products
- Rule 1113 – Architectural Coatings Rule

Cities and Counties

Local community plans in the cities and counties of project-related activities have policies that generally address air quality and protect people from air pollution. These policies share the aims of reducing fugitive dust, reducing emissions from wasteful fuel use, or using construction materials that would reduce emissions, which are subjects of rules and regulations that apply as adopted by the agencies with jurisdiction: SCAQMD, CARB, and U.S.EPA. Aside from generally striving for reduced emissions and energy consumption, community plans, policies, and goals do not specifically address the types of sources that could occur with the Proposed Project.

D.3.3 Environmental Impacts of the Proposed Project

D.3.3.1 Approach to Impact Assessment

Air pollutant emission rates depend on the anticipated activity of various sources, the vast majority of which would be mobile sources or area-wide sources such as the airborne dust from unpaved surfaces. The assumptions cover the information in Section B.3.8 (Construction Workforce and Equipment), Section B.3.9 (Construction Schedule and Sequence), and the anticipated activities during the life of the project after construction is completed, described in Section B.4 (Operations and Maintenance).

Worst-case peak daily construction and operation emissions were estimated by SCE for the Proposed Project using a detailed equipment inventory combined with emissions factors from the CARB EMFAC2011 and OFFROAD databases (SCE, 2013). The peak daily emission rates are based on the sum of the individual sources, including:

- Off-road equipment (loaders, dozers, graders, scrapers, etc.);
- Helicopters;
- Maximum disturbed area;
- Import/export of materials and debris;
- Daily truck trips; and
- Number of on-site employees.

D.3.3.1.1 Applicant Proposed Measures

Table D.3-4 presents the Applicant Proposed Measures (APMs) for air quality.

Table D.3-4. Applicant Proposed Measures – Air Quality

APM	Description
Air Quality	
APM AIR-1	SCE would prepare an Exhaust Emissions Control Plan to establish a target goal of a project-wide fleet average reduction of 20 percent NO_X compared to the estimated unmitigated emissions as presented in the PEA for applicable diesel-fueled off-road construction equipment of more than 50 horsepower. Acceptable options for reducing emissions could include, but are not limited to: the use of newer model engines meeting U.S. EPA Tier 3 standards if available (or better), low emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other similar available options.
APM AIR-2	SCE would prepare a Fugitive Dust Control Plan to reduce fugitive dust emissions (fugitive PM_{10} and $PM_{2.5}$). Acceptable control measures for reducing emissions described within the Fugitive Dust Control Plan may include, but are not limited to: limit traffic speeds on unpaved roads to 15 mph; apply water as needed to comply with SCAQMD Rule 403 requirements, or apply soil stabilizers (e.g., gravel for substation area) on active unpaved access roads, the substation area, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area; apply soil stabilizers to inactive construction areas as described in the SWPPP; where applicable, install gravel, shaker plates, or other BMPs at the point of intersection with public paved surfaces. The Fugitive Dust Control Plan would describe how the measures would be implemented and monitored during Project construction. Furthermore, as construction details become available, the Fugitive Dust Control Plan would include site-specific mitigation measures for Project areas that could be more likely to generate dust near sensitive receptors.

D.3.3.2 Impact Criteria

NEPA does not have specific significance criteria. However, NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). The level of impacts to air quality depends on location-specific criteria for each air basin, and for the purposes of this analysis are based on the following criteria:

- The Proposed Project would be inconsistent with the current approved Air Quality Management Plan.
- The Proposed Project would exceed the federal General Conformity Rule applicability thresholds (40 CFR Part 93), also known as *de minimis* levels (see Table D.3-3).
- Activities associated with the Proposed Project would generate emissions of air pollutants that would exceed SCAQMD thresholds for regional emissions (Table D.3-5) or localized significance thresholds (Table D.3-6).
- Activities associated with the Proposed Project would cause or contribute to any new violation of NAAQS or CAAQS in the project area; or interfere with the maintenance or attainment of NAAQS or CAAQS; or increase the frequency or severity of any existing violations of NAAQS or CAAQS; or delay the timely attainment of any standard, interim emission reduction, or other air quality milestone promulgated by the U.S. EPA, CARB, or local air quality agency.
- The Proposed Project would expose a substantial number of people to objectionable odors.
- The Proposed Project would expose sensitive receptors to substantial pollutant concentrations.

Regional Air Quality Significance Criteria. The SCAQMD recommends using mass daily emissions rate thresholds for determining the regional significance of emissions from construction activities and from project operations as shown in Table D.3-5 (SCAQMD, 2011).

Table D.3-5. Significance Thresholds for Regional Air Quality (lb/day)

	NOx	VOC	PM10	PM2.5	SOx	CO
Construction	100	75	150	55	150	550
Operation[1]	55	55	150	55	150	550

1 - For Coachella Valley portion of the Salton Sea Air Basin, mass daily thresholds for operation are the same as the construction thresholds.
Source: SCAQMD, 2011.

Localized Air Quality Significance Criteria. In addition to the thresholds for a regional impact, the SCAQMD developed localized significance thresholds for lead agencies to use in determining whether mass emissions rates would be likely to cause a localized impact to ambient air quality. The localized thresholds represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard (SCAQMD, 2008). The localized thresholds are based on the ambient concentrations of that pollutant within each local source-receptor area. Each localized threshold is based on the new source occurring within a site of five acres or smaller, with the most stringent thresholds being applicable in situations with the nearest distances to a sensitive receptor.

The Proposed Project would occur within multiple source-receptor areas (SRA) as they are defined by SCAQMD for use of localized thresholds (SCAQMD, 2009). Transmission line work areas would generally occur within 1 acre. Substation modifications would generally occur within a construction site of 5 acres.

The west end of the project would be within the Central San Bernardino Valley (SRA 34) and East San Bernardino Valley (SRA 35). The central segments would be within the Hemet/San Jacinto Valley (SRA 28) and Banning Airport area (SRA 29), and the eastern end would be within the Coachella Valley (SRA 30). The localized thresholds applicable to 1-acre and 5-acre construction sites in these areas are shown in Table D.3-6.

Table D.3-6. Localized Significance Thresholds for Construction Sites (lb/day) [1]

	NOx	NOx	PM10	PM10	PM2.5	PM2.5	CO	CO
SCAQMD Source-Receptor Area	1 acre	5 acre	1 acre	5 acre	1 acre	5 acre	1 acre	5 acre
Central San Bernardino Valley (SRA 34)	118	270	4	14	3	8	667	1,746
East San Bernardino Valley (SRA 35)	118	270	4	14	4	9	775	2,075
Hemet/San Jacinto Valley (SRA 28)	162	371	4	13	3	8	750	1,965
Banning Airport (SRA 29)	103	236	6	21	4	11	1,000	2,817
Coachella Valley (SRA 30)	132	304	4	14	3	8	878	2,292

1 - Thresholds are for receptors 25 meters from construction site boundaries; less stringent thresholds apply to receptors at greater distances.
Source: SCAQMD, 2009.

D.3.3.3 Impacts and Mitigation Measures

Impacts During Construction and Restoration Activities

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants

Construction emissions would result from activities within the substation sites, transmission and subtransmission corridors, including staging areas and access roads. Construction emissions would occur as a result of the full range of activities including ground disturbance, use and improvement of access roads, site preparation, surface clearing, excavation, foundation installation, steel structure and wood pole installation, installing guard structures and shoo-fly structures, transfer and removal of existing structures and facilities, and site restoration. Emissions would also occur from offsite activities such as construction-related haul trips and construction workers commuting. Construction emissions would exacerbate the adverse health effects (identified in Table D.3-1) caused by air pollutants for those exposed to the emissions and would contribute to existing violations of ambient air quality standards and worsen existing nonattainment designations in the region (identified in Table D.3-2).

Pollutant emissions would vary from day to day depending on the level of activity and the specific process occurring in the sequence. Pollutant emissions sources would also move along the project corridor as the construction activities would occur at each substation, structure or pole site, and sites of other project components.

The range of construction equipment that contributes to dust and exhaust emissions of criteria air pollutants includes off-road equipment (e.g., loaders, dozers, graders, scrapers, compactors, cranes, drill rigs, and tension machines), helicopters, and on-highway (on-road) vehicles (e.g., water trucks, concrete pump trucks, dump trucks, and worker vehicles). A considerable number of the offsite truck trips would be associated with importing concrete, delivering steel, wood, wire, and other materials, and exporting wastes, debris, and structures for removal.

Air emissions for the Proposed Project are calculated using the latest standard calculation methodologies recommended by oversight agencies, including CARB and SCAQMD. The detailed emission calculations and quantification are provided by SCE as part of the PEA and attached with this EIS in Appendix 6 (Air Quality); emissions quantified in the following tables reflect the NOx and fugitive dust reductions that could be achieved by implementing SCE's APMs (Section D.3.3.1.1, Table D.3-4). For off-road and on-road vehicles, the emission estimates rely on factors from the CARB OFFROAD and EMFAC2011 databases, respectively. Consistent with CARB and SCAQMD recommendations, factors from U.S. EPA literature provide estimates of fugitive dust from ground disturbance and material storage piles. The data within the CARB models and U.S. EPA documentation provide appropriate factors directly applicable to the project-specific fleet of equipment most likely to be used and anticipated activities, based on SCE's development plans. The factors are used in conjunction with SCE's preliminary understanding of equipment activity and construction schedule, which means that the results are estimates based on assumptions that could be refined by SCE after final engineering.

Federal General Conformity. Table D.3-7 shows the total direct and indirect emissions from construction of the Proposed Project on federal lands and the General Conformity rule applicability emission trigger levels. The Morongo reservation portions occur within the South Coast Air Basin, and the BLM land portions occur within the Salton Sea Air Basin. Construction of the portions of the Proposed Project on BLM land and on the Morongo reservation land would cause emissions at average annual rates below the General Conformity thresholds in the relevant air basins. As such, the Proposed Project would be exempt from performing a comprehensive Air Quality Conformity Analysis and Determination, and would be considered by federal agencies to be in conformity with the SIP. Although emissions would be below the thresholds in both air basins, the planning-level emission inventory for NOx within the SCAQMD specifically includes anticipated levels from SCE's major transmission construction activities. Up to 20 tons of NOx per year for 2018 through 2022 (Appendix III, p. III-2-53, of the AQMP) are accounted for in the SCAQMD General Conformity set aside account for NOx (SCAQMD, 2013).

Table D.3-7. Construction-Phase Emissions and General Conformity (average tons per year)

Location	NOx	VOC	PM10	PM2.5	CO
Morongo Reservation Portions of Project with APMs	6.0	1.0	0.9	0.4	3.6
General Conformity Threshold for South Coast Air Basin	**10**	**10**	**100**	**100**	**100**
BLM Land Portions of Project with APMs	2.1	0.3	0.2	0.1	1.2
General Conformity Threshold for Salton Sea Air Basin	**25**	**25**	**70**	**—**	**—**

Source: Appendix 7; SCE, 2013 (PEA Table 4.3-21; PEA Table 4.3-22; PEA Appendix E).

SCAQMD Regional Emissions. Table D.3-8 shows the emissions of dust and equipment exhaust pollutants during construction of the Proposed Project on a peak daily basis and compares construction emissions to the criteria set forth by SCAQMD for potential impacts to regional air quality conditions.

Table D.3-8. Construction-Phase Regional Emissions Impacts (lb/day)

Project Component	NOx	VOC	PM10	PM2.5	CO
Devers Substation	59.0	8.1	3.4	2.7	40.8
El Casco Substation	53.3	7.2	2.9	2.4	33.3
Vista Substation	53.4	7.4	3.0	2.4	35.1
San Bernardino Substation	61.5	8.4	4.1	2.9	40.4
Etiwanda Substation	0.2	0.0	0.0	0.0	2.0
220 kV Transmission Line	4,009.0	525.9	243.2	155.9	2,259.0
Shoo-Fly	1,739.3	241.3	165.0	87.7	837.6
66 kV Subtransmission Line	828.2	111.5	57.1	34.8	448.6
Telecommunications System	141.2	17.4	9.9	5.6	54.6
Total Peak Daily Construction	**6,945.1**	**927.2**	**488.6**	**294.4**	**3751.4**
Total Peak Construction with APMs	**5,558.4**	**927.9**	**378.3**	**271.6**	**3,764.4**
SCAQMD Regional Threshold for Construction	**100**	**75**	**150**	**55**	**550**

Source: Appendix 7; SCE, 2013 (PEA Table 4.3-19; PEA Appendix E).

SCAQMD Localized Impacts. Table D.3-9 shows the peak daily localized emissions of criteria air pollutants. Receptors within approximately 82 feet (25 meters) of the edge of 1-acre work sites would experience localized impacts of NOx, PM10 and PM2.5; a portion of the PM2.5 impacts would be due to TACs found in equipment exhaust, including DPM. Transmission line work areas would generally occur within 1 acre, and substation modifications would generally occur within a construction site of 5 acres.

Table D.3-9. Construction-Phase Localized Emissions Impacts (lb/day)

Project Component	NOx	VOC	PM10	PM2.5	CO
220 kV Tower Foundation (except Segment 5), Localized Emissions with APMs	58.0	9.0	10.3	4.0	27.6
220 kV Tower Foundation (Segment 5), Localized Emissions with APMs	72.6	11.0	13.2	5.1	35.1
Shoo-Fly, Localized Emissions with APMs	83.9	14.1	11.6	6.3	48.6
66 kV Subtransmission Line, Localized Emissions with APMs	18.6	3.1	7.1	2.1	9.7
Telecommunications System, Localized Emissions with APMs	140.9	17.3	9.9	5.6	51.6
SCAQMD Localized Threshold for Construction on 1-acre site	**103**	**—**	**4**	**3**	**667**
Any Substation, Peak Phase Localized Emissions with APMs	31.4	4.3	2.8	1.7	19.4
SCAQMD Localized Threshold for Construction on 5-acre site	**132**	**—**	**13**	**8**	**1,746**

1 - Thresholds are for receptors 25 meters from construction site boundaries; less stringent thresholds apply to receptors at greater distances.
Source: Appendix 7; SCE, 2013 (PEA Table 4.3-14 to Table 4.3-18; PEA Appendix E).

Summary for Construction Emissions of Criteria Pollutants. Controlling dust and equipment exhaust emissions would be necessary to avoid causing any new violations or contributing substantially to existing violations of the ambient air quality standards and to avoid interfering with the established attainment plans. The Proposed Project would be required to implement dust controls required by SCAQMD Rules 403 and 403.1 so that dust does not remain visible in the atmosphere beyond the edge of the property line or create a nuisance off-site. The Proposed Project would need a Fugitive Dust Control Plan, approved by the SCAQMD in compliance with Rule 403.1 and the SCAQMD Rule 403.1 Implementation Handbook. These mandatory efforts would ensure that the project implements sufficient fugitive dust control measures to avoid a conflict with the Coachella Valley PM10 attainment plan. Compliance with the CARB In-Use Off-Road Diesel-Fueled Fleet Regulation and emission targets for large fleets would ensure that equipment includes sufficient controls to avoid a conflict with attainment plans.

The mandatory controls would not reduce construction emissions to below the SCAQMD regional or localized thresholds, and the APMs lack key implementation details necessary to be enforceable. To avoid causing any new violations or contributing substantially to existing violations of the ambient air quality standards, and to further reduce the adverse regional and localized effects of construction-phase emissions, the APMs should be superseded, and the following mitigation measures are proposed.

Mitigation Measures for Impact AQ-1

AQ-1a **Control fugitive dust.** SCE shall develop a Fugitive Dust Control Plan and at least 60 days prior to construction submit the plan to the CPUC/BLM and SCAQMD for review and approval. The approved plan shall be implemented for all construction activities that may be a source of fugitive dust. Any fugitive dust control requirements in the SCAQMD rules and regulations, specifically Rule 403 and Rule 403.1, that are in addition to or more stringent than the requirements listed below shall be implemented and included in the plan. The plan shall include the following feasible measures:

- Traffic speeds on unpaved roads shall not exceed 15 miles per hour.
- A traffic route plan shall be developed and vehicles shall follow routes that minimize unpaved road travel.
- Unpaved roads, substation areas, and staging areas shall be watered three times daily when being used by construction vehicle traffic, or non-toxic soil stabilizers (e.g., water, tackifiers, and soil binders) shall be applied per manufacturer's recommendations and in sufficient quantities to maintain compliance with SCAQMD and jurisdictional requirements to maintain no visible vehicle travel dust emissions.
- Inactive excavated or graded soils and soil piles shall be sufficiently watered or sprayed with a soil stabilizer to create a surface crust or shall be covered.
- Drop heights from excavators and loaders shall be minimized to a distance no more than 5 feet.
- Soil truck loads shall be covered and gate seals on dump trucks shall be tight.
- Construction activities that occur on unpaved surfaces shall be discontinued during periods when activities are causing visible dust plumes that cannot be avoided by approved dust suppression methods. All grading and excavation activities shall be suspended when wind speeds exceed 30 miles per hour unless otherwise approved in the Fugitive Dust Control Plan. Wind speed measurement methods shall be consistent with the SCAQMD Implementation Handbook for Rule 403 and Rule 403.1.

AQ-1b **Control off-road equipment emissions.** Off-road equipment with engines larger than 50 horsepower shall have engines that meet or exceed U.S. EPA/CARB Tier 3 Emissions Standards. Exceptions will be allowed only on a case by case basis for two specific situations: (1) an off-road equipment item that is a specialty, or unique, piece of equipment that cannot be found with a Tier 3 or better engine after a due diligence search; and/or (2) an off-road equipment item that will be used for a total of no more than 10 days.

AQ-1c **Control helicopter emissions.** Helicopter emissions shall be reduced by the following methods and measures:

- Helicopter idling will occur only when necessary for safe operation and emergency readiness purposes.
- Helicopter operators shall use the smallest practical and available helicopter for each lift operation.
- Fugitive dust from helicopter rotor wash will be reduced through the implementation of the following measures:
  - The helicopter staging areas, that are not on existing paved airfields or other large paved sites, shall be treated with soil amendments (e.g., water, tackifiers, soil binders) that shall be applied at a frequency necessary to create and maintain surface soil crusts where rotor wash creates fugitive dust emissions;
  - Enough land area shall be obtained for each helicopter staging area not located on existing paved airfields or other large paved sites, so that rotor wash does not create visible fugitive dust emissions outside of the controlled staging area or ROW.
  - Helicopter operations will take flight paths (i.e., elevation above ground) that will eliminate dust emissions from rotor wash when travelling between the helicopter staging area and the work sites.
  - The helicopter work sites shall be watered prior to helicopter visits. Alternatively, other soil stabilizers shall be applied at a frequency necessary to create and maintain a surface soil crust while helicopter visits are occurring at the work site.

Impact AQ-2: Construction would generate emissions of toxic air contaminants

Much of the proposed construction activity would occur in or near urbanized or developed areas, where land uses including sensitive receptors may be adjacent to sources of toxic air contaminants. Construction would cause locally increased concentrations of toxic air contaminants, and sensitive receptors exposed to substantial levels of toxic air contaminants may experience short-term (acute) effects or long-term (chronic) effects.

Project construction would emit toxic air contaminants such as DPM, but aside from vehicles and diesel-fired construction equipment, the Proposed Project would not involve any notable sources of odors or TACs. Construction equipment and some construction activities, such as small areas of asphalt paving, could create mildly objectionable odors. Emissions of this nature would occur briefly during construction and would cease as the construction activity would move through phases and between work areas. There would be no notable impact of objectionable odors affecting a substantial number of people.

Sensitive receptors include residential areas, schools, day care centers, hospitals, and other places where people reside. Construction of transmission, subtransmission, telecommunications, and other facilities would occur near sensitive receptors along the linear routes of these project components. Installing these utilities could briefly expose sensitive receptors to construction-related emissions (summarized in Table D.3-9) as the sequence of construction activities progresses. Vehicle exhaust and diesel-powered construction equipment exhaust includes emissions of DPM and other toxic air contaminants. This would expose receptors to increased health risk and hazards.

The construction-related emissions would be short-term, and aside from substations and staging areas, no single location would be exposed to increased pollutant concentrations for more than a few days as construction crews move along the linear routes. Activities at substation sites and staging areas would occur over a span of 36 to 48 months; however, peak emissions from construction at substations would occur at lower rates than at tower and pole work sites (see Table D.3-9). Construction at any one work site along the linear routes would last a much shorter time. The limited duration and limited quantities of construction emissions ensure that the exposure of any individual sensitive receptor would be limited. This limits the potential for short-term (acute) effects or long-term (chronic) effects including cancer. The Proposed Project would not involve any new stationary sources of TACs, and construction-related diesel equipment emissions would not occur at any single location for an excessive duration.

Mitigation previously identified for Impact AQ-1 would require SCE to use newer equipment that emits lower levels of DPM, which would further reduce local concentrations of TACs during construction.

Impacts During Operations and Maintenance

Impact AQ-3: Operation, maintenance, and inspections would generate dust and exhaust emissions

The emissions from operation, maintenance, and inspection activities would be limited to the emissions caused by additional inspection and maintenance operations of the new facilities. Indirect effects of the project on air pollutant emissions from power plants would primarily be due to changing the deliverability of the region's electricity generation facilities, and are expected to be minimal (see Section D.6, Climate Change). Emissions directly related to O&M activities would displace emissions from existing inspection and maintenance activities that presently occur. The new facilities would not notably change or increase the types of inspection and maintenance activities. Direct effects of daily and annual operating emissions would be minimal. Additional workers would not be necessary for the Proposed Project compared with the existing facilities.

Table D.3-10 provides the estimate of typical daily operating emissions from the various operation, maintenance, and inspection activities. Annual emissions would not be likely to exceed federal General Conformity thresholds, and daily emissions would not exceed the regional criteria set forth by SCAQMD for impact characterization.

Table D.3-10. Operational-Phase Emissions Impacts to Regional Air Quality (lb/day)

	NOx	VOC	PM10	PM2.5	CO
Total Daily Project Operation	22.0	5.7	0.8	0.7	11.3
Operation (SCAQMD Regional Threshold)	**55**	**55**	**150**	**55**	**550**

Source: Appendix 7; SCE, 2013 (PEA Table 4.3-20; PEA Appendix E).

Along with criteria air pollutants from project operations (see Table D.3-10), toxic air contaminant emissions would also occur from limited use of vehicles for routine maintenance, repair, and inspection. The levels of emissions caused during operation would not have the potential to expose sensitive receptors to substantial concentrations of any TAC or odors.

D.3.3.4 Impacts of Connected Actions

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants

Desert Center Area. This area includes two known projects (i.e., the Palen Solar Power and Desert Harvest Projects) for which air quality analyses have been completed, and two confidential solar PV projects whose specific locations in the Desert Center area are unknown. Notwithstanding the lack of information for the confidential solar PV projects, the types of construction equipment used and activities that occur for these projects are expected to be similar to the construction of other solar energy facilities (e.g., Desert Harvest Project). The Desert Harvest Project is within the same air basin and is under the jurisdiction of the same air district as the connected projects (BLM, 2012).

The construction of large solar projects would create emissions of NOx, SO_2, CO, PM10, and PM2.5. Pollutant emission sources during construction would mostly occur from earth moving, grading activities, large equipment operations, the construction of buildings and other maintenance structures, and the installation of equipment. The air quality analysis for the Desert Harvest Project determined that following project mitigation, daily construction emissions for NOx, CO, and PM10 would exceed SCAQMD thresholds, and residual impacts would be unavoidable (BLM, 2012).

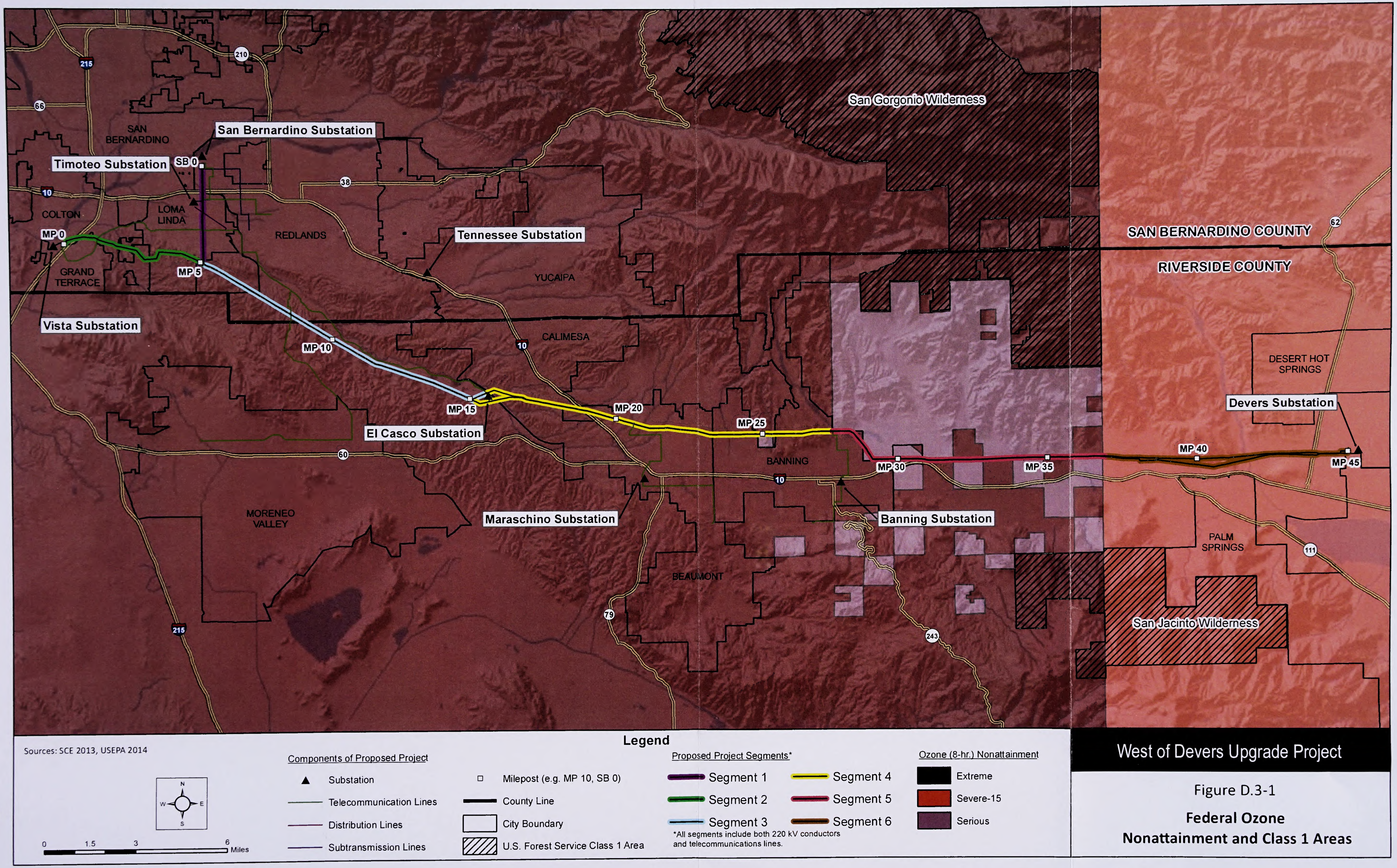
Standard mitigation would be required to control dust and equipment exhaust in order to minimize the projects' contributions to existing violations of the ambient air quality standards. Typical mitigation includes the BMPs, BLM or other lead agency imposed mitigation and permit conditions, as well as measures similar to AQ-1a (Control fugitive dust) for PM10 and AQ-1b (Control off-road equipment emissions) for NOx, PM10, and PM2.5.

Blythe Area. Although the three confidential solar projects in the Blythe area would interconnect at the Colorado River Substation, their specific locations are unknown. It is assumed that the types of equipment and activities that would be used would be similar to the construction of other solar energy facilities (e.g., Desert Harvest Project and Blythe Mesa Solar Project). The construction of solar projects in the Blythe area would create emissions of NOx, SO_2, CO, PM10, and PM2.5. Pollutant emission sources during construction would mostly occur from earth moving, grading activities, large equipment operations, the construction of buildings and other maintenance structures, and the installation of equipment.

It is assumed that construction of the connected projects in the Blythe Area would generate emissions similar to the Blythe Mesa Solar Project, and would require mitigation to control dust and equipment exhaust in order to minimize their contribution to existing violations of the ambient air quality standards. Typical mitigation includes the BMPs and permit conditions, as well as measures similar to AQ-1a (Control fugitive dust) and AQ-1b (Control off-road equipment emissions).

Impact AQ-2: Construction would generate emissions of toxic air contaminants

All of the connected actions described in Section B.7 are solar generation projects, and the types of TACs that would be generated during construction would be similar. As described in the analysis for the Desert Harvest Project, the only notable source of odors during construction would be from the use of diesel-fueled construction equipment and small quantities of coatings that include organic compounds (BLM, 2012). Construction odors for each of the connected actions would be temporary and would be limited as a result of California's transition to ultra-low sulfur diesel fuel. Implementation of a measure such as Mitigation Measure AQ-1b (Control off-road equipment emissions) would further minimize local concentrations of TACs during construction.



West of Devers Upgrade Project

Figure D.3-1

Federal Ozone Nonattainment and Class 1 Areas

Impact AQ-3: Operation, maintenance, and inspections would generate dust and exhaust emissions

Desert Center Area. Operation emissions from the connected projects in this area are expected to be similar to the emissions from the Desert Harvest solar project. The operational emissions from a solar project would be substantially lower than its construction emissions. Operation emissions would be limited to maintenance activities and vehicle emissions required for operation and maintenance, as well as fugitive dust emissions generated from vehicle trips for employee commutes, security, and maintenance activities (BLM, 2012). With mitigation, operation emissions from the Desert Harvest Project would not exceed the SCAQMD thresholds for criteria pollutants (BLM, 2012). Implementation of similar mitigation as Mitigation Measures AQ-1a (Control fugitive dust) and AQ-1b (Control off-road equipment emissions) would further reduce impacts to area receptors during operation to the extent feasible.

Blythe Area. Operation-related emissions from the three connected projects in the Blythe Area are expected to be similar to the operation emissions from the Blythe Mesa Solar Project. The connected actions are solar PV projects that total 524 MW, while the Blythe Mesa Solar Project is a 485 MW solar PV facility (POWER Engineers, 2014). The operation emissions would be substantially lower than construction emissions, and would be limited to maintenance activities and vehicle emissions required for operation and maintenance, as well as fugitive dust emissions generated from vehicle trips for employee commutes, security, and maintenance activities. Operation emissions would not exceed the maximum daily and annual MDAQMD thresholds for criteria pollutants (POWER Engineers, 2014). Implementation of measures such as Mitigation Measures AQ-1a (Control fugitive dust) and AQ-1b (Control off-road equipment emissions) would further reduce impacts to area receptors during operation to the extent feasible.

D.3.4 Environmental Impacts of Project Alternatives

Three alternatives are considered in this section; all of these alternatives would be located within the existing WOD ROW. The No Action Alternative is evaluated in Section D.3.5. Alternatives are described in detail in Appendix 5 (Alternatives Screening Report) and are summarized in Section C.

Air quality within the ROW is described by segment in Section D.3.1.2 above; the description of the environmental setting would apply equally to the alternatives.

D.3.4.1 Tower Relocation Alternative

The Tower Relocation Alternative would locate certain transmission structures in Segments 4, 5, and 6 farther from existing homes than would be the case under the Proposed Project. This alternative would relocate certain transmission structures, but would not reduce the number of structures or the amount of construction that would occur as compared to the Proposed Project.

Three impacts related to air quality were identified for the Proposed Project. These impacts also would apply to the Tower Relocation Alternative, which would be the same as the Proposed Project with the exception of the relocated of certain transmission towers. The full text of all mitigation measures referenced in this section is presented in Section D.3.3.3, except where otherwise noted.

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants

Construction emissions would result from activities within the substation sites, transmission and subtransmission corridors, including staging areas and access roads. Construction emissions would occur as a result of the full range of activities including ground disturbance, use and improvement of access roads, site preparation, surface clearing, excavation, foundation installation, steel structure and wood pole installation, installing guard structures and shoo-fly structures, transfer and removal of existing structures and facilities, and site restoration. Emissions would also occur from offsite activities such as construction-related haul trips and construction workers commuting. Construction emissions would exacerbate the adverse health effects (identified in Table D.3-1) caused by air pollutants for those exposed to the emissions and would contribute to existing violations of ambient air quality standards and worsen existing nonattainment designations in the region (identified in Table D.3-2).

Under the Tower Relocation Alternative, certain proposed towers in Segments 4, 5, and 6 would be relocated approximately 50 feet farther from the southern edge of the ROW. The remainder of the project would be built as proposed. Although this alternative would extend the construction timeframe by as much as one year, the type and intensity of construction activity would be substantially the same as in the Proposed Project. Due to the comparable type and intensity of activity, the annual and daily rates of emissions would be nearly the same as in the Proposed Project. This alternative is not expected to exceed any additional air quality thresholds compared to the Proposed Project.

With the exception of the relocated structures in Segments 4, 5, and 6, the Proposed Project when incorporating this alternative would include the same structures that would be constructed under the Proposed Project. The same as for the Proposed Project, construction emissions would result from activities within the substation sites, transmission and subtransmission corridors, including staging areas and access roads. Construction emissions would occur as a result of the full range of activities including ground disturbance, use and improvement of access roads, site preparation, surface clearing, excavation, foundation installation, steel structure and wood pole installation, installing guard structures and shoo-fly structures, transfer and removal of existing structures and facilities, and site restoration. Emissions would also occur from offsite activities such as construction-related haul trips and construction workers commuting.

Controlling dust and equipment exhaust emissions would be necessary to avoid causing any new violations or contributing substantially to existing violations of the ambient air quality standards and to avoid interfering with the established attainment plans. Like the Proposed Project, the Tower Relocation Alternative would be required to implement dust controls per SCAQMD Rules 403 and 403.1 so that dust does not remain visible in the atmosphere beyond the edge of the right-of-way or create a nuisance off-site. This alternative would need a Fugitive Dust Control Plan, approved by the SCAQMD in compliance with Rule 403.1 and the SCAQMD Rule 403.1 Implementation Handbook. These mandatory efforts would ensure that the project implements sufficient fugitive dust control measures to avoid a conflict with the Coachella Valley PM10 attainment plan. Compliance with the CARB In-Use Off-Road Diesel-Fueled Fleet Regulation and emission targets for large fleets would ensure that equipment includes sufficient controls to avoid a conflict with attainment plans.

The mandatory controls would not reduce construction emissions to below the SCAQMD regional or localized thresholds. Implementation of Mitigation Measures AQ-1a (Control fugitive dust), AQ-1b (Control off-road equipment emissions), and AQ-1c (Control helicopter emissions) would be required to avoid causing any new violations or contributing substantially to existing violations of the ambient air quality standards, and to further reduce the adverse regional and localized effects of construction-phase emissions.

Impact AQ-2: Construction would generate emissions of toxic air contaminants

Much of the proposed construction activity would occur in or near urbanized or developed areas, where land uses with sensitive receptors may be adjacent to sources of toxic air contaminants from project activities. Construction would cause locally increased concentrations of toxic air contaminants, and sensitive receptors exposed to substantial levels of toxic air contaminants may experience short-term (acute) effects or long-term (chronic) effects.

In general, the relocated towers would be moved approximately 50 feet farther from the southern edge of the ROW. This alternative could extend the length of construction disturbances near residences and other sensitive receptors, and this would marginally increase the duration that people would be exposed to construction emissions. Although this alternative would extend the construction timeframe by as much as one year, the type and intensity of construction activity would be substantially the same as in the Proposed Project. Due to the comparable type and intensity of activity, the concentrations of TACs near residences and other sensitive receptors would be nearly the same as in the Proposed Project. This alternative is not expected to result in excessive concentrations of TACs at any given location.

Construction emissions would cease after approximately 36 to 60 months of work throughout the corridor. As such, the concentrations of air toxics would not be substantial enough in magnitude or duration at any given location to create excessive concentrations of TACs or a potentially substantial adverse effect due to TACs. Impact AQ-2 would be adverse but not substantial. However, mitigation previously identified for Impact AQ-1 would reduce the levels of TACs emitted during construction in ways that would further reduce the severity of this adverse effect.

Impact AQ-3: Operation, maintenance, and inspections would generate dust and exhaust emissions

In general, the relocated towers would be moved approximately 50 feet farther from the southern edge of the ROW. The minor adjustment to the location of these towers would not change the emissions from operation, maintenance, and inspection activities compared to the Proposed Project. Indirect effects of the project on air pollutant emissions from power plants would be primarily due to changing the deliverability of the region's electricity generation facilities, and are expected to be minimal (see Section D.6, Climate Change). Emissions directly related to O&M activities would displace emissions from existing inspection and maintenance activities that presently occur. The new facilities would not notably change or increase the types of inspection and maintenance activities. Direct effects of daily and annual operating emissions would be minimal. Additional workers would not be necessary for this alternative compared with the existing facilities.

Annual emissions would not be likely to exceed federal General Conformity thresholds, and daily emissions would not exceed the regional criteria set forth by SCAQMD for impact characterization. Along with criteria air pollutants from project operations, toxic air contaminant emissions would also occur from limited use of vehicles for routine maintenance, repair, and inspection. The levels of emissions caused during operation would not have the potential to expose sensitive receptors to substantial concentrations of any TAC or odors.

D.3.4.2 Iowa Street 66 kV Underground Alternative

The Iowa Street 66 kV Underground Alternative would place a 1,600-foot segment of subtransmission line underground, rather than overhead.

Three impacts were identified under the Proposed Project for air quality. These impacts also would apply to the Iowa Street 66 kV Underground Alternative, which overall would be the same as the Proposed Project, with the exception of the underground portion of the subtransmission line that is described above and in Appendix 5. The full text of all mitigation measures referenced in this section is presented in Section D.3.3.3, except where otherwise noted.

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants

This alternative would place a 1,600-foot segment of 66 kV subtransmission line underground instead of on overhead poles. This short underground segment would not substantially increase the generation of dust and exhaust emissions compared to the Proposed Project. This alternative is not expected to exceed any additional air quality thresholds in comparison to the equivalent segment of the Proposed Project.

Controlling dust and equipment exhaust emissions would be necessary to avoid causing any new violations or contributing substantially to existing violations of the ambient air quality standards and to avoid interfering with the established attainment plans. The Iowa Street 66 kV Underground Alternative would be required to implement dust controls per SCAQMD Rules 403 and 403.1 so that dust does not remain visible in the atmosphere beyond the edge of the right-of-way or create a nuisance off-site. This alternative would need a Fugitive Dust Control Plan, approved by the SCAQMD in compliance with Rule 403.1 and the SCAQMD Rule 403.1 Implementation Handbook. These mandatory efforts would ensure that the project implements sufficient fugitive dust control measures to avoid a conflict with the Coachella Valley PM10 attainment plan. Compliance with the CARB In-Use Off-Road Diesel-Fueled Fleet Regulation and emission targets for large fleets would ensure that equipment includes sufficient controls to avoid a conflict with attainment plans.

The mandatory controls would not reduce construction emissions to below the SCAQMD regional or localized thresholds. Implementation of Mitigation Measures AQ-1a (Control fugitive dust), AQ-1b (Control off-road equipment emissions), and AQ-1c (Control helicopter emissions) would be required to avoid causing any new violations or contributing substantially to existing violations of the ambient air quality standards, and to further reduce the adverse regional and localized effects of construction-phase emissions.

Impact AQ-2: Construction would generate emissions of toxic air contaminants

This alternative would place a 1,600-foot segment of 66 kV subtransmission line underground instead of on overhead poles. This short underground segment would not substantially increase the generation of toxic air contaminant emissions compared to the Proposed Project. This alternative is not expected to result in excessive concentrations of TACs at any given location. Impact AQ-2 would be adverse but not substantial. However, mitigation previously identified for Impact AQ-1 would reduce the levels of TACs emitted during construction in ways that would further reduce the severity of this adverse effect.

Impact AQ-3: Operation, maintenance, and inspections would generate dust and exhaust emissions

This alternative would place a 1,600-foot segment of 66 kV subtransmission line underground instead of on overhead poles. This short underground segment would not change the emissions from operation, maintenance, and inspection activities compared to the Proposed Project. Indirect effects of the project on air pollutant emissions from power plants would be primarily due to changing the deliverability of the region's electricity generation facilities, and are expected to be minimal (see Section D.6, Climate Change). Emissions directly related to O&M activities would displace emissions from existing inspection and maintenance activities that presently occur. The new facilities would not notably change or increase the types of inspection and maintenance activities. Direct effects of daily and annual operating emissions would be minimal. Additional workers would not be necessary for this alternative compared with the existing facilities.

Annual emissions would not be likely to exceed federal General Conformity thresholds, and daily emissions would not exceed the regional criteria set forth by SCAQMD for impact characterization. Along with criteria air pollutants from project operations, toxic air contaminant emissions would also occur from limited use of vehicles for routine maintenance, repair, and inspection. The levels of emissions caused during operation would not have the potential to expose sensitive receptors to substantial concentrations of any TAC or odors.

D.3.4.3 Phased Build Alternative

The Phased Build Alternative would retain existing double-circuit 220 kV transmission structures to the extent feasible, remove single-circuit structures, add new double-circuit 220 kV structures, and string all structures with higher-capacity conductors.

Three impacts were identified under the Proposed Project for air quality. These impacts also would apply to the Phased Build Alternative, which would be located in the same corridor as the Proposed Project and would involve similar although less intense construction activities. The full text of all mitigation measures referenced in this section is presented in Section D.3.3.3, except where otherwise noted.

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants

Construction emissions would result from activities within the substation sites, transmission and subtransmission corridors, including staging areas and access roads. Construction emissions would occur as a result of the full range of activities including ground disturbance, use and improvement of access roads, site preparation, surface clearing, excavation, foundation installation, steel structure and wood pole installation, installing guard structures and shoo-fly structures, transfer and removal of existing structures and facilities, and site restoration. Emissions would also occur from offsite activities such as construction-related haul trips and construction workers commuting. Construction emissions would exacerbate the adverse health effects (identified in Table D.3-1) caused by air pollutants for those exposed to the emissions and would contribute to existing violations of ambient air quality standards and worsen existing nonattainment designations in the region (identified in Table D.3-2).

The Phase Build Alternative would require less construction than the Proposed Project because it would retain, rather than remove and replace, existing double-circuit structures. Compared to the Proposed Project, this would result in less dust generation and exhaust emissions from construction, because less ground disturbance would occur and equipment use and vehicle trips that would have been associated with the demolition of the double-circuit towers and erection of new towers to replace them would not occur.

Like the Proposed Project, the mandatory emissions controls would not reduce construction emissions to below the SCAQMD regional or localized thresholds. Implementation of Mitigation Measures AQ-1a (Control fugitive dust), AQ-1b (Control off-road equipment emissions), and AQ-1c (Control helicopter emissions) would be required to avoid causing any new violations or contributing substantially to existing violations of the ambient air quality standards, and to further reduce the adverse regional and localized effects of construction-phase emissions.

Impact AQ-2: Construction would generate emissions of toxic air contaminants

Much of the construction activity would occur in or near urbanized or developed areas, where land uses including sensitive receptors may be adjacent to sources of toxic air contaminants. Construction would cause locally increased concentrations of toxic air contaminants, and sensitive receptors exposed to substantial levels of toxic air contaminants may experience short-term (acute) effects or long-term (chronic) effects.

As with the Proposed Project, construction equipment required for the Phased Build Alternative would emit toxic air contaminants, and construction would occur near sensitive receptors along the ROW. The short duration and quantities of construction emissions ensure that the exposure of any individual sensitive receptor would be limited. Construction emissions would cease after approximately 36 to 60 months of work throughout the corridor. As such, the concentrations of air toxics would not be substantial enough in magnitude or duration at any given location to create excessive concentrations of TACs or a potentially substantial adverse effect due to TACs. Impact AQ-2 would be adverse but not substantial. However, mitigation previously identified for Impact AQ-1 (Mitigation Measures AQ-1a, AQ-1b, and AQ-1c) would reduce the levels of TACs emitted during construction in ways that would further reduce the severity of this adverse effect.

Impact AQ-3: Operation, maintenance, and inspections would generate dust and exhaust emissions

The emissions from operation, maintenance, and inspection activities would be limited to the emissions caused by additional inspection and maintenance operations of the new facilities. Indirect effects of the project on air pollutant emissions from power plants would primarily be due to changing the deliverability of the region's electricity generation facilities, and are expected to be minimal (see Section D.6, Climate Change). Emissions directly related to O&M activities would displace emissions from existing inspection and maintenance activities that presently occur. The new facilities would not notably change or increase the types of inspection and maintenance activities. Direct effects of daily and annual operating emissions would be minimal. Additional workers would not be necessary for the Proposed Project compared with the existing facilities.

Operation, maintenance, and inspection activities required for the project built under the Phased Build Alternative would be comparable to those required for the Proposed Project. Annual emissions would not be likely to exceed federal General Conformity thresholds, and daily emissions would not exceed the regional criteria set forth by SCAQMD for impact characterization. Along with criteria air pollutants from project operations, toxic air contaminant emissions would also occur from limited use of vehicles for routine maintenance, repair, and inspection. The levels of emissions caused during operation would not have the potential to expose sensitive receptors to substantial concentrations of any TAC or odors.

D.3.5 Environmental Impacts of No Action Alternative

D.3.5.1 No Action Alternative Option 1

The No Action Alternative Option 1 is described in Section C.6.3.1. It would consist of a new 500 kV circuit, primarily following the Devers-Valley transmission corridor and extending 26 miles between Devers Substation. It would also require a new 40-acre substation south of Beaumont, and 4 new 220 kV circuits extending 7 miles from the new Beaumont Substation to El Casco Substation, primarily following the existing El Casco 115 kV ROW. The remainder of the No Action Alternative, from El Casco Substation to the San Bernardino and Vista Substations, would be identical to the Proposed Project. Information on environmental resources and project impacts is derived from the Devers–Palo Verde 500 kV No. 2 Project EIR/EIS (CPUC and BLM, 2006) and the El Casco System Project Draft EIR (CPUC, 2007); which include nearly all of the No Action alignment.

No Action Alternative Transmission Lines and Beaumont Substation. The No Action Alternative between Devers and El Casco essentially would parallel the Proposed Project corridor between the two substations, but be approximately 3 miles to the south, south of Interstate 10. The route passes relatively few sensitive receptors. Air Quality conditions occur across large airsheds or air basins. Construction of the No Action Alternative would involve impacts similar to those that would occur in the Proposed Project or alternatives. Most notable these would be exhaust emissions from vehicle and equipment use and fugitive dust from disturbed ground surfaces. Mitigation measures, such control of fugitive dust, control of off-road equipment emissions, and control of helicopter emissions, would reduce these impacts. The Devers to Beaumont Substation alignment would follow the existing Devers to Valley alignment. In the analysis of the Devers to Valley alignment in the DPV2 EIR/EIS, all impacts to air quality were significant and unavoidable.

D.3.5.2 No Action Alternative Option 2

In the No Action Alternative Option 2, a new 500 kV circuit would be constructed within 40.4 miles of an existing transmission corridor from the Valley Substation in western Riverside County to the Serrano Substation in eastern Orange County. The route passes through mostly open space, including the Cleveland National Forest, and is located near relatively few sensitive receptors. The entire corridor is located within the South Coast Air District and would be subject to the rules and regulations of the South Coast Air Quality Management District. Air quality impacts in this alternative would be similar to those described in the Proposed Project. Similar to No Action Alternative Option 1, these impacts would include exhaust emissions from construction vehicles and equipment (including helicopters) and fugitive dust emissions from project-related ground disturbance. Typical mitigation measures, such as control of fugitive dust, control of off-road equipment emissions, and control of helicopter emissions, would reduce the severity of these impacts.

D.3.6 Mitigation Monitoring, Compliance, and Reporting

Table D.3-11 presents the mitigation monitoring, compliance, and reporting actions for air quality.

Table D.3-11. Mitigation Monitoring Program – Air Quality

MITIGATION MEASURE	**AQ-1a: Control fugitive dust.** SCE shall develop a Fugitive Dust Control Plan and at least 60 days prior to construction submit the plan to the CPUC/BLM and SCAQMD for review and approval. The approved plan shall be implemented for all construction activities that may be a source of fugitive dust. Any fugitive dust control requirements in the SCAQMD rules and regulations, specifically Rule 403 and Rule 403.1, that are in addition to or more stringent than the requirements listed below shall be implemented and included in the plan. The plan shall include the following feasible measures: ▪ Traffic speeds on unpaved roads shall not exceed 15 miles per hour. ▪ A traffic route plan shall be developed and vehicles shall follow routes that minimize unpaved road travel. ▪ Unpaved roads, substation areas, and staging areas shall be watered three times daily when being used by construction vehicle traffic, or non-toxic soil stabilizers (e.g., water, tackifiers, and soil binders) shall be applied per manufacturer's recommendations and in sufficient quantities to maintain compliance with SCAQMD and jurisdictional requirements to maintain no visible vehicle travel dust emissions. ▪ Inactive excavated or graded soils and soil piles shall be sufficiently watered or sprayed with a soil stabilizer to create a surface crust or shall be covered. ▪ Drop heights from excavators and loaders shall be minimized to a distance no more than 5 feet. ▪ Soil truck loads shall be covered and gate seals on dump trucks shall be tight. ▪ Construction activities that occur on unpaved surfaces shall be discontinued during periods when activities are causing visible dust plumes that cannot be avoided by approved dust suppression methods. All grading and excavation activities shall be suspended when wind speeds exceed 30 miles per hour unless otherwise approved in the Fugitive Dust Control Plan. Wind speed measurement methods shall be consistent with the SCAQMD Implementation Handbook for Rule 403 and Rule 403.1.
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SCE submits Fugitive Dust Control Plan that includes the specified measures and that the plan has been approved by the SCAQMD prior to construction; monitor plan implementation during construction.
Effectiveness Criteria	Dust does not remain visible in the atmosphere beyond the edge of the right-of-way.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office, and SCAQMD.

Table D.3-11. Mitigation Monitoring Program – Air Quality

Timing	At least 60 days prior to construction submit Fugitive Dust Control Plan.
MITIGATION MEASURE	**AQ-1b: Control off-road equipment emissions.** Off-road equipment with engines larger than 50 horsepower shall have engines that meet or exceed U.S. EPA/CARB Tier 3 Emissions Standards. Exceptions will be allowed only on a case by case basis for two specific situations: (1) an off-road equipment item that is a specialty, or unique, piece of equipment that cannot be found with a Tier 3 or better engine after a due diligence search; and/or (2) an off-road equipment item that will be used for a total of no more than 10 days.
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that fleet of off-road equipment used by SCE and contractors meets the specifications.
Effectiveness Criteria	Fleet of off-road equipment adheres to the specifications.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office.
Timing	During construction.
MITIGATION MEASURE	**AQ-1c: Control helicopter emissions.** Helicopter emissions shall be reduced by the following methods and measures: ▪ Helicopter idling will occur only when necessary for safe operation and emergency readiness purposes. ▪ Helicopter operators shall use the smallest practical and available helicopter for each lift operation. ▪ Fugitive dust from helicopter rotor wash will be reduced through the implementation of the following measures: – The helicopter staging areas, that are not on existing paved airfields or other large paved sites, shall be treated with soil amendments (e.g., water, tackifiers, and soil binders) that shall be applied at a frequency necessary to create and maintain surface soil crusts where rotor wash creates fugitive dust emissions; – Enough land area shall be obtained for each helicopter staging area not located on existing paved airfields or other large paved sites, so that rotor wash does not create visible fugitive dust emissions outside of the controlled staging area. – Helicopter operations will take flight paths (i.e., elevation above ground) that will eliminate dust emissions from rotor wash when travelling between the helicopter staging area and the work sites. – The helicopter work sites shall be watered prior to helicopter visits. Alternatively, other soil stabilizers shall be applied at a frequency necessary to create and maintain a surface soil crust while helicopter visits are occurring at the work site.
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that helicopter use and helicopter staging areas are managed as specified.
Effectiveness Criteria	Dust caused by rotor wash does not remain visible beyond staging areas or work sites.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office.
Timing	During construction.

D.3.7 References

BLM (Bureau of Land Management). 2012. Desert Harvest Solar Project Final Environmental Impact Statement and Proposed California Desert Conservation Area Plan Amendment. CACA #49491. November.

CARB (California Air Resources Board). 2014a. Federal and State area designation maps. Accessed October 6, 2014. http://www.arb.ca.gov/desig/adm/adm.htm.

_____. 2014b. Regulatory Advisory. Mail-Out #MSC 14-1. Enforcement of the In-Use Off-Road Vehicle Regulation. February.

_____. 2013. Chart: Ambient Air Quality Standards. Updated: 6/4/2013. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CEC (California Energy Commission). 2013. Final Staff Assessment for the Palen Solar Electric Generating System, Part A: Amendment to the Palen Solar Power Project. Docket Number 09-AFC-07C. September.

_____. 2008. Final Staff Assessment for the CPV Sentinel Energy Project. Docket Number 07-AFC-3. October.

CPUC (California Public Utilities Commission). 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm. Accessed April 15, 2015.

CPUC and BLM. 2006. SCE Devers–Palo Verde 500 kV No. 2 Project EIR/EIS, Sections on West of Devers Alternative. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-deir.htm. Accessed April 15, 2015.

CPUC and USDA (United States Department of Agriculture) Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

POWER Engineers, Inc. 2014. Blythe Mesa Solar Project Draft Environmental Impact Report/ Environmental Assessment. SCH #2011111056. June.

SCAQMD (South Coast Air Quality Management District). 2013. Final 2012 Air Quality Management Plan. Adopted February 1, 2013. Accessed October 7, 2014. http://www.aqmd.gov/home/library/clean-air-plans.

_____. 2011. *SCAQMD Air Quality Significance Thresholds*. Revised: March 2011. http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

_____. 2009. *Final Localized Significance Threshold Methodology*, Appendix C – Localized Significance Threshold Screening Tables. Revised October 21, 2009.

_____. 2008. *Final Localized Significance Threshold Methodology*. Revised July 2008.

USEPA. 2014. EPA Region 9 Air Quality Maps. Accessed October 6, 2014. http://www.epa.gov/region9/air/maps/

D.4 Biological Resources – Vegetation

This section describes the Vegetation resources in the affected area, identifies and analyzes potential environmental impacts of the Proposed Project and alternatives, and recommends measures to reduce or avoid adverse impacts of project construction and operation. The affected environment for Biological Resources – Vegetation is described in Section D.4.1; the applicable regulations and standards are summarized in Section D.4.2. Sections D.4.3 through D.4.5 describe the impacts and recommended mitigation for the Proposed Project and the alternatives. Section D.4.6 presents the mitigation measures and mitigation monitoring requirements.

This section represents the most current available information. Much of the information has been derived from the *Biological Resources Technical Report: West of Devers Upgrade Project*, prepared by LSA (2013b). Content in the *Biological Resources Technical Report* is based on all available data including reports, books, manuals, and extensive new field data specific to the Proposed Project. In addition, this section incorporates the focused survey reports and other supporting documentation provided with the Appendix F of the Proponent's Environmental Assessment (PEA; SCE, 2013) and the findings of Aspen biologists during independent site reviews and consultations with resource agency staff and other experts.

D.4.1 Environmental Setting / Affected Environment

This section summarizes vegetation communities and special-status plant species of the region in Section D.4.1.1 and describes specific baseline conditions for each segment of the proposed right-of-way (ROW; see Figure B-1) in Section D.4.1.2.

D.4.1.1 Regional Setting and Approach to Data Collection

Data Collection Methodology

Throughout this section, the "project area" refers to all areas that may be directly affected by the Proposed Project, including the ROW and all off-site work areas, access routes, and telecommunications routes. The *Biological Resources Technical Report* (LSA, 2013b) summarizes field surveys completed during 2012 and 2013. It defines a Proposed Project study area for the assessment of biological resources, as the locations where project-related work may be performed, plus a surrounding survey buffer area. In general, the maximum survey buffer extends 500 feet beyond the ROW. Survey buffers vary as appropriate for particular species or resources (LSA, 2013b), but were typically either 100 or 500 feet. The biological resource surveys in 2013 covered additional disturbance areas for external project elements that extended beyond the ROW and 2012 survey buffer areas (i.e., 66 kV subtransmission lines, 12 kV distribution lines, telecommunication, access roads, and staging yards). Figures B-1 through B-7 (in Section B) show the Proposed Project area; a 500-foot buffer around project components was surveyed in 2012 and 2013.

Regional Setting

The West of Devers ROW extends for more than 45 miles, generally parallel to the I-10 corridor for the majority of its length (Figure B-1). From west to east, it crosses the *San Bernardino South, Redlands, Sunnymead, El Casco, Beaumont, Cabazon, White Water,* and *Desert Hot Springs, California* 7.5-minute United States Geological Survey (USGS) quadrangles. From west to east, it passes through the Cities of Grand Terrace, Colton, Loma Linda, Redlands, San Bernardino, Yucaipa, Calimesa, Beaumont, Banning, and Palm Springs, and unincorporated areas of Riverside and San Bernardino Counties. The ROW crosses privately owned lands, the Morongo Indian reservation, and public lands managed by the Bureau of Land Management (BLM). The elevation ranges from approximately 1,000 to 3,000 feet above mean sea level (amsl).

The route traverses several geographical and ecological zones. It traverses the San Timoteo Badlands (Badlands), spans San Timoteo Creek, the San Gorgonio River, and the Whitewater River, and runs through the San Gorgonio Pass into the western Sonoran Desert. Collectively, these areas contain a diverse flora that includes many rare, threatened, and endangered plants, and rare vegetation communities. Most of the ROW is located in the Southwestern California region of the California Floristic Province, as described in *The Jepson Manual* (Baldwin et al., 2012), within the South Coast subregion. In the San Gorgonio Pass, the route passes between the San Bernardino Mountains and the Peninsular Ranges subregions. East of the San Gorgonio Pass, to the Devers Substation, it is within the Sonoran Desert subregion.

The San Gorgonio Pass connects the deserts of the southwestern United States with the coastal, or cis-montane, lowlands of western California. This area is known for high winds that disperse and transport sand, creating distinct landscapes of sand dunes and windswept surfaces. The pass also serves as an important biological connection between the San Bernardino Mountains and the San Jacinto Mountains and the rest of the Peninsular Ranges to the south. Biological connectivity is discussed in Section D.5.1, under "Wildlife Movement." Similar considerations apply to plant populations, which "move" over the course of generations via pollen and seed dispersal.

Topography along the route includes gently sloping broad plains, steep ridges, and large alluvial drainage systems extending from the foothills of the San Bernardino and San Jacinto Mountains. The ROW includes dedicated open space and conservation lands, expanses of undeveloped lands that may be subject to future development, and areas developed for urban, suburban, and agricultural uses. Because of the broad variation of natural and developed land cover types, the plants in the Proposed Project Area include many native and non-native species often associated with human land uses, as well as both rare and common native species usually associated with more natural land cover types.

The climate in the western part of the route is characterized by mild, wet winters and dry summers. Within the San Gorgonio Pass and to the east, the climate is much drier and generally hotter. Average annual precipitation is 16.1 inches in San Bernardino and 5.5 inches in Palm Springs. Most rainfall occurs from December through March, but can vary depending on summer thunderstorms (WRCC, 2012).

In Riverside County, 18.4 linear miles of the route (Segment 4 and portions of Segments 3 and 5) are within the Western Riverside County Multiple Species Habitat Conservation Plan (WR-MSHCP) area and 22 linear miles (Segment 6 and portions of Segment 5) are within the Coachella Valley Multiple Species Habitat Conservation Plan (CV-MSHCP) area. The WR-MSHCP area is divided into "Area Plans"; the route is within the Reche Canyon/Badlands and the Pass Area Plan. The CV-MSHCP area is divided into "Conservation Areas"; the route passes through the following Conservation Areas (from west to east): Cabazon, Stubbe and Cottonwood Canyons, Whitewater Canyon, and Upper Mission Creek/Big Morongo Canyon. Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7), depicts the locations of lands under federal or tribal jurisdiction as well as areas within the WR-MSHCP and CV-MSHCP.

Vegetation

For purposes of this assessment, vegetation types of the Proposed Project Area are classified in the following categories: grassland/forbland, chaparral, coastal sage scrub (CSS), desert scrub, coast live oak woodland, riparian woodland, alluvial scrub, agricultural land, open water, and disturbed or developed areas. These vegetation types are further divided into alliances (similar plant communities defined by the dominant or characteristic plant species in the upper layer of vegetation). Vegetation types are often used as a surrogate to describe plant or wildlife habitat, although habitat is best described in terms of multiple characteristics including vegetation, but also including topography, soils, and other parameters. Most habitat types are partially defined by vegetation, and one additional habitat type, aeolian (wind-blown) sand habitat, is defined by substrate. Aeolian sand, while not truly a vegetation type, is also included with the following descriptions.

Table D.4-1 provides the acreages of each vegetation community and habitat type found in the Proposed Project study area. The acreage of potential project-related impacts in each one is discussed in Section D.4.3, Environmental Impacts of the Proposed Project. Each vegetation community and habitat type is described below. Maps showing locations of vegetation communities and habitat types are provided in Figures Ap.7-2a through Ap.7-2k, Land Cover, and Figure Ap.7-4, Aeolian Sand Habitat (in Appendix 7).

Grassland/forbland. The grassland/forbland vegetation community is dominated by and includes almost exclusively herbaceous, non-woody plants. Communities with woody dominants, even when they contain significant amounts of herbaceous species, are included under shrubland or woodland communities (e.g., chaparral, desert scrub, riparian woodland). Grasslands are almost entirely dominated by grasses whereas forblands have significant cover of broadleaved herbs (forbs). Grasslands on the route are typically dominated by non-native species such as red brome (*Bromus madritensis* ssp. *rubens*), Mediterranean grass (*Schismus arabicus*), ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and slender wild oats (*Avena barbata*). Some non-native grasslands also contain a diversity of native species (Sawyer et al., 2009). There are no sensitive grassland communities in the project area.

Table D.4-1. Acreage of Each Vegetation Community and Habitat Type in the Proposed Project Study Area

Vegetation Community or Habitat Type	Acreage within the Project Study Area
Developed/disturbed	3,432.4
Desert scrub	3,345.2
Grassland/forbland	2,490.1
Coastal sage scrub	1,373.9
Chaparral	576.8
Agriculture	441.2
Alluvial scrub	386.0
Riparian woodland	145.1
Coast live oak woodland	49.0
Open water	10.3
Aeolian sand*	178.0
Total	**12,249.9**

*The area of aeolian sand habitat is occupied by desert scrub and included in the acreage for that community. The acreage for aeolian sand is therefore not added to the total.

Common native species found in forblands on the ROW are annual sunflower (*Helianthus annuus*), dove weed (*Eremocarpus setigerus*), and vinegar weed (*Trichostemma lanceolatum*). Common non-native forb species are short-pod mustard (*Hirschfeldia incana*), yellow star-thistle (*Centaurea solstitialis*), prickly wild lettuce (*Lactuca serriola*), and tocalote (*Centaurea melitensis*).

Forbland and grassland are scattered throughout the ROW, often in disturbed areas or in areas subject to some type of disturbance, such as development, wildfire, or livestock grazing. Grassland/forbland vegetation covers much of the open space in the San Timoteo Badlands (Segments 2 and 3) and west of the City of Beaumont (Segments 1 through 4). Grasslands and forblands also are found on slopes, intermixed with chaparral and coastal sage scrub.

One sensitive forbland community is found on the route. The *Amsinckia* Herbaceous Alliance (Fiddleneck Fields) is a seasonal community dominated by rancher's fiddleneck (*Amsinckia intermedia*) and numerous native and naturalized annual and perennial forbs and grasses. This alliance occupies upland slopes and valleys, and fallow fields with well-drained loamy soils. The *Amsinckia* Herbaceous Alliance has a Global and State Rarity ranking of G4/S4 (Sawyer et al., 2009), meaning that the community is at fairly low risk of extinction or elimination due to an extensive range or many populations or occurrences, but with possible cause for concern as a result of local recent declines, threats, or other factors. This community is found in one small area in the San Timoteo Badlands along Segment 3, near Mile Point (MP) 7.0.

The G4/S4 rating does not automatically indicate an imperiled sensitive community. However, given the very limited distribution of this vegetation community in the project area and proximity of developed areas to this occurrence, the characterization of *Amsinckia* Herbaceous Alliance as a locally sensitive vegetation community within the project area is warranted.

Chaparral. Chaparral is a fire-adapted community that consists of dense evergreen shrubs. It can form impassable thickets measuring 4 to 8 feet high. On the Proposed Project route, chaparral is found primarily on north facing slopes and hilltops in Segments 2, 3, and 4, where it forms a mosaic with coastal sage scrub, forblands, and grasslands. Common native shrubs found in chaparral on the Proposed Project are chamise (*Adenostoma fasciculatum*), hairy ceanothus (*Ceanothus oliganthus*), sugar bush (*Rhus ovata*), hoaryleaf ceanothus (*Ceanothus crassifolius*), California scrub oak (*Quercus berberidifolia*), California sagebrush (*Artemisia californica*), redberry (*Rhamnus crocea*), mountain mahogany (*Cercocarpus betuloides*), toyon (*Heteromeles arbutifolia*), and the subshrubs California buckwheat (*Eriogonum fasciculatum*) and black sage (*Salvia mellifera*). Chaparral may also have an understory of non-native and native forbs and grasses. There are no sensitive chaparral communities on the Proposed Project.

Coastal sage scrub. Coastal sage scrub is dominated by low, drought-deciduous shrubs and subshrubs. Shrub cover is often dense and continuous, but some areas are sparse due to rocky outcrops that prevent dense growth. Coastal sage scrub is primarily found on steep, dry slopes and hilltops where it forms a mosaic with chaparral, grasslands, and forblands. Annual herbs, including weedy grasses and forbs and native wildflowers, are common in openings and disturbed areas. Several of the common shrubs also are found in chaparral, but coastal sage scrub is dominated by lower-growing soft-woody shrubs, whereas chaparral is dominated by taller dense-woody shrubs. Common native shrubs and subshrubs found in coastal sage scrub on the project route are California sagebrush, California buckwheat, black sage, redberry, sugar bush, ceanothus (*Ceanothus* spp.), lemonade berry (*Rhus integrifolia*), brittlebush (*Encelia farinosa*), Palmer's goldenbush (*Ericameria palmeri*), skunk bush (*Rhus trilobata*), and white sage (*Salvia apiana*). Coastal sage scrub in the Proposed Project region generally has an understory of non-native and native forbs and grasses. Coastal sage scrub is found mainly in the western third of the route, including the San Timoteo Badlands and the hills west of Beaumont (Segment 2 through Segment 4).

Coastal sage scrub is generally of conservation concern because it is the habitat of a listed threatened bird (California gnatcatcher, see Section D.5). In addition, one sensitive coastal sage scrub type is found on the Proposed Project. The *Keckiella antirrhinoides* Shrubland Alliance (Bush Penstemon Scrub) is typically dominated by bush penstemon (*Keckiella antirrhinoides*). It is ranked G3/S3 by the California Department of Fish and Wildlife (CDFW, formerly the California Department of Fish and Game; CDFG, 2010), meaning that it is considered vulnerable and at moderate risk of extinction. This community is found in several areas on the Proposed Project route: three locations in Segment 2 south of Colton and Loma Linda and at the San Bernardino Junction, several scattered locations in the Badlands in Segment 3, and one location at the easternmost end of Segment 4.

Desert scrub. Desert scrub plant communities are dominated and characterized by generally low-growing and widely spaced shrubs. Herbaceous vegetation beneath and between the shrubs includes annual and perennial herbs and grasses. Annuals are generally ephemeral, growing only during years when substantial rainfall occurs, and may be absent for several years until sufficient rain stimulates germination. Desert scrub is found on the eastern end of the Proposed Project route, on alluvial fans, washes, bajadas, valleys, and upland slopes east of Banning (Segment 5), including the San Gorgonio River area (Segment 5) and Whitewater River area (Segment 6).

Common native shrub and subshrub species found in desert scrub communities on the Proposed Project are creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), Mormon tea (*Ephedra spp.*), catclaw (*Senegalia* [*Acacia*] *greggii*), brittlebush, Mojave rabbitbrush (*Ericameria paniculata*), narrow-leaved stillingia (*Stillingia linearifolia*), and turpentine broom (*Thamnosma montana*). Other species found in desert scrub on the Proposed Project are teddy bear cholla (*Cylindropuntia bigelovii*), hedgehog cactus (*Echinocereus engelmannii*), and Mojave yucca (*Yucca schidigera*). There are no sensitive desert scrub communities on the Proposed Project.

Coast live oak woodland. Coast live oak woodland is dominated by coast live oak (*Quercus agrifolia*), with an understory consisting mainly of grasses and forbs. Oaks are the most evident plants, but the forests and woodlands are made up of diverse assemblages of understory shrubs, vines, herbs, grasses, and parasitic plants (e.g., mistletoe). Oak woodland is typically found in or adjacent to drainages and slopes. On the Proposed Project route, coast live oak woodland is found only on very limited areas of Segment 4: just east of San Timoteo Canyon Road and west of Sunset Avenue in Banning. Coast live oak woodland is not ranked as a sensitive vegetation community (CDFG, 2010).

Riparian woodland. Riparian woodlands can be found along drainage channels where surface or subsurface water remains throughout the year. Riparian woodlands are dominated by trees, and often extend linearly along stream courses. Three types of riparian woodland communities are found on the Proposed Project: *Chilopsis linearis* Woodland Alliance (Desert Willow Woodland), *Populus fremontii* Forest Alliance (Fremont Cottonwood Forest), and *Salix laevigata* Woodland Alliance (Red Willow Thicket). All three of these communities are of conservation concern and are rated G3/S3 or G4/S3 by CDFW (CDFG, 2010), meaning that they are considered vulnerable and at moderate risk of extinction.

- *Chilopsis linearis* Woodland Alliance is an open riparian wash woodland dominated by desert willow (*Chilopsis linearis*). On the Proposed Project route, it is found on Segment 3 in a wash in the Badlands near MP 8.0 and on Segment 5 along the San Gorgonio River.
- *Populus fremontii* Forest Alliance is an open-canopy woodland dominated by Fremont cottonwood (*Populus fremontii*). Associated species may include western sycamore (*Platanus racemosa*), red willow (*Salix laevigata*), and other willow species (*Salix* spp.). On the Proposed Project, this vegetation community is found on Segments 3 and 4 along San Timoteo Creek near El Casco Substation, and in Segment 4 along the unnamed canyon north of Theodore Street in Banning.
- *Salix laevigata* Woodland Alliance is dominated by red willow. On the Proposed Project, it is found along San Timoteo Canyon Road in Segments 3 and 4.

Alluvial scrub. Alluvial scrub consists of a mosaic of several vegetation types, characterized by openly spaced, low-growing shrubs adapted to intermittent or rarely flooded areas along washes, streams, and alluvial fans. The dominant plants in this vegetation on the Proposed Project route include mulefat (*Baccharis salicifolia*), scalebroom (*Lepidospartum squamatum*), cheesebush (*Ambrosia salsola*), and non-native grasses and forbs. Alluvial scrub is found mainly on the east end of the route (Segments 4, 5, and 6) along the San Gorgonio River, the Whitewater River, and several smaller washes. It is also found in several small areas throughout the route.

Two of the alluvial scrub communities found on the Proposed Project are of conservation concern and are rated G3/S3 or G4/S3 by CDFW (CDFG, 2010), meaning that they are considered vulnerable and at moderate risk of extinction: *Lepidospartum squamatum* Shrubland Alliance (Scalebroom Scrub) and *Ericameria paniculata* Shrubland Alliance (Black-stem Rabbitbrush Scrub).

Lepidospartum squamatum Shrubland Alliance is dominated or co-dominated by scalebroom in the shrub canopy. This alliance is found in intermittently or rarely flooded, low-gradient alluvial deposits along washes, streams, and fans (Sawyer et al., 2009). On the Proposed Project route, it is found in several small areas scattered across the Proposed Project. Larger expanses are found mainly on the east end of the Proposed Project (the east end of Segment 4 and Segments 5 and 6) associated with the San Gorgonio River, the Whitewater River, and several smaller washes.

Ericameria paniculata Shrubland Alliance is dominated by black-stem rabbitbrush (*Ericameria paniculata*) in the shrub canopy. This alliance is found in intermittently flooded arroyos, channels, and washes on well-drained soils (Sawyer et al., 2009). On the Proposed Project route, it is found in a small area on Segment 6 near Devers Substation.

Agricultural. Agricultural land is primarily composed of active or recently active crop fields and groves or orchards. These areas contain crop species and undesired "volunteer" species; both are almost always non-natives. On the Proposed Project route, agricultural land is found mainly in San Bernardino County (Segment 1) and to the west of Beaumont in Riverside County (Segment 4).

Developed/disturbed. This land cover consists of developed areas such as paved roads, ornamental vegetation, and commercial and residential properties.

Open water. Open water bodies are found at four locations within the Proposed Project study area and vicinity.

- In Segment 3, there is a detention basin just north of the San Timoteo Landfill and south of San Timoteo Canyon Road along Refuse Road. The basin is surrounded by riparian woodland vegetation and surface water is not always present.
- In Segment 3, the El Casco Lakes (approximately 12 acres) are located on the south side of San Timoteo Canyon Road. The lakes are maintained by the Riverside Land Conservancy, and are used for recreational fishing. The lakes are planned to be either emptied or allowed to return to a natural state due to the prohibitively high cost of continued maintenance.
- In Segment 3, there are three lakes (approximately 24 acres total) at Fisherman's Retreat, a commercial campground and stocked fishing area, approximately 0.6 miles east of El Casco Lakes along San Timoteo Canyon Road.
- In Segment 5, water from the Robertson's Plant 66 (gravel mine) is discharged into an inactive portion of the mine. The water level is variable, and the basin may occasionally lack surface water, but emergent riparian vegetation is present around the margins. The surface water area can vary from approximately 1 to 6 acres.

Aeolian sand. Aeolian (windblown) sand habitat is comprised of sand dunes and fields, including active, partially stabilized, and stabilized desert dunes and desert sand fields, and sand hummocks (CVAG, 2007). Hummocks are small dunes of sand that form downwind of desert shrubs. Aeolian sand provides habitat for certain special-status species, such as Coachella Valley milk-vetch. Within the project area, aeolian sand habitat is vegetated with desert scrub.

Aeolian sand habitat is found on Segment 6, east of the Whitewater River and in the Whitewater River wash. The CV-MSHCP classifies lands in this area as "sand source" east of the Whitewater River wash and "sand transport" in the wash itself, rather than sand field or sand dune habitat (CVAG, 2007); see Figure Ap.7-4, Aeolian Habitat (Appendix 7). Field surveys for the Proposed Project classified portions of the area east of the wash as dune habitat (GANDA, 2011). The CV-MSHCP also classified additional sand source and sand transport areas along the Segment 6 ROW west of the Whitewater River.

Stabilized and partially stabilized desert dunes and sand fields are classified by CDFW as G4/S3 (CDFG, 2010), meaning that they are considered vulnerable and at moderate risk of extinction.

Invasive Plant Species

Of the 393 species (including subspecies and varieties) of plants found in the Proposed Project study area during botanical surveys, 280 (71.2 percent) are native, and 113 (28.8 percent) are non-native (BRC, 2013). Of the 113 non-native species found in the Proposed Project study area, 40 are considered invasive (BRC, 2013), meaning that they can spread into wildlands and displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes (Cal-IPC, 2014a).

The invasive species found within the Proposed Project study area are most notably within Segments 2, 3, and 4 where grazing and other disturbances have displaced dominant native plants with non-native ones. The vegetation in these segments is generally dominated by non-native annuals, predominantly grasses (*Bromus* spp.) and mustards (*Brassica* spp. and *Hirschfeldia incana*). Although natural vegetation in other portions of the Proposed Project study area is generally less disturbed and has a greater proportion of native vegetative cover, invasive species are common throughout the Proposed Project study area. The Proposed Project study area does not have any wildland areas that are largely free from invasive species.

The California Invasive Plant Council (Cal-IPC) Invasive Plant Inventory identifies non-native plants that are serious problems in wildlands, and categorizes them as High, Moderate, or Limited based on each species' negative ecological impact in California (ranging from severe to minor). Of the 40 invasive plant species observed within the Proposed Project study area, eight species are categorized as High, 18 are categorized as Moderate, and 14 are categorized as Limited (Cal-IPC, 2014b).

Species observed within the Proposed Project study area that are categorized as High are giant reed (*Arundo donax*), Sahara mustard (*Brassica tournefortii*), red brome (*Bromus madritensis* ssp. *rubens*), cheat grass (*Bromus tectorum*), sweet fennel (*Foeniculum vulgare*), Himalayan blackberry (*Rubus armeniacus*), Spanish broom (*Spartium junceum*), and Mediterranean tamarisk (*Tamarix ramosissima*). Of these, red brome, cheat grass, and Sahara mustard were observed in grassland and scrub areas throughout the Proposed Project study area. The remaining species were observed in isolated patches. All of these invasive species have naturalized and are now found throughout the region. Invasive species may spread locally, however, in response to Proposed Project–related disturbance. In addition, new invasive species may be introduced or spread widely before they are detected or documented. Of note, the CV-MSHCP (Section 4.5) and the WR-MSHCP (Section 6.1.4) both list invasive plants that should be avoided in plantings near conserved habitat.

Recent Fires

One fire burned within Segment 4 of the Proposed Project study area in 2013. The Summit Fire began north of the City of Banning on the afternoon of May 1, 2013, and was contained on the evening of May 4, 2013 (Banning-Beaumont Patch, May 8, 2013). The fire burned 3,166 acres in the vicinity of Mias Canyon and Bluff Road and the fire's southwest edge crossed into the Proposed Project study area, including a section of the ROW about 2,000 feet long. For purposes of this assessment, it is assumed that the burned areas will recover to approximately the pre-fire condition (LSA, 2013b).

Two recent fires burned land cover within 1 mile of the Proposed Project study area in Segment 3. The Viper Fire started near Viper Road along the southern edge of San Timoteo Canyon Road just west of Redlands Boulevard and north of the City of Moreno Valley. The 42-acre fire began on June 8, 2013, and was contained the same day. The small fire was centrally located in Segment 3 within 500 feet of the existing WOD corridor. The Redlands Fire started just west of Redlands Boulevard south of San Timoteo Canyon Road and north of the City of Moreno Valley. The 150-acre fire began on July 16, 2013, and was contained the next day. The small fire was centrally located in Segment 3 within 0.25 miles of the existing WOD corridor.

Special-status Plant Species

Table Ap.7-1 (in Appendix 7) lists special-status plant species occurring or potentially occurring in the Proposed Project area, with conservation status and habitat descriptions for each species. Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations, depicts the locations of federal- and state-listed and state designated special-status plant species that were observed during surveys conducted between 2011 and 2013. For species not observed during surveys, the potential for their occurrence was determined by biologists knowledgeable about each species based on the species' habitat requirements, range (including elevation), and previously recorded observations within the region. Potential for occurrence is ranked as present, high, moderate, low, and not likely to occur. The criteria used to make these determinations are listed in Appendix 7. Detailed accounts for these species are provided in the *Biological Resources Technical Report* (LSA, 2013b).

Twenty-five special-status plant species occur or may occur in the Proposed Project study area, including four species listed under the federal Endangered Species Act (ESA), California Endangered Species Act (CESA), or both. The listed species are Coachella Valley milk-vetch (*Astragalus lentiginosus var. coachellae*; federal endangered), triple-ribbed milk-vetch (*Astragalus tricarinatus*; federal endangered), Nevin's barberry (*Berberis nevinii*; federal and state endangered), and Mojave tarplant (*Deinandra mohavensis*; state endangered).

Critical habitat. In Segment 6, the Proposed Project route passes over the Whitewater River, where there is federally designated critical habitat[1] for Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*). Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7) show the locations of designated critical habitats. Coachella Valley milk-vetch critical habitat occupies 109.8 acres within the Proposed Project study area and extends along the ROW for approximately 0.3 miles, mainly in desert scrub and alluvial scrub habitats.

Wetlands and Other Waters

A drainage assessment was conducted for the Proposed Project to identify the locations and general configurations of potential drainage features. The Preliminary Jurisdictional Drainage Assessment is included in *Biological Resources Technical Report* (LSA, 2013b) as Appendix N, Drainage Assessment Report, and information in this section is from that report. The Drainage Assessment Report provides a full description of individual drainage features and their representative characteristics, such as average width and associated vegetation, but a delineation of jurisdictional wetlands and other waters has not yet been conducted.

[1] Geographic areas designated by the United States Fish and Wildlife Service [USFWS] in Recovery Plans that contain features essential to conservation and recovery of threatened or endangered species.

On the Proposed Project route, drainages with perennial surface water typically have riparian vegetation such as willows or mulefat (e.g., riparian woodland, above). Some drainages with ephemeral water have riparian vegetation, but most have ruderal, alluvial scrub, or chaparral vegetation. Some drainages may be in flood control channels that are regularly maintained or are lined with concrete or cobble and do not support vegetation. Table D.4-2 illustrates both the number of drainages identified within the entire project study area and the number of drainages identified within each segment.

U.S. Army Corps of Engineers Jurisdiction

Non-wetland waters. Up to 275 non-wetland drainages that meet the U.S. Army Corps of Engineers (USACE) nexus criteria were identified within the Proposed Project study area. Drainages within the western half of the Proposed Project study area (Segments 1 through 4) generally flow north or southwest into Reche Canyon, Mission Channel, San Timoteo Canyon, or San Timoteo Creek and eventually reach the Santa Ana River, which is tributary to the Pacific Ocean, a traditional navigable water (TNW). As mentioned above, vegetation in these drainages is primarily riparian, ruderal, scrub, or chaparral. The remaining drainages, found in the eastern part of the Proposed Project Area (Segments 4 through 6) and located in the City of Banning, on the reservation, or situated farther east up to Devers Substation, generally flow south or southeast into either the San Gorgonio River, the Whitewater River, Super Creek, or Garnet Wash, each of which then flows into the Salton Sea (a TNW).

Because the Pacific Ocean and the Salton Sea are TNWs, several of the drainages in the Proposed Project study area, or tributaries thereof, are potentially subject to USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA). Preparation of a jurisdictional delineation, with a Preliminary or Approved Jurisdictional Determination by the USACE, would determine jurisdictional status.

Wetland waters. There are up to 26 drainages within the Proposed Project study area that were identified with the potential to satisfy the three criteria necessary to meet the USACE definition of a wetland (i.e., presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology).

California Department of Fish and Wildlife Jurisdiction

All of the potential USACE jurisdictional areas, outside of those found on Morongo Tribal Lands, would also be considered CDFW jurisdictional. In addition, the Preliminary Jurisdictional Drainage Assessment included in Appendix F of the PEA (SCE, 2013) indicates that 196 drainages that did not meet the USACE nexus criteria, but showed evidence of a bed and bank (e.g., not categorized as swales) were also identified and are potentially subject to CDFW jurisdiction. Of the 196 drainages, an unknown number are on Morongo Tribal Lands and not subject to CDFW jurisdiction. Riparian vegetation, such as willows and mulefat, associated with these drainages is also potentially under CDFW jurisdiction.

State Water Resources Control Board Jurisdiction

The western portion of the Proposed Project falls within the jurisdictional boundaries of the Santa Ana Regional Water Quality Control Board (RWQCB) and the eastern portion falls within the jurisdictional boundaries of the Colorado River RWQCB. If a project extends into multiple RWQCB boundaries, it is subject to regulation by the State Water Resources Control Board (SWRCB). Areas of potential SWRCB jurisdiction coincide with the limits of potential USACE jurisdiction, per the September 2004 Workplan (SWRCB, 2004). These areas may be subject to SWRCB jurisdiction through provisions in the CWA.

In addition, areas that are potentially subject to CDFW jurisdiction, but do not qualify as USACE jurisdiction (i.e., isolated areas with a bed and bank that do not connect to a TNW and isolated wetlands), may also be subject to SWRCB jurisdiction through Porter-Cologne. Portions of the Proposed Project within the

Morongo Indian Reservation are not subject to regulation by SWRCB, but are under the jurisdiction of the U.S. Environmental Protection Agency (EPA) and regulated under Section 401 of the Clean Water Act.

Western Riverside County MSHCP Riparian/Riverine/Vernal Pool Areas

Riparian/riverine areas. No specific assessment of riparian/riverine areas subject to the provisions of the WR-MSHCP portion of the Proposed Project study area was made, because SCE is not currently a Participating Special Entity (PSE).

All of the existing riparian communities within the WR-MSHCP that occur within the Proposed Project study area likely fall under the regulatory jurisdiction of the USACE pursuant to Section 404 of the CWA and the CDFW pursuant to Section 1600 of the California Fish and Game Code. Therefore, until a jurisdictional delineation has been completed to confirm jurisdictional status, all drainage features subject to conditions of the WR-MSHCP Riparian/Riverine guidelines were identified as potentially jurisdictional by the USACE and the CDFW. There are a total of 59 riverine or riparian areas identified within the WR-MSHCP planning area, which is in Segments 2, 3, and 4.

Vernal pool areas. None of the seasonally ponded depressions found during the vernal pool assessment survey conducted between November 2011 through March (May for water level site checks) 2013 met the WR-MSHCP criteria for vernal pools. Locations and a full description of surveyed ponded depressions can be found in the *Biological Resources Technical Report* (LSA, 2013b), Appendix E, Fairy Shrimp Survey Reports.

Coachella Valley MSHCP Desert Wetland Communities

The CV-MSHCP only protects jurisdictional drainages as they relate to the Natural Communities Conservation Goals within the Conservation Areas. No communities identified as wetland communities in the CV-MSHCP are present within the Proposed Project study area. However, drainages within the area encompassed by the CV-MSHCP may still be regulated under other agency authorities (USACE, EPA, CDFW, and SWRCB).

Table D.4-2. Drainage Counts Identified During 2012 and 2013 Assessment Surveys

Segment	Potentially Jurisdictional Wetland Drainages USACE / EPA / CDFW / SWRCB	Potentially Jurisdictional Non-wetland Drainages USACE / EPA / CDFW / SWRCB	Potentially Jurisdictional Non-wetland Drainages CDFW / SWRCB
1	2	28	13
2	5	48	46
3	6	69	74
4	12	51	27
5	0	44	13
6	1	35	23
Total	26	275	196

D.4.1.2 Environmental Setting by Segment

The following sections briefly describe vegetation resources along the Proposed Project route by segment (see Figure B-1, Project Location Map) with location-specific discussions of plant communities, habitats, and special-status plants.

Substations. There are no new substations proposed as part of the Proposed Project. Modifications to existing substation equipment would be performed in the Vista, San Bernardino, El Casco, Etiwanda, and Devers Substations. Additionally, modifications to Timoteo and Tennessee Substations would be performed. Figures B-1 through B-7 (Section B) show the substation locations.

The Proposed Project would not result in changes to access roads, parking areas, drainage patterns, or modifications to perimeter walls or fencing at the existing substations. All substation construction activities would be entirely contained within the perimeter fences, which surround these developed and highly disturbed areas. The following substations have proposed grading and surface improvements (location and land use jurisdiction in parentheses):

- San Bernardino Substation (Segment 1; San Bernardino County).
- Timoteo Substation (Segment 1; San Bernardino County).
- Vista Substation (Segment 2; San Bernardino County).
- Tennessee Substation (off the ROW north of Segment 3; San Bernardino County).
- El Casco Substation (boundary of Segments 3 and 4; Riverside County, WR-MSHCP).
- Devers Substation (Segment 6; Riverside County, CV-MSHCP).

Other substations that are included in the Proposed Project but do not have proposed grading or surface improvements are:

- Maraschino Substation (Segment 4; Riverside County, WR-MSHCP).
- Banning Substation (Segment 5; Riverside County, WR-MSHCP).
- Etiwanda Substation (off ROW in Rancho Cucamonga; San Bernardino County).

Work in Maraschino Substation will entail installing fiber optic cable in an existing underground conduit and cable trench to the Mechanical and Electrical Equipment Room (MEER). Work at Banning Substation will entail installation of fiber optic cable and new underground conduit into the MEER. Work at Etiwanda Substation will occur on equipment within the existing MEER. Please see Section B (Description of the Proposed Project) for details. Habitat within the substations is generally categorized as developed or disturbed, and is unlikely to support special-status plant species.

Staging yards. SCE anticipates using one or more of the possible temporary staging yards listed in Table B-5, and shown on Figures B-1 through B-7 (Section B), which show the Proposed Project area. These staging yards would be used as reporting locations for workers, vehicle and equipment parking, and material storage. Yards range from approximately 2.8 acres to 30 acres. Preparation of the staging yard would include temporary perimeter fencing and, depending on existing ground conditions at the site, include the application of gravel or crushed rock. Any land that may be disturbed at the staging yard would be restored to pre-construction conditions or to conditions agreed upon between SCE and the landowner following the completion of construction for the Proposed Project.

Some of the potential staging yards have been improved so that Project can use them without further modifications; see Table B-6. These potential staging yards were improved during earlier construction activities or as land uses unrelated to the Proposed Project. Impacts to vegetation or special-status plants at staging yards may include the following:

- Removal or destruction of vegetation and habitat within the staging yard.
- Impacts to potentially jurisdictional drainage features and associated habitat, which could adversely affect water quality and habitat value.

- Loss of topsoil, erosion, downstream sedimentation, and changes to hydrology, which could degrade downstream water quality and habitat value.
- Introduction of nonnative plant species as a result of seed-contaminated vehicles, clothes, or equipment.

At the following five potential staging yard locations, vegetation and habitat consist of disturbed land (e.g., forbland/grassland, disturbed/developed) and no special-status vegetation communities, potentially jurisdictional drainage features, or special-status plants are expected to occur.

- Mountain View 1 Staging Yard (Segment 1; San Bernardino County)
- Lugonia Staging Yard (Segment 1; San Bernardino County)
- Grand Terrace Staging Yard (Segment 2; San Bernardino County)
- Beaumont 1 Staging Yard (Segment 4; Riverside County, WR-MSHCP)
- Beaumont 2 Staging Yard (Segment 4; Riverside County, WR-MSHCP)

The remaining six potential staging yard locations support limited native vegetation or habitat, potentially jurisdictional drainage features, or may support special-status species, as follows:

Poultry Staging Yard (Segment 3; Riverside County, WR-MSHCP). Use of the area may result in impacts up to approximately 20.7 acres, of which 2.9 acres are coastal sage scrub and the remainder is agricultural lands. The coastal sage scrub present is on a slope in the southwest corner of the site and is unlikely to be affected. Potentially jurisdictional drainage features are located within the staging yard area.

San Timoteo Staging Yard (Segment 3; Riverside County, WR-MSHCP). Impacts to land cover due to construction and use of the staging yard would affect up to 15.5 acres of agricultural land, 0.6 acres of developed/disturbed areas, and 0.6 acres of coastal sage scrub. No potentially jurisdictional drainage features or riparian vegetation are expected to be affected. No special-status plant species are expected to occur within the potential disturbance areas.

Hathaway 1 Staging Yard (Segment 5; Riverside County, WR-MSHCP). Potential impacts would affect forbland/grassland (up to 6.9 acres) and disturbed/developed areas (up to 22.6 acres) within the staging yard. No sensitive vegetation communities or potentially jurisdictional drainage features are present within the expected disturbance areas.

Hathaway 2 Staging Yard (Segment 5; Riverside County, WR-MSHCP). Use of the area may result in impacts to forbland/grassland (up to 14.3 acres) which could support special-status species within the staging yard; therefore, special-status species may be affected. No sensitive vegetation communities or potentially jurisdictional drainage features are present within the expected disturbance areas.

Matich Material and Equipment Staging Yard (Segment 5; Riverside County, WR-MSHCP). The site has historically been used as an equipment and materials yard. The surface is approximately 50 percent concrete (paved) and 50 percent friable soil. A field visit on February 17, 2016 found that the non-paved portions of the yard have some disturbed and ruderal vegetation. There is a strip of scrub vegetation, approximately 50 by 500 feet, along the east side of the yard, which may retain some native habitat value. No sensitive vegetation communities or potentially jurisdictional drainage features occur within the existing yard.

Devers Staging Yard (Segment 6; Riverside County, CV-MSHCP). Use of the area may result in impacts to disturbed desert scrub (up to 10.0 acres) within the staging yard which could support special-status plant species. No sensitive vegetation communities are present within the disturbance areas. Potential jurisdictional drainage features are present and would be impacted by construction and use of the staging yard.

D.4.1.2.1 Segment 1: San Bernardino

Segment 1 is approximately 3.5 miles long, extending from San Bernardino Substation south to San Bernardino Junction, through lands in unincorporated San Bernardino County and the Cities of Redlands and Loma Linda (Figure B-2a, Proposed Transmission Line Route – Segment 1). The entire segment is within San Bernardino County. It is not covered by the WR-MSHCP, CV-MSHCP, nor is it on BLM or reservation lands; Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7). Much of Segment 1 is within disturbed or developed areas, or on agricultural lands between commercial and industrial buildings. The most important native habitat areas are at the southern end, around Scotts Canyon and San Bernardino Junction.

In addition to the proposed work within the WOD corridor, Project-related work in Segment 1 would include relocation of subtransmission and distribution lines in developed areas to the east of the main WOD corridor. See Section B.2, Description of Proposed Project Components, for details. Substation and staging yards associated with this segment are described above.

Vegetation and Habitat

At the southern end of Segment 1, the ROW crosses undeveloped hilly terrain south of Loma Linda. The area is crisscrossed by dirt roads and trails. Vegetation consists mainly of non-native grassland with some coastal sage scrub and chaparral; see Figures Ap.7-2a through Ap.7-2k, Land Cover (in Appendix 7). No sensitive vegetation communities were found in Segment 1. Vegetation and habitat in the San Bernardino Junction area, where Segments 1, 2, and 3 come together, is described under Segment 2, below.

Special-status Plants

Several special-status plant species have a low or moderate potential to occur within Segment 1, including Nevin's barberry. No special-status plant species have a high potential to occur on Segment 1, and none were observed during surveys. (Table Ap.7-1 in Appendix 7 lists special-status plants occurring or potentially occurring in the Proposed Project area, with conservation status and habitat descriptions for each species.) Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7) shows where federal- and state-listed and special-status plant species were observed during surveys conducted between 2011 and 2013. For species not observed during surveys, the potential for their occurrence was determined by biologists knowledgeable about each species, based on the species' habitat requirements and geographic range (LSA, 2013b).

Nevin's barberry has a moderate potential to occur on Segment 1. There is potentially suitable habitat present at the southernmost end of the segment and three documented occurrences nearby (CNDDB, 2014; CCH, 2014; U.S. Fish and Wildlife Service [USFWS], 2009a; see Segment 3, below). Nevin's barberry is an evergreen shrub with showy yellow flowers, and mature plants should be easily identifiable during field surveys. Nevin's barberry was not observed on Segment 1, or anywhere on the Proposed Project route, during botanical surveys in 2012 and 2013 (BRC, 2013).

D.4.1.2.2 Segment 2: Colton and Loma Linda

Segment 2 is approximately 5.0 miles long and extends from Vista Substation east to San Bernardino Junction, within the Cities of Grand Terrace, Colton, and Loma Linda; see Figure B-3a, Proposed Transmission

Line Route – Segment 2. The entire segment is within San Bernardino County, and is not covered by the WR-MSHCP, CV-MSHCP, nor is it on BLM or reservation lands; see Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7). Segment 2 begins at the Vista Substation in Grand Terrace, proceeds east, crosses Interstate 215 (I-215), and traverses steep slopes on the boundaries of residential areas. It passes over Reche Canyon, and continues into the western portion of the San Timoteo Badlands, to San Bernardino Junction. Substation and staging yards associated with this segment are described above.

Vegetation and Habitat

The west end of Segment 2 crosses developed and residential areas. The remainder of the segment crosses undeveloped hilly terrain south of Loma Linda. The area is crisscrossed by dirt roads and trails. Vegetation consists mainly of non-native grassland with some patches of coastal sage scrub and chaparral; see Figures Ap.7-2a through Ap.7-2k, Land Cover (in Appendix 7).

One sensitive coastal sage scrub community, *Keckiella antirrhinoides* Shrubland Alliance, is found on Segment 2 in the hills south of Colton and Loma Linda and at the San Bernardino Junction. This vegetation type is described in Section D.4.1.1, Vegetation.

Special-status Plants

Several special-status plant species have a low or moderate potential to occur within Segment 2, including Nevin's barberry. No special-status plant species have a high potential to occur on Segment 2, and none were observed during surveys (see Table Ap.7-1 in Appendix 7; LSA, 2013b).

Nevin's barberry has a moderate potential to occur on Segment 2, but was not observed on Segment 2, or anywhere on the Proposed Project route, during botanical surveys in 2012 and 2013 (BRC, 2013). There is potentially suitable habitat present at the western end of the segment and three documented occurrences in the Proposed Project vicinity (see Segment 3, below).

D.4.1.2.3 Segment 3: San Timoteo Canyon

Segment 3 is approximately 10.0 miles long, extending from San Bernardino Junction southeast to El Casco Substation, across the San Timoteo Badlands, and roughly parallel to San Timoteo Canyon Road for much of its length; see Figure B-4a, Proposed Transmission Line Route – Segment 3. The segment crosses lands administered by the Riverside County Regional Conservation Authority, Riverside Land Conservancy, County of Riverside Regional Parks and Open Space Districts, and California Department of Parks and Recreation.

The western end of Segment 3 is in San Bernardino County, from the San Bernardino Junction to approximately MP 8.8. The eastern end of Segment 3 is in Riverside County and is covered by the WR-MSHCP from approximately MP 8.8 to the El Casco Substation (MP 15.2). No part of Segment 3 is covered by the CV-MSHCP, nor is it on BLM or reservation lands; Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7).

There are residential developments near the El Casco Substation, and scattered agricultural and residential properties along the route.

Project-related work in Segment 3 would also include installation of telecommunication lines along San Timoteo Canyon Road north of the main WOD corridor. See Section B.2, Description of Proposed Project Components, for details. Substation and staging yards associated with this segment are described above.

Vegetation and Habitat

The majority of Segment 3 is in the hilly terrain of the Badlands south of Loma Linda, Redlands, and Calimesa. The area is crisscrossed by dirt roads and trails; vegetation and habitat consists mainly of non-native grassland, coastal sage scrub, and chaparral. There is also riparian woodland along San Timoteo Canyon; see Figures Ap.7-2a through Ap.7-2k, Land Cover (in Appendix 7).

Five sensitive vegetation communities are found on Segment 3 (see Section D.4.1.1, Vegetation):

- *Amsinckia* Herbaceous Alliance (Fiddleneck Fields) is found in one small area in the Badlands near MP 7.0.
- *Keckiella antirrhinoides* Shrubland Alliance (Bush Penstemon Scrub) is found in several scattered locations in the Badlands.
- *Chilopsis linearis* Woodland Alliance (Desert Willow Woodland) is found in a wash in the Badlands near MP 8.0.
- *Populus fremontii* Forest Alliance (Fremont Cottonwood Forest) is found along San Timoteo Creek near El Casco.
- *Salix laevigata* Woodland Alliance (Red Willow Thicket) is found along San Timoteo Canyon Road.

Vegetation and habitat in the San Bernardino Junction area, where Segments 1, 2, and 3 come together, is included in the discussion of Segment 2.

Special-status Plants

One special-status species, Nevin's barberry, has a high potential to occur. Two additional special-status species were observed during surveys on Segment 3 (Plummer's mariposa-lily [*Calochortus plummerae*] and smooth tarplant [*Centromadia pungens* ssp. *laevis*]) (see Table Ap.7-1 in Appendix 7; LSA, 2013b). Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7) shows the locations where these species were observed. A number of additional special-status plants have a low or moderate potential to occur within Segment 3, including the state-listed endangered Mojave tarplant.

Potentially suitable Nevin's barberry habitat is present on Segment 3, and there are three documented occurrences in this part of the ROW (CNDDB, 2014; CCH, 2014; USFWS, 2009a):

- CNDDB Occurrence #4 (San Timoteo Canyon) with three individuals reported extant in 2009 (CNDDB, 2014; CCH, 2014; USFWS, 2009a). This occurrence is located partially within the Proposed Project study area on Segment 3, approximately 3 miles east of the San Bernardino Junction (MP 8.0).
- CNDDB Occurrence #5 (Scott Canyon) with one individual reported extant in the 1990s (date not specified; USFWS, 2009a). This occurrence is entirely within the Proposed Project study area on Segment 3, just east of the San Bernardino Junction (MP 5.0). The 1990s report stated that the plant had recently been burned in a fire. Nevin's barberry is capable of resprouting after fire (USFS, 2012); it is unknown if the shrub may have survived, but it was not observed during field surveys (LSA, 2013a).
- CNDDB Occurrence #40 (Pilgrim Road) reported extirpated in 2006 by a reliable observer (USFWS, 2009a). This occurrence is partially within the Proposed Project study area on Segment 3, approximately 1.6 miles east of the San Bernardino Junction (MP 6.6).

Nevin's barberry is an evergreen shrub with showy yellow flowers, and mature plants should be easily identifiable during field surveys. Nevin's barberry was not observed on Segment 1, or anywhere on the Proposed Project route, during botanical surveys in 2012 and 2013 (BRC, 2013).

Mojave tarplant has a low potential to occur on Segment 3. Suitable habitat may be present, but there are no documented occurrences within 5 miles of the ROW (GANDA, 2011; CNDDB, 2014).

D.4.1.2.4 Segment 4: Beaumont and Banning

Segment 4 is approximately 12.0 miles long and extends from the El Casco Substation east to the western edge of the Morongo Indian reservation at San Gorgonio Avenue in the City of Banning; see Figure B-5a, Proposed Transmission Line Route – Segment 4. The entire segment is within Riverside County and within the WR-MSHCP plan area. The ROW crosses a parcel of Morongo Indian Reservation land west of Sunset Avenue in Banning. No part of Segment 4 is covered by the CV-MSHCP, nor is it on BLM lands; see Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7).

Segment 4 crosses an alluvial deposit from Little San Gorgonio Creek and Noble Creek, which flow into San Timoteo Creek. San Timoteo Creek then flows northwest along the northern edge of the San Timoteo Badlands, and continues northwest through San Timoteo Canyon, the City of Loma Linda, and eventually flows into the Santa Ana River.

From just east of the El Casco Substation, through the City of Beaumont, the Segment 4 ROW is largely within or adjacent to housing and other developed or disturbed lands. East of Beaumont, it crosses open space in the hills north of Banning to the Morongo Indian reservation boundary.

Project-related work in Segment 4 would include installation of telecommunication lines from the Proposed Project ROW to Maraschino Substation in Beaumont and thence to the Devers–Palo Verde No. 2 (DPV2) ROW south of Beaumont. The entirety of this work will be within Segment 4. Telecommunication lines would also be installed from the Proposed Project ROW to the Banning Substation and thence to the DPV2 ROW south of Banning; only the westernmost portion of this work with be within Segment 4, with the remainder in Segment 5. See Section B.2, Description of Proposed Project Components, for details. Substation and staging yards associated with this segment are described above.

Vegetation and Habitat

Vegetation along Segment 4 is mainly developed/disturbed, grassland/forbland, or agriculture. There are areas of riparian woodland, coast live oak woodland, and chaparral on the west end near San Timoteo Creek, and chaparral, coastal sage scrub, and alluvial scrub on the east end near the San Gorgonio River; see Figures Ap.7-2a through Ap.7-2k, Land Cover (in Appendix 7). Four sensitive vegetation communities are found on Segment 4 (see Section D.4.1.1, Vegetation):

- *Keckiella antirrhinoides* Shrubland Alliance (Bush Penstemon Scrub) is found in one location at the easternmost end of the segment.
- *Populus fremontii* Forest Alliance (Fremont Cottonwood Forest) is found along San Timoteo Creek near El Casco Substation and along the unnamed canyon north of Theodore Street in Banning.
- *Salix laevigata* Woodland Alliance (Red Willow Thicket) is found along San Timoteo Canyon Road.
- *Lepidospartum squamatum* Shrubland Alliance (Scalebroom Scrub) is found along the San Gorgonio River wash.

A wildfire burned land cover within Segment 4 of the Proposed Project study area in May 2013. The fire burned 3,166 acres in the vicinity of Mias Canyon and Bluff Road and the fire's southwest edge crossed into the Proposed Project study area. A mapped range of this fire can be found in Appendix O, Land Cover Figure, of the *Biological Resources Technical Report* (LSA, 2013b). For purposes of this assessment, it is assumed that the burned areas will recover to approximately the pre-fire condition as represented by the vegetation mapping.

Special-status Plants

Two special-status species, chaparral sand-verbena (*Abronia villosa* var. *aurita*) and smooth tarplant, have a high potential to occur in Segment 4 and three additional special-status species were observed during surveys: Yucaipa onion (*Allium marvinii*), Plummer's mariposa-lily, and Engelmann oak (*Quercus engelmannii*). Please see Table Ap.7-1 and Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7). Several special-status plant species have a low or moderate potential to occur within Segment 4, including Nevin's barberry and Mojave tarplant.

Nevin's barberry has a low potential to occur on Segment 4. There is limited suitable habitat present, and no documented occurrences within 5 miles of the ROW (GANDA, 2011; CNDDB, 2014). Nevin's barberry was not observed on Segment 4 during botanical surveys in 2012 and 2013 (BRC, 2013).

Mojave tarplant has a low potential to occur on Segment 4. Suitable habitat may be present, but the nearest documented occurrence was recorded in 1924 along Highway 243 about 0.7 miles south of the ROW (LSA, 2013b; CNDDB, 2014).

D.4.1.2.5 Segment 5: Morongo Tribal Lands and Surrounding Areas

Segment 5 is approximately 9.0 miles long and extends through the Morongo reservation for most of its length. The segment begins at San Gorgonio Avenue in the City of Banning. Heading east, it crosses and re-crosses the winding San Gorgonio River, traverses the Robertson's Plant 66 aggregate quarry, and the alluvial drainages of Millard Canyon, Deep Canyon, and Lion Canyon, ending at Rushmore Avenue in the community of Whitewater; see Figure B-6a, Proposed Transmission Line Route – Segment 5.

The eastern portion of the Proposed Project study area (i.e., Segments 5 and 6) traverses the foothills of the San Bernardino Mountains. This area consists of alluvial deposits from multiple ephemeral rivers, streams, and washes. Major drainages in this portion are the San Gorgonio and Whitewater Rivers, which ultimately feed into the Salton Sea. Dominant soil series or types are described in the *Biological Resources Technical Report* (LSA, 2013b).

The entire segment is within Riverside County. The west end is covered by the WR-MSHCP (approximately MP 27.4 to 30.6). The east end is covered by the CV-MSHCP (approximately MP 30.6 to 36.9), and runs through portions of the CV-MSHCP Cabazon Conservation Area. Much of the segment is on reservation lands, but it does not traverse BLM lands; see Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7).

Project-related work in Segment 5 includes installation of telecommunication lines from the Proposed Project ROW to the Banning Substation and thence to the DPV2 ROW south of Banning; most of this work is within Segment 5, with only the westernmost portion within Segment 4. See Section B.2, Description of Proposed Project Components, for details. Substation and staging yards associated with this segment are described above.

Vegetation and Habitat

Segment 5 crosses the San Gorgonio River and several smaller alluvial drainages. Desert scrub is found along most of the segment. Alluvial scrub occupies the San Gorgonio River wash and the smaller drainages. There are small areas of riparian vegetation in Robertson's Plant 66 and along a short section of the San Gorgonio River; see Figures Ap.7-2a through Ap.7-2k, Land Cover (in Appendix 7). The corridor runs mainly through open space, with scattered rural residential housing, and a short section that is adjacent to the Cabazon Outlet Mall.

Two sensitive vegetation communities are found on Segment 5:

- *Chilopsis linearis* Woodland Alliance (Desert Willow Woodland) is found along the San Gorgonio River.
- *Lepidospartum squamatum* Shrubland Alliance (Scalebroom Scrub) is found along the San Gorgonio River wash.

These communities are described in Section D.4.1.1, Vegetation.

Special-status Plants

Two special-status plants have a high potential to occur in Segment 5: chaparral sand-verbena and little San Bernardino Mountains linanthus (*Linanthus maculatus*). Three additional special-status species were observed during surveys on Segment 5: Parry's spineflower (*Chorizanthe parryi* var. *parryi*), white-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*), and southern California black walnut (*Juglans californica*). See Table Ap.7-1 and Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7). Several other special-status plants have a low or moderate potential to occur within Segment 5, including Coachella Valley milk-vetch, triple-ribbed milk-vetch, and Mojave tarplant.

Coachella Valley milk-vetch has a moderate potential to occur in Segment 5. Suitable habitat is present, and there are documented occurrences within 5 miles of the proposed ROW (GANDA, 2011). It was not observed during botanical surveys in 2012 and 2013 (BRC, 2013).

Triple-ribbed milk-vetch has a low potential to occur in Segment 5. There is marginally suitable habitat present in the Whitewater River wash, but triple-ribbed milk-vetch would only occur within the route as isolated individuals originating as seed dispersed downstream from the much larger populations in the upper Whitewater River watershed. The nearest documented occurrences are near the Whitewater River in Segment 6, over 4 miles from the east end of Segment 5 (LSA, 2013b). It was not observed during botanical surveys in 2012 and 2013 (BRC, 2013).

Mojave tarplant has a low potential to occur on Segment 5. Suitable habitat is potentially present, but the nearest documented occurrence was recorded in 1924 along Highway 243 about 0.7 miles south of the ROW (CNDDB, 2014). It was not observed during botanical surveys in 2012 and 2013 (BRC, 2013).

D.4.1.2.6 Segment 6: Whitewater and Devers

Segment 6 is approximately 8.0 miles long and extends from the eastern boundary of the Morongo reservation at Rushmore Avenue to the eastern terminus of the Proposed Project Route at the Devers Substation. From Rushmore Avenue, it proceeds east across the alluvial drainages of Stubbe Canyon and Cottonwood Canyon, and then the alluvial terraces of the Whitewater River and the alluvial drainage of Super Creek. It crosses State Route 62 (SR-62) into the Coachella Valley, where it ends at Devers Substation located west of the City of Desert Hot Springs; see Figure 7a, Proposed Transmission Line Route – Segment 6.

The entire segment is within Riverside County and within the CV-MSHCP area. Segment 6 runs through portions of the CV-MSHCP Stubbe and Cottonwood Canyons Conservation Area, Whitewater Canyon Conservation Area, and Upper Mission Creek/Big Morongo Canyon Conservation Area. The segment does not cross reservation lands, but it traverses scattered small parcels of BLM land; see Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7). Substation and staging yards associated with this segment are described above.

Vegetation and Habitat

Segment 6 passes mainly through undeveloped open space along the foothills of the San Bernardino Mountains. There is rural residential development off Haugen-Lehmann Way. East of Whitewater Canyon, the proposed route passes by scattered residences and through wind energy projects (wind farms). Vegetation is mainly desert scrub, with alluvial scrub along the Whitewater River and other drainages, and aeolian sand habitat east of the Whitewater River; see Figures Ap.7-2a through Ap.7-2k, Land Cover and Figure Ap.7-4, Aeolian Habitat (in Appendix 7).

Three sensitive vegetation communities and habitat types are found on Segment 6 (Section D.4.1.1):

- *Lepidospartum squamatum* Shrubland Alliance (Scalebroom Scrub) is found along the Whitewater River and several smaller washes.
- *Ericameria paniculata* Shrubland Alliance (Black-stem Rabbitbrush Scrub) is found in a small area near Devers Substation.
- Aeolian (wind-blown) sand habitat is found east of the Whitewater River and in the Whitewater River wash.

Special-status Plants

Five special-status plants were observed during surveys on Segment 6: chaparral sand verbena, Parry's spineflower, white-bracted spineflower, spiny-hair blazing star, and desert spike-moss. Three special-status species have a high potential to occur (Coachella Valley milk-vetch, triple-ribbed milk-vetch, and little San Bernardino Mountains linanthus), and three additional special-status plant species have a low potential to occur within Segment 6. See Table Ap.7-1 and Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7).

Coachella Valley milk-vetch has a high potential to occur in Segment 6. Suitable habitat is present, and there are numerous documented occurrences within 5 miles of the ROW (GANDA, 2011), including a documented occurrence along the ROW just west of Devers Substation (Aspen, 2006). This species was not observed during botanical surveys in 2012 and 2013 (BRC, 2013).

Triple-ribbed milk-vetch has a high potential to occur in Segment 6. There is suitable habitat present, and documented occurrences within 5 miles of the ROW (GANDA, 2011), including plants documented in or near the proposed ROW in the Whitewater River wash in 1995 (LSA, 2013b). The primary habitat for triple-ribbed milk-vetch is on upland slopes higher in the Whitewater River watershed, but it is occasionally found as isolated individuals ("waifs") in the Whitewater River wash. The ROW does not cross the main occurrences of triple-ribbed milk-vetch, but isolated plants could be found within some parts of the ROW. Triple-ribbed milk-vetch was not observed during botanical surveys in 2012 and 2013 (BRC, 2013).

D.4.1.3 Environmental Setting for Connected Actions

Biological resources information on connected actions is derived from the Palen Solar Electric Generating System Draft Supplemental EIS (BLM, 2013); Desert Harvest Solar Farm Final EIS (BLM, 2012); Blythe Mesa Solar Project Draft EIR/EA (BLM and Riverside County, 2014); Presiding Member's Proposed Decision, Palen Solar Power Project (CEC, 2010); and the West of Devers Project PEA (SCE, 2013).

Desert Center Area. The Desert Center area, about 50 miles east of the Coachella Valley, also is within the Colorado subregion of the Sonoran Desert in Riverside County. Much of this area is at an elevation below 1,000 feet above mean sea level (amsl), with mountain peaks rarely exceeding 3,000 feet amsl.

Average annual rainfall is 3.68 inches (recorded at Eagle Mountain weather station), and a substantial portion of it falls during August and September, usually as brief and intense thunderstorms.

Land use in the area includes public lands and open space, scattered rural residential, and some active and inactive agricultural (jojoba) fields.

Vegetation and habitat. Common vegetation communities are Sonoran creosote bush scrub (described above) and saltbush scrub. Saltbush scrub is an open shrubland dominated by various species of saltbush (*Atriplex* spp.)

Examples of sensitive habitats or vegetation types in this area are aeolian sand (described in Section D.4.1.1), including active desert dunes and partially stabilized desert dunes, and desert dry wash woodland. Desert dry wash woodland is generally taller and denser than that of surrounding desert habitats. Typical species are desert ironwood (*Olneya tesata*), blue palo verde (*Parkinsonia floridum*), smoketree (*Psarathamnus spinasus*), and catclaw acacia (*Acacia greggii*).

Special-status plants. No listed threatened or endangered plants are reported from the Desert Center vicinity. Examples of non-listed special-status plants found in the area are chaparral sand-verbena (*Abrania villasa* var. *aurita*; CRPR 1B.1), Harwood's woollystar (*Eriastrum harwaadii*; CRPR 1B.2), and Crucifixion thorn.

Wetlands and other waters. There are numerous dry (episodic or ephemeral) washes and channels here. These washes rarely carry surface flow except during rainstorms or during floods originating from heavy precipitation higher in the watershed. As described in Section D.4.1.1, under the federal Clean Water Act and State Fish and Game Code, these channels may be subject to USACE, CDFW, SWRCB or RWQCB, and potentially EPA jurisdiction.

Blythe Area. The Blythe area, about 50 miles east of Desert Center, also is within the Colorado subregion of the Sonoran Desert in Riverside County. The area is a relatively flat valley, with elevations generally below 1,000 feet amsl. There are scattered small mountain ranges (Big Maria Mountains, McCoy Mountains, Mule Mountains, etc.), with most peaks below 3,000 feet amsl. The Colorado River is a few miles east of Blythe.

The climate consists of dry, mild winters and hot, dry summers. Average temperatures are 45 degrees Fahrenheit in winter and 104 degrees Fahrenheit in summer. Annual rainfall ranges between 2 and 10 inches. Most precipitation falls between November and March, but the region periodically experiences monsoonal summer storms.

The area is characterized by a small urban center (Blythe), public lands and open space, rural residential land, and extensive agriculture along the Colorado River (citrus, wheat, alfalfa, jojoba, etc.).

Vegetation and habitat. Common vegetation communities in the Blythe area are Sonoran creosote bush scrub (described above), desert dry wash woodland, and desert wash scrub.

Desert dry wash woodland is an example of a sensitive habitat. It is the same general vegetation community as described above for the Desert Center area, but in this area it may have a slightly different mix of species: honey mesquite, palo verde (*Cercidium floridum*), desert ironwood, and cat claw acacia.

Special-status plants. Examples of non-listed special-status plants found in the area are Harwood's woollystar, Harwood's milk-vetch (*Astragalus insularis var. harwaadii*; CRPR 2B.2), gravel milk-vetch (*Astragalus sabulanum*; CRPR 2.2) desert unicorn-plant, dwarf germander (*Teucrium cubense* ssp.

depressum; CRPR 2.2) and winged cryptantha (*Cryptantha holoptera*; CRPR 4.3). No listed threatened or endangered plants are reported from the Blythe vicinity.

Wetlands and other waters. The Colorado River is located east of Blythe. The river itself is considered waters of the state and waters of the U.S. Riparian and wetland vegetation, wash habitat, and irrigation or drainage canals along the river, its floodplain, and its tributary washes also may meet jurisdictional criteria. Further to the west, outside the agricultural areas, there are numerous dry (episodic or ephemeral) washes and channels. These washes rarely carry surface flow except during rainstorms or during floods originating from heavy precipitation higher in the watershed. As described in Section D.4.1.1, under the federal Clean Water Act and State Fish and Game Code, these channels may be subject to USACE, CDFW, SWRCB or RWQCB, and potentially EPA jurisdiction. Irrigation channels and stock ponds may be found within the agricultural areas; depending on the situation, these may also be jurisdictional.

D.4.2 Applicable Regulations, Plans, and Standards

This section summarizes the key federal, state, and local regulations, plans, and standards applicable to this analysis of biological resources within the Proposed Project area.

D.4.2.1 Federal

Federal Land Policy and Management Act (43 U.S.C. Sections 1701-1787). Directs management of public lands managed by the U.S. Forest Service, National Park Service, and BLM; addresses land use planning, rights-of-way, wilderness, and multiple use policies. In the California Desert, BLM administers multiple uses and resources, including biological resources, through its California Desert Conservation Area Plan and subsequent amendments.

Endangered Species Act (16 USC Sections 1531-1543). Establishes legal requirements for conservation of endangered and threatened species and the ecosystems upon which they depend. Administered by the U.S. Fish and Wildlife Service (USFWS). Under the Endangered Species Act (ESA), the USFWS may designate critical habitat for listed species. Section 7 of the ESA requires federal agencies to consult with USFWS to ensure that their actions are not likely to jeopardize listed threatened or endangered species, or cause destruction or adverse modification of critical habitat. Section 10 of the ESA requires similar consultation for non-federal applicants.

Clean Water Act (33 USC Sections 1251-1376). Regulates the chemical, physical, and biological integrity of the nation's waters. Section 401 of the Clean Water Act (CWA) requires that an applicant obtain State certification for discharge into waters of the United States. The State Water Resources Control Board and Regional Water Quality Control Boards administer the certification program in California, and the U.S. Environmental Protection Agency (EPA) administers the certification program on sovereign tribal land. Section 404 of the CWA establishes a permit program, administered by the U.S. Army Corps of Engineers (USACE), to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Individual projects may qualify under "Nationwide General Permits," or may require project-specific "Individual Permits."

Noxious Weed Act (7 USC Sections 2801 et seq.). Provides for the control and management of non-indigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. The Secretary of Agriculture may designate plants as noxious weeds, and take measures to prevent the spread of such weeds.

Fish and Wildlife Coordination Act (16 USC Sections 661 666). Applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Requires consultation among USFWS and state wildlife agency. Implemented through the NEPA process and Section 404 permit process.

Executive Order 11990, Protection of Wetlands. Directs federal agencies to avoid to the extent possible the long- and short-term adverse impacts from the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

Executive Order 13112, Invasive Species. Establishes the National Invasive Species Council and directs federal agencies to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts caused by invasive species.

D.4.2.2 State

California Endangered Species Act (Fish and Game Code Section 2050 et seq.). Prohibits take of state-listed threatened or endangered species, except as authorized by the California Department of Fish and Wildlife (CDFW). Authorization may be issued as an Incidental Take Permit or, for species listed under both the California Endangered Species Act (CESA) and the federal ESA, through a Consistency Determination with the federal incidental take authorization.

Natural Community Conservation Planning Act (Fish and Game Code Section 2800 et seq.). Provides a regional approach to conservation. Natural Community Conservation Plans (NCCPs) are developed and implemented by CDFW in cooperation with private and public partners, to protect species and their habitats while allowing for compatible and appropriate economic activity. Portions of the Proposed Project Area lie within two NCCP areas, the Western Riverside Multiple Species Conservation Plan (WR-MSHCP) and the Coachella Valley MSHCP (CV-MSHCP); see Section D.4.2.3.

Lake and Streambed Alteration Agreements (Fish and Game Code Section 1600-1616). The CDFW regulates projects that would divert, obstruct, or change the natural flow, bed, channel, or bank of a river, stream, or lake. Regulation is formalized in a Lake and Streambed Alteration Agreement (LSAA), which generally includes measures to protect any fish or wildlife resources that may be substantially affected by the project.

Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.). Regulates surface water and groundwater and assigns responsibility for implementing federal CWA Section 401. Establishes the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) to protect State waters. The Proposed Project Area lies within watersheds regulated by two RWQCBs: the Santa Ana and Colorado River RWQCBs. If a project extends into multiple RWQCB boundaries, it is subject to regulation by the SWRCB.

D.4.2.3 Local

Western Riverside Multiple Species Habitat Conservation Plan. Provides long-term conservation for "covered" special-status plants and animals; provides CESA and ESA take of covered species for conforming projects, subject to the Plan's administrative and mitigation requirements, and USFWS and CDFW take authorizations.

Coachella Valley Multiple Species Habitat Conservation Plan. Provides long-term conservation for "covered" special-status plants and animals; provides CESA and ESA take of covered species for conforming projects, subject to the Plan's administrative and mitigation requirements, and USFWS and CDFW take authorizations.

City and County Land Use Planning. Riverside and San Bernardino Counties, and several incorporated cities on the ROW, include biological resources policies in adopted general plans or local ordinances. These policies are listed in Table 4.4-1 of the Proponent's Environmental Assessment (PEA).

D.4.3 Environmental Impacts of the Proposed Project

The objective of the impact analysis is to identify, describe, and (where feasible) quantify the Proposed Project's expected impacts to vegetation resources. This impact analysis is based on the vegetation resources described in the Environmental Setting / Affected Environment section above and on the Description of the Proposed Project in Section B. This analysis incorporates PEA Section 4.4.5, Impacts Analysis, as well as independent review and analysis of the Proposed Project's expected impacts to each resource.

Section D.4.3.1 describes the approach to quantifying vegetation resources impacts, wherever feasible, or describes other metrics or approaches which may be used in comparison of impacts among alternatives. Section D.4.3.2 lists the impact criteria for evaluation of each impact. Section D.4.3.3 (Impact Analysis and Mitigation Measures), describes the Proposed Project's expected direct and indirect effects to vegetation resources. In addition, it specifies mitigation measures as feasible to reduce these impacts.

D.4.3.1 Approach to Impact Assessment

The Proposed Project includes a construction phase, projected to take place over approximately 36 to 48 months. Following construction, temporary disturbance areas would be revegetated according to applicable mitigation measures. Revegetation efforts, along with implementation and monitoring of other mitigation measures identified herein, would necessitate ongoing vehicle access and soil disturbance beyond the completion of construction. This phase is referred to as the Proposed Project's "restoration" phase in the following analysis.

Additionally, vehicle access and other project activities would continue during operation and maintenance (O&M), throughout the life of the Proposed Project. Each potential impact to vegetation is described, to indicate whether it is a direct or indirect impact; whether its effects would be permanent, long-term or short-term; and whether it would occur during one or more of the Proposed Project's phases, including construction, restoration, or O&M.

Direct impacts are the direct or immediate effects of the Proposed Project on vegetation resources. Examples of direct impacts include mortality or injury, or displacement of special-status plants; loss or degradation of native vegetation and habitat; and disturbance to plants and habitat from dust. Indirect impacts are those effects that are caused by or will result from the Proposed Project, later in time or farther removed in distance, but are still reasonably certain to occur. Examples of indirect effects to native habitat and vegetation include erosion, sedimentation, and introduction of invasive species that may compete with native species and cause habitat degradation.

The project route traverses lands within two different Multiple Species Habitat Conservation Plans (MSHCPs). It also crosses Morongo Tribal land and portions of San Bernardino County that are not within either MSHCP area. In addition, it crosses BLM land within the Coachella Valley MSHCP (CV-MSHCP) area, but not covered by USFWS and CDFW take authorization for the CV-MSHCP. SCE intends to participate in both MSHCPs as a Participating Special Entity (PSE) but the PSE application process is not yet complete. This analysis indicates whether direct or indirect impacts would occur in each of the jurisdictional areas. Where mitigation is identified, the analysis indicates whether each measure would be applicable within each jurisdictional area, based in part on whether MSHCP participation would mitigate the impact independently from mitigation measures identified herein.

Some of the Proposed Project's impacts to vegetation can be quantified in terms of acreage (e.g., acreage of vegetation or habitat that would be affected by the project). Other impacts (e.g., adverse effects of dust to plants and vegetation) cannot be directly quantified, but acreage is often the best available estimator of expected disturbance for comparison purposes. Wherever feasible, the analysis indicates acreage as the best available metric for each anticipated impact.

D.4.3.1.1 Applicant Proposed Measures

The PEA includes a series of Applicant Proposed Measures (APMs) proposed by SCE to reduce or avoid impacts to biological resources. The APMs are considered to be commitments made by SCE, and they are assumed to be implemented in this evaluation of impacts to biological resources. SCE's APMs addressing vegetation and special-status plants are presented in Table D.4-3. APMs that relate strictly to wildlife are presented in Section D.5. The additional mitigation measures recommended in this analysis generally incorporate the APMs, while adding conditions or details as needed to mitigate potential impacts. Therefore, the APMs in Table D.4-3 are superseded by mitigation measures provided.

Table D.4-3. Applicant Proposed Measures – Biological Resources

APM	Text
APM BIO-1	**Revegetation Plan. [Note:** This revision of APM BIO-1 was provided by SCE in response to CPUC PEA Completeness Review Data Request. P. Nevins, December 6, 2013.] Prior to starting construction, a draft revegetation plan would be prepared to guide the revegetation of those areas subject to temporary project impacts during construction and that are not included within either the WR-MSHCP or CV-MSHCP (e.g., land areas within the Morongo Reservation or San Bernardino County), and where dominant land cover consists of native vegetation. The objective of revegetation would be to re-establish vegetation back to pre-construction conditions (e.g., by maintaining roughly equivalent or comparable native to non-native dominance patterns) with consideration of adjacent community composition. Areas dominated primarily by non-native vegetation and that are temporarily disturbed by construction activities may also be revegetated; however, the primary objective for those areas would be to stabilize soils to minimize erosion potential in accordance with any applicable SWPPP requirements. Prior to completing construction activities, the revegetation plan would be finalized to address site-specific conditions, methodology and technique, implementation schedule, monitoring and maintenance, and success criteria. The revegetation plan would also direct revegetation of temporarily impacted native-dominated vegetation areas located in the WR-MSHCP and the CV-MSHCP plan areas consistent with MSHCP standards and pursuant to any agreements negotiated between SCE and the MSHCP management entities (e.g., RCA [Regional Conservation Authority] and CVCC [Coachella Valley Conservation Commission]) regarding SCE's obligations as a PSE receiving coverage for impacts to various resources. If SCE does not gain PSE status under either MSHCP, the draft revegetation plan to re-establish native-dominated vegetation back to pre-construction conditions (as noted above) would include native dominated areas within MSHCP areas also. The draft revegetation plan would be submitted to the CPUC, BLM, and applicable wildlife agencies for approval after completion of final engineering and prior to the start of construction. The Revegetation Plan will include the following elements: (a) A statement of revegetation goals for different areas within the project (e.g., to mitigate project impacts to specific resources) based on the administrative land jurisdiction particular areas fall in and also based on the different vegetation types and the constituent elements therein. In particular, revegetation objectives for areas supporting native vegetation may differ substantially from the objectives for revegetation in other areas. Revegetation objectives will be specified for different habitat and vegetation types and for the following administrative areas: 1) San Bernardino County, including specific reference to goals for revegetation within USFWS-designated Critical Habitat for California gnatcatcher and areas deemed occupied by Stephens' kangaroo rat; 2) WRC MSHCP areas, including Public/Quasi-Public conservation areas and Additional Reserve Lands; 3) CVMSHCP areas; and 4) areas to be re-

Table D.4-3. Applicant Proposed Measures – Biological Resources

APM	Text
	vegetated on land within the Morongo Reservation. Examples of likely goals may include preventing or minimizing further site degradation; stabilizing soils; promoting passive vegetation recovery over time; replacing degraded natural vegetation and habitat value with equivalent vegetation cover and composition as compared to pre-construction conditions; and minimizing soil erosion, dust generation, and weed invasions. (b) Quantitative success criteria. Because restoration goals will differ according to location, success criteria shall be tailored appropriately to areas in different administrative jurisdictions (please see above) and will also be defined specifically for areas containing habitat for listed species and other special-status species for which habitat value is being replaced along the route. (c) Implementation. The Plan will describe SCE's proposed implementation measures, including: (a) pre-construction characterization of specific areas subject to temporary construction impacts; (b) soil preparation measures, including locations of recontouring, decompacting, soil amendments, imprinting, or other treatments; (c) details for top soil salvage and storage, as applicable; (d) plant material collection and acquisition guidelines, including guidelines for obtaining plants or seed from vendors; (e) scheduling and methods for planting or seeding; (f) proposed irrigation methods. (d) Maintenance. The Plan will include scheduling and methods for proposed maintenance activities such as weeding, trash removal, etc. (e) Monitoring and Reporting. The Restoration Plan will include a detailed monitoring and reporting program, commensurate with the goals and success criteria for each revegetation site. The monitoring and reporting program will be designed to evaluate progress toward success criteria at appropriate milestones, provide an objective determination whether each site meets success criteria at the end of the monitoring period, and report this information to the relevant agencies. (f) Contingency. The Plan will include contingency measures for implementation if revegetation efforts make insufficient progress toward success criteria at specified milestones.
APM BIO-2	**Biological Monitoring.** Where special-status species (e.g., reptiles, birds, mammals, and bat roosts) or unique resources (defined by regulations and local conservation plans) are known to occur, biologists would monitor construction activities, unless otherwise mitigated for or as appropriate actions are described in species-specific APMs.
APM BIO-7	**Special Status Plants.** Pre-construction surveys for plant species assigned a State Rare Plant Rank of 1B would be performed during the appropriate season and observed populations compared to impact area limits associated with final design. If substantial adverse impacts to a population are unavoidable then replacement or translocation of equivalent numbers of plants would be planned and implemented. (Substantially adverse impacts are defined as damage or loss of at least 20 percent of the total number of individuals in a local population within the Project Area or 20 percent of the total area occupied by a population of special status plants. Potential impacts to species ranked 2 or 4 would not be considered significant but may still be avoided to the extent practicable). Special status plants designated on List 1B that are substantially adversely affected would be salvaged and relocated. SCE will prepare plan to accomplish salvage and relocation/replacement plan that states methods of salvage, storage, and replacement planting of seeds or plants, and to identify receptor sites, set target numbers to be established, describe monitoring methods, and define requirements for maintenance and annual monitoring reports. List 1B species observed in project area include: Yucaipa onion, smooth tarplant, Parry's spineflower, white-bracted spineflower, and chaparral sand verbena.
APM BIO-8	**Coachella Valley Milk-vetch.** Focused surveys for Coachella Valley milk-vetch would be conducted during the appropriate season within designated Critical Habitat along the Whitewater River during the season immediately preceding proposed construction activities in that area. This species was not found during focused surveys conducted in 2011 and 2012. If this species is located and occurs within areas potentially subject to impacts during construction, a plan to avoid impacts, protect specimens in place, and/or salvage and replace affected specimens would be developed in consultation with the CVCC, USFWS, and CDFW.

Table D.4-3. Applicant Proposed Measures – Biological Resources

APM	Text
APM BIO-9[2]	**Jurisdictional Water Permits.** Jurisdictional waters permits would be obtained from CDFW under Cal. Fish & Game Code Section 1602, and from USACE, EPA, and SWRCB, in accordance with Sections 404 and 401 of the Clean Water Act, to address unavoidable impacts to State and Federal jurisdictional waters. Impacts would be mitigated based on the terms of the permits. The applicant would develop a Habitat Mitigation and Monitoring Plan (HMMP) for affected jurisdictional areas within established riparian areas, as needed, for review and approval by the USACE, CDFW, the EPA, and the SWRCB, as appropriate. The plan would describe measures to accomplish restoration or revegetation, provide criteria for success, and specify compensation ratios. Monitoring and reporting requirements and the duration of post-construction monitoring would be specified. A copy of the final HMMP would be provided to the CPUC, USACE, EPA, SWRCB, and CDFW. Regarding any affected Riparian/Riverine drainages and habitat areas in Segments 3 and 4 in Western Riverside County, if SCE participates in the WR-MSHCP, SCE would prepare a DBESP [Determination of Biologically Equivalent or Superior Preservation] that would include mitigation measures consistent with the HMMP as previously described. The RCA would request USFWS and CDFW concurrence with the MSHCP "findings of consistency," as well as DBESP approval. Subsequent coordination on any biological issues would be addressed through consultation with the RCA. The RCA would determine the need for additional consultation with the USFWS and CDFW.
APM BIO-13	In areas where foot travel is necessary outside of already identified temporary or permanent disturbance areas Biological Monitors present in areas as required by APM BIO-2, would assist construction crews in determining the most appropriate foot path having the least potential to disturb sensitive biological resources.

D.4.3.2 Impact Criteria

NEPA does not have specific significance criteria. However, NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). Using the following criteria for the purposes of analysis, the project or an alternative would impact vegetation resources if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404, of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

[2] Minor revisions were made to APM BIO-9 per SCE's request dated September 22, 2015.

D.4.3.3 Impacts and Mitigation Measures

This section describes the Proposed Project's expected direct and indirect impacts to vegetation resources and identifies mitigation measures to avoid, minimize, rectify, reduce over time, or compensate for those impacts. The analysis considers all project components, including substation modifications, 220 kV transmission lines, 66 kV subtransmission lines, 12 kV distribution lines, telecommunication facilities, and staging yards. The mitigation measures identified in this analysis are designed to incorporate and supplement the APMs (Table D.4-3). If any part of a mitigation measure is found to be in conflict with an APM, the mitigation measure will supersede. In the case of Biological Resources-Vegetation, the BIO APMs have been superseded by mitigation measures.

Several of the impacts to vegetation resources also apply to wildlife resources. This is especially true of habitat-related impacts (e.g., vegetation removal). In addition, several of the mitigation measures for vegetation resources identified below will also serve to mitigate wildlife resources impacts. For example, biological monitoring is described in Mitigation Measure VEG-1a (Conduct biological monitoring and reporting), and worker training is described in Mitigation Measure VEG-1b (Prepare and implement worker environmental awareness program). These and other mitigation measures include components to mitigate or avoid project impacts to both vegetation and wildlife resources, supporting the analysis and conclusions found in this section and in the Wildlife Resources section (Section D.5.3.3).

The following definitions (Barbour et al., 1987) are provided to assist the reader:

- Absolute cover is the percentage of a sampling area that is underneath the canopy of, or covered by, vegetation. The term "cover" without any additional descriptors generally refers to absolute cover. Absolute cover of vegetation may total less than 100 percent if there are unvegetated areas, or may total more than 100 percent if plant canopies overlap.
- Relative cover is the cover of a particular species, type, or group of plants as a percentage of total plant cover. Relative cover will always total 100 percent, regardless of the total absolute cover. For example, if a sampling plot has total absolute cover of 45 percent of Species A and 15 percent of Species B, with no other species present, total absolute cover is 60 percent (45+15). Relative cover of Species A is 75 percent (absolute cover of Species A divided by total absolute cover or 45/60) and relative cover of Species B is 25 percent (absolute cover of Species A divided by total absolute cover or 15/60).
- Density is the number of individual plants per unit area, often expressed as number of plants per acre.

Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats

Road construction and improvements, and site preparation for transmission structure demolition or construction, pull sites, staging areas, equipment yards, parking areas, administrative functions, and other project activities would necessitate removing existing vegetation and habitat. This impact would be relatively minor for vegetation and habitat removal in areas with little native habitat value (e.g., areas in industrial or agricultural use, or heavily disturbed and ruderal areas). In other areas, loss of native vegetation would reduce or degrade habitat availability for native plants and wildlife, including special-status species. In some cases, sensitive habitats or vegetation types, or habitats that support listed threatened or endangered species or other special-status species, would be removed. Even grasslands and forb lands that are predominantly covered by non-native grasses and herbs are important foraging habitat for raptors and other predators, and may support special-status or listed threatened or endangered species, such as Stephens' kangaroo rat.

Adverse effects to vegetation and habitat would occur primarily during project construction. These effects may be temporary or permanent. Permanent impacts would preclude most natural vegetation and habitat function throughout the life of the Proposed Project, or longer. Examples of permanent impacts are removal of vegetation for permanent roads and access areas at each structure.

Unauthorized public access to project roads or work areas could lead to impacts to native habitat, special-status species, or jurisdictional waters through trash dumping, target shooting, off-highway vehicle use, and other activities. Unauthorized public access associated with the Proposed Project is expected to be similar to that of the existing West of Devers system and impacts would be similar to existing conditions, provided that similar control of access (i.e., closure of gates) is implemented.

Temporary impacts to vegetation and habitat would occur during construction, where vegetation is removed for temporary work areas, without long-term land use conversion, so that vegetation may return to a more natural condition or may be actively revegetated or enhanced. Temporary impacts include vegetation removal for staging areas, or cut or fill slopes. However, depending on the nature of disturbance and local climate (particularly deserts), characterization of permanent and temporary impacts must reflect slow vegetation recovery rates. Natural recovery rates vary according to the vegetation type and the nature and severity of the impact. For example, some vegetation may recover naturally within a few years after crushing by heavy vehicles (Gibson et al., 2004), whereas more severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years for partial recovery, and complete ecosystem recovery may require over 3,000 years (Lovich and Bainbridge, 1999). In cases where ecological restoration techniques cannot dependably restore habitat values within a five (5) year period, impacts will be considered permanent for this analysis.

The bulk of vegetation and habitat removal would occur during project construction. Similar, but limited, impacts may also occur during post-construction restoration (e.g., post-construction recontouring; weed removal; or grading, soil decompaction, or other site preparation for revegetation).

Some vegetation and habitat removal would continue through the O&M phase, but these effects would be limited to maintenance of access areas or other permanent disturbance areas. Operations activities would involve periodic inspections of all project facilities at least once per year. Maintenance could include repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, replacing poles and structures, tree trimming, brush and weed control, and access road maintenance. Most regular O&M activities of overhead facilities are performed from access roads with no surface disturbance. Repairs, such as repairing or replacing poles and structures, could occur in undisturbed areas. O&M activities associated with the Proposed Project are expected to be less than or equivalent to O&M of the existing West of Devers system and impacts would be similar to or reduced from existing conditions.

Table D.4-4 summarizes SCE's estimates of the acreage to be removed, by vegetation type and permanent or temporary impacts, based on preliminary engineering. These acreages are regarded as "worst case" estimates of total vegetation and habitat removal. Total acreages are expected to be reduced during ongoing refinement of the Proposed Project design (i.e., site-specific locations and cut or fill areas for each structure and access route). The expected disturbance acreage cannot be quantified until completion of final engineering. Therefore, this analysis conservatively uses data provided in the PEA (Tables 4.4-8 and 4.4-9), given that project impacts may be less, but under no circumstances, will be more than analyzed here.

Where vegetation and habitat have no special conservation status (i.e., no potential to support special-status plants or animals, not a wetland or riparian habitat, and not designated by CDFW (CDFG, 2010) as a "community with highest inventory priority," the impact can be mitigated through engineering, monitoring, and verification to minimize direct project impacts, followed by revegetation of temporarily disturbed areas to minimize weed invasion, dust generation, and erosion. Within the Proposed Project area, vegetation and land use areas mapped as agriculture and developed/disturbed (as shown in Table D.4-4) meet these criteria. In addition, most of the mapped grassland/forbland vegetation is expected to recover most of its habitat structure and value through revegetation that would minimize weed invasion, dust generation, and erosion. No compensation or additional mitigation would be required for permanently disturbed acreage in these vegetation or habitat types. Two exceptions are grassland/forbland areas supporting Stephens' kangaroo rat or with 10 percent or greater relative cover of native perennial grass species, which are addressed below.

The Applicant proposes to revegetate temporarily impacted areas according to APM BIO-1, Revegetation Plan, and to monitor construction activities at work sites where special-status species or unique resources are present according to APM BIO-2, Biological Monitoring (see Table D.4-3). These APMs are superseded by Mitigation Measures VEG-1a and VEG-1b. Mitigation Measures VEG-1a through VEG1-d would apply to all vegetation types affected by the Proposed Project. These measures are briefly described here, and set forth in detail below.

- Mitigation Measure VEG-1a (Conduct biological monitoring and reporting) would require SCE to assign qualified biologists to monitor and report on construction activities and compliance with multiple resource protection requirements specified in adopted mitigation measures, including limiting vegetation and habitat disturbance to the permitted construction area boundaries.
- Mitigation Measure VEG-1b (Prepare and implement worker environmental awareness program [WEAP]) would require the Applicant to ensure that project workers are informed of resource protection requirements, including permitted limits of disturbance.
- Mitigation Measure VEG-1c (Minimize native vegetation and habitat loss) would require SCE to minimize vegetation loss to the extent feasible through project design, and clearly demarcate authorized work and disturbance areas in the field.
- Mitigation Measure VEG-1d (Restore or revegetate temporary disturbance areas) would require SCE to restore or revegetate areas where vegetation and habitat are temporarily removed. For temporary disturbances in areas mapped as agriculture, developed/disturbed, and most grassland/forbland, restoration or revegetation will be designed to minimize weed invasion, dust generation, and erosion.

The Proposed Project also would affect wetland or riparian habitat, vegetation and habitat that may support special-status plants or animals, and vegetation types designated by CDFW (CDFG, 2010) as "communities with highest inventory priority." These vegetation communities and habitat types include alluvial scrub, coast live oak woodland, coastal sage scrub, chaparral, desert scrub, riparian woodland, aeolian sand, and grassland/forbland potentially supporting Stephens' kangaroo rat, or native grasslands (i.e., grassland/forbland with 10 percent or greater relative cover of native perennial grasses). Where the Proposed Project would remove these vegetation or habitat types, the permanent or temporary loss would necessitate additional mitigation to replace habitat values, through revegetation, restoration, or off-site compensation. In these areas, Mitigation Measures VEG-1a through VEG-1d would apply as stated above. Additionally, Mitigation Measure VEG-1d would require more complete revegetation or restoration of temporarily disturbed areas, and Mitigation Measure VEG-1e (Compensate for permanent habitat loss) would require off-site compensation for permanent and long-term loss of these vegetation and habitat types.

- Mitigation Measure VEG-1d (above).
- Mitigation Measure VEG-1e (Compensate for permanent habitat loss) would require SCE to offset permanent habitat loss by acquiring and protecting replacement habitat of equivalent or higher habitat value at the ratios prescribed by VEG-1e (below) in perpetuity.

Mitigation Measures for Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats.

VEG-1a **Conduct biological monitoring and reporting.** The following provisions shall apply to the approved project during the construction and post-construction restoration phases.

Lead biologist: SCE shall designate a lead biologist and submit the individual's resume to the CPUC and BLM for concurrence, no less than 60 days prior to the start of any ground-disturbing activities, including those occurring prior to site mobilization (including, but not limited to geotechnical borings or hazardous waste evaluations). At minimum the lead biologist will hold a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field; have at least three years of experience in field biology and at least one year of direct field experience with biological resources found in or near the project area, *OR* relevant education and experience that demonstrates the ability to carry out the tasks required of a lead biologist. The resume shall demonstrate to the satisfaction of the CPUC and BLM the appropriate education and experience to accomplish the assigned biological resources tasks. The lead biologist will be SCE's primary point of contact to CPUC, BLM, CDFW, and USFWS regarding any biological resources issues and implementation of related mitigation measures and permit conditions throughout project construction and post-construction restoration work. In addition, the lead biologist will oversee supervision and training of biological monitors (below) and preparation and submission of all monitoring reports and notifications (below).

If the lead biologist is replaced, the specified information of the proposed replacement must be submitted to the CPUC and BLM at least ten working days prior to the termination or release of the preceding lead biologist. In an emergency, SCE shall immediately notify the CPUC and BLM to discuss the qualifications and approval of a short-term replacement while a permanent lead biologist is proposed for consideration.

Biological monitors: SCE shall assign qualified biological monitors to the project to monitor all work activities during the construction phase.

Monitors are responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, and sensitive or unique biological resources are avoided or minimized to the fullest extent safely possible. Monitors are also responsible to ensure that work activities are conducted in compliance with APMs, mitigation measures, permit conditions, and other project requirements.

Resumes of all biological monitors, including specialty monitors (including but not limited to bat, nesting bird, and special-status species monitors), shall be provided for concurrence by the CPUC and BLM, at least 15 working days prior to the monitor commencing field duties. The resumes shall demonstrate, to the satisfaction of the CPUC and BLM, the appropriate education and experience to accomplish the assigned biological resources tasks.

Table D.4-4. Maximum Potential Permanent and Temporary Vegetation Removal

Segment	Agriculture	Alluvial Scrub	Chaparral	Coast Live Oak Woodland	Coastal Sage Scrub	Desert scrub	Developed/ Disturbed	Grassland/ Forbland	Riparian Woodland	Open Water	Aeolian* Sand	Total
Permanent Impacts (acres)												
1	4.9	—	0.3	—	1.2	—	21.1	4.8	—	—	—	32.3
2	0.2	0.1	—	—	12.3	—	5.9	18.2	—	—	—	36.7
3	1.7	0.8	13.0	—	59.1	—	6.4	50.6	0.0	—	—	131.7
4	2.7	—	21.5	1.6	2.5	—	12.4	22.9	2.5	—	—	66.1
5	—	5.2	—	—	4.1	26.4	9.3	2.6	—	—	—	47.7
6	—	2.0	—	—	—	61.7	4.2	—	—	—	5.1	67.9
Subtotal	9.6	8.1	34.8	1.6	79.3	78.1	59.3	99.0	2.5	—	5.1	372.5
Temporary Impacts (acres)												
1	32.7	—	1.1	—	5.1	—	168.4	26.8	0.6	—	—	234.6
2	4.2	2.3	—	—	92.7	—	52.2	130.3	0.8	—	—	282.4
3	8.4	1.3	49.4	—	291.9	—	78.2	259.0	2.6	0.2	—	688.0
4	30.0	1.9	158.9	13.1	27.3	6.6	222.4	265.2	16.6	—	—	741.9
5	—	62.3	—	—	36.6	401.1	85.7	34.0	1.7	—	—	621.5
6	—	17.2	—	—	—	498.2	59.4	—	—	—	49	574.9
Subtotal	108.7	85.0	209.5	13.1	453.5	905.9	666.9	715.3	22.2	0.2	49	3180.2

*The area of aeolian sand habitat is occupied by desert scrub and included in the acreage for that community. The acreage for aeolian sand is therefore not added to the total.

Prior to monitors commencing field duties, SCE shall provide specific task training to biological monitors, in addition to general WEAP (see Mitigation Measure VEG-1b) training, which addresses the biological resources present or potentially present on the Proposed Project, as well as mitigation measures, permit requirements, project protocols, and the duties and responsibilities of a biological monitor.

Biological monitors shall inform construction crews daily of the location of any environmentally sensitive areas (ESAs), nest buffers, or other resource issues or restrictions that affect the work sites for that day. Biological monitors shall communicate with construction supervisors and crews as needed (e.g., at daily tailgate safety meetings ("tailboards"), by telephone, text message, or email) to provide guidance to maintain compliance with mitigation measures and permit conditions. SCE shall ensure that adequate numbers of monitors are assigned to effectively monitor work activities and that communications from biological monitors are promptly directed to crews at each work site for incorporation into daily work activities. If biological monitors are unavailable for a tailboard meeting, the construction supervisors shall communicate the location of all ESA, nest buffers, or other resource restrictions to crews during the meeting. SCE shall ensure that biological monitors are provided with an accurate daily construction work schedule as well as updated information on any alterations to the daily construction work schedule. This information shall also be provided to CPUC monitors. SCE shall ensure that biological monitors are provided with up-to-date biological resource maps and construction maps in hardcopy or digital format. These maps shall also be provided to CPUC monitors.

Monitors shall be familiar with the biological resources present or potentially present, ESAs, nest buffers, and any other resource issues at the site(s) they are monitoring, as well as the applicable mitigation measures and permit requirements. Monitors shall exhibit diligence in their monitoring duties and refrain from any conduct or potential conflict of interest that may compromise their ability to effectively carry out their monitoring duties.

Biological monitor duties and responsibilities: Throughout the duration of construction, SCE shall conduct biological monitoring of all activities in any area where there is a potential to impact sensitive biological resources or jurisdictional waters, including but not limited to vegetation removal/trimming/disturbance, all ground-disturbing work activities, and initial "drive and crush" in the project area, including work sites, yards, staging areas, access roads, and any area subject to project disturbance. Pre-construction activities (e.g., for geotechnical borings, hazardous waste evaluations, etc.) and post-construction restoration shall also be monitored by a biological monitor during all such activities.

Each day, prior to work activities at each site, the biological monitor(s) shall conduct clearance surveys ("sweeps") for sensitive plant or wildlife resources that may be located within or adjacent to the construction areas. If sensitive resources are found, the biological monitor(s) shall take appropriate action as defined in all adopted mitigation measures, APMs, and permit conditions. Work activities shall not commence at any work site until the clearance survey has been completed and the biological monitor communicates to the contractor that work may begin.

Biological monitors shall clearly mark sensitive biological resource areas with staking, flagging, or other appropriate materials that are readily visible and durable. The monitors will inform work crews of these areas and the requirements for avoidance, and will inspect these areas at appropriate intervals for compliance with regulatory terms and conditions. The biological monitors shall ensure that work activities are contained within approved disturbance area boundaries at all times.

Biological monitors shall have the authority and responsibility to halt any project activities that are not in compliance with applicable mitigation measures, APMs, permit conditions, or other project requirements, or will have an unauthorized adverse effect on biological resources.

Handling, relocation, release from entrapment, or other interaction with wildlife shall be performed consistent with mitigation measures, safety protocols, permits (including CDFW and USFWS permits), and other project requirements.

Biological monitors shall, to the extent safe, practicable, and consistent with mitigation measures and permit conditions, actively or passively relocate wildlife out of harm's way. On a daily basis, biological monitors shall inspect construction areas where animals may have become trapped, including equipment covered with bird exclusion netting, and release any trapped animals. Daily inspections shall also include areas with high vehicle activity (e.g., yards, staging areas), to locate animals in harm's way and relocate them if necessary. If safety or other considerations prevent biological monitors from aiding trapped wildlife or moving wildlife from harm's way, SCE shall consult with the construction contractor, CDFW, wildlife rehabilitator, or other appropriate party to obtain aid for the animal, consistent with Mitigation Measure WIL-1b (Ensure wildlife impact avoidance and minimization) (See Section D.5.3.3 (Biological Resources-Wildlife, Impacts and Mitigation Measures) for full text).

At the end of each work day, biological monitors shall verify that excavations, open tanks, and trenches have been covered or have ramps installed to prevent wildlife entrapment and communicate with work crews to ensure these structures are installed and functioning properly.

Biological monitors shall regularly inspect any wildlife exclusion fencing daily to ensure that it remains intact and functional. Any need for repairs to exclusion fencing shall be immediately communicated to the responsible party, and repairs shall be carried out in a timely manner, generally within one work day.

Reporting: SCE shall prepare and implement a procedure for communication among biological monitors and construction crews, to ensure timely notification (i.e., daily or sooner, as needed) to crews of any resource issues or restrictions. SCE will notify the CPUC and BLM of the procedure and will maintain records of daily communication. SCE will provide CPUC and BLM on-line access to project resource management maps and GIS data.

Monitoring activities shall be thoroughly and accurately documented on a daily basis. SCE shall prepare and submit daily, weekly, and annual, and final monitoring reports to the CPUC and BLM. Prior to the start of monitoring activities, SCE shall provide proposed report formats, describing content and organization, for CPUC and BLM review and approval in consultation with CDFW and USFWS. Report contents shall be as follows:

- **Daily reports:**
  - All daily special status species observations, including location of observation, location and description of project activities in the vicinity, and any avoidance or other measures taken to avoid the species. In addition, all special-status species observations shall be reported to the CNDDB (California Natural Diversity Database; see Weekly reports).
  - All non-compliance incident reports, including nest buffer incursions (see Mitigation Measure WIL-1c (Prepare and implement a Nesting Bird Management Plan).
  - Daily project activity plans, specifying each work site.

- **Weekly reports:**
  - Copies of all CNDDB records for the preceding week and any additional reporting information for each species report (see Mitigation Measures WIL-2a through WIL-2k).

    Weekly update of bird nesting activities and buffer distances (see Mitigation Measure WIL-1c).
- **Annual reports:** SCE shall submit an annual monitoring report by January 30 of each calendar year, with the following contents:
  - A summary of all compliance monitoring reports submitted throughout the calendar year;
  - A summary of all non-compliance records occurring during the calendar year, and remedial actions applied for each one, with additional explanatory text and explanation of resolution of each substantial non-compliance incident (often termed "Level 3 non-compliance");
  - A summary of all nest buffer incursions, including helicopter incursions, (see Mitigation Measure WIL-1c), with explanation of follow-up actions and resolution for each one;
  - Running annual compilations of permanent and temporary impact acreages by vegetation or habitat type and land use jurisdiction;
  - Summaries of all other monitoring reporting requirements, as specified in mitigation measures in the Vegetation and Wildlife Resources sections; and
  - Discussion of "lessons learned" during the calendar year, and recommended or proposed measures to improve compliance throughout the remainder of the project.
- **Final report:** After construction has been completed, a final environmental compliance monitoring report shall be submitted to the CPUC and BLM for review and approval. This report shall be submitted within twelve (12) months of the completion of construction and shall include:
  - A summary of all non-compliance records occurring during the construction phase, and remedial actions applied for each one, with additional explanatory text and explanation of resolution of each substantial non-compliance incident (often termed "Level 3 non-compliance");
  - A summary of all nest buffer incursions, including helicopter incursions, (see Mitigation Measure WIL-1c) occurring during the construction phase, with explanation of follow-up actions and resolution for each one;
  - Final compilations of permanent and temporary impact acreages by vegetation or habitat type and land use jurisdiction;
  - Summaries of all other monitoring reporting requirements, as specified in mitigation measures in the Vegetation and Wildlife Resources sections; and
  - Discussion of "lessons learned" during construction, and recommended or proposed measures to improve compliance for future projects.

Implementation locations: San Bernardino County (all); WR-MSHCP (within the WR-MSHCP regardless of SCE's PSE status); CV-MSHCP (within the CV-MSHCP regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

VEG-1b Prepare and implement a Worker Environmental Awareness Program (WEAP). SCE shall prepare and implement a project-specific Worker Environmental Awareness Program (WEAP) to educate on-site workers about the Proposed Project's sensitive environmental issues. The WEAP shall be administered by the lead biologist or a biological monitor to all on-site personnel during the construction phase, including but not limited to surveyors, engineers, inspectors, contractors, subcontractors, supervisors, employees, monitors, visitors, and delivery drivers. If the WEAP presentation is recorded on video, it may be administered by any competent project personnel. Throughout the duration of construction, SCE shall be responsible for ensuring that all on-site project personnel receive this training prior to beginning work. A construction worker may work in the field along with a WEAP-trained crew for up to 5 days prior to attending the WEAP. SCE shall maintain a list of all personnel who have completed the WEAP training. This list shall be provided to the CPUC and BLM upon request.

The WEAP shall consist of a training presentation, with supporting written materials provided to all participants. At least 60 days prior to the start of ground-disturbing activities, SCE shall submit the WEAP presentation and associated materials to the CPUC and BLM for review and approval in consultation with the USFWS and CDFW.

The WEAP training shall include, at minimum:

- Overview of the project, the jurisdictions the project route passes through (e.g., BLM, reservation, WR-MSHCP, CV-MSHCP) and any special requirements of those jurisdictions.
- Overview of the federal and state Endangered Species Acts, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and the consequences of non-compliance with these acts.
- Overview of the project mitigation and biological permit requirements, and the consequences of non-compliance with these requirements.
- Sensitive biological resources on the project site and adjacent areas, including nesting birds, special-status plants and wildlife and sensitive habitats known or likely to occur on the project site, project requirements for protecting these resources, and the consequences of non-compliance.
- Construction restrictions such as limited operating periods, ESAs, and buffers.
- Avoidance of invasive weed introductions onto the project site and surrounding areas, and description of the project's weed control plan and associated compliance requirements for workers on the site.
- Function, responsibilities, and authority of biological and environmental monitors (i.e., SWPPP monitors, cultural resource monitors, etc.) and how they interact with construction crews.
- Requirement to remain within authorized work areas and on approved roads, with examples of the flagging and signage used to designate these areas and roads, and the consequences of non-compliance.
- Procedure for obtaining clearance from a biological monitor to enter a work site and begin work (including moving equipment), and the requirement to wait for that clearance.

- One-hour hold (or other method SCE will use to halt work when necessary to maintain compliance) and the requirement for compliance.
- ESAs and associated restrictions, and other restrictions such as no grading areas, flagging or signage designations, and consequences of non-compliance.
- Nest buffers and associated restrictions and the consequences of non-compliance. Procedure and time frame for halting work and removing equipment when a new buffer is established. Discussion of nest deterrents.
- Explanation that wildlife must not be harmed or harassed. Procedures for covering pipes, securing excavations, and installing ramps to prevent wildlife entrapment. What to do and who to contact if dead, injured, or entrapped animals are encountered (see Mitigation Measure WIL-5b).
- General safety protocols such as hazardous substance spill prevention, containment, and cleanup measures; fire prevention and protection measures; designated smoking areas (if any) and cigarette disposal; safety hazards that may be caused by plants and animals; and procedure for dealing with rattlesnakes in or near work areas or access roads (see Mitigation Measure WIL-5b).
- Project requirements that have resulted in repeated compliance issues on other recent transmission line projects, such as dust control, speed limits, track out (dirt or mud tracked from access roads or work sites onto paved public roads or other areas), personal protective equipment (PPE), work hours, working prior to clearance, and waste containment and disposal.
- Printed training materials, including photographs and brief descriptions of all special-status plants and animals that may be encountered on the project, including behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures.
- Contact information for SCE, construction management, and contractor environmental personnel, and who to contact with questions.
- Training acknowledgment form to be signed by each worker indicating that they understand and will abide by the guidelines and a hardhat sticker so WEAP attendance may be easily verified in the field.

WEAP Lite. An abbreviated version of WEAP training ("WEAP lite") may be used for individuals who are exclusively delivery drivers, concrete truck drivers, or visitors to the project site, and will be provided by a qualified project biologist, biological monitor, or environmental field staff prior to those individuals entering or working on the project. Short-term visitors (total of 5 days or less per year) to the project site who will be riding with and in the company of WEAP-trained project personnel for the entire duration of their visit(s) are not required to attend WEAP or WEAP lite training.

WEAP lite training will provide sufficient information for the individual to understand and maintain compliance with project mitigation measures and permit conditions. WEAP lite presentations will be tailored to the situation and emphasize project requirements that are relevant to that situation (e.g., dust control, speed limits, staying within project roads and work areas, and use of washouts for concrete truck drivers).

A training acknowledgment form will be signed by each participant indicating that they understand and will abide by the guidelines and a hardhat sticker so WEAP lite attendance may be easily verified in the field. SCE will maintain a list of personnel who have completed WEAP lite training. This list will be provided to the CPUC and BLM upon request.

WEAP Refreshers. Biological monitors or environmental field staff will periodically present brief WEAP refresher presentations at tailboards to help construction crews and other personnel maintain awareness of environmental sensitivities and requirements. A 5- to 10-minute informal talk will be presented at each of the project's main contractor/subcontractor tailboards at least once a week.

When a contractor or subcontractor resumes work after a long break (more than six (6) consecutive calendar days with no substantial work on project construction in the field), a biological monitor or environmental field staff will provide an extended WEAP refresher presentation (10-20 minutes) at each of the contractor/subcontractor tailboards on the first day back to work.

The monitor will note the date, contractor or subcontractor, tailboard location and time, and topic(s) discussed during the WEAP refresher and include this information in their daily monitoring report.

Implementation locations: San Bernardino County (all); WR-MSHCP (within the WR-MSHCP regardless of SCE's PSE status); CV-MSHCP (within the CV-MSHCP regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

VEG-1c **Minimize native vegetation and habitat loss.** Final engineering of the project shall minimize the extent of disturbance and removal of native vegetation and habitat, to the extent safe and feasible. Wherever feasible, work activities and roadways will avoid or minimize direct or indirect effects to sensitive habitat types or jurisdictional waters and provide buffer areas to minimize disturbance. Wherever feasible, project access will use existing routes or bridges over jurisdictional waters.

As feasible, and consistent with project safety and security protocols, landowner preferences, and any other applicable regulations or requirements, existing gates on project access roads will be closed and secured when project personnel enter or leave an area.

Prior to beginning any ground-disturbing activities, SCE shall provide CPUC and BLM with final engineering GIS shapefiles depicting all temporary and permanent disturbance areas, as well as summary data on temporary and permanent disturbance for each vegetation or habitat type within each jurisdictional area (San Bernardino County, WR-MSHCP, CV-MSHCP, reservation, and BLM). All project disturbance areas within mapped grassland/forbland will be further categorized as either suitable or not suitable as Stephens' kangaroo rat habitat, and the relative cover of native perennial grasses shall be quantified (see VEG-1d, Part B).

On completion of project construction, SCE shall provide CPUC and BLM with GIS shapefiles of all actual temporary and permanent disturbance areas, aerial imagery of the project area, and summary data of all discrepancies between final engineering and "as-built" conditions for each vegetation or habitat type, within each jurisdictional area (San Bernardino County, WR-MSHCP, CV-MSHCP, reservation, and BLM).

To the extent feasible, vegetation removal within work areas will be minimized and construction activities will implement drive and crush access and site preparation rather than grading.

To the extent feasible, stockpiling of spoils and salvaged topsoil will be located in previously disturbed areas, and will avoid native vegetation.

Prior to any construction, equipment or crew mobilization at each work site, work areas will be marked with staking or flagging to identify the limits of work and will be verified by project environmental staff and CPUC Environmental Monitor. Staking and flagging will clearly indicate the work area boundaries. Where staking cannot be used, traffic cones, traffic delineators, or other markers will be used. Staking and flagging or other markers will be in place during construction activities at each work site and will be refreshed as needed. Coded flagging colors or color combinations will be consistent and uniform across the project. All work activities, vehicles, and equipment will be confined to approved roads and staked and flagged or marked work areas.

Implementation locations: San Bernardino County (all); WR-MSHCP (within the WR-MSHCP regardless of SCE's PSE status); CV-MSHCP (within the CV-MSHCP regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

VEG-1d **Restore or revegetate temporary disturbance areas.** [Supersedes APM BIO-1 to provide further specificity.] This measure has two parts: Part A and Part B. Part A is applicable to all temporary disturbance areas, and Part B is applicable to disturbance occurring in sensitive vegetation types and special-status species habitats.

For all revegetation or restoration areas, if a fire, flood, or other disturbance beyond the control of SCE, CPUC, and BLM damages a revegetation area within the monitoring period, SCE shall be responsible for a one-time replacement. If a second event occurs, no replanting is required, unless the event is caused by SCE's activity (based upon maintenance of erosion control measures; fencing, gates, or other site control; or investigation by a firefighting agency).

Part A: Habitat restoration and revegetation for all temporary disturbance areas.

SCE shall prepare and implement a Habitat Restoration and Revegetation Plan (HRRP), to restore or revegetate all temporary disturbance areas, including temporary disturbance areas around tower construction sites, laydown or staging areas, temporary access and spur roads, cut and fill slopes, and locations of existing towers that are removed during construction of the project. For temporary disturbances in agriculture, developed/disturbed, and most grassland/forbland (excluding suitable Stephens' kangaroo rat habitat and any areas with 10 percent or greater relative cover of native perennial grass species), and for temporary disturbance areas that cannot be effectively revegetated and are therefore subject to off-site compensation (Mitigation Measure VEG-1e), the overall goals of the HRRP will be to minimize weed invasion, dust generation, and soil erosion. The goals for sensitive vegetation and special-status species habitat are described in Part B of this Mitigation Measure.

The Draft HRRP shall be submitted to CPUC and BLM review and approval prior to the beginning of ground-disturbing activities. SCE shall incorporate all requested revisions in coordination with the CPUC and BLM and finalize the HRRP within 12 months from the start of construction.

For all temporary disturbance areas, the HRRP shall include the following elements:

- A statement of revegetation goals and objectives for each portion of the project area, based on vegetation type and jurisdictional status of each site.

- Quantitative success criteria for each revegetation or restoration site or category.
- Implementation details, including but not limited to topsoil stockpiling and handling; post-construction site preparation; soil decompaction and recontouring; planting and seeding palettes to include only native, locally sourced materials with confirmed availability from suppliers; fall-season planting or seeding dates.
- Maintenance, including but not limited to irrigation or hand-watering schedule and equipment, erosion control, and weed control.
- Monitoring and Reporting, specifying monitoring schedule and data collection methods throughout establishment of vegetation with key indicators of successful or unsuccessful progress, and quantitative values to objectively determine success or failure at the conclusion of the monitoring period.
- Contingency measures such as re-planting, drainage repairs, adjustments to irrigation or weeding schedule, and extension of maintenance beyond the original schedule, to repair or remediate sites not on track to meet success criteria, or not meeting the criteria at the close of the originally scheduled monitoring period.

The Integrated Weed Management Plan (Mitigation Measure VEG-2a) will be implemented throughout implementation of the HRRP. For all revegetation or restoration areas, only seed or potted nursery stock of locally occurring native species from a local source will be used for revegetation. Seeding and planting will be conducted as described in Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen, 2003). The list of plants observed during botanical surveys of the project area will be used as a guide to site-specific plant selection.

For all revegetation or restoration areas, the HRRP will include objective, quantifiable success criteria, commensurate with the goals for each site. Monitoring of the reclamation, revegetation, or restoration sites will continue annually for no fewer than five (5) years or until the defined success criteria are achieved, whichever is later. SCE will be responsible for implementing remediation measures as needed. Following remediation work, each site will continue to be subject to the success criteria required for the initial reclamation, revegetation, or restoration. The monitoring period for remediation work will be concurrent with the monitoring period required for the initial reclamation, revegetation, or restoration.

Part B: Additional habitat restoration and revegetation requirements for sensitive vegetation and special-status species habitat.

For temporary disturbances in grassland/forbland that is either suitable Stephens' kangaroo rat habitat, or has 10 percent or greater relative cover of native perennial grass species (see VEG-1c), and in all other vegetation types (alluvial scrub, coast live oak woodland, coastal sage scrub, chaparral, desert scrub, riparian woodland, and aeolian sand), the Habitat Restoration and Revegetation Plan will be designed to replace the habitat values present prior to disturbance (i.e., native plant species cover, habitat structure, and soil or substrate conditions). Stephens' kangaroo rat habitat suitability is to be determined by a qualified SKR biologist. The following performance standards must be met by the end of the monitoring period:

- At least 80 percent of the vegetation cover within the restoration area shall be native species that naturally occur in local native habitats; in grassland or forbland habitat this criterion will be adjusted to account for pre-disturbance non-native grass cover;

- Absolute cover of native plant species and density of native shrubs and trees within the restoration areas shall equal at least 60 percent of the pre-disturbance or reference vegetation cover and density; and
- The site shall have persisted successfully without irrigation or remedial planting for a minimum of two years prior to completion of monitoring.

For revegetation or restoration in these vegetation or habitat types, the HRRP will include (in addition to the components listed in Part A):

- A map depicting the locations of all temporary disturbance areas in these vegetation or habitat types, including a quantitative evaluation of native grass cover and Stephens' kangaroo rat habitat suitability in all mapped grassland/forbland areas, subject to requirements of Part B;
- An inventory of any temporary disturbance areas that cannot be effectively revegetated or restored to replace habitat values within a five-year timeframe (these will be categorized as "long-term disturbance areas," to be addressed under habitat compensation, Mitigation Measure VEG-1e).

Reporting (for Part A and Part B). For all revegetation or restoration areas, SCE will provide annual reports to the CPUC and BLM verifying the total vegetation acreage subject to temporary and permanent disturbance, identifying which items of the HRRP have been completed, and which items are still outstanding. The annual reports will also include a summary of the reclamation, revegetation, or restoration activities for the year, a discussion of whether performance standards for the year were met, any remedial actions conducted and recommendations for remedial action, if warranted, that are planned for the upcoming year. Each annual report will be submitted within 90 days after completion of each year of revegetation and restoration work.

Implementation locations: Parts A and B of this mitigation measure shall apply as follows: San Bernardino County (all); WR-MSHCP (within the WR-MSHCP regardless of SCE's PSE status); CV-MSHCP (within the CV-MSHCP regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

VEG-1e **Compensate for permanent habitat loss.** SCE shall compensate for permanent or long-term habitat loss through off-site habitat acquisition and management or through participation in an approved in-lieu fee compensatory mitigation bank. This compensation may be accomplished through participation in the WR-MSHCP, CV-MSHCP (within the respective MSHCP areas) if SCE obtains PSE status. This mitigation measure will be applicable to all permanent project disturbance areas and to areas designated as temporary disturbance, but that cannot be effectively revegetated or restored to replace habitat values within a five-year timeframe.

Habitat compensation for all permanent or long-term habitat loss that is not compensated through participation in the WR-MSHCP or CV-MSHCP will be accomplished by acquisition of mitigation land or conservation easements or by providing funding for specific land acquisition, endowment, restoration, and management actions. SCE will prepare a Habitat Compensation Plan to be reviewed and approved by the CPUC, BLM, in consultation with the USFWS and CDFW.

SCE will acquire and protect, in perpetuity, compensation habitat to mitigate impacts to biological resources as detailed below. SCE shall be responsible for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands. The compensation lands will be placed under conservation management to be funded through the terms described herein. If there is any conflict between the requirements of this mitigation measure and requirements of any resource agency permit (e.g., USFWS Biological Opinion or CDFW Incidental Take Permit), the more stringent requirement shall apply.

The acreages of compensation land will be based upon final engineering calculation of impacted acreage for each resource and on ratios set forth in this measure, or in the USFWS Biological Opinion, the CDFW Streambed Alteration Agreement, the CDFW Incidental Take Permit, or the Consistency Determination, whichever presents a higher ratio. Acreages will be adjusted as appropriate for other alternatives or future modifications during implementation.

Compensation will be provided for impacts to the following resources, at the ratios specified below (acres acquired and preserved to acres impacted). These ratios reflect multiple biological resource values, including habitat suitability for special-status species.

- Previously disturbed lands (agriculture, developed/disturbed) and open water: n/a (no habitat compensation required)
- Chaparral, desert scrub, and grassland/forbland: 1:1
- Alluvial scrub, coast live oak woodland, riparian woodland, and aeolian sand: 3:1
- Coastal sage scrub within USFWS designated coastal California gnatcatcher critical habitat and coastal sage scrub outside of designated critical habitat that is occupied by California gnatcatcher: 2:1
- Coastal sage scrub outside of USFWS designated coastal California gnatcatcher critical habitat that is suitable habitat, but not occupied by California gnatcatcher: 1:1

The Habitat Compensation Plan will specify compensation acreage for each vegetation or habitat type, based on final engineering and on MSHCP coverage as applicable. Final compensation requirements may be adjusted to account for any deviations in project disturbance, according to the as-built shapefiles aerial imagery (Mitigation Measure VEG-1c).

Compensation Land Selection Criteria. Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands for impacts to biological resources will include all of the following:

- Compensation lands will provide habitat value that is equal to or better than the quality and function of the habitat impacted by the project, taking into consideration soils, vegetation, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values, subject to review and approval by CPUC and BLM;
- To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed;
- Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;

- Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible;
- Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;
- Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat;
- Must provide wildlife movement value equal to that on the project site, based on topography, presence and nature of movement barriers or crossing points, location in relationship to other habitat areas, management feasibility, and other habitat values; and
- Have water and mineral rights included as part of the acquisition, unless the CPUC and BLM, in consultation with CDFW and USFWS, agree in writing to the acceptability of land without these rights.

Review and Approval of Compensation Lands Prior to Acquisition. SCE shall submit a Draft Habitat Compensation Plan for review and approval by the CPUC and BLM describing the parcel(s) intended for protection. This Plan will discuss the suitability of the proposed parcel(s) as compensation lands in relation to the selection criteria listed above.

Management Plan. SCE or approved third party will prepare a management plan for the compensation lands in consultation with the entity that will be managing the lands. The goal of the management plan will be to support and enhance the long-term viability of the biological resources. The Management Plan will be submitted for review and approval to the CPUC and BLM, in consultation with CDFW and USFWS.

Compensation Lands Acquisition Requirements. SCE will comply with the following requirements relating to acquisition of the compensation lands after the CPUC and BLM have approved the proposed compensation lands:

- **Preliminary Report.** SCE or an approved third party will provide a recent preliminary title report, initial hazardous materials survey report, biological resources analysis, and other necessary or requested documents for the proposed compensation land to the CPUC and BLM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPUC in consultation with CDFW and USFWS. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission, and the Wildlife Conservation Board.
- **Title/Conveyance.** SCE will acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement, as required by the CPUC and BLM, in consultation with USFWS and CDFW. Any transfer of a conservation easement or fee title must be to CDFW, to a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM or other public agency approved by the CPUC and BLM. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement will be recorded in favor of CDFW or another entity approved by the CPUC and BLM. If an entity other than CDFW holds a conservation easement over the compensation lands, the CPUC and BLM may require that CDFW or another entity approved by the CPUC and BLM, in consultation with CDFW and USFWS, be named a third party beneficiary of the

conservation easement. SCE will obtain approval of the CPUC and BLM of the terms of any transfer of fee title or conservation easement to the compensation lands.

- **Initial Protection and Habitat Improvement.** SCE will fund activities that the CPUC and BLM may require for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include trash removal, construction and repair of fences, invasive plant removal, and similar measures to protect habitat and improve habitat quality on the compensation lands. A non-profit organization, CDFW, or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPUC and BLM, in consultation with USFWS and CDFW, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFW takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFW or its designee.
- **Property Analysis Record.** Upon identification of the compensation lands, SCE will conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPUC and BLM, in consultation with USFWS and CDFW, before it can be used to establish funding levels or management activities for the compensation lands.
- **Long-term Maintenance and Management Funding.** SCE will provide funding to establish an account with non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The amount of money will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. SCE must obtain the BLM and Riverside County's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPUC and BLM will consult with USFWS and CDFW before deciding whether to approve an entity to hold the project's long-term maintenance and management funds.

  SCE will ensure that an agreement is in place with the long-term maintenance and management fund holder/manager to ensure the following requirements are met:

  - **Interest.** Interest generated from the initial capital long-term maintenance and management fund will be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, habitat improvements, patrol and law enforcement activities, and any other action that is approved by the CPUC and BLM and is designed to protect or improve the habitat values of the compensation lands.
  - **Withdrawal of Principal.** The long-term maintenance and management fund principal will not be drawn upon unless such withdrawal is deemed necessary by the CPUC and BLM, or by the approved third-party long-term maintenance and management fund manager, to ensure the continued viability of the species on the compensation lands.
  - **Pooling Long-Term Maintenance and Management Funds.** An entity approved to hold long-term maintenance and management funds for the project may pool those funds with similar non-wasting funds that it holds from other projects for long-term maintenance and management of compensation lands. However, for reporting purposes, the long-term maintenance and management funds for this project must be tracked and reported individually to the CPUC and BLM.

- **Other Expenses.** In addition to the costs listed above, SCE will be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to the title and document review costs incurred from other state agency reviews, overhead related to providing compensation lands to CDFW or an approved third party, escrow fees or costs, environmental contaminants clearance, and other site cleanup measures.
- **Delegation.** The responsibility for acquisition of compensation lands may be delegated to a third party, by written agreement of the CPUC and BLM, in consultation with CDFW, prior to land acquisition, enhancement or management activities.

Implementation Locations: This mitigation measure applies to all locations within San Bernardino County and on all BLM lands, and is recommended for implementation on all tribal lands. Within the WR-MSHCP and CV-MSHCP areas, if SCE does not obtain PSE status under the applicable MSHCP, this mitigation measure shall apply within the MSHCP area. If SCE obtains PSE status under either MSHCP, the project's permanent habitat impacts will be compensated according to the requirements of the MSHCP and this mitigation measure will not apply within the applicable MSHCP area.

Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds

In addition to the direct impacts to native vegetation and habitat, the Proposed Project's construction, restoration, and O&M activities could have several indirect impacts to surrounding vegetation and habitat. These impacts may include dust caused by project activities or vegetation removal, interruption of windblown sand transport to downwind habitat, interruption of surface flows and water or sediment supply to downstream habitat, and the introduction or spread of invasive species. The extent and severity of these indirect habitat effects would be dependent on the sensitivity of adjacent habitat and the plants or wildlife it supports. O&M activities associated with the Proposed Project are expected to be less than or equivalent to O&M of the existing West of Devers system and impacts would be similar to or reduced from existing conditions.

Dust. Site preparation including vegetation removal and grading, vehicle traffic on access roads and work areas, and other project activities throughout the construction and restoration phases of the project would generate dust. Disturbed soils would be exposed for much of the 36 to 48-month construction phase and the restoration phase, leading to increased wind erosion and dust generation. Dust may affect surrounding vegetation by interfering with leaf surface physiology (ability to obtain light and atmospheric gases). Dust generated during the Proposed Project's O&M phase is not expected to cause new adverse effects beyond the existing conditions (i.e., O&M of the existing West of Devers system).

SCE's APM AIR-1 is superseded by dust control measures developed in the Air Quality section (Section D.3). Mitigation Measure AQ-1a (Control Fugitive Dust), AQ-1b (Control Off-Road Equipment Emissions), WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) would further mitigate dust generation. With implementation of these Air Quality mitigation measures, dust generated during the Proposed Project's construction and restoration phases, and its indirect effects to vegetation and habitat, would be minimized. In addition, Mitigation Measure VEG-1d would revegetate or restore temporary habitat disturbance areas. By replacing vegetation cover, the soil's vulnerability to wind erosion and dust generation would be reduced.

Sand transport. Aeolian (wind-blown) sand and the special-status species endemic to dune and sand field habitat are dependent on an influx of sand from upwind sources. Aeolian sand habitat is found on Segment 6 of the Proposed Project route, and more extensive aeolian sand habitat is located downwind of the route, in the Coachella Valley. Land development and linear infrastructure (rail lines and Interstate-10) interrupt sand transport to aeolian sand habitat in the Coachella Valley. The CV-MSHCP recognizes sand source and sand transport areas as important to the long-term viability of aeolian sand habitats, and classifies sand source and sand transport areas along parts of Segment 6.

Project activities and facilities would have a minor impact on windblown sand transport. For example, small windblown sand deposits would accumulate on the leeward sides of tower footings, road berms, or other project features. This potential impact would not markedly affect windblown sand supply to downwind habitat areas.

Surface water flow. Project activities could interrupt localized surface hydrology. For example, berms or channel crossings could impound stormwater runoff and sediment on the upstream sides. This impoundment could affect native vegetation and habitat by inundating, burying, or covering it in sediment. In addition, interruption, impoundment, or redirection of natural flows (including infrequent storm flows) could cause substantial erosion to downstream soils where flow is redirected, and prevent water and sediment from reaching downstream vegetation and habitat. This effect could reduce vegetation productivity and related wildlife habitat values (food, shade, and shelter) and reduce availability of silt and sand as habitat substrate for plants and wildlife downstream. Upstream inundation and downstream erosion also could eliminate vegetation and habitat for wildlife, including special-status species, by killing or uprooting plants and eroding or burying burrows. These effects may be limited to the Proposed Project's construction and or restoration phases, if surface contours and soil stability are returned to pre-disturbance conditions during restoration. Alternately, these effects could persist throughout the O&M phase if they are caused by permanent structures (such as impoundments at road crossings).

SCE would implement APM HYDRO-1 through APM HYDRO-3 (see Table B-18) to minimize alteration of surface flows. Under these APMs, drainage improvements (e.g., channel crossings and downslope road drainage ways) would be designed to maintain existing flow patterns; soil disturbance would be minimized and designed to prevent long-term erosion through revegetation or construction of permanent erosion control structures; and erosion control plans would be incorporated into the construction bidding specifications to ensure compliance by SCE's contractor. APMs HYDRO-2 and HYDRO-3 are superseded by Mitigation Measure WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). Mitigation Measure WR-2a would minimize or mitigate the effects of surface hydrology alterations. These measures include mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers, and ensure proper compliance with Storm Water Pollution Prevention Plan (SWPPP) requirements and Best Management Practices (BMPs).

Mitigation Measure VEG-1d would require revegetation or restoration of temporarily disturbed areas, which would reduce runoff and potential for downstream erosion. Mitigation Measure VEG-1e would require compensation for permanent habitat loss, including drainage features. And Mitigation Measure VEG-3a (Minimize impact and ensure no net loss for jurisdictional waters and wetlands) requires restoration or compensation to achieve no net loss of wetland and watercourse habitat values. With implementation of these measures, the effects of surface hydrology alteration to biological resources would be minimized.

Invasive weeds. Non-native invasive plants that become established in a new area may displace native species (including special-status species or plants that provide food or cover for wildlife), alter natural habitat structure, and increase wildfire frequency (Zouhar et al., 2008; Lovich and Bainbridge, 1999).

These plants are considered "weeds" or "pest plants" in natural landscapes (Bossard et al., 2000). Invasive weeds generally spread most readily in disturbed, graded, or cultivated soils, including soils disturbed by construction equipment. Weeds and pest plants are defined here to include any species of non-native plants identified on the weed lists of the California Department of Food and Agriculture, the California Invasive Plant Council, or of special concern identified by BLM.

The prevalence of invasive plants is high throughout much of the Proposed Project area, even in native habitats, generally consistent with weed abundance throughout the western Colorado Desert and Inland Empire areas. Numerous invasive weeds have already become widespread and naturalized throughout the Proposed Project area and prevention of further spread is impracticable for some of them. Examples of established weeds include several Eurasian grasses (*Bromus* spp., *Schismus* spp., *Avena* spp.), mustards (*Brassica* spp. and *Hirschfeldia incana*), and Russian thistle (*Salsola* spp.). Other invasive plants (e.g., saltcedar, *Tamarix ramosissima*) are damaging to riparian habitat, but pose little or no threat to upland habitat. While project-related soil disturbance may cause on-site expansion of these ubiquitous species, this effect would not damage off-site habitat due to their existing abundance and distribution. However, these ubiquitous weeds would probably hinder revegetation or restoration of temporary disturbance areas, and therefore should be controlled on the Proposed Project site during revegetation efforts

Project construction activities and soil disturbance could introduce non-native invasive plant species into new areas or facilitate their proliferation and spread. New introductions occur when seeds are inadvertently introduced to a site, most often when they are carried with mud on the tires or understructure of equipment transported from off-site, or with mulch, hay bales, or wattles used for erosion control. Soil disturbance tends to propagate weeds, which are adapted to soil disturbance. Without weed control, weeds already present in the area could increase their abundance in soils disturbed by project activities throughout the project area, and project equipment could import new invasive species from off-site. Once established in newly disturbed soils, these weeds could spread into surrounding undisturbed lands.

Mitigation Measure VEG-2a would require SCE to prepare and implement an Integrated Weed Management Plan (IWMP), to address prevention of weed invasions, monitoring to detect weed infestations, and control measures. Weed control would probably necessitate use of herbicides which may, in turn, pose risks to vegetation or wildlife. Most aquatic herbicides and several terrestrial herbicides are non-selective and could affect non-target vegetation. Accidental spills and herbicide drift from treatment areas could be particularly damaging to non-target vegetation on public land, and crop plants or other vegetation near treatment areas. Herbicides that persist on the vegetation or soil could adversely affect wildlife that feed on target plants or are exposed to the herbicides (e.g., by digging or rolling in treated areas).These potential effects would be avoided or minimized through specific requirements of the IWMP, as specified in Mitigation Measure VEG-2a.

Mitigation Measure for Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds

The Proposed Project's indirect impacts to biological resources caused by dust, interrupted sand transport, and interrupted surface hydrology would be mitigated through SCE's APMs and mitigation measures referenced above from the Air Quality and Waters sections. In the case of interrupted sand transport, the Proposed Project's potential impacts would not require mitigation. The following mitigation measure is designed to minimize the Proposed Project's effects to introduce or spread invasive plants in the Proposed Project area.

VEG-2a **Prepare and implement an Integrated Weed Management Plan.** SCE shall prepare and implement an Integrated Weed Management Plan (IWMP) describing the proposed methods of preventing or controlling project-related spread of weeds or new weed infestations. The IWMP also must meet BLM's requirements for NEPA disclosure and analysis if herbicide use is proposed on BLM land (i.e., the IWMP must tier from the BLM's 2007 *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States PEIS).* A Draft IWMP shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to SCE's application for Notice to Proceed, and no pre-construction activities (e.g., for geotechnical borings, hazardous waste evaluations, etc.), construction, equipment or crew mobilization, or project-related ground-disturbing activity shall proceed until the IWMP is approved.

For the purpose of the IWMP, "weeds" shall include designated noxious weeds, as well as any other non-native weeds or pest plants identified on the weed lists of the California Department of Food and Agriculture, the California Invasive Plant Council, or identified by BLM as special concern. The IWMP will include the contents listed below. The IWMP will be implemented throughout project pre-construction, construction, and post-construction restoration phases. The IWMP will include the information defined in the following paragraphs.

Background. An assessment of the Proposed Project's potential to cause spread of invasive non-native weeds into new areas, or to introduce new non-native invasive weeds into the ROW. This section must list known and potential non-native and invasive weeds occurring on the ROW and in the project region, and identify threat rankings and potential consequences of project-related occurrence or spread for each species. This assessment will include, but is not limited to, weeds that (1) are rated high or moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006), and (2) aid and promote the spread of wildfires (such as cheatgrass, Saharan mustard, and medusa head). This section will identify control goals for each species (e.g., eradication, suppression, or containment) likely to be found within the Proposed Project area.

Pre-construction weed inventory. SCE shall inventory all areas (both within and outside the ROW) subject to project-related vegetation removal/disturbance, "drive and crush," and ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and any potential new or improved access and spur roads. The weed inventory shall also include vehicle and equipment access routes within the ROW and all project staging and storage yards. Weed occurrences shall be mapped and described according to density and area covered. The map will be updated at least once a year.

Pre-construction weed treatment. Weed infestations identified in the pre-construction weed inventory shall be evaluated to identify potential for project-related spread. The IWMP will identify any infestations to be controlled or eradicated prior to project construction, or other site-specific weed management requirements (e.g., avoidance of soil or transport and site-specific vehicle washing where threat or spread potential is high). Control and follow-up monitoring of pre-construction weed treatment sites will follow methods identified in appropriate sections of the IWMP.

Prevention. The IWMP will specify methods to minimize potential transport of weed seeds and other propagules (e.g., rhizomes, stolons, roots) onto the ROW, or from one section of the ROW to another. The ROW may be divided into "weed zones," based on known or likely invasive weeds in any portion of the ROW. The IWMP will specify inspection procedures for construction materials and equipment entering the Proposed Project area. Vehicles and equipment may be inspected and cleaned at entry points to specified portions of the ROW, and before leaving work sites where weed occurrences must be contained locally. Construction equipment shall be cleaned of dirt and mud that could contain weed seeds, roots, or rhizomes. Equipment shall be inspected to ensure it is free of any dirt or mud that could contain weed seeds, and the tracks, outriggers, tires, and undercarriage will be carefully washed, with special attention being paid to axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/brush guard assemblies. Other construction vehicles (e.g., pick-up trucks) that will be frequently entering and exiting the site will be inspected and washed on an as-needed basis. Tools such as chainsaws, hand clippers, pruners, etc., shall be cleaned of dirt and mud before entering project work areas.

All vehicles will be washed off-site when possible. If off-site washing is infeasible, on-site cleaning stations will be set up at specified locations to clean equipment before it enters the work area. Wash stations will be located away from native habitat or special-status species occurrences. Wastewater from cleaning stations will not be allowed to run off the cleaning station site. When vehicles and equipment are washed, a daily log must be kept stating the location, date and time, types of equipment, methods used, and personnel present. The log shall contain the signature of the responsible crewmember. Written or electronic logs shall be available to BLM and CPUC monitors on request.

Erosion control materials (e.g., hay bales) must be certified free of weed seed before they are brought onto the site. The IWMP must prohibit on-site storage or disposal of mulch or green waste that may contain weed material. Mulch or green waste will be removed from the site in a covered vehicle to prevent seed dispersal, and transported to a licensed landfill or composting facility.

The IWMP will specify guidelines for any soil, gravel, mulch, or fill material to be imported into the Proposed Project area, transported from site to site within the Proposed Project area, or transported from the Proposed Project area to an off-site location, to prevent the introduction or spread of weeds to or from the Proposed Project area.

Monitoring. The IWMP shall specify methods to survey for weeds during pre-construction, construction, and restoration phases; and shall specify qualifications of personnel responsible for weed identification and monitoring. A monitoring schedule shall be included to ensure timely detection and immediate treatment of weed infestations to prevent further spread. Surveying and monitoring for weed infestations shall occur at least two times per year, to coincide with the early detection period for early season and late season weeds (i.e., species germinating in winter and flowering in late winter or spring, and species germinating later in the season and flowering in summer or fall). It also must include methods for marking invasive weeds occurring within the ROW, and recording and communicating these locations to weed control staff. The map of weed locations (discussed above) shall be updated as necessary or no less frequently than once a year. The monitoring section shall also describe methods for post-treatment monitoring to evaluate success of control efforts and any need for follow-up treatments.

Control. The IWMP shall specify manual and chemical weed control methods to be employed. The IWMP shall include only weed control measures with a demonstrated record of success for target weeds, based on the best available information. The plan shall describe proposed methods for promptly scheduling and implementing control activity when any weed infestation is located, to ensure effective and timely weed control. Weed infestations shall be treated for control or eradication as soon as possible upon discovery before they go to seed, to prevent further spread. All proposed weed control methods must minimize the extent of any disturbance to native vegetation, limit ingress and egress to defined routes, and avoid damage from herbicide use or other control methods to any environmentally sensitive areas identified within or adjacent to the ROW.

Weed infestations will be treated at a minimum of once annually until eradication, suppression, or containment goals are met. For eradication, when no new seedlings or resprouts are observed for three consecutive, normal rainfall years, *OR* for five consecutive years regardless of rainfall, the weed occurrence can be considered eradicated and weed control efforts may cease for the site.

Manual control shall specify well-timed removal of weeds or their seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the Riverside or San Bernardino County Agricultural Commissioners, if such guidelines are available. If there are no applicable guidelines, seed heads and plants will be removed from the site in a covered vehicle to prevent seed dispersal, and transported to a licensed landfill or composting facility.

The chemical control section must include specific and detailed plans for any herbicide use. It must indicate where herbicides will be used, which herbicides will be used, and specify techniques to be used to avoid drift or residual toxicity to native vegetation or special-status plants, consistent with BLM's *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States* (BLM, 2007) and *National Invasive Species Management Plan* (NISC, 2008). Only state and BLM-approved herbicides may be used. Herbicide treatment will be implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 72 hours of predicted rain. Only water-safe herbicides shall be used in riparian areas or within channels (engineered or not) where they could run off into downstream areas. Herbicides shall not be applied when wind velocities exceed six (6) mph. All herbicide applications will follow U.S. Environmental Protection Agency label instructions and will be in accordance with federal, state, and local laws and regulations.

Reporting schedule and contents. The IWMP shall specify reporting schedule and contents of each report.

Implementation locations: San Bernardino County (all); WR-MSHCP (all, regardless of SCE's PSE status); CV-MSHCP (all, regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality

The Proposed Project would affect jurisdictional waters of the State or waters of the U.S. During construction, these impacts would include placing fill material into jurisdictional waters to provide level, dry work areas, tower pads, or roadways; constructing roadways, culverts, or other crossing structures across jurisdictional channels; installing channel armoring (such as riprap) in a channel near a work site to prevent flooding or erosion; constructing impoundments or detention basins on jurisdictional channels; or grading or other site preparation that eliminates or redirects natural runoff. Construction impacts to jurisdictional waters, including intermittent channels, could also affect downstream wetlands, riparian, or aquatic habitat and the biological resources found in those downstream habitats.

The types of impacts to jurisdictional waters that may occur during restoration would be similar to the construction-phase impacts listed above, but generally would affect smaller areas. During O&M, maintenance of roads and other project facilities may require culvert replacement or other crossing or channel improvements that would affect drainage features, possibly including federally protected wetlands. O&M activities associated with the Proposed Project are expected to be less than or equivalent to O&M of the existing West of Devers system and impacts would be similar to or reduced from existing conditions.

Jurisdictional waters are not limited to wetlands or mapped "blueline" streams; many intermittent channels and washes meet criteria as waters of the State or waters of the U.S. All project impacts to waters of the State or waters of the U.S. (including construction, restoration, and O&M phases) will be subject to permitting under the California Fish and Game Code and federal Clean Water Act (CWA). SCE must prepare and submit appropriate applications, notifications, and fees to the U.S. Army Corps of Engineers (according to Section 404 of the CWA), the CDFW (according to Sections 1600-1616 of the California Fish and Game Code), and the California Regional Water Quality Control Board (according to Section 401 of the CWA). Federal CWA permitting is required for projects that would place dredged or fill material into jurisdictional waters of the U.S. State authorization is required if projects would substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

SCE has not completed a delineation of jurisdictional waters for the Proposed Project, but has prepared a "drainage assessment" as preliminary information and to support project design (Preliminary Jurisdictional Drainage Assessment; LSA, 2013b; see Appendix N of PEA Appendix F). The drainage assessment estimates maximum potential permanent and temporary impacts to jurisdictional drainage features, by acreage and linear feet. These estimates are shown in Tables D.4-5 and D.4-6. The drainage assessment identifies 498 drainage features by location within the Proposed Project area, and linear distance of each one, but does not determine the width or acreage for most features. Acreages were estimated only for substantial riparian habitat associated with the drainage features. The Drainage Assessment estimates that approximately 26 of the drainage features have potential to meet the three federal wetland criteria (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology). Several seasonally ponded sites were mapped within the Proposed Project area, but none of them meet the federal criteria as wetlands or the WR-MSHCP criteria for vernal pools.

The drainage assessment is conservative, estimating maximum disturbance to jurisdictional features. Not all jurisdictional waters within the ROW or the Proposed Project study area would be affected by the Proposed Project. Access road construction or improvements would probably have some effect, even if minimal, on each linear drainage way crossing the ROW (e.g., new crossings or improvements to crossings on existing access routes). More substantial effects, such as grading and vegetation removal for transmission tower pads, may be avoided or minimized for many drainage features through the Proposed Project design process. Impacts to vegetation and habitat types analyzed herein are maximum acreage estimates. Mitigation measures are designed to completely mitigate these maximum potential effects, although actual project effects to jurisdictional impacts will be reduced from the estimates. SCE will prepare a Jurisdictional Delineation (JD) Report of the project's impact areas after completing final design (PEA, page 4.4-112) to identify and quantify all site-specific project impacts to jurisdictional waters. The JD will support SCE's permitting under state and federal regulatory processes. SCE would obtain the required permits or authorizations for impacts to jurisdictional waters and would prepare a Habitat Mitigation and Monitoring Plan (HMMP) describing its proposed mitigation, including restoration approach, restoration success criteria, monitoring, and reporting requirements, and specifying compensation ratios for affected jurisdictional waters.

Potential impacts to jurisdictional drainages would be reduced through implementation of a Storm Water Pollution Prevention Plan (SWPPP) including Best Management Practices (BMPs) as described in Section 4.9 of the PEA (see page 4.9-21), and compliance with the conditions set forth in State and federal permits or authorizations (California Fish & Game Code Sections 1600-1616 and CWA Sections 401 and 404). In addition, Mitigation Measure WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) would further minimize or mitigate the effects of surface hydrology alterations. Mitigation Measure VEG-1d would require revegetation or restoration of temporarily disturbed areas, including drainage features. Mitigation Measure VEG-1e would require compensation for permanent habitat loss, including drainage features. And Mitigation Measure VEG-3a would require restoration or compensation to achieve no net loss of wetland and watercourse habitat values. Taken together, these measures would effectively avoid or mitigate the Proposed Project's adverse impacts to biological resources within jurisdictional waters.

Mitigation Measures for Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality.

VEG-3a Minimize impacts and ensure no net loss for jurisdictional waters and wetlands.

Impact minimization. Project design and construction activities shall minimize impacts to drainage features, including ephemeral or intermittent washes, streams, and wetlands to the extent feasible. This mitigation measure is not limited to wetlands or mapped "blueline" streams, but encompasses all jurisdictional waters, generally including intermittent channels or washes.

No net wetlands loss and watercourse impacts minimization. SCE shall prepare an HMMP which will include restoration or compensation mitigation to assure no net loss of wetland acreage or wetland habitat value from direct or indirect project impacts, including reduction of wetland acreage, and downstream or upstream effects to channels or their associated habitat. The no net loss standard shall be reached through (1) ecological restoration or revegetation of temporarily disturbed areas to fully replace habitat extent and habitat value, and (2) compensation at a ratio of 1:1 to replace permanently impacted non-wetland jurisdictional areas, and at 3:1 to replace permanently impacted state or federally jurisdictional wetland areas. Restoration and compensation mitigation for impacts to jurisdictional waters shall conform to the requirements of Mitigation Measures VEG-1d (Restore or revegetate temporary disturbance areas) and VEG-1e (Compensate for permanent habitat loss). All wetlands and watercourses, whether intermittent or perennial, will be retained to the extent feasible, and appropriate setbacks or other means will be employed to prevent adverse impacts to surface waters or associated habitat values. The HMMP shall incorporate wetland/water permit requirements and shall be subject to review and approval by the CPUC and BLM. All restoration or compensation mitigation described in the HMMP shall be implemented in full. In the case of any conflict between the mitigation ratios or other requirements specified in wetland/water permits for the project and the mitigation ratios or other requirements specified in this mitigation measure, the higher mitigation ratios and more stringent requirements shall apply.

Table D.4-5. Maximum Potential Permanent Impacts to Jurisdictional Drainage Features

Segment	Potentially Jurisdictional Drainage Features (linear feet)				Potentially Jurisdictional Riparian Vegetation (acres)			
	CDFW / EPA / USACE / SWRCB				CDFW / EPA / USACE / SWRCB			
	Wetland Drainages	Nonwetland Drainages	CDFW / SWRCB Nonwetland Drainages	Total Impacts (linear ft)	Wetland Vegetation	Riparian Vegetation	CDFW / SWRCB Riparian Vegetation	Total Impacts (acres)
1	0	960	0	960	0	0	0	0
2	114	1,054	2,000	3,168	0	0.03	0	0.03
3	0	1,354	1,636	2,990	0	0	0	0
4	0	1,762	122	1,884	0	1.04	0.2	1.24
5	0	1,400	0	1,400	0	2.28	0.04	2.32
6	0	1,115	408	1,523	0	0.16	0	0.16
Total[1]	**114**	**7,645**	**4,166**	**11,925**	**0**	**3.51**	**0.24**	**3.75**

1 - Totals do not include the area (i.e., acres) of the drainage features because only one dimensional (i.e., linear feet) data was collected. Therefore, totals do not fully quantify the extent of the effects of the Proposed Project to potentially jurisdictional drainages mapped within the Proposed Project study area. Additionally, many drainage features will be avoided in final engineering plans.

Table D.4-6. Maximum Potential Temporary Impacts to Jurisdictional Drainage Features.

Segment	Potentially Jurisdictional Drainage Features (linear feet)				Potentially Jurisdictional Riparian Vegetation (acres)			
	CDFW / EPA / USACE / SWRCB				CDFW / EPA / USACE / SWRCB			
	Wetland Drainages	Nonwetland Drainages	CDFW / SWRCB Nonwetland Drainages[1]	Total Impacts (linear ft)	Wetland Vegetation	Riparian Vegetation	CDFW / SWRCB Riparian Vegetation	Total Impacts (acres)
1	77	5,910	2,895	8,882	0	0.1	0.09	0.19
2	640	9,638	11,068	21,346	0	0.45	0.35	0.8
3	29	18,168	18,337	36,534	0	1.82	0	1.82
4	1,601	15,578	2,851	20,030	1.27	7.46	0.53	9.26
5	0	24,562	4,265	28,827	0.34	34.78	0.82	35.94
6	49	13,941	5,306	19,296	0	0.53	0	0.53
Total[2]	**2,396**	**87,797**	**44,722**	**134,915**	**1.6**	**45.1**	**1.8**	**48.5**

1 - This total does not include the 0.09 acres measured for catchment basins in developed areas of Segment 1. These basins were determined to be potentially jurisdictional for the CDFW and SWRCB.

2 - Totals do not include the area (i.e., acres) of the drainage features because only one dimensional (i.e., linear feet) data was collected. Therefore, totals do not fully quantify the extent of the effects of the Proposed Project to potentially jurisdictional drainages mapped within the Proposed Project study area. Additionally, many drainage features will be avoided in final engineering plans.

Clean Water Act and California Fish and Game Code permit compliance. SCE shall not proceed with any alteration or fill activities in potentially jurisdictional waters until obtaining applicable permits or authorizations, or written agency confirmation that no permit or authorization is required. SCE shall implement all terms or conditions of each permit or authorization. Regardless of any conditions specified in permits or authorizations, SCE shall prevent contaminants or pollutants from entering any state or federal jurisdictional waters.

Implementation locations: San Bernardino County (all); WR-MSHCP (all, regardless of SCE's PSE status); CV-MSHCP (all, regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

Impact VEG-4: Construction, operations, and maintenance activities could cause direct or indirect loss of listed and special-status plants and direct or indirect effects to habitat for listed and special-status plants

There were no listed threatened or endangered plants located within the Proposed Project study area during field surveys reported in the PEA. One listed species, Coachella Valley milk-vetch (federally listed endangered) could occur in parts of Segment 6, where suitable habitat is present. Its habitat is primarily windblown sand, but also includes fine-grained, loose alluvial sand. In addition, the Proposed Project route crosses designated critical habitat for Coachella Valley milk-vetch in the Whitewater River wash. Coachella Valley milk-vetch is an annual or short-lived perennial that may not germinate or flower in some years, especially years of low rainfall. Thus, while it was not found during field surveys, it may be present in some parts of the ROW in future years, possibly during project construction. No other listed species is likely to occur on the route, based on field surveys and the habitats, geographic ranges, and elevational distributions of other listed species. No other designated critical habitat for plant species is located on the route.

Based on the field surveys and analysis reported in the PEA and on the habitats, geographic ranges, and elevational distributions, several other special-status plants could occur on the route, with probabilities ranging from low to high (see Table Ap.7-1 in Appendix 7). Conservation status for some of these species is California Rare Plant Rank (CRPR) 1B; all CRPR 1B plants are also included in BLM's Sensitive Species list. Other species potentially occurring on the route are ranked as CRPR 2 (rare in California but more common elsewhere) and CRPR 4 ("watch list"). While these plants were not located during field surveys reported in the PEA, there is the possibility that one or more of them may be found during pre-construction surveys to be completed.

The Proposed Project could directly affect Coachella Valley milk-vetch or other special-status plants, should they occur on or near the route, by grading, mowing, or crushing plants during site preparation or other ground-disturbing activities; soil compaction or other habitat effects that may prevent seeds from germinating or becoming established. Potential indirect impact to special-status plants include alterations to upstream or downstream hydrology, leading to alteration of special-status plant habitat (e.g., removing surface or soil water source, or causing inundation of an upland species occurrence); introduction or facilitation of invasive species (particularly Sahara mustard) that may compete with rare plants or alter natural fire regimes or other processes.

The project also could affect native cactus and *Yucca* species. Most native cactus and shrubby *Yucca* species (Joshua tree and Mohave yucca) can be successfully salvaged and transplanted, and loss of these plants would degrade wildlife habitat because *Yuccas* often provide an important vertical component to wildlife habitat.

The Proposed Project could directly or indirectly affect Coachella Valley milk-vetch critical habitat at temporary guard structure locations and associated construction access, but the transmission lines would span the Whitewater River so that no permanent transmission structures or other permanent project facilities would be built within designated critical habitat. The Whitewater River is designated as critical habitat primarily because of its role in fluvial and aeolian sand transport from upstream sources in the San Bernardino Mountains, downstream and downwind to aeolian sand habitat where Coachella Valley milk-vetch is found. The project's potential habitat impacts in the Whitewater River are not likely to affect sand transport, and not likely to substantially affect Coachella Valley milk-vetch (see the discussion of sand transport under Impact VEG-2).

SCE would conduct pre-construction surveys for special-status plants ranked as CRPR 1B and, depending on the extent of expected impacts, mitigate the impact through off-site compensation or, if no suitable occupied habitat is available, through salvage and relocation of the plants. SCE would conduct pre-construction surveys for Coachella Valley milk-vetch and, if it occurs where it would be affected by project construction, then SCE would develop a mitigation plan to include avoidance, protection in place, off-site compensation, salvage and replacement, or a combination of these.

To address potential impacts to federally-listed species, the BLM must consult with the USFWS under Section 7 of the ESA and obtain a Biological Opinion (BO) prior to issuing a notice to proceed for the Proposed Project. Consultation will consist of a Biological Assessment (BA) prepared for the BLM by SCE or their chosen environmental consultant, which will include any conservation measures SCE and BLM propose to avoid and minimize any impacts to federally listed species or critical habitat (including Coachella Valley milk-vetch). The BO may include additional measures deemed reasonable and prudent to protect listed species or critical habitat. If new information (i.e., pre-construction surveys) indicates that the project may affect federally listed plants not addressed in the BA and BO, then reinitiation of Section 7 consultation would be necessary. If pre-construction surveys conclude that state-listed plants may be affected by the project, then SCE must obtain an Incidental Take Permit or Consistency Determination from CDFW according to CESA Sections 2081 or 2080.1.

In addition to the conditions that may be imposed under federal Section 7 consultation, the following mitigation measures would help to reduce or offset project impacts to special-status plants:

- VEG-1a Conduct Biological Monitoring and Reporting
- VEG-1b Prepare and Implement Worker Environmental Awareness Program
- VEG-1c Minimize Native Vegetation and Habitat Loss
- VEG-1d Restore or Revegetate Temporary Disturbance Areas
- VEG-1e Compensate for Permanent Habitat Loss
- VEG-2a Prepare and Implement an Integrated Weed Management Plan

With incorporation of these mitigation measures, some of the potential project impacts to rare plants, including CRPR 2 plants, may not be avoided or mitigated. Mitigation Measure VEG-4a incorporates and supersedes APM BIO-7 and APM BIO-8 by providing additional detail on pre-construction surveys and follow-up mitigation that may be necessary, should the project affect special-status plants.

Mitigation Measures for Impact VEG-4: Construction, operations, and maintenance activities could cause direct or indirect loss of listed and special-status plants and direct or indirect effects to habitat for listed and special-status plants.

VEG-4a Minimize and mitigate impacts to special-status plants.

Pre-construction survey. SCE shall conduct focused surveys for federal- and state-listed and other special-status plants. All special-status plant species (including listed threatened or endangered species, and all CRPR 1A, 1B, 2, 3, and 4 ranked species) impacted by project activities shall be documented in pre-construction survey reports. Surveys shall be conducted during the appropriate season (i.e., when flowering) in all suitable habitat located within the project disturbance areas and access roads and within 100 feet of disturbance areas and access roads, and any additional area where direct or indirect effects to soils or vegetation could affect special-status plants (if present). Surveys shall be conducted by a qualified botanist. The field surveys and reporting must conform to current CDFW botanical field survey protocol (CDFG, 2009) or more recent updates, if available. The reports will describe any conditions that may have prevented previously reported or previously undocumented target species from being located or identified (e.g., poor rainfall, recent grazing, or wildfire). In some cases, follow-up surveys may be necessary to adequately evaluate impacts. Prior to construction, SCE shall submit pre-construction field survey reports along with maps showing locations of survey areas and special-status plants to the CPUC and BLM for review and approval in consultation with CDFW and USFWS.

If federally- or state-listed plants would be affected, SCE shall notify BLM, USFWS, and CDFW to obtain the appropriate permits from CDFW and USFWS and comply with permit requirements. Additional conservation measures to protect or restore listed plant species or their habitat may be required by BLM, CDFW, or USFWS before impacts are authorized.

Native cactus and *Yucca*. Most native cactus and shrubby *Yucca* species (Joshua tree and Mohave yucca) can be successfully salvaged and transplanted, and yuccas often provide an important vertical component to wildlife habitat. Therefore, native cactus (excluding chollas in the genus *Cylindropuntia*) and yuccas (excluding chaparral yucca, *Y. whipplei*), shall be avoided or salvaged according to the strategies described below.

Mitigation. SCE shall mitigate impacts to any state or federally listed plants or CRPR 1 or 2 ranked plants that may be located on the project disturbance areas or surrounding buffer areas through one or a combination of the following strategies.

Avoidance of special-status plants will be the preferred strategy wherever feasible. Where avoidance is not feasible, and the project would directly or indirectly affect more than 10 percent of a local occurrence,[3] by either number of plants or extent of occupied habitat, SCE shall prepare and implement a mitigation plan to consist of off-site compensation. If off-site compensation is infeasible (e.g., if suitable occupied habitat is not available), then salvage, horticultural propagation, and off-site introduction may be implemented to mitigate the impact.

[3] An occurrence for a plant is defined as any population or group of nearby populations located more than 0.25 miles from any other population (CDFW, 2009).

- **Avoidance.** Where feasible, towers, access roads, and other project work areas shall be located to avoid impacts to special-status plants. Effective avoidance through project design shall include a buffer area surrounding each avoided occurrence, where no project activities will take place. The buffer area will be clearly staked, flagged, and signed for avoidance prior to the beginning of ground-disturbing activities, and maintained throughout the construction phase. The buffer zone shall be of sufficient size to prevent direct or indirect disturbance to the plants from construction activities, erosion, inundation, or dust. The size of the buffer will depend upon the proposed use of the immediately adjacent lands and the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, water availability, edaphic physical and chemical characteristics), to be specified by a qualified botanist. At minimum, the buffer for trees or shrubs species shall be equal to twice the drip line (i.e., two times the distance from the trunk to the canopy edge) to protect and preserve the root systems. The buffer for herbaceous species shall be a minimum of 50 feet from the perimeter of the occupied habitat or the individual. If a smaller buffer is necessary due to other project constraints, SCE will develop and implement site-specific monitoring and put other measures in place to avoid the take of the species, with the approval of the CPUC and BLM, in consultation with USFWS and CDFW.
- **Off-site compensation.** SCE shall provide compensation lands consisting of habitat occupied by the impacted CRPR 1 or 2 ranked plants at a 1:1 ratio of acreage and number of plants for any occupied habitat affected by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each special-status plant occurrence and a surrounding 100-foot buffer area. Off-site compensation shall be incorporated into the project's Habitat Compensation Plan (under Mitigation Measure VEG-1e), for review and approval by the CPUC and BLM in consultation with CDFW and USFWS.
- **Salvage.** SCE shall consult with horticultural experts at regional institutions such as Rancho Santa Ana Botanic Garden (RSABG) regarding the feasibility and likely success of salvage and relocation efforts for each species to be salvaged. If salvage is deemed to be feasible, based on prior success with the species, then SCE shall prepare and implement a Special-status Plant Salvage and Relocation Plan, to be reviewed and approved by the CPUC and BLM, in consultation with CDFW,USFWS, and the horticultural expert, prior to direct or indirect disturbance of any occupied habitat. For special-status plants, the goal shall be establishment of a new viable occurrence, equal or greater in extent and numbers to the affected occurrence. For cacti and yuccas, the goal shall be maximum practicable survivorship of salvaged plants. The Plan will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether an individual plant is appropriate for salvage and relocation; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or recreating seed banks, to retain intact soil conditions and maximize success; (e) for shrubs, cacti, and yucca, a requirement to mark each plant to identify the north-facing side prior to transport, and replant it in the same orientation; (f) details regarding storage of plants or seed banks for each species; (g) location of the proposed recipient site, and detailed site preparation and plant introduction techniques for top soil storage, as applicable; (h) a description of the irrigation, weed control, and other maintenance activities; (i) success criteria, including specific timeframe for survivorship and reproduction of each species; and (j) a detailed monitoring program, commensurate with the Plan's goals.

Quarterly and annual monitoring reports shall be submitted to CPUC and BLM. Reports shall include, but not be limited to, details of plants salvaged, stored, and transplanted (salvage and transplanting locations, species, number, size, condition, etc.); adaptive management efforts implemented (date, location, type of treatment, results, etc.); and evaluation of success of transplantation.

- **Horticultural propagation and off-site introduction.** If salvage and relocation is not believed to be feasible for special-status plants, then SCE shall consult with RSABG, or another qualified entity, to develop an appropriate experimental propagation and relocation strategy, based on the life history of the species affected. The Plan will include at minimum: (a) collection and salvage measures for plant materials (e.g., cuttings), seed, or seed banks, to maximize success likelihood; (b) details regarding storage of plant, plant materials, or seed banks; (c) location of the proposed propagation facility, and proposed methods; (d); time of year that the salvage and other practices will occur; (e) success criteria; and (f) a detailed monitoring program, commensurate with the Plan's goals.

Implementation locations outside of MSCHPs: This mitigation measure shall apply to all lands in San Bernardino County, on all BLM lands, and they are recommended for implementation on Morongo Tribal Lands.

Implementation locations for WR-MSHCP and CV-MSHCP: If SCE does not obtain PSE status under the WR-MSHCP or CV-MSHCP, this mitigation measure shall apply in its entirety within the relevant MSHCP area. The Pre-construction Survey and Native Cactus and Yucca portions of this mitigation measure shall apply within both MSHCP areas regardless of SCE's PSE status. If SCE obtains PSE status under either MSHCP, mitigation for the project's impacts to special-status plants covered under the Plan may be implemented according to the requirements of the MSHCP, and the remainder of this mitigation measure will not apply within the MSHCP area for species covered under the Plan. For potential impacts to special-status plants not covered under the Plan, this measure will apply in full.

Impact VEG-5: Construction, operations, and maintenance activities may conflict with local policies or ordinances protecting biological resources, Habitat Conservation Plans, Natural Communities Conservation Plans, Multiple Species Habitat Conservation Plans, or other approved local, regional, state, or federal conservation plans

Tree Removal. The Proposed Project area spans the following cities that have tree protection or preservation policies or ordinances: Banning, Beaumont, Calimesa, Colton, Grand Terrace, Loma Linda, and Redlands. With the exception of oak tree protection in the City of Calimesa, these ordinances apply to street trees and require replacement of trees removed. In addition, San Bernardino County regulates the removal of trees (including landscaping trees and native trees in open space areas) in unincorporated County lands, and Riverside County regulates the removal of oak trees in unincorporated areas. The BLM requires authorization for removal of cactus or *Yucca* plants from BLM lands. The PEA states that any street trees that are removed for the Proposed Project would be replaced by SCE in accordance with the applicable ordinance. Segment 4 construction activities conducted in the City of Calimesa near San Timoteo Canyon would require trimming or removal of oak trees. SCE anticipates that trees could be impacted at approximately six structure site locations and along portions of the existing access roads. The PEA states that SCE would identify any trees that would interfere with construction and would consult with local municipalities prior to any tree alteration of removal.

Operation and maintenance activities would require periodic trimming of trees to ensure safe operation of the subtransmission lines and to ensure access for routine and emergency maintenance. These activities would be similar to existing conditions and would have no new impacts to local policies or ordinances protecting biological resources.

Mitigation Measure VEG-5a (Comply with local tree removal or resource protection policies) would require SCE to obtain permits from local jurisdictions and BLM for tree removal or other plant removal or harvest, in accordance with each applicable ordinance or policy.

Western Riverside-MSHCP. Approximately one half of the Proposed Project route (Segments 3, 4, and non-reservation lands in the western portion of Segment 5) is located within the WR-MSHCP planning area. SCE is not a signatory to the WR-MSHCP; however SCE intends to apply for PSE status for the Proposed Project to receive take authorization for covered species within the Plan Area, subject to conditions of applicable state and federal authorizations and the WR-MSHCP Implementing Agreement. Under the WR-MSHCP, SCE would be required to prepare a WR-MSHCP Consistency Analysis to demonstrate compliance with criteria cell requirements, survey species requirements, and to disclose how impacts to public and quasi-public (PQP) lands and existing Additional reserve Lands (ARLs) ARLs would be compensated by purchase and/or dedication of additional lands into the MSHCP Conservation Area.

If SCE does not obtain PSE status, then no take would be authorized under the MSHCP, and separate ESA and CESA authorizations would be required. The mitigation measures for vegetation and wildlife impacts specified in this section (VEG-1a through VEG-1e, VEG-2a, VEG-3a, and VEG-4a) and Mitigation Measures WIL-2a through WIL-2k (see Section D.5.2) would be required. With implementation of these measures, the project would be consistent with the general conservation goals of the WR-MSHCP. However, the Proposed Project would permanently affect up to 23.9 acres of PQP lands and temporarily affect up to 161.8 acres of PQP lands that are designated for conservation. In addition, the Proposed Project may permanently affect up to 21.9 acres of ARLs and temporarily affect up to 143.6 acres of ARLs. The majority of these lands are within Segments 3 and 4. The Proposed Project would also be required to comply with Urban Wildland Interface Guidelines to minimize indirect effects to any adjacent conservation areas. The Proposed Project route passes through 21 criteria cells. The Proposed Project would permanently affect 74.8 acres within 18 criteria cells and would temporarily affect 417.3 acres within 21 criteria cells. These impacts could affect the WR-MSHCP's overall conservation success.

Most of the Proposed Project area is within ROW that pre-dates the WR-MSHCP, and the WR-MSHCP recognizes the need for infrastructure projects. Therefore, potential conflicts with the WR-MSHCP, even if SCE does not obtain PSE status, are expected to be minor. If SCE does not obtain PSE status, Mitigation Measure VEG-5b (Ensure MSHCP equivalency and consistency) would require SCE to prepare an analysis equivalent to the WR-MSHCP Consistency Analysis. Potential conflicts or inconsistencies with the WR-MSHCP could include: (1) adverse effects to vegetation or habitat within reserve areas or high-priority potential reserve areas; (2) insufficient or ineffective compensation to offset impacts according to the MSHCP design; or (3) incomplete presence/absence documentation in covered species habitat. Should the Consistency Analysis identify one or more of these potential conflicts, it shall specify detailed measures to prevent or rectify such conflict through site-specific design revisions (within the existing ROW), additional habitat compensation, additional field surveys for covered species, or other comparable measures.

By implementing measures to be specified in the analysis, any potential conflict with the WR-MSHCP would be avoided. The analysis shall be subject to review and approval by CPUC and BLM, in consultation with CDFW, USFWS, and the Western Riverside County Regional Conservation Authority.

Coachella Valley MSHCP. SCE is not a signatory to the CV-MSHCP; however SCE intends to apply for PSE status in the CV-MSHCP to receive take authorization for covered species within the Plan Area, subject to conditions of applicable state and federal authorizations. Proposed Project components that are within CV-MSHCP conservation areas are subject to Joint Project Review process with the Coachella Valley Conservation Commission (CVCC), to allow the CVCC to facilitate and monitor implementation of the CV-MSHCP. If SCE does not obtain PSE status, then no take would be authorized under the MSHCP, and separate ESA and CESA authorizations would be required. The mitigation measures for vegetation and wildlife impacts specified in this section (VEG-1a through VEG-1e, VEG-2a, VEG-3a, and VEG-4a) and Mitigation Measures WIL 2a through WIL 2k (see Section D.5.2) would be required. With implementation of these measures the project would be consistent with the general conservation goals of the CV-MSHCP. The Proposed Project would permanently affect 23.2 acres and temporarily affect 174.3 acres of the Stubbe and Cottonwood Canyons Conservation Area; it would permanently affect 1.8 acres and temporarily affect 25.2 acres of the Whitewater River Conservation Area; and it would permanently affect 8.8 acres and temporarily affect 84.7 acres of the Upper Mission Creek/Big Morongo Canyon Conservation Area. Thus, the Proposed Project will be subject to CVCC review.

In general, the Proposed Project would not conflict with the CV-MSHCP. Most of the Proposed Project is within ROW that pre-dates the CV-MSHCP (except a portion of the alignment at the eastern margin of the CV-MSHCP area). Therefore, potential conflicts with the CV-MSHCP, even if SCE does not obtain PSE status, are expected to be minor. The CV-MSHCP recognizes the need for infrastructure projects. If SCE does not obtain PSE status, Mitigation Measure VEG-5b would require SCE to prepare an analysis equivalent to the CV-MSHCP Joint Project Review requirements. Potential conflicts or inconsistencies with the CV-MSHCP could include: (1) adverse effects to vegetation or habitat within reserve areas or high-priority potential reserve areas; (2) insufficient or ineffective compensation to offset impacts according to the MSHCP design; or (3) incomplete presence/absence documentation in covered species habitat. Should the Joint Project Review identify one or more of these potential conflicts, it shall specify detailed measures to prevent or rectify such conflict through site-specific design revisions (within the existing ROW), additional habitat compensation, additional field surveys for covered species, or other comparable measures. By implementing measures to be specified in the analysis, any potential conflict with the WR-MSHCP would be avoided. The analysis shall be subject to review and approval by CPUC and BLM, in consultation with CDFW, USFWS, and the CVCC.

Mitigation Measures for Impact VEG-5: Construction, operations, and maintenance activities may conflict with local policies or ordinances protecting biological resources, Habitat Conservation Plans, Natural Communities Conservation Plans, Multiple Species Habitat Conservation Plans, or other approved local, regional, state, or federal conservation plans.

VEG-5a **Comply with local tree removal or resource protection policies.** SCE shall obtain permits from local jurisdictions and BLM for tree removal and other plant removal or harvest, in accordance with each applicable ordinance or policy, prior to removal or other impacts to regulated trees or other plants.

Implementation locations: San Bernardino County (all); WR-MSHCP (all, regardless of SCE's PSE status); CV-MSHCP (all, regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

VEG-5b **Ensure MSHCP consistency.** If SCE does not obtain PSE status under either the WR-MSHCP or CV-MSHCP, SCE shall prepare an analysis equivalent to the WR-MSHCP Consistency Analysis or the CV-MSHCP Joint Project Review Requirements, as appropriate. This analysis shall identify any potential conflict with the WR-MSHCP or CV-MSHCP and specify detailed measures that SCE will implement, as a non-participant in either plan, to prevent such conflict through habitat compensation or other measures. The analysis and its included specifications for avoiding MSHCP conflicts shall be subject to review and approval by CPUC and BLM, in consultation with CDFW, USFWS, the Western Riverside County Regional Conservation Authority, and the CVCC. The analysis and full implementation of each measure shall be completed prior to the start of any ground-disturbing activity within the WR-MSHCP or CV-MSHCP area.

Implementation locations: WR-MSHCP (all, if SCE does not obtain PSE status); CV-MSHCP (all, if SCE does not obtain PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

D.4.3.4 Impacts of Connected Actions

This section identifies and describes the expected impacts to vegetation resources of those projects identified as connected actions. This impact analysis is based on the vegetation resources described in the Environmental Setting for Connected Actions (Section D.4.1.3) and on the Descriptions of Connected Projects (Section B.7.2). Each project would be subject to review, approval under CEQA, NEPA, or both (depending on specific location and jurisdiction), and required mitigation measures would be imposed by the lead agencies.

Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats

Depending on its location, the connected project could affect native vegetation and habitat on public or private lands, or could affect primarily disused agricultural lands or other previously disturbed sites. To the extent that the project site may consist of native vegetation and habitat, project development would eliminate that habitat as described in Impact VEG-1 for the Proposed Project. Depending on its location, the connected projects could affect aeolian sand habitat or other sensitive natural communities.

This impact can be minimized through on-site measures such as mitigation measures specified in the Desert Harvest Solar Project (DHSP) FEIS (BLM, 2012): minimize project disturbance areas, require biological monitoring, and specify revegetation of temporarily disturbed areas. Depending on the project location, its vegetation and habitat impacts would probably be subject to the Coachella Valley MSHCP (CV-MSHCP). Under the CV-MSHCP, the project owner would provide funding to offset project impacts through Plan's habitat acquisition and protection strategy. If the connected project is not subject to the CV-MSHCP, then permanent habitat impacts could be offset through habitat acquisition and protection such as described in the DHSP FEIS.

Desert Center Area. There are four solar projects in the Desert Center area identified as connected actions: the Palen Solar Power Project, the Desert Harvest Solar Project, and two confidential projects. The two confidential projects have an estimated ground disturbance of 400 acres and 2,000 acres, respectively. It is assumed the gen-tie line for each project would be a single-circuit 220 or 230 kV line, generally running along existing corridors.

Depending on their locations, the connected projects could affect native vegetation and habitat on public or private lands, or could affect primarily disused agricultural lands or other previously disturbed sites. To the extent that the project sites may consist of native vegetation and habitat, project development would eliminate that habitat as described in Impact VEG-1 for the Proposed Project. Depending on their location, the connected projects could affect aeolian sand habitat, desert dry wash woodland, or other sensitive natural communities.

This impact can be minimized through on-site measures such as mitigation measures specified in the DHSP FEIS: minimize project disturbance areas, require biological monitoring, and specify revegetation of temporarily disturbed areas. Permanent habitat impacts could be offset through habitat acquisition and protection such as described in the DHSP FEIS.

The Palen Solar Power Project would cover approximately 4,000 acres of undeveloped open space consisting of primarily native vegetation. Conditions of Certification that would mitigate the project's impacts to vegetation resources may be found in the CEC decision document for the project (CEC, 2010, Section VI.A). The project would result in permanent loss of Sonoran creosote bush scrub and fragmentation of adjacent native plant communities. This impact would be mitigated through implementation of Conditions of Certification BIO-12 (Desert tortoise compensatory mitigation), BIO-8 (Impact avoidance and minimization measures), and BIO-14 (Weed Management Plan). The project would also result in permanent loss of stabilized and partially stabilized dune habitat and disruption of a sand transport corridor resulting in downwind impacts to sand dune habitat. These impacts would be mitigated through implementation of Conditions of Certification BIO-20 (Sand dune/Mojave fringe-toed lizard mitigation).

An additional impact would be permanent loss of desert dry wash woodland. This impact would be mitigated through Conditions of Certification BIO-21 (Mitigation for impacts to state waters), BIO-14 (Weed Management Plan), and acquisition and enhancement of land containing ephemeral desert washes. CEC (2010, Section VI.A.) A further impact would be adverse effects to groundwater-dependent plant communities near Palen Dry Lake as a result of groundwater withdrawal. This impact would be mitigated through Conditions of Certification BIO-23 (Groundwater-dependent vegetation monitoring), BIO-24 (Remedial action and compensation for adverse effects to groundwater-dependent biological resource), and BIO-7 (Biological Resources Mitigation Implementation and Monitoring Plan).

The Desert Harvest Solar Project would occupy approximately 1,200 acres of undeveloped, natural open space consisting of primarily native vegetation. The project would result in permanent loss of Sonoran creosote bush scrub and desert dry wash woodland and adverse effects to desert dry wash woodland as a result of groundwater withdrawal. Mitigation measures for impacts to vegetation resources may be found in BLM's EIS for the project (2012, Section 4.3). This impact would be mitigated through implementation of Mitigation Measures VEG-2 (Biological monitoring and reporting), VEG-4 (Minimize construction-related impacts), VEG-5 (Vegetation Resources Management Plan), VEG-6 (Off-Site compensation for impacts to vegetation and habitat), and VEG-10 (Desert Dry Wash Woodland Monitoring and Reporting Plan).

Blythe Area. The connected solar projects in the Blythe area are three confidential projects with ground disturbance estimated at 1,200 acres, 1,200 acres, and 1,800 acres, respectively. It is assumed the gen-tie line for each project would be a single-circuit 220 or 230 kV line, generally running along existing corridors.

Depending on their locations, the connected projects could affect native vegetation and habitat on public or private lands, or could affect primarily disused agricultural lands or other previously disturbed sites. To the extent that the project sites may consist of native vegetation and habitat, project development would eliminate that habitat as described in Impact VEG-1 for the Proposed Project. Depending on their location, the connected projects could affect desert dry wash woodland or other sensitive natural communities.

This impact can be minimized through on-site measures such as mitigation measures specified in the DHSP FEIS (BLM 2012, Sections 3.4 and 4.4): minimize project disturbance areas, require biological monitoring, and specify revegetation of temporarily disturbed areas. Permanent habitat impacts could be offset through habitat acquisition and protection such as described in the DHSP FEIS.

Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds

Desert Center Area. Depending on their location, the two confidential connected projects in the Desert Center area could affect native sand transport and surface water flows on public or private lands. Construction activities could create dust and facilitate the introduction and spread of invasive weeds. To the extent that the project would result in these indirect impacts, project development would affect native vegetation and habitat as described in Impact VEG-2 for the Proposed Project.

This impact can be minimized through on-site measures such as mitigation measures specified in the DHSP FEIS (BLM, 2012, Section 4.3): implement plans for weed management, fugitive dust control, and surface water protection. Downwind impacts to aeolian sand habitat from interrupted sand transport can be mitigated through a measure similar to that specified in the Palen PMPD (CEC, 2010, Section VI.A) Conditions of Certification BIO-20 (Sand dune/Mojave fringe-toed lizard mitigation). Additionally, if the project is located on BLM land, that agency requires implementation of an Integrated Weed Management Plan.

Construction activities for the Palen Solar Power Project would create dust and facilitate the introduction and spread of invasive weeds. The project would also result in direct and indirect impacts to numerous ephemeral streams and washes that occur on the project site and disruption of a sand transport corridor resulting in downwind impacts to sand dune habitat. These impacts would be mitigated through implementation of Conditions of Certification AQ-SC3 (Construction fugitive dust control), AQ-SC7 (Operations Dust Control Plan), BIO-8 (Impact avoidance and minimization measures), BIO-14 (Weed Management Plan), BIO-21 (Mitigation for impacts to state waters), and BIO-20 (Sand dune/Mojave fringe-toed lizard mitigation). (CEC, 2010, Section VI.A.)

Construction of the Desert Harvest Solar Project would be expected to create dust, affect surface water flow, and introduce or facilitate the spread of invasive non-native plants. These impacts would be mitigated through implementation of Mitigation Measures AIR-1 (Fugitive Dust Control Plan), WAT-4 (Surface Water Protection Plan and Drainage Design Specifications), VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), and VEG-9 (Integrated Weed Management Plan). The project would not interrupt aeolian sand transport. (BLM 2012, Sections 3.3 and 4.3)

Blythe Area. Depending on the locations of the three projects in the Blythe area, development could affect sand transport and surface water flows on public or private lands. Construction activities could create dust and facilitate the introduction and spread of invasive weeds. To the extent that the projects would result in these indirect impacts, project development would affect native vegetation and habitat as described in Impact VEG-2 for the Proposed Project.

This impact can be minimized through on-site measures such as mitigation measures specified in the DHSP FEIS: implement a weed management plan, fugitive dust control plan, and surface water protection plan. Downwind impacts to aeolian sand habitat from interrupted sand transport can be mitigated through a measure similar to that specified in the Palen PMPD (CEC, 2010, Section VI.A) Conditions of Certification BIO-20 (Sand dune community impact mitigation). Additionally, if the project is located on BLM land, that agency requires implementation of an Integrated Weed Management Plan.

Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality

Common to All Areas. For each area with a connected action project, any project impacts to waters of the State or waters of the U.S. would be subject to permitting under the California Fish and Game Code and federal Clean Water Act (CWA).

If there are any jurisdictional waters on the project site, project development could affect jurisdictional waters as described in Impact VEG-3 for the Proposed Project. This impact can be minimized through on-site measures such as mitigation measures specified in the DHSP FEIS: require biological monitoring and implement a Habitat Mitigation and Monitoring Plan (HMMP) describing proposed mitigation and compensation ratios for affected jurisdictional waters. Potential impacts to jurisdictional drainages also would be reduced through implementation of a Storm Water Pollution Prevention Plan (SWPPP) including Best Management Practices (BMPs) and compliance with the conditions set forth in State and federal permits.

Desert Center Area. Most projects in this area, including the Desert Harvest and Palen projects, would not be subject to permitting under the federal Clean Water Act because watersheds in the area are within closed basins that do not fall under jurisdiction as waters of the U.S. However, intermittent streambeds and lakebeds (generally including desert washes and dry lakes) in the Desert Center area are jurisdictional as waters of the State, subject to permitting under Section 1600-1616 of the California Fish and Game Code. The measures identified above as common to all areas would apply.

The Palen Solar Power Project would result in direct and indirect impacts to numerous ephemeral streams and washes that occur on that project site. (CEC, 2010, Section VI.A) This impact would be mitigated through Conditions of Certification BIO-21 (), as well as BIO-7 (biological resources mitigation implementation and monitoring plan) and BIO-8 (impact avoidance and minimization measures).

No wetlands or waters of the U.S. occur on the Desert Harvest Solar Project, but the project would impact state-jurisdictional streambeds. These impacts would be offset by implementing Mitigation Measures VEG-2 (Biological monitoring), VEG-4 (Minimize construction-related impacts), VEG-5 (Vegetation Resources Management Plan), VEG-6 (Off-Site Compensation for Impacts to Vegetation and Habitat), VEG-8 (Implement best management practices to minimize impacts to jurisdictional areas), and WAT-1 (Demonstrate compliance with water quality permits). (BLM 2012, Sections 3.3 and 4.3)

Blythe Area. The three solar projects in the Blythe area could affect jurisdictional waters. Impacts to jurisdictional waters, including intermittent channels, also could affect downstream wetlands, riparian, or aquatic habitat and the biological resources found in those downstream habitats. The measures identified above as common to all areas would apply.

Impact VEG-4: Construction, operations, and maintenance activities could cause direct or indirect loss of listed and special-status plants and direct or indirect effects to habitat for listed and special-status plants

Common to All Areas. This impact could occur in each area and can be minimized through on-site measures such as mitigation measures specified in the DHSP FEIS: minimize project disturbance areas, require biological monitoring, implement a Vegetation Resources Management Plan, and mitigate direct effects to special-status plants. If the project site is on BLM land or has another federal nexus, the BLM or other agency would conduct an ESA Section 7 consultation for federally listed plant species. The resulting USFWS Biological Opinion (BO) may contain additional required measures. Similarly, a state Incidental Take Permit may be required and may contain additional measures.

Desert Center Area. Depending on their location, the two confidential connected projects could affect native vegetation and habitat, including special-status plants and their habitat. To the extent that special-status plants occur on the project sites, project development could affect special-status plants and their habitat as described in Impact VEG-4 for the Proposed Project. The measures identified above as common to all areas would apply.

The Palen Solar Power Project would not impact any federal- or state-listed plant species. The project would directly or indirectly impact five non-listed special-status plant species: Harwood's woollystar, Harwood's milk-vetch, California ditaxis (*Ditaxis serrata var. californica*; CRPR 3.2), ribbed cryptantha (*Cryptantha costata*; CRPR 4.3), and Palen Lake saltbush (*Atriplex* sp. nov. Andre; potential new taxon, no CDFW status as yet). (CEC, 2010, Section VI.A.)

Impacts to special-status plants would be avoided, minimized, and mitigated through implementation of Conditions of Certification BIO-8 (Impact avoidance and minimization measures), BIO-14 (Weed Management Plan), BIO-19 (Special-status plant impact avoidance, minimization and compensation), BIO-20 (Sand dune/Mojave fringe-toed lizard mitigation), BIO-21 (Mitigation for impacts to state waters), BIO-22 (Decommissioning and Reclamation Plan), and BIO-23 (Groundwater-dependent vegetation monitoring) and BIO-24 (Remedial action and compensation for adverse effects to groundwater-dependent biological resources).

The Desert Harvest Solar Project would not impact any federal- or state-listed plant species. The project would impact three non-listed special-status species: Crucifixion thorn, Utah vine milkweed, and desert unicorn-plant. Impacts to special-status plants would be avoided, minimized, and mitigated through implementation of Mitigation Measures VEG-2 (Biological monitoring), VEG-4 (Minimize construction-related impacts), VEG-7 (Mitigate direct impacts to special-status plants), and VEG-9 (Integrated Weed Management Plan). (BLM, 2012, Section 4.3)

Blythe Area. Depending on location, the connected projects could affect native vegetation and habitat, including special-status plants and their habitat. To the extent that special-status plants occur on project sites, project development could affect special-status plants and their habitat as described in Impact VEG-4 for the Proposed Project. The measures identified above as common to all areas would apply.

Impact VEG-5: Construction, operations, and maintenance activities may conflict with local policies or ordinances protecting biological resources, Habitat Conservation Plans, Natural Communities Conservation Plans, Multiple Species Habitat Conservation Plans, or other approved local, regional, state, or federal conservation plans

Common to All Areas. In each area, if the project site is on BLM land, BLM policy requires salvage and re-planting of yuccas and cacti. The project may also be subject to compliance with other local policies (e.g., tree protection ordinances). To the extent that the project sites would be subject to local ordinances, conservation plans, etc., compliance would be required as described in Impact VEG-5 for the Proposed Project.

Desert Center Area. The Palen Solar Power Project (Reduced Acreage Alternative) is located on BLM land. Condition of Certification BIO-8 (Impact avoidance and minimization measures), BIO-14 (Weed Management Plan), and BIO-22 (Decommissioning and Reclamation Plan) mitigates impacts to cacti, yucca, and native trees. (CEC, 2010, Section VI.A.)

The Desert Harvest Solar Project also is located on BLM land and is subject to the BLM requirement to salvage yuccas and cacti. Mitigation Measure VEG-5 (Vegetation Resources Management Plan) addresses this requirement. (BLM, 2012, Section 4.3)

Blythe Area. The measures identified above as common to each area would apply.

D.4.4 Environmental Impacts of Project Alternatives

Three alternatives are considered in this section, and the No Action Alternative is evaluated in Section D.4.5. All of these alternatives would be located within the existing WOD ROW. Alternatives are described in detail in Appendix 5 (Alternatives Screening Report) and are summarized in Section C.

Vegetation and habitat within the ROW are described by segment in Section D.4.1.2 above; the description of the environmental setting would apply equally to the alternatives.

D.4.4.1 Tower Relocation Alternative

The Tower Relocation Alternative would locate certain transmission structures in Segments 4, 5, and 6 farther from existing homes than would be the case under the Proposed Project.

Five impacts related to vegetation and habitat were identified for the Proposed Project. These impacts also would apply to the Tower Relocation Alternative, which overall would be the same as the Proposed Project, with the exception of the relocated transmission towers that are described above and in Appendix 5. The full text of all vegetation and habitat mitigation measures ("VEG") referenced in this section is presented in Section D.4.3.3. The full text of air quality mitigation measures ("AQ") is presented in Section D.3.3.3 and water resources mitigation measures ("WR") in Section D.19.3.3.

The only difference between the Proposed Project and this alternative would be the relocation of selected structures in Segments 4, 5, and 6. All other structures as identified under the Proposed Project. In general, the relocated towers would be moved approximately 50 feet farther from the southern edge of the ROW.

Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats

Road construction and improvements, and site preparation for transmission structure demolition or construction, pull sites, staging areas, equipment yards, parking areas, administrative functions, and other project activities would remove existing vegetation and habitat. Adverse effects to vegetation and habitat would occur primarily during project construction. These effects may be temporary or permanent. Examples of permanent impacts are removal of vegetation for permanent roads and access areas at each structure.

Under the Tower Relocation Alternative, the minor adjustment to the location of the affected towers in Segments 4, 5, and 6 would require land clearing at the new locations, but would not require clearing at the former locations of these towers under the Proposed Project. This clearing would result in loss or degradation of vegetation and habitat similar to the Proposed Project, only at a somewhat different location. The impacts of the Tower Relocation Alternative, compared to existing conditions, would be similar to the Proposed Project as analyzed in Section D.4.3.3.

As with the Proposed Project, construction, post-construction restoration, and O&M activities for the Tower Relocation Alternative would necessitate temporary and permanent removal of vegetation and habitat as shown in Table D.4-4. The adverse effect on vegetation and habitat due to land clearing for this alternative would be similar to the Proposed Project. There may be minor differences in total acreages of habitat types impacted, but as described above, would not exceed the amounts previously analyzed for the Proposed Project. Impacts to vegetation and habitat would be reduced through implementation of Mitigation Measures VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement worker environmental awareness program [WEAP]), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), and VEG-1e (Compensate for permanent habitat loss).

Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds

In addition to the direct impacts to native vegetation and habitat, the construction, restoration, and O&M activities associated with the project could have several indirect impacts to surrounding vegetation and habitat. These impacts may include dust caused by project activities or vegetation removal, interruption of windblown sand transport to downwind habitat, interruption of surface flows and water or sediment supply to downstream habitat, and the introduction or spread of invasive species. The extent and severity of these indirect habitat effects would depend on the sensitivity of adjacent habitat and the plants or wildlife it supports. O&M activities associated with the Proposed Project with the Tower Relocation Alternative are expected to be less than or equivalent to O&M of the existing West of Devers system and impacts would be similar to or reduced from existing conditions.

Under the Tower Relocation Alternative, the minor adjustment to the location of the affected towers would not increase the indirect degradation of surrounding vegetation compared to the Proposed Project. However, the construction timeframe will be extended by as much as one year, with additional dust and invasive weed impacts. With the exception of dust and invasive weeds, as described below, the impacts of the Tower Relocation Alternative, compared to existing conditions, would be similar to the Proposed Project as analyzed in Section D.4.3.3.

Dust. Disturbed soils would be exposed for much of the construction and restoration phases, leading to increased wind erosion and dust generation. Extending the construction time frame in the affected areas will leave disturbed soils exposed for an additional period of time.

Mitigation Measures AQ-1a (Control fugitive dust), AQ-1b (Control off-road equipment emissions), WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and VEG-1d (Restore or revegetate temporary disturbance areas) would minimize generated dust and its indirect effects to vegetation and habitat. With implementation of these mitigation measures, the additional dust impacts associated with the Tower Relocation Alternative, as compared to the Proposed Project, would be minimized (Class II).

Sand transport. The portion of the ROW affected by this alternative is not within sand source or sand transport areas as mapped in the CV-MSHCP. The minor adjustment to the location of the affected towers would not increase impacts to sand transport as compared to the Proposed Project.

Surface water flow. With implementation of APM HYDRO-1 (see Table B-18) and Mitigation Measures WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), VEG-1a (Conduct biological monitoring and reporting), VEG-1d (Restore or revegetate temporary disturbance areas), and VEG-1e (Compensate for permanent habitat loss), the impacts of the Tower Relocation Alternative on surface hydrology would be minimized, and would be similar to the Proposed Project.

Invasive weeds. Extending the construction time frame in the affected areas will leave disturbed soils exposed for an additional period of time, creating more opportunities for invasion and spread of weeds. With implementation of VEG-2a (Prepare and implement an Integrated Weed Management Plan), the additional invasive weed impacts associated with the Tower Relocation Alternative, as compared to the Proposed Project, would be minimized.

Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality

The Proposed Project would affect jurisdictional waters of the State or waters of the U.S., and all project impacts to waters of the State or waters of the U.S. (including construction, restoration, and O&M phases) will be subject to permitting under the California Fish and Game Code and federal Clean Water Act (CWA). The Tower Relocation Alternative for reposition certain sets of towers in Segments 4, 5, and 6, as compared to their locations under the Proposed Project. These would be minor relocations and none expected to affect jurisdictional waters and wetlands.

Potential impacts to jurisdictional drainages would be reduced through implementation of a Storm Water Pollution Prevention Plan (SWPPP) including Best Management Practices (BMPs) as described in Section 4.9 of the PEA (see page 4.9-21), and compliance with the conditions set forth in State and federal permits or authorizations (California Fish & Game Code Sections 1600-1616 and CWA Sections 401 and 404). In addition, Mitigation Measures WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), and VEG-3a (Minimize impacts and ensure no net loss for jurisdictional waters and wetlands) would further minimize or mitigate the effects of surface hydrology alterations. With implementation of permit conditions and mitigation measures, the adverse impacts of the Tower Relocation Alternative on biological resources within jurisdictional waters would be avoided or mitigated, and would be similar to the Proposed Project. The impacts of the Tower Relocation Alternative, compared to existing conditions, would be similar to the Proposed Project as analyzed in Section D.4.3.3.

Impact VEG-4: Construction, operations, and maintenance activities could cause direct or indirect loss of listed and special-status plants and direct or indirect effects to habitat for listed and special-status plants

There were no listed threatened or endangered plants identified within the Proposed Project study area during field surveys reported in the PEA. One listed species, Coachella Valley milk-vetch (federally listed endangered) could occur in parts of Segment 6, where suitable habitat is present. Its habitat is primarily windblown sand, but also includes fine-grained, loose alluvial sand. In addition, the Proposed Project route crosses designated critical habitat for Coachella Valley milk-vetch in the Whitewater River wash. Coachella Valley milk-vetch is an annual or short-lived perennial that may not germinate or flower in some years, especially years of low rainfall. Thus, while it was not found during field surveys, it may be present in some parts of the ROW in future years, possibly during project construction. No other listed species is likely to occur on the route, based on field surveys and the habitats, geographic ranges, and elevational distributions of other listed species. No other designated critical habitat for plant species is located on the route.

The Proposed Project with the Tower Relocation Alternative could directly affect special-status plants, should they occur on or near the route. SCE would conduct pre-construction surveys for special-status plants and mitigate the impact through avoidance, protection in place, salvage and relocation, or salvage and replacement.

In addition, the following mitigation measures would help to reduce or offset project impacts to special-status plants: VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement Worker Environmental Awareness Program), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), and VEG-2a (Prepare and implement an Integrated Weed Management Plan). Mitigation Measure VEG-4a (Minimize and mitigate impacts to special-status plants) details follow-up mitigation that may be necessary, should the project affect special-status plants. With implementation of permit conditions and mitigation measures, the impacts of the Tower Relocation Alternative on special-status plants would be minimized or mitigated, and would be similar to the Proposed Project. The impacts of the Tower Relocation Alternative, compared to existing conditions, would be similar to the Proposed Project as analyzed in Section D.4.3.3.

Impact VEG-5: Construction, operations, and maintenance activities may conflict with local policies or ordinances protecting biological resources, Habitat Conservation Plans, Natural Communities Conservation Plans, Multiple Species Habitat Conservation Plans, or other approved local, regional, state, or federal conservation plans

Impacts of the Tower Relocation Alternative regarding local tree or plant protection policies or ordinances are the same as the Proposed Project. These addressed by Mitigation Measure VEG-5a (Comply with local tree removal or resource protection policies). Impacts of this alternative regarding the WR-MSHCP and CV-MSHCP is addressed by Mitigation Measure VEG-5b (Ensure MSHCP equivalency and consistency), and would be the same as the Proposed Project.

D.4.4.2 Iowa Street 66 kV Underground Alternative

The Iowa Street 66 kV Underground Alternative would modify the Proposed Project by placing a 1,600-foot segment of subtransmission line underground, rather than overhead. Except for the underground segment of 66 kV subtransmission line in Iowa Street, this alternative would require the same structures and construction as the Proposed Project and would have the same impacts. The only difference would be the impacts in this 1,600-foot segment.

Five impacts were identified under the Proposed Project for vegetation and habitat. These impacts also would apply to the Iowa Street 66 kV Underground Alternative, and overall would be the same as the Proposed Project except for the underground portion of the subtransmission line. The full text of all vegetation and habitat mitigation measures ("VEG") referenced in this section is presented in Section D.4.3.3. The full text of air quality mitigation measures ("AQ") is presented in Section D.3.3.3 and water resources mitigation measures ("WR") in Section D.19.3.3.

Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats

This alternative would place a 1,600-foot segment of 66 kV subtransmission line underground instead of on overhead poles. This underground segment would be within or immediately adjacent to an existing paved street (Iowa Street) and would not require any clearing of native vegetation. This alternative would eliminate the need for 7 poles needed to support an overhead line and slightly decrease the temporary and permanent impacts to vegetation and habitat as compared to the Proposed Project. The vegetation impacts of the Iowa Street 66 kV Underground Alternative would be somewhat less than those of the Proposed Project because the 66 kV line would be buried in the road rather than strung on poles along the side of the road. No native vegetation clearing is anticipated, and no additional mitigation would be required beyond the measures set forth in Section D.4.3.3.

Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds

Under this alternative, placing subtransmission line underground within or adjacent to a paved street instead of on overhead poles would decrease the indirect degradation of surrounding vegetation in this location as compared to the Proposed Project. However, the more extensive ground disturbance would create additional dust impacts. With the exception of dust, as described below, the impacts of the Iowa Street 66 kV Underground Alternative would be similar to the Proposed Project as analyzed in Section D.4.3.3.

Dust. Trenching and underground construction would involve more extensive ground disturbance and create additional construction-related dust than the Proposed Project. Mitigation Measures AQ-1a (Control fugitive dust), AQ-1b (Control off-road equipment emissions), WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and VEG-1d (Restore or revegetate temporary disturbance areas) would minimize generated dust and any indirect effects to nearby vegetation and habitat. In this case, restoration of the underground work area would entail returning it to pre-disturbance condition, such as paving or landscaping. With implementation of these mitigation measures, the additional dust impacts associated with the Iowa Street 66 kV Underground Alternative, as compared to the Proposed Project, would be minimized.

Sand transport. The portion of the ROW affected by this alternative is not within sand source or sand transport areas as mapped in the CV-MSHCP.

Surface water flow. Construction within or adjacent to the roadway would not result in impacts to surface water flow.

Invasive weeds. If vegetation clearing is required adjacent to the road, implementation of Mitigation Measure VEG-2a (Prepare and implement an Integrated Weed Management Plan) may be required to ensure that invasive weeds would not occur in the adjacent areas.

Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality

The construction of this underground subtransmission segment would not affect jurisdictional drainages. No mitigation measures for jurisdictional waters or wetlands would be required.

Impact VEG-4: Construction, operations, and maintenance activities could cause direct or indirect loss of listed and special-status plants and direct or indirect effects to habitat for listed and special-status plants

Construction of the underground alternative could indirectly affect special-status plants, should they be located immediately adjacent to the underground route segment. SCE would conduct pre-construction surveys for special-status plants and mitigate the impact through avoidance, protection in place, salvage and relocation, or salvage and replacement. If surveys define nearby special-status plants, the mitigation measures for the Proposed Project would be required and would reduce project impacts to special-status plants: VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement Worker Environmental Awareness Program), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), and VEG-2a (Prepare and implement an Integrated Weed Management Plan).

Impact VEG-5: Construction, operations, and maintenance activities may conflict with local policies or ordinances protecting biological resources, Habitat Conservation Plans, Natural Communities Conservation Plans, Multiple Species Habitat Conservation Plans, or other approved local, regional, state, or federal conservation plans

Tree Removal. The Iowa Street 66 kV Underground Alternative is not expected to result in tree removal, as the 66 kV line would be located underground, principally within or adjacent to the street. If landscape trees along Iowa Street would be removed to build this alternative, then Mitigation Measure VEG 5a (Comply with local tree removal or resource protection policies) would require compliance with applicable local ordinances, such the City of Redlands Street Tree Protection Policy (City of Redlands, 2013).

Western Riverside MSHCP and Coachella Valley MSHCP. The underground segment is in the City of Redlands in San Bernardino County and is not within the planning areas for the WR-MSHCP or CV-MSHCP.

D.4.4.3 Phased Build Alternative

The Phased Build Alternative would retain existing double-circuit 220 kV transmission structures to the extent feasible, remove single-circuit structures, add new double-circuit 220 kV structures, and string all structures with higher-capacity conductors.

By retaining and reconductoring the existing double-circuit towers, less ground disturbance would be required under the Phased Build Alternative compared to the Proposed Project. Development of new pads and new access roads that would be required for replacing the existing double-circuit towers with new towers would be avoided under the Phased Build Alternative. This would reduce impacts to both vegetation and habitat. While up to an estimated 30 percent of the existing towers may require replacement or strengthening and extending vertically, this work would be conducted at already disturbed sites. For the second line double-circuit line, where the two existing single-circuit structures would be replaced by one set of new double-circuit structures, both the Proposed Project and the Phased Build Alternative would result in similar levels of disturbance during the removal of existing structures and construction of new structures. Impacts for this line of new towers would be the same under both the Proposed Project and the alternative.

Five impacts on vegetation and habitat were identified under the Proposed Project. These impacts also would apply to the Phased Build Alternative, which would be located in the same corridor as the Proposed Project and would involve similar although less intense construction activities. The full text of all mitigation measures referenced in this section is presented in Section D.2.3.3.

Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats

Road construction and improvements, and site preparation for transmission structure demolition or construction, pull sites, staging areas, equipment yards, parking areas, administrative functions, and other project activities would necessitate removing existing vegetation and habitat. This impact would be relatively minor for vegetation and habitat removal in areas with little native habitat value (e.g., areas in industrial or agricultural use, or heavily disturbed and ruderal areas). In other areas, loss of native vegetation would reduce or degrade habitat availability for native plants and wildlife, including special-status species. In some cases, sensitive habitats or vegetation types, or habitats that support listed threatened or endangered species or other special-status species, would be removed. Even grasslands and forb lands that are predominantly covered by non-native grasses and herbs are important foraging habitat for raptors and other predators, and may support special-status or listed threatened or endangered species, such as Stephens' kangaroo rat. Adverse effects to vegetation and habitat would occur primarily during project construction.

Under the Phased Build Alternative, strengthening and increasing the height of some of the retained double-circuit set of towers would require limited land clearing around these existing towers, resulting in loss or degradation of vegetation and habitat. This would be less than would occur under the Proposed Project, which would deconstruct these towers and replace them with new towers. Under the Proposed Project, many of the new towers would be at new locations, different from the existing towers. Under the Phased Build Alternative these new tower sites would not be required, thereby avoiding this additional disturbance.

For the set of new double-circuit towers that would replace the single-circuit structures, the impacts of the Phased Build Alternative would be similar to the Proposed Project as analyzed in Section D.4.3.3.

Construction, post-construction restoration, and O&M activities for the Phased Build Alternative would necessitate temporary and permanent removal of vegetation and habitat. The adverse effect on vegetation and habitat due to land clearing under this alternative would be less than under the Proposed Project. Impacts to vegetation and habitat would be reduced through implementation of Mitigation Measures VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement worker environmental awareness program [WEAP]), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), and VEG-1e (Compensate for permanent habitat loss).

Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds

Construction, restoration, and O&M activities could have several indirect impacts to surrounding vegetation and habitat. These impacts may include dust caused by project activities or vegetation removal, interruption of windblown sand transport to downwind habitat, interruption of surface flows and water or sediment supply to downstream habitat, and the introduction or spread of invasive species. The extent and severity of these indirect habitat effects would depend on the sensitivity of adjacent habitat and the plants or wildlife it supports. O&M activities associated with the Proposed Project are expected to be less than or equivalent to O&M of the existing West of Devers system and impacts would be similar to or reduced from existing conditions.

Under the Phased Build Alternative, because there would be less construction disturbance overall, there would be less indirect degradation of surrounding vegetation and habitat due to dust, interrupted sand transport, interrupted surface water flows, or introduction and spread of weeds.

Dust. Disturbed soils would be exposed for much of the construction and restoration phases, leading to increased wind erosion and dust generation compared to existing conditions. However, because disturbance during demolition of existing double-circuit towers would not occur and replacement towers would not be required, avoiding this ground-disturbing action, less disturbed soil would be exposed, as compared to the Proposed Project. Mitigation Measures AQ-1a (Control fugitive dust), AQ-1b (Control off-road equipment emissions), WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and VEG-1d (Restore or revegetate temporary disturbance areas) would minimize generated dust and its indirect effects to vegetation and habitat. With implementation of these mitigation measures, the additional dust impacts associated with the Phased Build Alternative would be minimized and would be less than with the Proposed Project.

Sand transport. The sand transport area on the project ROW is immediately east of Whitewater River and Wash. Under the Phased Build Alternative there would be less disturbance in this area and, therefore, less potential impacts to sand transport as compared to the Proposed Project.

Surface water flow. With implementation of APM HYDRO-1 (see Table B-18) and Mitigation Measures WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), VEG-1a (Conduct biological monitoring and reporting), VEG-1d (Restore or revegetate temporary disturbance areas), and VEG-1e (Compensate for permanent habitat loss), the impacts of the Phased Build Alternative on surface hydrology would be minimized, and would be less than the Proposed Project.

Invasive weeds. Less soil area would be disturbed under the Phased Build Alternative compared to the Proposed Project. With implementation of VEG-2a (Prepare and implement an Integrated Weed Management Plan), the additional invasive weed impacts associated with the Phased Build Alternative would be minimized, and would be less than the Proposed Project.

Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality

The alternative would affect jurisdictional waters of the State or waters of the U.S. During construction, these impacts would include placing fill material into jurisdictional waters to provide level, dry work areas, tower pads, or roadways; constructing roadways, culverts, or other crossing structures across jurisdictional channels; installing channel armoring (such as riprap) in a channel near a work site to prevent flooding or erosion; constructing impoundments or detention basins on jurisdictional channels; or grading or other site preparation that eliminates or redirects natural runoff. Construction impacts to jurisdictional waters, including intermittent channels, could also affect downstream wetlands, riparian, or aquatic habitat and the biological resources found in those downstream habitats.

All project impacts, including those of the Phased Build Alternative, to waters of the State or waters of the U.S. (including construction, restoration, and O&M phases) would be subject to permitting under the California Fish and Game Code and federal Clean Water Act (CWA). Potential impacts to jurisdictional drainages would be reduced through implementation of a Storm Water Pollution Prevention Plan (SWPPP) including Best Management Practices (BMPs) as described in Section 4.9 of the PEA (see page 4.9-21), and compliance with the conditions set forth in State and federal permits or authorizations (California Fish & Game Code Sections 1600-1616 and CWA Sections 401 and 404). In addition, Mitigation Measures WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), and VEG-3a (Minimize impacts and ensure no net loss for jurisdictional waters and wetlands) would further minimize or mitigate the effects of surface hydrology alterations. With implementation of permit conditions and mitigation measures, the adverse impacts of the Phased Build Alternative on biological resources within jurisdictional waters would be avoided or mitigated. Because there would be less ground disturbance, the impact would be less under this alternative than under the Proposed Project.

Impact VEG-4: Construction, operations, and maintenance activities could cause direct or indirect loss of listed and special-status plants and direct or indirect effects to habitat for listed and special-status plants

There were no listed threatened or endangered plants located within the Proposed Project study area during field surveys reported in the PEA. One listed species, Coachella Valley milk-vetch (federally listed endangered) could occur in parts of Segment 6, where suitable habitat is present. Its habitat is primarily windblown sand, but also includes fine-grained, loose alluvial sand. In addition, the Proposed Project route crosses designated critical habitat for Coachella Valley milk-vetch in the Whitewater River wash. Coachella Valley milk-vetch is an annual or short-lived perennial that may not germinate or flower in some years, especially years of low rainfall. Thus, while it was not found during field surveys, it may be present in some parts of the ROW in future years, possibly during project construction. No other listed species is likely to occur on the route, based on field surveys and the habitats, geographic ranges, and elevational distributions of other listed species. No other designated critical habitat for plant species is located on the route.

Should special-status plants occur on or near the project ROW, they could be directly affected by both the Proposed Project and the Phased Build Alternative. SCE would conduct pre-construction surveys for special-status plants and mitigate the impact through avoidance, protection in place, salvage and relocation, or salvage and replacement. The Biological Opinion and, if required, the Incidental Take Permit or Consistency Determination may include additional measures to protect special-status plants.

In addition, the following mitigation measures would help to reduce or offset project impacts to special-status plants: VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement Worker Environmental Awareness Program), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), and VEG-2a (Prepare and implement an Integrated Weed Management Plan). Mitigation Measure VEG-4a (Minimize and mitigate impacts to special-status plants) details follow-up mitigation that may be necessary, should the project affect special-status plants. With implementation of permit conditions and mitigation measures, the impacts of the Phased Build Alternative on special-status plants would be minimized or mitigated. Because there would be less disturbance and less construction as a result of retaining the existing double-circuit towers, there would be fewer impacts than would occur under the Proposed Project.

Impact VEG-5: Construction, operations, and maintenance activities may conflict with local policies or ordinances protecting biological resources, Habitat Conservation Plans, Natural Communities Conservation Plans, Multiple Species Habitat Conservation Plans, or other approved local, regional, state, or federal conservation plans

Tree Removal. Local jurisdictions along the project route have tree protection or preservation policies or ordinances, and the BLM requires authorization for removal of cactus or yucca plants from BLM lands. With less land disturbance, it is expected that fewer tree removals would be required. Mitigation Measure VEG-5a (Comply with local tree removal or resource protection policies) would require SCE to obtain permits from local jurisdictions and BLM for tree removal or other plant removal or harvest, in accordance with each applicable ordinance or policy. With implementation of this mitigation measure, the impacts of the Phased Build Alternative would be the same as the Proposed Project.

Western Riverside MSHCP and Coachella Valley MSHCP. Towers would be located within the WR-MSHCP planning area and the CV-MSHCP planning area. Mitigation Measure VEG-5b requires SCE to ensure MSHCP equivalency and consistency. The requirements for the Phased Build Alternative regarding the MSHCPs would be the same as detailed in Section D.4.3.3. However, with less disturbance and construction, impacts would be less than under the Proposed Project.

D.4.5 Environmental Impacts of No Action Alternative

D.4.5.1 No Action Alternative Option 1

The No Action Alternative Option 1 is described in Section C.6.3.1. It would consist of a new 500 kV circuit, primarily following the Devers-Valley transmission corridor and extending 26 miles between Devers Substation. It would also require a new 40-acre substation south of Beaumont, and 4 new 220 kV circuits extending 7 miles from the new Beaumont Substation to El Casco Substation, primarily following the existing El Casco 115 kV ROW. The remainder of the No Action Alternative, from El Casco Substation to the San Bernardino and Vista Substations, would be identical to the Proposed Project. Information on environmental resources and project impacts are derived for the Devers–Palo Verde 500 kV No. 2 Project EIR/EIS (CPUC and BLM, 2006) and the El Casco System Project Draft EIR (CPUC, 2007); which include nearly all of the No Action alignment.

From Devers Substation to west of Cabazon, the land is within the Coachella Valley MSHCP. At that point, the alignment to Beaumont Substation and west to El Casco Substation is within the Western Riverside MSHCP. The alignment segment crosses both BLM and USFS lands, subject to the requirements of those management agencies.

Devers to Beaumont Substation. One listed plant species, Coachella Valley milk-vetch, is known to occur in the ROW near Devers Substation and could potentially occur along the alternative route between the substation and the San Jacinto Mountains foothills. Five listed plants species, including Munz's onion, San Diego ambrosia, San Jacinto Valley crownscale, Nevin's barberry, and Mojave tarplant, have a high to moderate potential to occur along the route of this alternative because suitable habitat is present and/or this species has been recorded in the vicinity of the ROW. In addition, numerous sensitive plants have a moderate to high potential to occur along the ROW between Devers and Beaumont Substations.

The disturbance and/or loss of native vegetation communities resulting from the construction of the No Action Alternative would require mitigation. Examples include conducting surveys for listed plant species, preparation and implementation of a Habitat Restoration/Compensation Plan, and implementation of control measures for invasive and noxious weeds. The Devers to Beaumont Substation alignment would follow the existing Devers to Valley alignment. In the analysis of the Devers to Valley alignment in the DPV2 EIR/EIS, all impacts to vegetation were less than significant or less than significant with mitigation.

Beaumont Substation. The substation site is grassland in a gently rolling topography and has been subject to agricultural practices. The site is approximately 1 mile north of the northern boundary of the Potrero ACEC, an area managed for conservation of multiple species and their habitats. Plant species similar to those along 500 kV alignment on the west side of the San Jacinto to Mountains may occur. As with the 500 kV transmission alignment mitigation for temporary and permanent impacts to vegetation would include surveys for listed plant species, implement a Habitat Restoration/Compensation Plan, and implementation of control measures for invasive and noxious weeds.

Beaumont to El Casco Substation. For approximately 1.5 miles, the 220 kV alignment north of the substation primarily traverses grasslands and disturbed or developed land before paralleling San Timoteo Creek for approximately 1.7 miles. The riparian corridor along the creek is dominated by mature cottonwood and willow trees. The route then parallels Highway 60 to the south, crosses the highway, and continues to El Casco Substation. This area is characterized by rolling foothills dominated by non-native annual grasslands and disturbed/ruderal habitat in the valleys, transitioning to chamise chaparral and southern mixed chaparral at higher elevations. Construction activities could disturb or eliminate vegetation. As with the transmission alignment between Devers and Beaumont, mitigation would include surveys for listed plant species, implement a Habitat Restoration/Compensation Plan, and implementation of control measures for invasive and noxious weeds.

D.4.5.2 No Action Alternative Option 2

No Action Alternative Option 2 would require the construction of over 40 miles of new 500 kV transmission line, following the existing Valley-Serrano 500 kV line. The alternative is described in Section C.6.3.2, and illustrated on Figure C-6b. The eastern portion of the corridor is located within the Western Riverside County MSHCP. The western portion of the route is located in the Central/Coastal Orange County and Orange County Transportation Authority Natural Community Conservation Planning (NCCP)/Habitat Conservation Plan (HCP) areas.

West of the Perris Valley, the route traverses natural land which is mostly coastal sage scrub with small stretches of chaparral or grassland-scrub transition. A narrow zone of riparian habitat is located along Temescal Wash, near MP 20.4. The dominant vegetation types within the western portion of the route are coastal sage scrub and chaparral with isolated zones of coniferous forest of various types at high elevations within the Cleveland National Forest. The California Natural Diversity Database (CNDDB) search documented 15 special-status plant species that are known to occur in or near the existing corridor. Examples of these species are Munz's onion (*Allium munzii*; federally listed endangered, state-listed threatened, California Rare Plant Rank (CRPR) 1B.1), thread-leaved brodiaea (*Brodiaea filifolia*; federally listed threatened, state-listed endangered, CRPR 1B.1), San Diego ambrosia (*Ambrosia pumila*; federally- listed endangered, CRPR 1B.1), Parry's spineflower (*Chorizanthe parryi* var. *parryi*; CRPR 1B.1), round-leaved filaree (*California macrophylla*; CRPR 1B.1), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*; CRPR 1B.2), and many-stemmed dudleya (*Dudleya multicaulis*; CRPR 1B.2).

The disturbance and/or loss of native vegetation communities resulting from the construction of the No Action Alternative Option 2 would require mitigation. Typical mitigation includes conducting surveys for listed plant species to ensure avoidance, preparation and implementation of a Habitat Restoration/Compensation Plan, and implementation of control measures for invasive and noxious weeds.

D.4.6 Mitigation Monitoring, Compliance, and Reporting

Table D.4-7 presents the mitigation monitoring, compliance, and reporting plan for biological resources – vegetation. Due to the length of the mitigation measure text for biological resources, ***the full text for each measure is not presented in this table, but is provided in Section D.4.3.3 above.***

Table D.4-7. Mitigation Monitoring Program – Biological Resources – Vegetation

MITIGATION MEASURE	**VEG-1a: Conduct biological monitoring and reporting** *(see full text in Section D.4.3.3)*
Location	All segments.
Monitoring / Reporting Action	SCE submits lead biologist's and biological monitors' resumes; CPUC/BLM monitor verifies lead biologist's and biological monitors' qualifications. SCE monitors pre-construction, construction, and post-construction restoration work activities where there is a potential to impact sensitive biological resources or jurisdictional waters. SCE conducts daily clearance sweeps of construction work areas. SCE inspects sensitive biological resource areas. SCE conducts daily inspections of excavations and wildlife entrapment hazards and exclusion fencing. SCE provides accurate daily work schedule and up-to-date biological resource and construction maps and GIS data to CPUC/BLM monitor. SCE documents monitoring activities daily, including special-status species observations and non-compliance incidents. SCE provides weekly updates, including bird nesting activities and buffer distances and copies of CNDDB records. SCE submits compliance monitoring summaries annually. CPUC/BLM monitor approves proposed report formats in consultation with CDFW and USFWS. SCE submits a final compliance monitoring report after completion of construction; CPUC/BLM monitor approves report format and contents in consultation with CDFW and USFWS.
Effectiveness Criteria	Effective monitoring; pre-construction, construction, and post-construction activities maintained in compliance with mitigation measures, permit conditions, and other environmental requirements; accurate documentation and timely reporting.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	No less than 60 days prior to the start of any ground-disturbing activities; pre-construction, construction, and post-construction restoration phases.
MITIGATION MEASURE	**VEG-1b: Prepare and implement a Worker Environmental Awareness Program (WEAP)** *(see full text in Section D.4.3.3).*
Location	All segments.
Monitoring / Reporting Action	SCE submits WEAP training presentation and materials; CPUC/BLM monitor approves training presentation and materials in consultation with CDFW and USFWS. SCE maintains documentation of personnel that have completed WEAP training and submits documentation to CPUC/BLM monitor upon request; project personnel wear hardhat stickers in the field. SCE documents WEAP refresher presentations in monitor's daily reports.
Effectiveness Criteria	All on-site personnel aware of environmental compliance requirements.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	No less than 60 days prior to the start of any ground-disturbing activities; during construction.
MITIGATION MEASURE	**VEG-1c: Minimize native vegetation and habitat loss** *(see full text in Section D.4.3.3)*
Location	All segments.
Monitoring / Reporting Action	SCE submits final engineering GIS shapefiles to CPUC/BLM with data on temporary and permanent disturbance for each vegetation/habitat type. On completion of construction, SCE submits final as-built GIS shapefiles to CPUC/BLM with actual temporary and permanent disturbance for each vegetation/habitat type. SCE stakes disturbance areas in the field; CPUC/BLM monitor verifies staking.
Effectiveness Criteria	Accurate temporary and permanent disturbance data for calculation of mitigation requirements.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	**VEG-1d: Restore or revegetate temporary disturbance areas** *(see full text in Section D.4.3.3)*
Location	All segments.

Table D.4-7. Mitigation Monitoring Program – Biological Resources – Vegetation

Monitoring / Reporting Action	SCE submits Habitat Restoration and Revegetation Plan and annual monitoring reports; CPUC/BLM monitor approves plan and report format and content in consultation with CDFW and USFWS.
Effectiveness Criteria	Restoration/revegetation of all temporary disturbance areas, including sensitive vegetation and special-status species habitat.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Within 12 months from the start of construction; restoration phase; for at least 5 years post-construction.
MITIGATION MEASURE	**VEG-1e: Compensate for permanent habitat loss** *(see full text in Section D.4.3.3)*
Location	All segments.
Monitoring / Reporting Action	SCE submits a Habitat Compensation Plan and a Management Plan; CPUC/BLM monitor approves plans in consultation with CDFW and USFWS. SCE submits necessary documents and reports pursuant to participation in a mitigation bank, or acquisition of fee title or conservation easement, and establishment of long-term maintenance and management funding; CPUC/BLM monitor approves documents and reports in consultation with CDFW and USFWS and other agencies, as required.
Effectiveness Criteria	Compensation for permanent habitat loss through participation in WR-MSHCP, CV-MSHCP, or off-site habitat acquisition and management.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Post-construction.
MITIGATION MEASURE	**VEG-2a: Prepare and implement an Integrated Weed Management Plan** *(see full text in Section D.4.3.3)*
Location	All segments.
Monitoring / Reporting Action	SCE submits Integrated Weed Management Plan; CPUC/BLM monitoring approves plan in consultation with CDFW and USFWS. SCE conducts weed inventory/mapping and monitoring. SCE documents construction vehicle and equipment washing and submits documentation to CPUC/BLM monitor upon request. SCE submits monitoring reports to CPUC/BLM monitor as specified in Integrated Weed Management Plan.
Effectiveness Criteria	Minimize introduction and spread of invasive plants.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	At least 60 days prior to SCE's application for Notice to Proceed; pre-construction, construction, and post-construction restoration phases.
MITIGATION MEASURE	**VEG-3a: Minimize impacts and ensure no net loss for jurisdictional waters and wetlands** *(see full text in Section D.4.3.3)*
Location	All segments.
Monitoring / Reporting Action	SCE submits a Habitat Mitigation and Monitoring Plan for affected jurisdictional areas; USACE, CDFW, SWRCB, EPA, and CPUC/BLM approve plan.
Effectiveness Criteria	Minimize impacts to jurisdictional waters and wetlands and mitigate for unavoidable impacts through ecological restoration of temporarily disturbed areas and compensation for permanently disturbed areas.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS, USACE, CDFW, SWRCB, EPA.
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	**VEG-4a: Minimize and mitigate impacts to special-status plants** *(see full text in Section D.4.3.3)*
Location	All segments.

Table D.4-7. Mitigation Monitoring Program – Biological Resources – Vegetation

Monitoring / Reporting Action	SCE submits results of pre-construction focused surveys and maps; CPUC/BLM monitor approves report format and content in consultation with CDFW and USFWS. SCE notifies BLM, USFWS, and CDFW if federally or state-listed plants will be affected by project. SCE conducts site-specific monitoring, as needed, with approval of CPUC/BLM in consultation with CDFW and USFWS. SCE submits a Special-status Plant Salvage and Relocation Plan, if needed, and annual monitoring reports; CPUC/BLM monitor approves plan and reports in consultation with CDFW and USFWS.
Effectiveness Criteria	Minimize and compensate for impacts to special-status plants.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Pre-construction, construction, post-construction phases.
MITIGATION MEASURE	**VEG-5a: Comply with local tree removal or resource protection policies** *(see full text in Section D.4.3.3)*
Location	All segments.
Monitoring / Reporting Action	SCE obtains permits from local jurisdictions, as needed.
Effectiveness Criteria	Compliance with local tree ordinances and policies.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	During construction.
MITIGATION MEASURE	**VEG-5b: Ensure MSHCP equivalency and consistency** *(see full text in Section D.4.3.3)*
Location	WR-MSHCP and CV-MSHCP.
Monitoring / Reporting Action	If SCE does not obtain PSE status, SCE prepares a consistency analysis report; CPUC/BLM approves report in consultation with CDFW, USFWS, Riverside County Regional Conservation Authority, and CVCC.
Effectiveness Criteria	Consistency with MSHCP requirements.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Prior to any ground-disturbing activity.

D.4.7 References

Aspen (Aspen Environmental Group). 2014. Species observations made by Aspen staff during site visit. April 10.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California. Second Edition. University of California Press, Berkeley.

Banning-Beaumont Patch. May 8. 2013. UPDATE: Fire Crews Work Through Night, First Aircraft Up at Sunrise to Fight Banning Blaze. Accessed at: http://banningbeaumont.patch.com/groups/police-and-fire/p/wind-driven-wildfire-burning-inbanning-area-smoke-vi560fbf790b.

Barbour, M.G., Burk, J.H., and Pitts, W.D. 1987. Terrestrial Plant Ecology, Second Edition. Benjamin/ Cummings Publishing Company. Menlo Park, California.

BLM (Bureau of Land Management). 2013. Palen Solar Electric Generating System Draft Supplemental EIS, Sections 3.18 and 4.18.

_____. 2012. Desert Harvest Solar Farm Final EIS. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar Projects/Desert_Harvest_Solar_Project.html. Accessed February 16, 2015.

_____. 2007. Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States. http://www.blm.gov/wo/st/en/prog/more/veg_eis.html

BLM and Riverside County. 2014. Blythe Mesa Solar Project Draft EIR/EA, Sections 3.2.4 and 4.2.4. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Blythe_Mesa_Solar_Power_Project.html. Accessed February 16, 2015.

Bossard, C. C., J. M. Randall, and M. C. Hoshovsky (eds.). 2000. Invasive Plants of California's Wildlands. University of California Press, Berkeley. 360 pp.

BRC (BioResource Consultants, Inc.). 2013. Botanical Resources of the West of Devers Project, Riverside and San Bernardino Counties, California. Ojai, California. Prepared for LSA Associates, Inc., Irvine, California. Prepared on behalf of Southern California Edison Company, Monrovia, California.

_____. 2003. West of Devers 230 kV Transmission Line Upgrade. Biological Resources Inventory Report. Prepared for SCE. October.

Calflora. 2014. Information on California Plants for Education, Research and Conservation. Berkeley, California. http://www.calflora.org/

Cal-IPC (California Invasive Plant Council). 2014a. Invasive Plant Definitions. http://www.cal-ipc.org/ip/definitions/index.php

_____. 2014b. Invasive Plant Inventory: Inventory Categories. http://www.cal-ipc.org/ip/inventory/index.php#categories

_____. 2006. Invasive Plant Inventory. http://www.cal-ipc.org/ip/inventory/pdf/Inventory2006.pdf.

CCH (California Consortium of Herbaria). 2014. Nevin's barberry Accession Search Results (213 records). Accessed April 9, 2014. http://ucjeps.berkeley.edu/

CDFG (California Department of Fish and Wildlife). 2010. Hierarchical List of Natural Communities with Holland Types. http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp

_____. 2009. Protocols for Surveying and Evaluating Impacts on Special Status Native Plant Populations and Natural Communities. CDFG, Sacramento, California. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf

CEC (California Energy Commission). 2010. Presiding Member's Proposed Decision (revised), Section VI.A. Palen Solar Power Project. http://docketpublic.energy.ca.gov/PublicDocuments/Regulatory/Non%20Active%20AFC's/09-AFC-7%20Palen%20Solar/2010/November/TN%2058990%2011-12-10%20Presiding%20Members%20Proposed%20Decision.pdf Accessed October 21, 2015.

_____. 2008. CPV Sentinel Energy Project Final Staff Assessment. http://www.energy.ca.gov/2008publications/CEC-700-2008-005/CEC-700-2008-005-FSA.PDF. Accessed February 16, 2015.

City of Redlands. 2013. Street Tree Protection Policy and Guidelines. http://www.cityofredlands.org/sites/default/files/qol/Street%20Tree%20Committee/Street%20Tree%20Policy%20and%20Protection%20Guidelines%20Manual2013.pdf. Accessed 14 April 2015.

CNDDB (California Natural Diversity Database). 2014. RareFind. California Department of Fish and Wildlife. The Resource Agency, State of California, Sacramento, California.

CNPS (California Native Plant Society). 2014. Inventory of Rare and Endangered Plants of California (online edition, v8-02). Sacramento, California. http://www.rareplants.cnps.org

CPUC (California Public Utilities Commission). 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm. Accessed April 15, 2015.

CPUC and BLM. 2006. Devers–Palo Verde No. 2 Transmission Project. Final Environmental Impact Report/Environmental Impact Statement. October. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-feir.htm

CPUC and USDA (United States Department of Agriculture) Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

CVAG (Coachella Valley Association of Governments). 2007. Final Recirculated Coachella Valley MSHCP. http://www.cvmshcp.org/Plan_Documents.htm

GANDA (Garcia and Associates, Inc.). 2011. West of Devers Project Habitat Assessment Report. Prepared for Southern California Edison. November 23.

Gibson. A. C., M. R. Sharifi and P. W. Rundel. 2004. Resprout characteristics of creosote bush (*Larrea tridentata*) when subjected to repeated vehicle damage. Journal of Arid Environments 57: 411-429.

Google. 2015. Google Earth version 7.1.5.1557.

Lovich, J. E., and D. Bainbridge. 1999. Anthropogenic Degradation of the Southern California Desert Ecosystem and Prospects for Natural Recovery and Restoration. Environmental Management Vol. 24, No. 3, pp. 309–326.

LSA (LSA Associates, Inc.). 2013a. Species observations made by either LSA staff or their subconsultants during 2013 general and focused surveys conducted for the Proposed Project.

______. 2013b. Biological Resources Technical Report and Appendices, West of Devers Upgrade Project, San Bernardino and Riverside Counties, California. Prepared for Southern California Edison. October 2013.

Newton, G. A. and V. P. Claassen. 2003. Rehabilitation of Disturbed Lands in California: A Manual for Decision-Making. California Department of Conservation, California Geological Survey. 228 p.

NISC (National Invasive Species Council). 2008. 2008-2012 National Invasive Species Management Plan. 35 pp. August 1.

Roberts, F. M., Jr., S. D. White, A. C. Sanders, D. E. Bramlet, and S. Boyd. 2004. The Vascular Plants of Western Riverside County, California, An Annotated Checklist. F. M. Roberts Publications, San Luis Rey, California.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation. Second Edition. California Native Plant Society, Sacramento, California.

SCE (Southern California Edison). 2013. West of Devers Upgrade Project. Proponent's Environmental Assessment (PEA). Prepared for the California Public Utilities Commission (CPUC). October. http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm

______. 2007. El Casco System Project. Proponent's Environmental Assessment (PEA). Prepared for the California Public Utilities Commission (CPUC). February 16. http://www.cpuc.ca.gov/Environment/info/aspen/elcasco/toc-pea.htm.

SWRCB (State Water Resources Control Board). 2004. Workplan: Filling in the Gaps in Wetland Protection. September. http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/wrkplan_filing_gaps_wet_prot_9_24_04.pdf

USFS (U.S. Forest Service). 2012. *Berberis nevinii.* In: Fire Effects Information System. Rocky Mountain Research Station, Fire Sciences Laboratory Accessed April 9, 2014. http://www.fs.fed.us/database/feis/plants/shrub/bernev/all.html

USFWS (U.S. Fish and Wildlife Service). 2009a. *Berberis nevinii* (*Nevin's barberry*), 5-Year Review: Summary and Evaluation. http://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20090814_5YR_BENE.pdf

WRCC (Western Regional Climate Center). 2012. http://www.wrcc.dri.edu/.

D.5 Biological Resources – Wildlife

This section describes the Wildlife resources in the affected area, identifies and analyzes potential environmental impacts of the Proposed Project and alternatives, and recommends measures to reduce or avoid adverse impacts of project construction and operation. The affected environment for wildlife is described in Section D.5.1; the applicable regulations and standards are summarized in Section D.5.2. Sections D.5.3 through D.5.5 describe the impacts and mitigation for the Proposed Project and the alternatives. Section D.5.6 presents the mitigation measures and mitigation monitoring requirements.

This section represents the most current available information. Much of the information has been derived from the *Biological Resources Technical Report: West of Devers Upgrade Project*, prepared by LSA (2013b). Content in the *Biological Resources Technical Report* is based on all available data including reports, books, manuals, and extensive new field data specific to the project. In addition, this section incorporates the focused survey reports and other supporting documentation provided with Appendix F of the Proponent's Environmental Assessment (PEA; SCE, 2013) and the findings of Aspen biologists during independent site reviews and consultations with resource agency staff and other experts.

D.5.1 Environmental Setting / Affected Environment

This section summarizes wildlife habitats and special-status species of the region in Section D.5.1.1 and describes specific baseline conditions for each segment of the proposed right-of-way (ROW; see Figure B-1) in Section D.5.1.2.

D.5.1.1 Regional Setting and Approach to Data Collection

Data Collection Methodology

Throughout this section, the "Proposed Project Area" refers to all areas that may be directly affected by the Proposed Project, including the ROW and all off-site work areas, access routes, and telecommunications routes, as described in Section D.4.1.1. The Proposed Project study area is based on the field surveys, including buffer areas surrounding the ROW, reported in the *Biological Resources Technical Report* (LSA, 2013b) as described in Section D.4.1.1. Larger survey buffer areas were used for raptors, and a minimum 4-nautical-mile (4.6-mile) buffer was used for golden eagle surveys. Figures B-1 through B-6 (Section B, Project Description) illustrate the project corridor and components.

Regional Setting

The West of Devers ROW traverses several geographical and ecological zones (see Section D.4.1.1). It traverses the San Timoteo Badlands (Badlands) in western Riverside County, the San Gorgonio Pass, and extends into the western Sonoran Desert. Collectively, these areas contain a diverse fauna that includes many rare, threatened, and endangered animals. In addition to the general ecological description (Section D.4.1.1), biological connectivity across the San Gorgonio Pass is important to wildlife populations in the San Bernardino and San Jacinto Mountains; and sand transported from the mountain canyons supplies desert dune wildlife habitat in the Coachella Valley. The ROW also traverses tribal lands and two Multiple Species Habitat Conservation Plan (MSHCP) areas, described in Section D.4.1.1 and mapped in Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7).

Habitat

Wildlife habitat, including regional climate, physical structure, and biological productivity and food resources for many wildlife species, is largely reflected by vegetation. However, "habitat" is a broader concept, including other ecological factors, such as availability or proximity to water; suitable nesting or denning sites; shade; foraging perches; cover sites to escape from predators; soils that are suitable for burrowing or hiding; limited noise and disturbance; and many other factors that may be unique to each species. Thus, vegetation described in Section D.4.1.1 (Section D.4) is a useful overarching descriptor for habitat and it is the primary factor in this analysis of impacts to wildlife habitat. Where additional details of habitat suitability are necessary to this analysis, they are provided in the discussion of special-status wildlife species.

Aeolian (windblown) sand habitat is not defined by vegetation, but rather by substrate. This habitat is comprised of sand dunes and fields, including active, partially stabilized, and stabilized desert dunes, sand fields, and sand hummocks (CVAG, 2007). Several special-status wildlife species are found primarily in aeolian sands.

Table D.4-1 (in Section D.4) provides the acreages of each vegetation community and habitat type found in the project study area. The acreage of potential project-related impacts in each habitat type is discussed in Section D.4.3 of Section D.4. Maps showing locations of vegetation communities and habitat types are provided in Figures Ap.7-2a through Ap.7-2k, Land Cover, and Figure Ap.7-4, Aeolian Sand Habitat (Appendix 7). The paragraphs below list a few characteristic wildlife species for each of the vegetation communities on the ROW.

Grassland/forbland. Wildlife commonly observed in the grassland/forbland habitat includes red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), western meadowlark (*Sturnella neglecta*), lark sparrow (*Chondestes grammacus*), California ground squirrel (*Spermophilus beecheyi*), Audubon's cottontail (*Sylvilagus audubonii*), deer mouse (*Peromyscus maniculatus*), and coyote (*Canis latrans*).

Chaparral. Wildlife frequently observed in chaparral included western toad (*Anaxyrus boreas*), California quail (*Callipepla californica*), Anna's hummingbird (*Calypte anna*), western scrub-jay (*Aphelocoma californica*), wrentit (*Chamaea fasciata*), spotted towhee (*Pipilo maculatus*), big-eared woodrat (*Neotoma macrotis*), striped skunk (*Mephitis mephitis*), and mule deer (*Odocoileus hemionus*).

Coastal sage scrub. Wildlife that were frequently observed in coastal sage scrub included western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), Anna's hummingbird, western scrub-jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*), white-crowned sparrow (*Zonotrichia leucophrys*), big-eared woodrat, Audubon's cottontail, coyote, and mule deer. Coastal sage scrub is generally of conservation concern because it is the habitat of the federally listed threatened California gnatcatcher.

Desert scrub. Wildlife frequently observed in desert scrub included common side-blotched lizard, common raven (*Corvus corax*), cactus wren (*Campylorynchus brunneicapillus*), long-tailed pocket mouse (*Chaetodipus formosus*), and desert woodrat (*Neotoma lepida*).

Coast live oak woodland. Oak forests and woodlands provide food, cover, and nesting or denning habitat for many animal species. Standing dead trees and fallen logs provide essential habitat elements. Acorns, fruits, leaves, insects, seeds, mushrooms, and other fungi all provide food for wildlife. Oak woodlands and forests provide thermal cover for large mammals including deer, and escape cover for many other animals. Oak canopies and foliage provide perching, roosting, and nesting sites for many bird species. Cavities in the limbs or trunks of oak trees are used as nesting and denning sites by birds and mammals. Dead oak trees provide nest sites for woodpeckers, which build nesting cavities, and "secondary cavity nesters," which use old woodpecker nests. Wildlife species frequently observed or heard in woodland areas included Cooper's hawk (*Accipiter cooperii*), acorn woodpecker (*Melonerpes formicivorus*), oak titmouse (*Baeolophus inornotus*), black phoebe (*Sayornis nigricons*), common yellowthroat (*Geothlypis trichos*), song sparrow (*Melospiza melodia*), and big-eared woodrat.

Riparian woodland. Riparian woodlands, like oak woodlands, provide many wildlife habitat components not available in grasslands or shrublands, and therefore support higher abundance and diversity of wildlife. Frequently detected species included Cooper's hawk, black phoebe, common yellowthroat, song sparrow, and big-eared woodrat.

Alluvial scrub. Common wildlife species found in the alluvial scrub vegetation community included many of the same species found in the desert scrub and coastal sage scrub communities.

Agricultural land. Agricultural land provides suitable habitat for many native wildlife species, including some special-status animals. Wildlife frequently detected on agricultural land included red-tailed hawk, American kestrel, house finch (*Hoemorhous mexiconus*), California ground squirrel, deer mouse, and coyote.

Developed/disturbed land. This land cover has limited habitat value, but some areas provide habitat for urban-adapted species, such as Cooper's hawk, black phoebe, house finch, and Audubon's cottontail.

Open water. Open water bodies are found at four locations within the project study area and vicinity. In Segment 3:

- A detention basin just north of the San Timoteo Landfill and south of San Timoteo Canyon Road along Refuse Road. The basin is surrounded by riparian woodland vegetation and may occasionally lack surface water.
- The El Casco Lakes (approximately 12 acres) are located on the south side of San Timoteo Canyon Road. The lakes are maintained by the Riverside Land Conservancy, and are used for recreational fishing. The lakes are planned to be either emptied or allowed to return to a natural state due to the prohibitively high cost of continued maintenance.
- Three lakes (approximately 24 acres total) at Fisherman's Retreat, a commercial campground and stocked fishing area, approximately 0.6 miles east of El Casco Lakes along San Timoteo Canyon Road.
- In Segment 5, water from the Robertson's Plant 66 (gravel mine) is discharged into an inactive portion of the mine. The water level is variable, and the basin may occasionally lack surface water, but emergent riparian vegetation is present around the margins. The surface water area can vary from approximately 1 to 6 acres.

Aeolian sand. Aeolian (windblown) sand habitat may support certain special-status species, such as Coachella Valley Jerusalem cricket (*Stenopelmotus cohuiloensis*), which may be present on the Proposed Project route.

Special-status Wildlife Species

Table Ap.7-2 (in Appendix 7) lists special-status wildlife species occurring or potentially occurring in the Proposed Project area, with conservation status and habitat descriptions for each species. Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7), depict the locations of federal- and state-listed and state designated species of special concern that were observed during surveys conducted between 2011 and 2013. For species not observed during surveys, the potential for their occurrence was determined by biologists knowledgeable about each species based on the species' habitat requirements, range (including elevation), and previously recorded observations within the region. Potential for occurrence is ranked as present, high, moderate, low, and not likely to occur. The criteria used to make these determinations are listed in Appendix 7. Detailed accounts for these species are provided in the *Biological Resources Technical Report* (LSA, 2013b).

Ninety-six special-status wildlife species occur or may occur in the Proposed Project study area, including 12 species listed under the federal Endangered Species Act (ESA), California ESA, or both. The listed species are Casey's June beetle (*Dinacoma caseyi*; federal endangered), Sierra Madre (mountain) yellow-legged frog (*Rana muscosa*; federal and state endangered), desert tortoise (*Gopherus agassizii*; federal and state threatened), Coachella Valley fringe-toed lizard (*Uma inornata*; federal threatened and state endangered), Swainson's hawk (*Buteo swainsoni*; state threatened), bald eagle (*Haliaeetus leucocephalus*; federal and state protected and state endangered), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; federal threatened and state endangered), southwestern willow flycatcher (*Empidonax traillii extimus*; federal and state endangered), little willow flycatcher (*E.t. brewsteri*; state endangered), least Bell's vireo (*Vireo bellii pusillus*; federal and state endangered), coastal California gnatcatcher (*Polioptila californica californica*; federal threatened), and Stephens' kangaroo rat (*Dipodomys stephensi*; federal endangered and state threatened). Other special-status species of note are golden eagle (*Aquila chrysaetos*; federal and state protected), white-tailed kite (*Elanus leucurus*; state protected), burrowing owl (*Athene cunicularia*; CDFW Species of Special Concern), American peregrine falcon (*Falco peregrinus*; state protected), desert kit fox (*Vulpes macrotis arsipus*; state protected), and Nelson's bighorn sheep, non-peninsular population (*Ovis canadensis nelsoni*; state protected).

MSHCP Covered Wildlife Species. In addition to the special-status species listed in Table Ap.7-2 (in Appendix 7), the WR-MSHCP covers other selected species lacking state or federal conservation designations. These species are covered by the WR-MSHCP because of special regional considerations, because they are associated with limited habitats within the WR-MSHCP area, or because they are key species in maintaining species richness in smaller habitat fragments. These species are listed in Table Ap.7-2 (in Appendix 7). Some of these species have specific regulations as set forth by the WR-MSHCP.

All the species covered by the CV-MSHCP that occur or may occur within the Proposed Project study area are recognized as special-status species by federal or state agencies, and are listed in Table Ap.7-2 (in Appendix 7).

Critical Habitat. The Proposed Project route passes through federally designated critical habitat[1] for coastal California gnatcatcher (*Polioptila californica californica*) in Segment 2 just east of the Vista Substation where the corridor passes through the cities of Grand Terrace and Loma Linda on either side of Reche Canyon Road. Coastal California gnatcatcher critical habitat occupies 623.2 acres in the Proposed Project study area and extends along the ROW for approximately 3.5 miles, mainly in grassland/forbland and coastal sage scrub habitats.

Critical habitat for two other listed wildlife species is found near the route, but not within the Proposed Project area. See Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7) for the locations of designated critical habitat. Critical habitat for San Bernardino kangaroo rat (*Dipodomys merriami parvus*) and Santa Ana sucker (*Catostomus santaanae*) are located in the Santa Ana River to the west and north and outside of the Proposed Project area in Segment 2. Critical habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*) is found within 200 feet of a proposed fiber-optic route, along San Timoteo Creek in Segment 3.

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[1] Geographic areas designated by the United States Fish and Wildlife Service [USFWS] in Recovery Plans that contain features essential to conservation and recovery of threatened or endangered species.

Wildlife Movement

The extent, distribution, and accessibility of habitat affect the long-term viability of regional wildlife populations. Habitat fragmentation and isolation leads to the loss of vulnerable species within those areas. Accessibility among habitat areas, i.e., "connectivity," is important to long-term genetic diversity and demography of wildlife populations. In the short term, connectivity may also be important to individual animals' ability to occupy their home ranges, if their ranges extend across a potential movement barrier. These considerations apply to greater or lesser extent to all plants and animals. Plant populations "move" over the course of generations via pollen and seed dispersal; most birds and insects travel and disperse via flight; terrestrial vertebrates disperse across land. Therefore, landscape barriers and impediments are more important considerations for movement of terrestrial species. These considerations are especially important for rare species and also for large mammals, which tend to be wide-ranging and exist in lower population densities.

The nature of connectivity differs for corridor "passage" and corridor "dweller" species (Beier and Loe, 1992). Corridor passage species would traverse connectivity areas during ordinary diurnal or seasonal movement patterns, whereas corridor dweller species must persist as viable populations over multiple generations within a connectivity area to eventually migrate from one habitat block to another.

In landscapes where native habitats are isolated patches surrounded by other land uses, planning for wildlife movement generally focuses on "wildlife corridors" to provide animals with access routes among habitat patches. Linkages in these areas are often designated along riparian corridors, because of their linear nature and other important habitat values. However, uplands may be preferred as biological connectivity habitat for some species.

In largely undeveloped areas, wildlife habitat is available in extensive open space areas, but specific barriers may impede or prevent wildlife movement. In these landscapes, wildlife movement planning focuses on specific sites where animals can cross linear barriers (e.g., wash crossings beneath Interstate 10), and on broader linkage areas that may support stable, long-term populations of corridor "dweller" species.

Movement and dispersal corridors that connect large blocks of habitat are essential to the long-term viability of plant and wildlife populations. The California Essential Habitat Connectivity Project (Connectivity Project) was commissioned by the California Department of Transportation (Caltrans) and the California Department of Fish and Wildlife (CDFW; formerly the California Department of Fish and Game) to create a statewide assessment of essential habitat connectivity to be used for conservation and infrastructure planning (Caltrans and CDFG, 2010).

One goal of the Connectivity Project was to create the Essential Connectivity Map, which depicts large, relatively natural habitat blocks that support native biodiversity (natural landscape blocks) and areas essential for ecological connectivity between them (essential connectivity areas). This map does not reflect the needs of particular species, but is based on overall biological connectivity and ecological integrity (Caltrans and CDFG, 2010).

The Connectivity Project looked at the state as a whole, using available statewide data layers, and addressing Natural Landscape Blocks of 2,000 acres or larger. Therefore, a more detailed analysis should be undertaken to assess local and regional needs for connectivity and develop linkage designs based on the requirements of individual species (Caltrans and CDFG, 2010).

Conservation and management of land within essential connectivity areas should be prioritized to maintain and enhance ecological connectivity. Depending on the situation, management may involve sustaining wildlife movement across relatively undisturbed lands, restoration of disturbed lands to improve ecological connectivity, or removal of barriers to wildlife movement (Caltrans and CDFG, 2010).

For terrestrial wildlife, the western part of the Proposed Project route is within developed areas, or within the Badlands area, south of Loma Linda, Redlands, and Calimesa. The Badlands are generally contiguous open space (with some partial barriers for road crossings) reaching to the San Jacinto Mountains to the southeast. The Badlands form a southeast-northwest trending "peninsula" of open space, surrounded on the north by San Bernardino, Loma Linda, Redlands, Yucaipa, and Beaumont; on the west by Grand Terrace and Riverside; and on the south by Moreno Valley and San Jacinto. The Essential Connectivity Map identifies the Badlands as a natural landscape block and essential connectivity area from the San Jacinto Mountains to the CDFW San Jacinto Wildlife Area and Lake Perris State Recreation Area and to Box Springs Mountain Park and reserve (Caltrans and CDFG, 2010). The Badlands may also have some limited connection to San Bernardino Mountains to the northeast, although Interstate 10 and urban development in that area are significant barriers.

San Gorgonio Pass is the best available movement route between the San Jacinto and San Bernardino Mountains, and is identified as an essential connectivity area (Caltrans and CDFW, 2010). North-south movement across the pass is obstructed by land uses and linear transportation corridors, but the crossing continues to provide for limited biological linkage. In addition, San Gorgonio Pass is an important corridor between coastal lowlands and Colorado Desert lowlands for migrating birds. This is true for many species of landbirds that normally travel at night, as well many species of waterbirds that travel by day or night. Seasonally, springtime is the most critical time for migrating birds in the Proposed Project study area, as the Coachella Valley and surrounding ranges serve to funnel northbound animals to the northwest and west through the pass. East of Banning, the Proposed Project route crosses generally open areas, where extensive wildlife movement habitat is interrupted by linear transportation corridors.

D.5.1.2 Environmental Setting by Segment

The following sections briefly describe wildlife resources along the Proposed Project route by segment (see Figure B-1, Project Location Map). Location-specific discussions of plant communities and habitat may be found in Section D.4.1.2. Location-specific special-status wildlife data are provided here. Table Ap.7-2 (in Appendix 7) lists special-status wildlife species occurring or potentially occurring in the Proposed Project area, with conservation status and habitat descriptions for each species. Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7), show where federal- and state-listed and state designated species of special concern were observed during surveys conducted between 2011 and 2013. For species not observed during surveys, the potential for their occurrence was determined by biologists knowledgeable about each species, based on the species' habitat requirements and geographic range (LSA, 2013b).

Substations. Existing substations proposed for equipment modifications are listed in Section D.4.1.2 and mapped on Figures B-1 through B-6 (Section B). The substation sites are already heavily developed. Except for anthropogenic structures where birds may nest, the substations do not support likely habitat for special-status wildlife. Substation modification activities would be limited to the areas surrounding the substations. No permanent or temporary impacts to habitat are anticipated, and Proposed Project-related work at the substations is not anticipated to increase substantially above existing conditions (typically fewer than 100 days of work at each substation).

Staging Yards. SCE anticipates using one or more of the possible temporary staging yards listed in Table B-5, and shown on Figures B-1 through B-6 (all in Section B, Description of the Proposed Project).

At the following 5 potential staging yard locations, vegetation and habitat consist of disturbed land (e.g., forbland/grassland, disturbed/developed) and no suitable habitat for special-status wildlife is present:

- Mountain View 1 Staging Yard (Segment 1; San Bernardino County)
- Lugonia Staging Yard (Segment 1; San Bernardino County)
- Grand Terrace Staging Yard (Segment 2; San Bernardino County)
- Beaumont 1 Staging Yard (Segment 4; Riverside County, WR-MSHCP)
- Beaumont 2 Staging Yard (Segment 4; Riverside County, WR-MSHCP)

The remaining six potential staging yard locations support native vegetation or habitat, and may support special-status wildlife species, as follows:

Poultry Staging Yard (Segment 3; Riverside County, WR-MSHCP). Use of the area may result in impacts up to approximately 20.7 acres, of which 2.9 acres are coastal sage scrub and the remainder of the land is agricultural. This area may provide foraging habitat for special-status wildlife, including golden eagle, white-tailed kite, and burrowing owl, and provide potential habitat for coastal California gnatcatcher and Stephens' kangaroo rat. However, this roadside yard is not expected to provide a high-quality use area.

San Timoteo Staging Yard (Segment 3; Riverside County, WR-MSHCP). Impacts to land cover due to construction and use of the staging yard would occur to up to 15.5 acres of agricultural land, 0.6 acres of developed/disturbed areas, and 0.6 acres of coastal sage scrub. These habitats provide potential foraging habitat for golden eagle, white-tailed kite, and burrowing owl, and 0.6 acres of potential habitat for Stephens' kangaroo rat and coastal California gnatcatcher.

Hathaway 1 Staging Yard (Segment 5; Riverside County, WR-MSHCP). Impacts to forbland/grassland (up to 6.9 acres) and disturbed/developed areas (up to 22.6 acres) within the staging yard may affect potential foraging habitat for golden eagle and potential habitat for burrowing owl. However, this roadside yard is not expected to provide an important or high-quality use area.

Hathaway 2 Staging Yard (Segment 5; Riverside County, WR-MSHCP). Use of the area may result in impacts to forbland/grassland (up to 14.3 acres) within the staging yard, and may affect foraging habitat for golden eagle and potential habitat for burrowing owl. However, this roadside yard is not expected to provide an important or high-quality use area.

Matich Material and Equipment Staging Yard (Segment 5; Riverside County, WR-MSHCP). The site has historically been used as an equipment and materials yard. The surface is approximately 50 percent concrete (paved) and 50 percent friable soil. A field visit on February 17, 2016 found that the non-paved portions of the yard have some disturbed and ruderal vegetation. There is a strip of vegetation, measuring approximately 50 by 500 feet, along the east side of the yard, adjacent to North Hathaway Street, which appears to be less disturbed and may retain some native habitat value. Los Angeles pocket mouse (*Perognathus longimembris brevinosus*) and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) are present on Segment 5. Both of these pocket mice are California Species of Special Concern, and both are covered species under the WR-MSHCP. These species may occur in undisturbed habitat to the east of the yard and have some potential to occur within the yard. However, the yard is not expected to provide high quality habitat.

Devers Staging Yard (Segment 6; Riverside County, CV-MSHCP). Use of the area may result in impacts to disturbed desert scrub (up to 10.0 acres) and may affect potential foraging habitat for golden eagle and potential habitat for burrowing owl and desert tortoise. However, the staging yard site is already mostly disturbed and developed, and habitat quality is relatively low.

D.5.1.2.1 Segment 1: San Bernardino

The most important native habitat areas in Segment 1 are at the southern end, around Scotts Canyon and San Bernardino Junction. In this area, the ROW crosses undeveloped hilly terrain crisscrossed by dirt roads and trails. Habitat consists mainly of non-native grassland with some coastal sage scrub and chaparral; see Figures Ap.7-2a through Ap.7-2k, Land Cover (Appendix 7). Habitat in the San Bernardino Junction area, where Segments 1, 2, and 3 come together, is described under Segment 2, below.

Special-status Wildlife

Several special-status species have a high potential to occur on Segment 1, and four were observed: coastal western whiptail (*Aspidoscelis tigris stejnegeri*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), western mastiff bat (*Eumops perotis*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallas*) A number of special-status wildlife species have a low or moderate potential to occur within Segment 1, including Swainson's hawk, western yellow-billed cuckoo, burrowing owl, American peregrine falcon, southwestern willow flycatcher, little willow flycatcher, and Stephens' kangaroo rat.

Swainson's hawk has a moderate potential to pass through the area of Segment 1 during migration, but is unlikely to nest there. There is minimal to no suitable nesting habitat and the Proposed Project study area is outside the species' known breeding range.

Western yellow-billed cuckoo has a low potential to forage on Segment 1 and is unlikely to nest there. It has been observed within 5 miles of the ROW (GANDA, 2011), but there is minimal suitable habitat for foraging and no suitable habitat for nesting.

Burrowing owl has a moderate potential for occurrence on Segment 1. There is potentially suitable habitat present and documented occurrences within 5 miles of the ROW (GANDA, 2011). Surveys did not detect burrowing owl in the project area.

American peregrine falcon has been observed foraging in the Proposed Project study area (LSA, 2013b), and has a moderate potential to forage on Segment 1. There is limited suitable natural nesting habitat, although peregrine falcon may occasionally nest on transmission towers or other structures.

Southwestern willow flycatcher has a low potential to forage on Segment 1 and is unlikely to nest there. There are documented occurrences within 5 miles of the ROW (GANDA, 2011), but suitable foraging habitat is very limited and suitable nesting habitat is probably lacking.

Little willow flycatcher has a moderate potential to pass through the area of Segment 1 during migration, but is unlikely to nest there. There is minimal to no suitable nesting habitat and the Proposed Project study area is outside the species' known breeding range.

Stephens' kangaroo rat (SKR) has a moderate potential for occurrence on Segment 1. There is a small amount of potentially suitable habitat at the southernmost end of the segment, and several documented occurrences within 5 miles of the ROW (GANDA, 2011). During trapping surveys, one SKR was found on Segment 3 within 2 miles of the south end of Segment 1. No SKR were found during trapping surveys on Segment 1 (LSA, 2013b, Appendix L).

Wildlife Movement

There is limited undeveloped habitat available in the Badlands at the southernmost end of Segment 1. The Badlands include natural habitat blocks and also form a habitat linkage that provides connectivity among other blocks of habitat (see Wildlife Movement in Section D.5.1.1).

D.5.1.2.2 Segment 2: Colton and Loma Linda

The west end of Segment 2 crosses developed and residential areas. The remainder of the segment crosses undeveloped hilly terrain south of Loma Linda. The area is crisscrossed by dirt roads and trails. Habitat consists mainly of non-native grassland with some patches of coastal sage scrub and chaparral; see Figures Ap.7-2a through Ap.7-2k, Land Cover (Appendix 7).

Special-status Wildlife

Several special-status species have a high potential to occur within Segment 2, including burrowing owl and coastal California gnatcatcher. Four special-status species were observed on Segment 2 (coastal western whiptail, southern California rufous-crowned sparrow, western mastiff bat, and northwestern San Diego pocket mouse (Table Ap.7-2 in Appendix 7; LSA, 2013b). Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7), show the locations where these species were observed. A number of additional special-status wildlife species have a low or moderate potential to occur within Segment 2, including golden eagle, Swainson's hawk, western yellow-billed cuckoo, American peregrine falcon, southwestern willow flycatcher, and Stephens' kangaroo rat.

Golden eagle has a low potential for occurrence on Segment 2. Foraging habitat is potentially present on the ROW and natural nesting habitat is potentially present within 4 miles of the ROW. Golden eagles may occasionally nest on large transmission towers, but the potential for nesting on the ROW is low.

Swainson's hawk has a moderate potential to pass through the area of Segment 2 during migration, but is unlikely to nest there. There is some potentially suitable nesting habitat, but the Proposed Project study area is outside the species' known breeding range.

Western yellow-billed cuckoo has a moderate potential to forage on Segment 2, and is unlikely to nest there. It has been observed within 5 miles of the ROW (GANDA, 2011), but there is minimal suitable habitat for foraging and no suitable habitat for nesting.

Burrowing owl has a high potential for occurrence on Segment 2. There is potentially suitable habitat present and documented occurrences occur within 5 miles of the ROW (GANDA, 2011).

American peregrine falcon has been observed foraging in the Proposed Project study area (LSA, 2013b), and has a moderate potential to forage on Segment 2. There is limited suitable natural nesting habitat, although peregrine falcon may occasionally nest on transmission towers or other structures.

Southwestern willow flycatcher has a low potential to forage on Segment 2 and is unlikely to nest there. There are documented occurrences within 5 miles of the ROW (GANDA, 2011), but suitable foraging habitat is very limited and suitable nesting habitat is probably lacking.

Little willow flycatcher has a moderate potential to pass through the area of Segment 2 during migration, but is unlikely to nest there. There is limited suitable nesting habitat and the Proposed Project study area is outside the species' known breeding range.

Coastal California gnatcatcher (CAGN) has a high potential for occurrence on Segment 2. Most of Segment 2 passes through designated critical habitat for CAGN (Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas in Appendix 7). There are several recent CAGN reports in the project vicinity, about 2 miles south of the ROW near Reche Canyon in 1997 (three pairs) and 2000 (one male; CNDDB, 2014), and additional occurrences within 5 miles of the ROW (GANDA, 2011). No CAGN were detected in the Proposed Project study area during protocol surveys conducted in 2012 and 2013 (LSA, 2013b). Note that CAGN was included in Appendix Q, Wildlife Species Detected List, of the *Biological Resources Technical Report* (LSA, 2013b) in error and was not detected in the Proposed Project study area during biological surveys (SCE, 2014). Although CAGN was not detected during field surveys, there is suitable habitat on the ROW and in the vicinity and there are recent records nearby, supporting the conclusion that CAGN has a high probability of occurring in the project area.

SKR has a moderate potential for occurrence on Segment 2 but no SKR were found during trapping surveys on Segment 2 (LSA, 2013b, Appendix L). There is potentially suitable habitat throughout the western part the segment, and several documented occurrences in the Proposed Project vicinity. During trapping surveys, one SKR was found on Segment 3, within 2 miles of Segment 2.

Wildlife Movement

The eastern end of Segment 2 is within the Badlands. The Badlands include natural habitat blocks and also form a habitat linkage that provides connectivity among other blocks of habitat (see Wildlife Movement in Section D.4.1.1).

D.5.1.2.3 Segment 3: San Timoteo Canyon

The majority of Segment 3 is in the hilly terrain of the Badlands south of Loma Linda, Redlands, and Calimesa. The area is crisscrossed by dirt roads and trails, and habitat consists mainly of non-native grassland, coastal sage scrub, and chaparral. There is also riparian woodland along San Timoteo Canyon; see Figures Ap.7-2a through Ap.7-2k, Land Cover (Appendix 7). Vegetation and habitat in the San Bernardino Junction area, where Segments 1, 2, and 3 come together, is included in the discussion of Segment 2.

Special-status Wildlife

Several special-status wildlife species have a high potential to occur, including western yellow-billed cuckoo and burrowing owl, and a number of special-status species were observed on Segment 3, including golden eagle, Swainson's hawk, white-tailed kite, little willow flycatcher, least Bell's vireo, and Stephens' kangaroo rat (Table Ap.7-2, in Appendix 7; LSA, 2013b). Figures Ap.7-3a through Ap.7-3k, Special-status Species Observations (Appendix 7), show the locations where these species were observed. A number of special-status wildlife species have a low or moderate potential to occur within Segment 3, including bald eagle, American peregrine falcon, southwestern willow flycatcher, and coastal California gnatcatcher.

Golden eagle has been observed foraging near El Casco Substation on or near Segment 3. Natural nesting habitat is potentially present within 4 miles of the ROW. Golden eagles may occasionally nest on large transmission towers, but the potential for nesting on the ROW is low.

Swainson's hawk has been observed on or near Segment 3 during migration, but is unlikely to nest there. There is potentially suitable nesting habitat, but the Proposed Project study area is outside the species' known breeding range.

White-tailed kite has been observed foraging near El Casco Substation and in riparian habitat on Segment 3. Suitable nesting habitat is present within the Proposed Project study area and white-tailed kite has a high potential to nest there.

Bald eagle has occasionally been observed in the area of Segment 3 and suitable wintering habitat is present. This species has a low potential to forage on Segment 3 during the winter. There is no suitable nesting habitat on the segment, and bald eagle is unlikely to nest there.

Western yellow-billed cuckoo has a low potential for nesting on Segment 3. It nests in extensive stands of dense riparian woodlands, and habitat within the Proposed Project study area appears unsuitable for nesting (LSA, 2013b). Western yellow-billed cuckoo has been observed in riparian habitat at San Timoteo Creek south of El Casco Substation (CPUC, 2007), but nesting has never been documented there (Riverside County, 2003), and the reported observation was presumably a migrating individual.

Burrowing owl has a high potential for occurrence on Segment 3. There is potentially suitable habitat present and documented occurrences within 5 miles of the ROW (GANDA, 2011).

American peregrine falcon has been observed foraging in or near the Proposed Project study area (LSA, 2013b), and has a moderate potential to forage on Segment 3. There is limited suitable natural nesting habitat, although peregrine falcon may occasionally nest on transmission towers or other structures.

Southwestern willow flycatcher (SWFL) has a low potential for nesting on Segment 3. Some riparian areas in the Segment 3 may be marginally suitable for nesting. Designated critical habitat is located within 200 feet of the proposed telecommunications work along San Timoteo Canyon Road. No SWFL were detected during protocol surveys in 2012 (LSA, 2013b). Little willow flycatcher (*Empidonax traillii brewsteri*) has been reported from the Proposed Project area (Aspen, 2007), but the Proposed Project study area is outside the known breeding range (LSA, 2013b). It was not observed during biological surveys (LSA, 2013b). Both willow flycatcher subspecies could use riparian habitat on the ROW as stopover habitat during migration.

Little willow flycatcher has been observed on or near Segment 3 during migration, but is unlikely to nest there. There is limited suitable nesting habitat and the Proposed Project study area is outside the species' known breeding range.

Least Bell's vireo has been detected in riparian habitat at San Timoteo Creek (Aspen, 2007; LSA, 2012), where it occupied breeding territories within the Proposed Project study area in riparian/riverine habitat in Segments 3 and 4 (LSA, 2013b).

Coastal California gnatcatcher (CAGN) has a moderate potential for occurrence on Segment 3. Coastal sage scrub habitat is present in patches along most of the segment. The recent documented occurrences noted under Segment 2 (Section D.4.1.2.2) are within approximately 2 miles of Segment 3. No CAGN were detected in the Proposed Project study area during protocol surveys conducted in 2012 and 2013 (LSA, 2013b). Protocol surveys were done only in the San Bernardino County portion of Segment 3 (approximately MP 5.2 to 8.8), and not in the Riverside County portion of Segment 3 (approximately MP 8.8 to 15.2). Rotenberry et al. (2006) modeled habitat suitability for CAGN in western Riverside County. This model uses 21 environmental variables to calculate an index to depict the similarity of mapped habitat to known, occupied CAGN locations. Based on that analysis, CAGN habitat is potentially present along the ROW in western Riverside County, particularly in Segments 3 and 4 through the Badlands.

There is potentially suitable habitat for Stephens' kangaroo rat (SKR) throughout much of the segment, and one SKR was trapped near MP 6.5 during trapping surveys on Segment 3 (LSA, 2013b, Appendix L).

Wildlife Movement

Segment 3 is within the Badlands east of Moreno Valley. The Badlands include natural habitat blocks and also form a habitat linkage that provides connectivity among other blocks of habitat (see Wildlife Movement in Section D.4.1.1).

D.5.1.2.4 Segment 4: Beaumont and Banning

Habitat along Segment 4 is mainly developed/disturbed, grassland/forbland, or agriculture. There are areas of riparian woodland, coast live oak woodland, and chaparral on the west end near San Timoteo Creek, and chaparral, coastal sage scrub, and alluvial scrub on the east end near the San Gorgonio River; see Figures Ap.7-2a through Ap.7-2k, Land Cover (Appendix 7).

Special-status Wildlife

Special-status wildlife species observed or with potential to occur within Segment 4 are shown in Table Ap.7-2 (in Appendix 7) and locations of observations are mapped on Figures Ap.7-3a through Ap.7-3k (Appendix 7). Species occurring or potentially occurring include: golden eagle, American peregrine falcon, Swainson's hawk, white-tailed kite, burrowing owl, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, coastal California gnatcatcher, Stephens' kangaroo rat, and desert kit fox.

Golden eagle has been observed foraging near El Casco Substation on or near Segment 4. An active nest was detected within approximately 1.5 miles of the Proposed Project study area during focused surveys in 2013 (WRI, 2013). Golden eagles may occasionally nest on large transmission towers, but the potential for nesting on the ROW is low.

Swainson's hawk has been observed on or near Segment 4 during migration, but is unlikely to nest there. There is potentially suitable nesting habitat, but the Proposed Project study area is outside the species' known breeding range.

White-tailed kite has been observed foraging near El Casco Substation and in riparian habitat on Segment 4. Suitable nesting habitat is present within the Proposed Project study area and white-tailed kite has a high potential to nest there.

Western yellow-billed cuckoo has a high potential to forage on Segment 4, and a low potential to nest there. It nests in extensive stands of dense riparian woodlands, and habitat within the Proposed Project study area appears unsuitable for nesting (LSA, 2013b). Although the species has been observed in riparian habitat along San Timoteo Creek south of El Casco Substation (Aspen, 2007), nesting has never been documented there (Riverside County, 2003).

Burrowing owl has a high potential for occurrence on Segment 4. There is suitable habitat present and there are documented occurrences within 5 miles of the ROW (GANDA, 2011).

American peregrine falcon has been observed foraging in or near the Proposed Project study area (LSA, 2013b), and has a moderate potential to forage on Segment 4. There is limited suitable natural nesting habitat, although peregrine falcon may occasionally nest on transmission towers or other structures.

Southwestern willow flycatcher (SWFL) has a moderate potential for foraging on Segment 4. Some riparian areas in the Proposed Project study area may be marginally suitable for nesting, and SWFL has a low potential for nesting there. No SWFL were detected during protocol surveys in 2012 (LSA, 2013b).

Little willow flycatcher has been observed on or near Segment 4 during migration, but is unlikely to nest there. There is limited suitable nesting habitat and the Proposed Project study area is outside the species' known breeding range.

Least Bell's vireo has been detected in riparian habitat along San Timoteo Creek (Aspen, 2007; LSA, 2012). Breeding territories were documented within the Proposed Project study area in riparian/riverine habitat along the creek in Segments 3 and 4, and least Bell's vireo also may breed within similar habitat around a drainage identified in 2013 south of the City of Beaumont in Segment 4, where a singing male was detected in 2013 (LSA, 2013b).

Coastal California gnatcatcher has a moderate potential for occurrence on Segment 4. Suitable habitat is present and there is a reported occurrence at Oak Creek development in 1999 (SCE, 2014). Protocol surveys were not conducted on Segment 4. Rotenberry et al. (2006) modeled habitat suitability for CAGN in western Riverside County. This model uses 21 environmental variables to calculate an index to depict the similarity of mapped habitat to known, occupied CAGN locations. Based on that analysis, CAGN habitat may be present along the ROW in western Riverside County, particularly in Segments 3 and 4 through the Badlands.

Stephens' kangaroo rat has a moderate potential to occur on Segment 4. Suitable habitat is present, and there are documented occurrences within 5 miles of the ROW (GANDA, 2011). The species was not found during trapping surveys in 2012 and 2013 (LSA, 2013b, Appendix L).

Desert kit fox has a moderate potential to occur at the eastern end of Segment 4. There is potentially suitable habitat present, although Segment 4 is near the western margin of its geographic range.

Wildlife Movement

Much of Segment 4 is within or adjacent to developed areas. There may be some localized movement of resident animals within or through the habitat in Segment 4. The east end of Segment 4 is located in the San Gorgonio Pass area. The San Gorgonio Pass is an important corridor for migrating birds and serves as a connection between coastal lowlands and Colorado Desert lowlands. This is true for many species of landbirds that normally travel at night, as well many species of waterbirds that travel by day or night. Seasonally, springtime is the most critical time for migrating birds in the Proposed Project study area, as the Coachella Valley and surrounding ranges serve to funnel northbound animals to the northwest and west through the pass.

D.5.1.2.5 Segment 5: Morongo Tribal Lands and Surrounding Areas

Segment 5 runs mainly through open space, with scattered rural residential housing, and a short section that is adjacent to the Cabazon Outlet Mall. Desert scrub is found along most of the segment. Alluvial scrub occupies the San Gorgonio River wash and the smaller drainages. There are small areas of riparian vegetation in Robertson's Plant 66 and along a short section of the San Gorgonio River; see Figures Ap.7-2a through Ap.7-2k, Land Cover (Appendix 7).

Special-status Wildlife

Special-status wildlife species occurring or potentially occurring within Segment 5 include: Sierra Madre (mountain) yellow-legged frog, desert tortoise, golden eagle, burrowing owl, Swainson's hawk, western yellow-billed cuckoo, American peregrine falcon, desert kit fox, and Nelson's bighorn sheep (non-peninsular population). See Table D.4-3 (Section D.4) and Figure Ap.7-4 (Appendix 7).

The Sierra Madre (mountain) yellow-legged frog has a low potential for occurrence on Segment 5. It was reported from the San Gorgonio River, approximately 2.5 miles south of the ROW, but the habitat where the transmission line would span the San Gorgonio River is not suitable (CPUC and BLM, 2006). This frog has also been reported from the pond(s) in Robertson's Plant 66 gravel mine (CPUC and BLM, 2006). The pond(s) in the gravel mine are isolated from the San Gorgonio River and subject to disturbance from the mining operation. There are no known populations at this location, and Aspen biologists have been unable to confirm this report. It is likely this report is in error.

Protocol surveys were done for desert tortoise in 2011, 2012, and 2013. Desert tortoise and tortoise sign were found on the east end of Segment 5, east of Deep Creek Road (LSA, 2013b).

The active golden eagle nest near Segment 4 is within 4 miles of portions of Segment 5. Golden eagles have been observed foraging on Segment 5 within the Morongo reservation (LSA, 2010; LSA, 2012).

Swainson's hawk may pass through the area of Segment 5 during migration, but is unlikely to nest there.

Western yellow-billed cuckoo has a low potential to forage on Segment 5, and is unlikely to nest there. It has not been documented within 5 miles of the ROW (GANDA, 2011), and there is minimal suitable habitat for foraging and no suitable habitat for nesting.

Burrowing owl and suitable burrow sites have been observed on Segment 5 (GANDA, 2010; LSA, 2010, 2012, 2013a).

American peregrine falcon has been observed foraging in the Proposed Project study area (LSA, 2013b), and has a moderate potential to forage on Segment 5. There is limited suitable natural nesting habitat within the ROW (although peregrine falcon may occasionally nest on transmission towers or other structures) but suitable habitat is present on the steep north-facing slopes of the San Jacinto Mountains, south of the ROW.

Desert kit fox has a moderate potential to occur on Segment 5. There is suitable habitat present.

Nelson's bighorn sheep (non-peninsular population) has a moderate potential to occur on Segment 5. Suitable foraging habitat is potentially present on or near the ROW and the species occurs in the San Bernardino Mountains north of the ROW near Whitewater.

Wildlife Movement

Segment 5 mainly runs through open space along the foothills of the San Bernardino Mountains. Just to the south are the San Jacinto Mountains; however, the I-10 freeway is a barrier to most terrestrial wildlife movement between the two mountain ranges. Freeway undercrossings at the wash areas may provide some biological connectivity, but wildlife movement across the segment is probably limited.

Segment 5 is located in the San Gorgonio Pass area. The San Gorgonio Pass is an important corridor for migrating birds and serves as a connection between coastal lowlands and Colorado Desert lowlands. This is true for many species of landbirds that normally travel at night, as well many species of waterbirds that travel by day or night. Seasonally, springtime in the Proposed Project study area is the most critical time for migrating birds, as the Coachella Valley and surrounding ranges serve to funnel northbound animals to the northwest and west through the pass.

D.5.1.2.6 Segment 6: Whitewater and Devers

Segment 6 passes mainly through undeveloped open space and rural residential development east of Whitewater Canyon; it passes through wind energy projects (wind farms), ending at the Devers Substation. Habitat is mainly desert scrub, with alluvial scrub along the Whitewater River and other drainages, and aeolian sand habitat east of the Whitewater River; see Figures Ap.7-2a through Ap.7-2k, Land Cover and Figure Ap.7-4, Aeolian Habitat (in Appendix 7).

Special-status Wildlife

Special-status wildlife occurring or potentially occurring within Segment 6 include Casey's June beetle, Sierra Madre (mountain) yellow-legged frog, desert tortoise, Coachella Valley fringe-toed lizard, golden eagle, Swainson's hawk, American peregrine falcon, western yellow-billed cuckoo, burrowing owl, desert kit fox, and Nelson's bighorn sheep (non-peninsular population). See Table Ap.7-2 and Figures Ap.7-3a through Ap.7-3k (in Appendix 7).

- Casey's June beetle has a low potential for occurrence on Segment 6. There may be suitable habitat present, but the ROW is outside its known range. There is a documented occurrence within 5 miles of the ROW (GANDA, 2011), but the distribution of Casey's June beetle appears to be limited to the mouth and alluvial floodplain of Palm Canyon, within and just south of Palm Springs (AMEC, 2012c).
- The Sierra Madre (mountain) yellow-legged frog has a low potential for occurrence on Segment 6. There is a documented occurrence in the Whitewater River, approximately 3 miles north of I-10, but the habitat where the ROW crosses Whitewater Canyon is probably not suitable for this species due to intermittent surface flow. This species was not found during biological surveys (AMEC, 2012a).
- Protocol surveys were done for desert tortoise in 2011, 2012, and 2013. Desert tortoise and tortoise sign were found occasionally throughout Segment 6 (AMEC, 2012b; LSA, 2013b).
- The Coachella Valley fringe-toed lizard has a low potential for occurrence on Segment 6. There is marginally suitable habitat along the ROW east of the Whitewater River. There are several documented occurrences with 5 miles of the ROW. This species was not found during biological surveys (AMEC, 2012a).
- No active or inactive golden eagle nests were detected within 4 miles of the ROW in Segment 6, but potentially suitable nesting habitat is present in the vicinity, and active and potentially active nests were observed within 10 miles of the ROW (WRI, 2013). Golden eagles were observed flying over the Whitewater River area (LSA, 2012) and may forage in Segment 6.
- Swainson's hawk has a high potential to pass through the area of Segment 6 during migration, but is unlikely to nest there.
- Western yellow-billed cuckoo has a low potential to forage on Segment 6, and is unlikely to nest there. It has not been documented within 5 miles of the ROW (GANDA, 2011), and there is minimal suitable habitat for foraging and no suitable habitat for nesting.
- Burrowing owl and burrow sites have been observed on Segment 6 (GANDA, 2010; AMEC, 2012b; LSA, 2012, 2013a).
- American peregrine falcon has been observed foraging in the Proposed Project study area (LSA, 2013b), and has a moderate potential to forage on Segment 6. There is limited suitable natural nesting habitat, although peregrine falcon may occasionally nest on transmission towers or other structures.
- Desert kit fox has a moderate potential to occur on Segment 6. There is suitable habitat present.
- Nelson's bighorn sheep (non-peninsular population) has a moderate potential to occur on Segment 6. Suitable foraging habitat is present on or near the ROW and the species occurs in the hills north of the ROW near Whitewater.

Wildlife Movement

Segment 6 mainly runs through open space along the foothills and bajadas of the San Bernardino Mountains and into the western edge of the Colorado Desert. Just to the south are the San Jacinto Mountains; however, the I-10 freeway is a barrier to most terrestrial wildlife movement between the two mountain ranges. Freeway undercrossings at the wash areas may provide some biological connectivity, but wildlife movement across the segment is probably limited.

Segment 6 is located in the San Gorgonio Pass area. The San Gorgonio Pass is an important corridor for migrating birds and serves as a connection between coastal lowlands and Colorado Desert lowlands. This is true for many species of landbirds that normally travel at night, as well many species of waterbirds that travel by day or night. Seasonally, springtime is the most critical time for migrating birds in the Proposed Project study area, as the Coachella Valley and surrounding ranges serve to funnel northbound animals to the northwest and west through the pass.

D.5.1.3 Environmental Setting for Connected Actions

Biological resources information on connected solar projects is derived from the Palen Solar Electric Generating System Draft Supplemental EIS (BLM, 2013, Sections 3.23 and 4.21), Palen Solar Power Project Presiding Member's Proposed Decision (CEC, 2010, Section VI.A), Desert Harvest Solar Farm Final EIS (BLM, 2012, Sections 3.4 and 4.4), Blyth Mesa Solar Project Draft EIR/EA (BLM and Riverside County, 2014, Sections 3.2.4 and 4.2.4), and the West of Devers Project PEA (SCE, 2013).

Each of the areas in which connected projects are located is describe in Section D.4.1.3. Biological Resources – Vegetation.

Desert Center Area. Reptiles typically found in the Desert Center area include desert horned lizard (*Phrynosoma platyrhinos*), zebra-tailed lizard (*Callisaurus draconaides*), desert iguana (*Dipsosaurus dorsalis*), and sidewinder (*Crotalus cerastes*). Common bird species include verdin (*Auriparus flaviceps*), black-throated sparrow (*Amphispiza bilineata*), Gambel's quail (*Callipepla gambelii*), common raven, red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*). Frequently observed mammals are coyote, round-tailed ground squirrel (*Xeraspermophilus tereticaudus*), desert woodrat (*Neotoma lepida*), and Merriam's kangaroo rat (*Dipodamys merriami*).

Special-status wildlife. The federal and state-listed desert tortoise is found in the area. Other state listed species that may occur in the area are, Swainson's hawk (*Buteo swainsoni*; state threatened, occurs during seasonal migration), and Gila woodpecker (*Melanerpes uropygialis*; state endangered, rarely documented locally, at the edge of its geographic range). USFWS has designated critical habitat in Riverside County for a number of special status species, including desert tortoise. Examples of other non-listed special-status wildlife are Mojave fringe-toed lizard (*Uma scoparia*; CSC), Couch's spadefoot toad (*Scaphiopus couchii*; CSC), golden eagle (*Aquila chrysaetos*; Fully Protected), prairie falcon (*Falco mexicanus*; CDFW Watch List [WL]), American badger (*Taxidea taxus*; CSC), and burrowing owl.

For the Desert Harvest project, two listed species, Gila woodpecker and Swainson's hawk, have been observed on the project site or vicinity, and desert tortoise is known to occur in the area. The non-listed special-status species that have been observed are sharp-shinned hawk (*Accipiter striatus*; WL), burrowing owl, Vaux's swift (*Chaetura vauxi*; CSC), prairie falcon, loggerhead shrike (*Lanius ludovicianus*; CSC), scrub jay (Eagle Mountains population, *Aphelocoma californica cana*; WL), Lucy's warbler (*Oreothlypis luciae*; CSC), osprey (*Pandion haliaetus*; WL), black-tailed gnatcatcher (*Polioptila melanura*; CDFW Special Animal), Palm Springs round-tailed ground squirrel (*Xerospermophilus tereticaudus chlorus*; CSC), American badger, and desert kit fox (*Vulpes macrotis arsipus*; California Protected Furbearing Mammal). Many other special-status species were not observed, but have the potential to be found in the project area and vicinity.

Wildlife movement. Please see Section D.5.1.1 for a general discussion of wildlife movement and biological connectivity. Within the Desert Center area, the valley floor provides an important wildlife corridor linking mountain ranges. Opportunity for wildlife movement among mountain ranges to the north and south of the Chuckwalla Valley is significantly impeded by the I-10 freeway and the Colorado River Aqueduct. The aqueduct, as an uncovered surface canal, is an impassable barrier to terrestrial wildlife. Wildlife can cross at periodic "siphon points" where the aqueduct is underground. Culverts under the freeway provide a way for wildlife to safely traverse this barrier. Evidence indicates that the culverts and associated major washes are used by a variety of large and small wildlife.

Other impediments to wildlife movement in the project vicinity include residential land uses, an abandoned quarry, agricultural lands, and the perimeter fencing around large solar projects. Even with these impediments to biological connectivity, there is opportunity for wildlife species to move through the area via washes and culverts beneath the I-10 Freeway, siphon points along the aqueduct, and remaining open space areas. Movement opportunity varies for each species, depending on motility and behavioral constraints, as well as landscape impediments.

Blythe Area. Wildlife commonly observed in this area includes desert ironclad beetle (*Asbolus verrucosus*), side-blotched lizard, desert iguana, and western whiptail (*Aspidoscelis tigris*). Frequently observed birds include common raven and great-tailed grackle (*Quiscalus mexicanus*). Coyote and white-tailed antelope squirrel (*Ammospermophilus leucurus*) are common mammals. Large numbers of migratory birds pass through the Blythe area during seasonal migrations along the Colorado River corridor. In addition, waterfowl and wading birds overwinter in the area, making use of extensive wetland habitat in the Colorado River Valley.

Special-status wildlife. The desert tortoise is an example of a federal and state-listed species found in the area and the USFWS has designated critical habitat in Riverside County for a number of special status species, including desert tortoise. In addition to year-around resident species, many listed threatened or endangered birds winter, breed, or migrate through the region. For example, the greater sandhill crane, listed as threatened under the CESA and fully protected in California, winters in the lower Colorado River Valley. Examples of non-listed special-status wildlife are Mojave fringe-toed lizard, Le Conte's thrasher, loggerhead shrike, burrowing owl, golden eagle, Nelson's bighorn sheep (*Ovis canadensis nelsoni* [non-Peninsular population]; Fully Protected), American badger, and desert kit fox.

Wildlife movement. Please see Section D.5.1.1 for a general discussion of wildlife movement and biological connectivity. In the largely undeveloped portions of the Blythe area, wildlife habitat is available in extensive open space areas, but specific barriers, such as the I-10 freeway, may impede or prevent wildlife movement. In some areas, culverts or other linkages provide a way for wildlife to safely traverse such barriers. Urban or agricultural development in the area limits wildlife use and movement for many species. The Lower Colorado River Valley, encompassing Blythe and the surrounding area, includes uplands, floodplain, wetland, and agricultural habitats. The valley is an important migratory route for numerous birds, as well as a breeding and wintering stopover destination. Every spring and fall, millions of birds migrate through the region, a branch of the Pacific Flyway that stretches from the western Arctic to Central and South America.

D.5.2 Applicable Regulations, Plans, and Standards

Most of the key federal, state, and local regulations, plans, and standards applicable to this analysis of wildlife resources are summarized in Section D.4.2 (Vegetation). The following additional regulations, plans, and standards also apply to wildlife resources.

D.5.2.1 Federal

Migratory Bird Treaty Act (16 USC Sections 703-711). Prohibits take of any migratory bird, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting of waterfowl or upland game species). Under the Migratory Bird Treaty Act (MBTA), "migratory bird" is broadly defined as "any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and thus applies to most native bird species.

Bald and Golden Eagle Protection Act (16 USC Section 668). Prohibits the take, possession, and commerce of bald eagles and golden eagles. Under the Bald and Golden Eagle Protection Act (BGEPA) and subsequent rules published by the USFWS, "take" may include actions that injure an eagle, or affect reproductive success (productivity) by substantially interfering with normal behavior or causing nest abandonment. The USFWS may authorize incidental take of bald and golden eagles for otherwise lawful activities.

D.5.2.2 State

Fully Protected Designations (Fish and Game Code Sections 3511, 4700, 5515, and 5050). Designates 36 fish and wildlife species as "fully protected" from take, including hunting, harvesting, and other activities. The CDFW may only authorize take of designated fully protected species through a Natural Community Conservation Plan (NCCP).

Native Birds (Fish and Game Code Sections 3503, 3503.5, and 3513). Prohibits take, possession, or needless destruction of birds, nests, or eggs except as otherwise provided by the code. Section 3513 provides for the adoption of the MBTA's provisions (above).

Protected Furbearers (California Code of Regulations Title 14 Section 460). Specifies that "[f]isher, marten, river otter, desert kit fox and red fox may not be taken at any time." The CDFW may permit capture or handing of these species for scientific research, but does not issue Incidental Take Permits for other purposes.

D.5.3 Environmental Impacts of the Proposed

The objective of the impact analysis is to identify, describe, and (where feasible) quantify the Proposed Project's expected impacts to wildlife resources. This impact analysis is based on the wildlife resources described in the Environmental Setting / Affected Environment section above and on the Description of the Proposed Project in Section B. This analysis incorporates PEA Section 4.4.5, Impacts Analysis, as well as independent review and analysis of the Proposed Project's expected impacts to each resource.

Section D.5.3.1 describes the approach to evaluating wildlife resources impacts, including quantification where feasible, and describes other metrics or approaches which may be used in comparison of impacts among project alternatives. Section D.5.3.2 lists the criteria for evaluation of each impact. Section D.5.3.3, Impact Analysis and Mitigation Measures, describes the Proposed Project's expected direct and indirect effects to wildlife resources. In addition, it specifies feasible mitigation measures that would reduce these impacts.

D.5.3.1 Approach to Impact Assessment

The Proposed Project includes a construction phase, projected to take place over approximately 36 to 48 months. Following construction, temporary disturbance areas would be revegetated. Revegetation efforts, along with implementation and monitoring of other mitigation measures identified herein would necessitate ongoing vehicle access and soil disturbance beyond the completion of construction. This phase is referred to as the Proposed Project's "restoration" phase in the following analysis.

Additionally, vehicle access and other project activities would continue during operation and maintenance (O&M), throughout the life of the Proposed Project. Each potential impact to wildlife resources is described, to indicate whether it is a direct or indirect impact; whether its effects would be permanent, long-term or short-term; and whether it would occur during one or more of the Proposed Project's phases, including construction, restoration, or O&M.

Direct impacts are the direct or immediate effects of the Proposed Project on wildlife resources. Examples of direct impacts include mortality, injury, or displacement of special-status animals; loss or degradation of native habitat; interference with fish and wildlife movement or migration; and disturbance to wildlife and habitat from noise and light. Indirect impacts are those effects that are caused by or will result from the Proposed Project, later in time or farther removed in distance, but are still reasonably certain to occur. Examples of indirect effects to native habitat include erosion, sedimentation, and introduction of invasive species that may cause habitat degradation. An example of an indirect effect to wildlife is increased predation due to certain habitat alterations (e.g., perch sites or "subsidies" for predators).

D.5.3.1.1 Applicant Proposed Measures

The PEA includes a series of Applicant Proposed Measures (APMs) to which SCE has committed in order to reduce potential impacts to biological resources. The APMs are considered to be part of the Proposed Project and they are assumed to be implemented in this evaluation of impacts to wildlife resources. The APMs specifically addressing wildlife impacts are presented in Table D.5-1. Other APMs related to wildlife resources, including habitat restoration and monitoring, are listed by title only in Table D.5-1 and the full text is provided in Table D.4-3 (Section D.4.3.1). All of the Biological Resources APMs have been superseded by mitigation measures that add requirements and provide details not found in the APMs.

Table D.5-1. Applicant Proposed Measures – Biological Resources – Wildlife

APM	Text
APM BIO-1	**Revegetation Plan.** Please see Table D.4-3 for full text.
APM BIO-2	**Biological Monitoring.** Please see Table D.4-3 for full text.
APM BIO-3	**Nesting Birds.** SCE would prepare and implement a Nesting Bird Management Plan to address nesting birds undertaken in collaboration with the CDFW, USFWS, and BLM. The Plan would be an adaptive management plan that may be updated as needed if improvements are identified or conditions in the field change. The Plan would include the following: nest management and avoidance, field approach (survey methodology, reporting, and monitoring), and the Project avian biologist qualifications. The avian biologist would be responsible for oversight of the avian protection activities including the biological monitors. In order to minimize impacts to nesting birds during nesting season, pre-construction surveys and regular sweep surveys of active construction areas by a qualified biologist would focus on breeding behavior and a search for active nests within 500 feet of the project disturbance areas where survey access is not limited. (a) For vegetation clearing that needs to occur during the typical nesting bird season (February 1 to August 31; as early as January 1 for raptors) qualified biologists would conduct nesting bird surveys. If an active nest (e.g., nests with eggs or chicks) was located, the appropriate avoidance and minimization measures from the management plan would be implemented. If it is determined that removal of an active nest is required, the project avian biologist will evaluate the appropriate level of consultation with CDFW, USFWS, and BLM; (b) During the typical nesting bird season, SCE would conduct pre-construction clearance surveys no more than 14 days prior to initial start of construction and in accordance with the adaptive management plan, to determine the location of nesting birds and territories; (c) Nest monitoring would be conducted by Project biological monitors with knowledge of bird behavior under the direction of a BLM and/or CDFW approved avian biologist; (d) Nesting deterrents (e.g., mooring balls, netting, etc.) could be used for inactive nests where appropriate at the direction of the Project avian biologist; (e) A Project avian biologist would determine the appropriate buffer area around active nest(s) and provisions for buffer exclusion areas (e.g. highways, public access roads, etc.) along with construction activity limits. Unless restricted by the Project avian biologist, construction vehicles would be allowed to move through a buffer area with no stopping or idling. The Project avian biologist would determine, evaluate, and modify buffers as appropriate based on species tolerance and behavior, the potential disruptiveness of construction activities, and existing conditions; and (f) The Project biological monitor would observe and document implementation of appropriate buffer areas around active nest(s) during project activities. The active nest site and applicable buffer would remain in place until nesting activity concluded. Nesting bird status reports would be submitted according to the management plan.
APM BIO-4	**Burrowing Owl.** A pre-construction, focused burrowing owl survey would be conducted no more than 30 days prior to commencement of ground-disturbing activities within suitable habitat to determine if any occupied burrows are present. If occupied burrows are found, adequate buffers shall be established around burrows. Adequate buffers would be determined by a Project Avian biologist based upon field conditions and resource agency guidelines for wintering burrows and breeding season burrows. SCE would develop a Burrowing Owl Management Plan for the Project. The Plan would include information related to construction monitoring, avoidance and minimization measures, relocation strategy, exclusionary devices, and reporting requirements.

Table D.5-1. Applicant Proposed Measures – Biological Resources – Wildlife

APM	Text
APM BIO-5	**Desert Tortoise.** In desert tortoise habitat in Segments 5 and 6, from Deep Creek Road east to Devers Substation, project personnel in non-desert tortoise exclusion fenced areas would be required to inspect for desert tortoises under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, the vehicle would not be moved until the tortoise leaves on its own accord, or if necessary, the tortoise may be moved by an Authorized Biologist. If a vehicle must be moved in the event of an emergency, placing a tortoise in harm's way, a USFWS Authorized Biologist may move the tortoise to an appropriate location. All burrows suitable for desert tortoise found during clearance surveys within project ground disturbance areas within desert tortoise habitat, whether occupied or vacant, that would be subject to construction-related disturbance, would be excavated by a Biologist authorized by USFWS, and collapsed or blocked to prevent desert tortoise reentry. All desert tortoise handling, including excavations of nests, would be conducted by a Biologist authorized by USFWS, in accordance with USFWS-approved protocol in compliance with appropriate regulatory permits. Desert tortoise exclusion fencing shall be installed around staging yards within suitable, occupied habitat according to USFWS recommended specifications (USFWS, 2005) and in compliance with appropriate regulatory permits. Trash and food items would be contained in closed containers during construction to discourage attracting opportunistic predators such as ravens.
APM BIO-6	**Least Bell's Vireo, Southwestern Willow Flycatcher, & Western Yellow-billed Cuckoo.** *Pre-construction:* In areas of potentially suitable riparian habitat for the least Bell's vireo (or other listed riparian birds), which occurs in Segment 3 and may occur in limited areas in Segment 4, SCE would conduct non-protocol pre-construction surveys no more than 7 days prior to commencing construction activities to determine the location of nests and territories. Survey areas would include potentially suitable habitat within a 500-foot buffer around project disturbance areas unless property access is not allowed. *Buffer:* If active least Bell's vireo (or other listed riparian bird) nesting activity is identified, SCE's avian biologist would establish a buffer area where construction activities are prohibited around active least Bell's vireo nest(s) and would monitor construction activities to evaluate the adequacy of the buffer. The buffer would be established and may be subsequently adjusted based on construction activities, noise and disturbance levels in the area not attributable to construction, and observed behavior of individual vireos (or as specified by conditions established under a Biological Opinion issued by the U.S. Fish & Wildlife Service or as directed by provisions established under the WR-MSHCP if SCE obtains PSE status). As SCE intends to apply for PSE status, if granted, potential impacts to the least Bell's vireo would be mitigated by participation in the WR-MSHCP. SCE's participation would include following provisions and measures outlined in the WR-MSHCP. SCE would prepare a Determination of Biological Equivalent or Superior Preservation (DBESP) that would include conservation recommendations similar to those that would be established under a Biological Opinion. The Riverside Conservation Authority (RCA) would request USFWS and CDFW concurrence with the MSHCP "findings of consistency," as well as DBESP approval. Subsequent coordination on any biological issues would be handled through consultation with the RCA. The RCA would determine the need for additional consultation with the USFWS and CDFW. If SCE does not participate in the WR-MSHCP, then any temporary and permanent impacts to least Bell's vireo and its habitat that may occur in Segments 3 and 4 would be mitigated by obtaining an incidental take authorization under the Federal and State Endangered Species Acts and implementing relevant permit conditions.
APM BIO-9	**Jurisdictional Water Permits.** Please see Table D.4-3 for full text.

Table D.5-1. Applicant Proposed Measures – Biological Resources – Wildlife

APM	Text
APM BIO-10	**Coastal California Gnatcatcher and Designated Critical Habitat.** In San Bernardino County, SCE would develop construction minimization measures and habitat conservation measures to be incorporated into Section 7 consultation, with the intent to obtain take authorization for the expected minimal impact (based on negative surveys to date), as well as a finding of no adverse modification to Critical Habitat. Expected measures would include: pre-construction protocol surveys to identify the locations of any gnatcatchers; monitoring of all vegetation clearing in coastal sage scrub habitat or designated Critical Habitat in San Bernardino County; restoration of temporarily impacted coastal sage habitat; and additional restoration of degraded areas within the SCE right-of-way as compensation for permanent impacts to coastal sage scrub habitat, such that there is no net loss of habitat value for coastal California gnatcatcher in San Bernardino County.
APM BIO-11	**Stephens' Kangaroo Rat.** For portions of the Proposed Project within SKR habitat in Segments 2 and 3, from the San Bernardino Junction to the Riverside County line, avoidance and mitigation measures would be incorporated into conditions established in a Biological Opinion issued through Section 7 consultation with USFWS, which would be required to obtain incidental take authorization for the expected minimal impact (based on surveys to date). Expected measures would include: pre-construction protocol surveys to identify the locations of any SKR present and delineate extent of suitable habitat: monitoring by a qualified biologist during all vegetation clearing and ground disturbance in suitable habitat; flagging of potential burrows for avoidance where possible; covering all excavated, steep-walled holes or trenches more than 2 feet deep at the close of each working day with plywood or provide one or more escape ramps constructed of earth fill or wooden planks to prevent entrapment of SKR during construction; thorough inspection of construction pipes, poles, culverts, or similar structures with a diameter of 1.5 inches or greater stored at a construction site for one or more overnight periods shall be done by a qualified biologist for the presence of SKR before the construction pipes, poles, culverts, or similar structures is subsequently buried, capped, or otherwise used or moved in any way; where construction traffic over identified burrows is unavoidable, covering burrows during daytime operations with 1-inch plywood or steel plates to avoid collapsing burrow; restoration of all temporarily affected areas within suitable habitat; and additional restoration of degraded areas within the SCE right-of-way as compensation for permanent impacts to suitable habitat, such that there is no net loss of habitat value for SKR, as agreed upon by USFWS.
APM BIO-12	**Los Angeles Pocket Mouse; Palm Springs Pocket Mouse.** SCE would develop construction minimization measures and habitat conservation measures, as necessary through MSHCP participation, or, in the absence of such participation, in consultation with USFWS and CDFW. Habitat mitigation measures would be a combination of revegetation of temporarily impacted areas (see APM-BIO-1) and restoration of degraded areas as necessary to conserve the equivalent of 90 percent of the long-term conservation value habitat for LAPM, as determined by the RCA and/or USFWS and CDFW.

The project route traverses lands within two different Multiple Species Habitat Conservation Plans (MSHCPs); Morongo Tribal land (reservation) and portions of San Bernardino County that are not within either MSHCP area; and BLM land within the Coachella Valley MSHCP (CV-MSHCP) area, but not covered by USFWS and CDFW take authorization for the CV-MSHCP. SCE intends to participate in both MSHCPs as a Participating Special Entity (PSE) but the PSE application process is not yet complete. This analysis indicates whether each impact would occur in each of the jurisdictional areas. Where mitigation is identified, the analysis indicates whether each measure is applicable with each jurisdictional area, based in part on whether MSHCP participation would mitigate the impact independently from mitigation measures identified herein.

Some of the Proposed Project's impacts to biological resources can be quantified in terms of acreage (e.g., acreage of habitat that would be affected by the project). Other impacts (e.g., adverse effects of noise and human disturbance to wildlife) cannot be directly quantified, but acreage is often the best available estimator of expected disturbance for comparison purposes. Wherever feasible, the analysis indicates acreage as the best available metric for each anticipated impact.

D.5.3.2 Impact Criteria

NEPA does not have specific significance criteria. However, NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). Using the following criteria for the purposes of analysis, the project or an alternative would impact wildlife resources if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404, of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

D.5.3.3 Impacts and Mitigation Measures

This section describes the Proposed Project's expected direct and indirect impacts and identifies mitigation measures to avoid, minimize, reduce over time, or compensate for those impacts. The analysis considers all project components, including substation modifications, 220 kV transmission lines, 66 kV subtransmission lines, 12 kV distribution lines, telecommunication facilities, and staging yards. In addition, this analysis assumes that the APMs are part of the Proposed Project. However, the analysis concludes that all APMs presented in Table D.5-1 were insufficiently detailed, and all are superseded by recommended mitigation measures identified in this analysis.

D.5.3.3.1 Summary of Impacts and Mitigation for Vegetation

Several of the impacts to vegetation resources, described in Section D.4.3.3, also apply to wildlife resources. This is especially true of habitat-related impacts (e.g., vegetation removal). In addition, several of the mitigation measures for vegetation resources identified in Section D.4.3.3 would also serve to mitigate wildlife resources impacts. These impacts and mitigation measures are listed below. Please refer to Section D.4.3.3 for the analysis and full text of each mitigation measure for vegetation.

Impact VEG-1: Land clearing for construction and future operations and maintenance would cause loss or degradation of vegetation and habitat, including sensitive habitats

Five mitigation measures are presented in Section D.4.3.3:

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])

- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)

Impact VEG-2: Project activities could cause indirect degradation of surrounding vegetation and habitat from dust, interrupted sand transport, interruption of surface water flows, or introduction and spread of invasive weeds

One mitigation measure is presented in Section D.4.3.3:

- VEG-2a (Prepare and implement an integrated weed management plan)

Impact VEG-3: Construction, operations, and maintenance activities would affect state or federally jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, or degradation of water quality

One mitigation measure is presented in Section D.4.3.3:

- VEG-3a (Minimize impact and ensure no net loss for jurisdictional waters and wetlands)

D.5.3.3.2 Impacts to Wildlife Resources

In addition to the impacts analysis and mitigation measures presented for vegetation in Section D.4.3.3, the following additional impacts and mitigation measures are identified for wildlife resources. Four types of impacts are considered in this section.

Impact WIL-1: Noise, lighting, vehicle traffic on access roads, and other project-related disturbance during construction, operations, and maintenance would affect wildlife including nesting birds, eggs, or chicks occupying surrounding vegetation and habitat, and could cause territory abandonment, behavioral changes, wildlife injury, or mortality

Direct and indirect impacts. Direct impacts are those impacts that result from the project and occur at the same time and place. Indirect impacts are caused by the project, but can occur later in time or farther removed in distance and are still reasonably foreseeable and related to the operation of the project. Examples of direct effects to wildlife are disturbance from noise and vibration, lighting, dust, and vehicle traffic; loss or degradation of habitat; destruction of burrows or nests; and mortality of individuals. Indirect effects include introduction and spread of invasive species that may compete with native species and cause habitat degradation or reduction of available food sources and increased predation due to certain habitat alterations (e.g., perch sites or "subsidies" for predators).

Construction, restoration, and O&M impacts. Vegetation removal would cause temporary or permanent loss of wildlife habitat along with the displacement and potential mortality of resident wildlife species that are poor dispersers, such as snakes, lizards, and small mammals. Construction could also result in the temporary degradation of adjacent habitat value due to disturbance, noise, increased human presence, and increased vehicle traffic during construction. Soil disturbance, weed removal, site clearing, or site preparation during the restoration or O&M project phases also could cause temporary habitat degradation or wildlife disturbance.

Direct loss of small mammals, reptiles, and other less mobile species could occur during each phase of the Proposed Project. This loss would result primarily from the use of construction vehicles and the grading of laydown areas for tower or pole erection. Fossorial species (burrowing animals) may be harmed through the crushing of burrows, the loss of refugia, and direct mortality from construction activities.

Construction could also result in an increase in accidental road kills due to increased vehicle traffic along the construction corridor. Diurnally active reptiles and mammals are the most likely to be subject to mortality from construction vehicles. Other potential causes of wildlife mortality or injury include entrapment in trenches, pipes, or other supplies and equipment; drowning in stored water; or poisoning by ingestion or exposure to stored or spilled chemicals.

More mobile species such as birds and larger mammals are expected to disperse into adjacent habitat areas during the land clearing and grading phases associated with construction. They would be at increased risk of predation as they flush from cover during site clearing. After leaving their home territories, displaced animals may be unable to find suitable food or cover in new, unfamiliar areas. They may find themselves within the occupied territory of another individual of the same or similar species, leading to competition for resources. These adverse displacement effects would apply to common wildlife species and to special-status species.

Noise and vibration, dust, visual disturbance from increased human activity, and exhaust emissions from heavy equipment during construction could cause wildlife to avoid habitats adjacent to the construction sites. Construction could impact wildlife in adjacent habitats by interfering with breeding or foraging activities, altering movement patterns, or causing animals to temporarily avoid areas adjacent to the construction zone. Nocturnally active wildlife would tend to be affected less by construction than would diurnally active species. Wildlife species are most vulnerable to construction-related disturbances during their breeding seasons. Disturbances from construction could result in nest, roost, or territory abandonment and subsequent reproductive failure if these disturbances were to occur during an affected species' breeding season.

Wildlife "subsidies" such as food or water, could attract wildlife to the project area where they may be at increased risk of road strike or other injury or mortality. In addition, wildlife subsidies may attract predators such as ravens, coyotes, or feral dogs to the project area, where they may prey on other species, including special-status species. Pet animals, particularly dogs, may harass or injure wildlife in the project vicinity, or introduce illness such as canine distemper into native wildlife populations.

Vegetation removal and construction disturbance can also introduce or increase the spread of non-native plant species, causing wildlife habitat degradation.

Displacement or mortality of fully protected species or protected furbearers, regardless of other conservation status, may violate state and federal regulations. Birds, nests, and nestlings are generally protected under the Migratory Bird Treaty Act and California Fish and Game Code, regardless of other conservation designations. Thus, displacement or mortality of nesting birds (including eggs or nestlings), fully protected species, or protected furbearers, regardless of other conservation status designations, may violate state and federal regulations.

Nesting birds may be found throughout the Proposed Project area, including native vegetation, landscaped areas, open areas on the ground, existing transmission structures, and construction vehicles or equipment left inactive for short periods (e.g., a few days). Many project activities could remove nests or cause the displacement of breeding birds and the abandonment of active nests, either within work areas or in adjacent habitat (including transmission line structures). For some special-status bird species, the CV-MSHCP or WR-MSHCP may provide take authorization; this authorization would apply to the Proposed Project if SCE becomes a Participating Special Entity (PSE).

All future O&M would be similar to current O&M activities on the existing lines, including temporary impacts for road maintenance. These activities may include road or facilities site maintenance, transmission structure or conductor repairs, and similar activities. The Proposed Project's O&M effects to wildlife would be similar to existing conditions.

Mitigation Measures for Impact WIL-1: Noise, lighting, vehicle traffic on access roads, and other project-related disturbance during construction, operations, and maintenance would affect wildlife occupying surrounding vegetation and habitat, and could cause territory abandonment, behavioral changes, wildlife injury, or mortality

Under APM BIO-3, SCE committed to preparing and implementing a Nesting Bird Management Plan (NBMP) to include nest surveys prior to disturbance activities 14 days prior to construction disturbance; buffer areas around active nests, with buffer distance to be determined and adjusted by qualified biologists; nest monitoring; and nest deterrents (e.g., mooring balls). This analysis presents mitigation that supersedes APM BIO-3, in the form of Mitigation Measures WIL-1a (Conduct pre-construction biological resources surveys), WIL-1b (Ensure wildlife impact avoidance and minimization) and WIL-1c (Prepare and implement a Nesting Bird Management Plan).

Mitigation Measure WIL-1c (Prepare and implement a Nesting Bird Management Plan) requires preparation of a project-specific NBMP and specifies the contents and requirements of that NBMP. In order to ensure timely completion of the NBMP, CPUC and SCE convened a technical working group (TWG) of SCE, BLM, CPUC, CDFW, and USFWS biologists to prepare the NBMP concurrently with the CPUC and BLM's preparation of the EIR and EIS, respectively. The TWG held a series of meetings to outline the necessary NBMP contents, and then to review and revise several working draft versions of the NBMP. The TWG developed a final NBMP; see Appendix 14 (Nesting Bird Management Plan). SCE has not yet formally submitted the final NBMP to CDFW and USFWS as its proposed NBMP. The final NBMP is consistent with the requirements of Mitigation Measure WIL-1c (Prepare and implement a Nesting Bird Management Plan) and would reduce impacts to nesting birds.

The following mitigation measures presented in Section D.4 (Vegetation) also will help to reduce or offset disturbance and related impacts wildlife:

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)

Three additional mitigation measures are recommended below.

WIL-1a **Conduct pre-construction biological resources surveys.** SCE shall assign qualified biologists to perform pre-construction biological surveys at each project work area and access route, and in the area surrounding each work site or access route. Survey distances will vary, as appropriate, based on target species and as stipulated by project work plans and mitigation plans, but will be no less than 300 feet surrounding each work site and along any access route being created or improved. (Improvement is considered to be both 'drive and crush' and any road work that causes greater disturbance than light blading of previously existing roads.) For project access along existing routes or routes improved during an earlier phase of the project, the survey requirement will be 100 feet. An exception would be if a greater distance is stipulated in other applicable project work plans or mitigation measures. Where suitable nest sites for raptors are present, the pre-construction surveys for raptor nests will extend to a 500-foot area surrounding the work area or road.

Pre-construction surveys shall be planned and implemented to identify locations of special-status plants and wildlife and nesting birds occurring at work areas, other portions of the ROW, or in adjacent buffer areas. Specific pre-construction survey methods or protocols will vary according to the resources which may be present at any given site, and according to season. At minimum, SCE shall complete pre-construction surveys 10 days prior to beginning work in any given area, and repeat the surveys if the work site remains inactive for a period of ten days or more. During nesting season, a qualified biologist shall complete nesting bird surveys no more than four days prior to beginning work at any given area, and repeat the surveys regularly so long as work continues at the site during the nesting season.

SCE shall submit resumes of all biologists performing pre-construction biological surveys to the CPUC and BLM for review and approval, in coordination with CDFW and USFWS. Results of pre-construction surveys shall be submitted to CPUC and BLM for review and approval and no work shall occur until the CPUC Environmental Monitor has validated the survey results and any applicable resource and work area boundary staking. Each pre-construction survey report shall include methods and results of the preconstruction survey, and a list of biological resources detected at each site during prior focused surveys or pre-construction surveys. The pre-construction survey report format and contents shall be subject to CPUC and BLM review and approval.

SCE also shall conduct pre-construction "sweeps" of each work site immediately prior to beginning construction or disturbance work, to identify any vulnerable wildlife that may have entered the site. Based on the results of pre-construction surveys and sweeps, SCE or its contractor shall observe buffer areas or other access or activity restrictions to minimize potential impacts to the resources. SCE shall provide documentation of the methods and results of all pre-construction surveys, and follow-up buffer areas or other avoidance measures that are implemented, to the CPUC and BLM.

Implementation locations: San Bernardino County (all); WR-MSHCP (all, regardless of SCE's PSE status); CV-MSHCP (all, regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

WIL-1b **Ensure wildlife impact avoidance and minimization.** SCE shall undertake the following measures during the construction, restoration, and O&M phases to avoid or minimize impacts to wildlife resources. Implementation of all measures shall be subject to review and approval by the CPUC and BLM in consultation with CDFW and USFWS. Impacts to nesting birds are addressed separately in Mitigation Measure WIL-1c (Prepare and implement a Nesting Bird Management Plan).

- **Minimize traffic impacts.** SCE will specify and enforce a maximum 15 mile per hour vehicle speed limit on access roads within the ROW and project vicinity. No project-related pedestrian or vehicle traffic will be permitted outside defined work site boundaries (as marked on the site according to Mitigation Measure VEG-1c (Minimize native vegetation and habitat loss)).
- **Minimize lighting impacts.** Night lighting, when in use, shall be designed, installed, and maintained to prevent side casting of light towards surrounding fish or wildlife habitat.

- **Avoid use of toxic substances.** Soil bonding and weighting agents used for dust suppression on unpaved surfaces shall be non-toxic to wildlife and plants.
- **Minimize noise and vibration impacts.** To minimize disturbance to wildlife nesting or breeding activities in surrounding habitat, project-related helicopter use shall be avoided or managed to the extent feasible from February 1 to August 31. Unnecessary noise (e.g., blaring radios) shall be avoided.
- **Water.** Potable and non-potable water sources such as tanks, ponds, and pipes shall be covered or otherwise secured to prevent animals (including birds) from entering. Prevention methods may include storing all water within closed tanks, covering open storage ponds or tanks with 2 centimeter netting, or other means as applicable. Water applied to dirt roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards. Water sources (e.g., hydrants, tanks, etc.) shall be checked periodically by biological monitors to ensure they are not creating open water sources by leaking or consistently overfilling trucks.
- **Worker guidelines.** All trash and food-related waste shall be contained in vehicles or covered trash containers and removed from the site regularly. Workers shall not feed wildlife or bring pets to the project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.
- **Wildlife netting or exclusion fencing.** SCE may install temporary or permanent netting or fencing around equipment, work areas, or project facilities to prevent wildlife exposure to hazards such as toxic materials or vehicle strikes, or prevent birds from nesting on equipment or facilities. Bird deterrent netting will be maintained free of holes and will be deployed and secured on the equipment in a manner that, insofar as possible, prevents wildlife from becoming trapped inside the netted area or within the excess netting. The biological monitor will inspect netting (if installed) twice daily, at the beginning and close of each work day, with the exception of netting installed in established material yards, which will be inspected at least once daily. The biological monitor will inspect exclusion fence (if installed) weekly and will inform SCE of any needed repairs; SCE shall promptly repair any damage to the exclusion fencing.
- **Wildlife entrapment.** Project-related excavations shall be secured to prevent wildlife entry and entrapment. Holes and trenches shall be backfilled, securely covered, or fenced. Excavations that cannot be fully secured shall incorporate appropriate wildlife ramp(s) at a slope of no more than a 3:1 ratio, or other means to allow trapped animals to escape. Biological monitors shall provide guidance to construction crews to ensure that wildlife ramps or other means are sufficient to allow trapped animals to escape. At the end of each work day, a biological monitor shall ensure that excavations have been secured or provided with appropriate means for wildlife escape.

  All pipes or other construction materials or supplies will be covered or capped in storage or laydown areas. No pipes or tubing will be left open either temporarily or permanently, except during use or installation. Any construction pipe, culvert, or other hollow materials will be inspected for wildlife before it is moved, buried, or capped.

Dead animals. Dead animals of non-special-status species found on unpaved project roads, work areas, or the ROW shall be reported to the appropriate local animal control agency within 24 hours. A biological monitor shall safely move the carcass out of the road or work area as needed. Dead animals of special-status species found on unpaved project roads, work areas, or the ROW shall be reported to CDFW within one work day and the carcass handled as directed by CDFW.

Injured wildlife. SCE shall create and implement guidelines for dealing with injured or entrapped wildlife found on or near project roads, work areas, or the ROW, and provide these guidelines to all biological monitors. If an animal is entrapped, a qualified biological monitor shall free the animal if feasible, or work with construction crews to free the animal, in compliance with applicable safety regulations and project requirements. If biological monitors cannot free the animal or the animal is too large or dangerous for monitors to handle, SCE shall contact and work with animal control, CDFW, or other qualified party to obtain assistance for the animal as soon as possible.

SCE shall ensure that one or more qualified biological monitors receive training in the safe and proper handling and transport of injured wildlife and are provided with the appropriate equipment. These trained and equipped monitors shall be available to capture and transport injured wildlife to a local wildlife rehabilitator or veterinarian as needed. If the injured animal is too large or dangerous for monitors to handle, or a trained and equipped monitor is not available, SCE shall contact and work with a local wildlife rehabilitator, animal control, CDFW, or other qualified party to obtain assistance for the animal as soon as possible. SCE shall bear the costs of veterinary treatment and rehabilitation for any wildlife injured by project-related activities and any injured wildlife found on or near project roads, work areas, or the ROW, unless the injuries are clearly not project-related, as determined by a qualified biologist. Additionally, any entrapped or injured special-status species found on project roads, work areas, or the ROW shall be reported to the appropriate resource agency within one work day.

Rattlesnake guidelines. Prior to the start of construction, SCE shall prepare and implement guidelines for dealing with rattlesnakes found in or near project work areas and access roads and provide these guidelines to all biological monitors, safety staff, and other personnel. Killing or harming rattlesnakes or other wildlife is not authorized. If SCE determines that it is appropriate for biological monitors or other project personnel to handle rattlesnakes, SCE shall ensure that an adequate number of qualified individuals are trained in the safe and proper handling of rattlesnakes and provided with the appropriate safety and snake handling equipment, including a secure storage container for transporting snakes. These trained and equipped individuals shall be available to remove rattlesnakes found in or near project work areas and access roads as needed and relocate them to appropriate nearby habitat. Other project personnel shall not harass, or handle rattlesnakes, except as required to maintain immediate safety or in accordance with the guidelines developed by SCE. Handling and relocation of rattlesnakes shall be documented, and the species of rattlesnake determined whenever possible. If a special-status rattlesnake is relocated, documentation shall be submitted to CPUC, BLM, and CDFW.

Alternately, SCE may determine that project personnel shall not handle or approach rattlesnakes. If so, the guidelines shall specify an alternate course of action for rattlesnake encounters, such as avoiding work activity near the snake and monitoring its location and activity until it leaves the area.

Implementation locations: San Bernardino County (all); WR-MSHCP (all, regardless of SCE's PSE status); CV-MSHCP (all, regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

WIL-1c **Prepare and implement a Nesting Bird Management Plan.** [Supersedes APM BIO-3] SCE shall prepare a Nesting Bird Management Plan (NBMP) in coordination with CPUC, BLM, CDFW, and USFWS. The NBMP shall describe methods to minimize potential project effects to nesting birds, and avoid any potential for unauthorized take. Project-related disturbance including construction and pre-construction activities shall not proceed within 300 feet of active nests of common bird species or 500 feet of active nests of raptors or special-status bird species (except for golden eagle as described in Mitigation Measure WIL-2f) until approval of the NBMP by CPUC and BLM in consultation with CDFW and USFWS.

NBMP Content. The NBMP shall include: (1) definitions of default nest avoidance buffers for each species or group of species, depending on characteristics and conservation status for each species; (2) a notification procedure for buffer distance reductions should they become necessary ; (4) a rigorous monitoring protocol, including qualifications of monitors, monitoring schedule, and field methods, to ensure that any project-related effects to nesting birds will be minimized; and (5) a protocol for documenting and reporting any inadvertent contact or effects to birds or nests.

The paragraphs below describe the NBMP requirements in further detail.

Background. The NBMP shall include the following:

- A summary of applicable state and federal laws and regulations, including definition of what constitutes a nest or active nest under state and federal law.
- A procedure for amendment of the NBMP, should there be changes in applicable state or federal regulations.
- A list of bird species potentially nesting on or near the ROW or other work areas, indicating approximate nesting seasons, nesting habitat, typical nest locations (e.g., ground, vegetation, structures, etc.), tolerance to disturbance (if known) and any conservation status for each species. This section will also note any species that do not require avoidance measures (e.g., rock pigeons).
- A list of the types of project activities (construction, operations, and maintenance) that may occur during nesting season, with a short description of the noise and physical disturbance resulting from each activity.
- Clearing of any vegetation, site preparation in open or barren areas, or other project-related activities that may adversely affect breeding birds shall be scheduled outside the nesting season, as feasible.

Pre-construction nest surveys. Pre-construction nest surveys will be conducted prior to any construction activities scheduled during the breeding period. For this project, the breeding period will be defined as January 1 through August 31. The NBMP shall describe the proposed field methods, survey timing, and qualifications of field biologists. Field biologist qualifications will be subject to review by CPUC and BLM. The avian biologists conducting the surveys shall be experienced bird surveyors and familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). Nest surveys will focus on visual searches for nest locations and observations of bird activities and movement to detect nesting activity (e.g., carrying nest materials or food, territorial displays, courtship behavior). Surveys shall be conducted in accordance with the following guidelines.

- Surveys shall cover all potential nesting habitat within the ROW or other work areas and within 500 feet of these areas for raptors and 300 feet for non-raptors.
- Pre-construction surveys shall be conducted for each work area, no longer than 10 days prior to the start of construction activity. On the first day of construction at any given site, a qualified Avian Biologist will perform a pre-construction "sweep" to identify any bird nests or other resources that may have appeared since the 10-day survey.
- SCE shall provide the CPUC and BLM a report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity of the surveyor(s); a list of species observed; and electronic data identifying nest locations and the boundaries of buffer zones. The electronic data set will be updated following each pre-construction nest survey throughout the nesting season. The format and contents of this report will be described in the draft NBMP and will be subject to review and approval by CPUC and BLM.

Nest Buffers and Acceptable Activities

The NBMP shall specify measures to delineate buffers on the work site, to consist of clearly visible marking and signage. Buffer locations shall be communicated to the construction contractor, and shall remain in effect until formally discontinued (when each nest is no longer active). In addition, the NBMP shall specify measures to ensure the buffers are observed, including a direct communication and decision protocol to stop work within buffer areas. In some cases, active nests may be found while work is underway. Therefore, the NBMP shall include a protocol for stopping ongoing work within the buffer area, securing the work site, and removing personnel and equipment from the buffer.

The NBMP shall describe proposed measures to avoid take or adverse effects to nests, such as buffer distances from active nests. These measures shall be based on the specific nature of the bird species and conservation status, and other pertinent factors.

The NBMP will identify bird species (or groups of species) that are relatively tolerant or intolerant of human activities and specify smaller or larger buffer distances as appropriate for each species. If no information is available to specify a buffer distance for a species, then the NBMP shall specify 300 feet as a standard buffer distance, and 500 feet for raptors and special-status species. Nest management for listed threatened or endangered species will be prescribed in a USFWS Biological Opinion, CDFW Incidental Take Permit, or both. All applicable avoidance measures, including buffer distances, must be continued until nest monitoring (below) confirms that the nestlings have fledged and dispersed, or the nest is no longer active.

For each special-status species potentially nesting within or near project work areas, the NBMP shall specify applicable buffers and any additional nest protection measures, specialty monitoring, or restrictions on work activities, if needed.

The NBMP shall identify acceptable work activities within nest buffers (e.g., pedestrian access for inspection or BMP repair) including conditions and restrictions, and any monitoring required. The NBMP shall include pictorial representation showing buffer distances for ground buffers, vertical helicopter buffers, and horizontal helicopter buffers for nests near the ground and nests in towers.

Nest Buffer Modification or Reduction

At times, SCE or its contractor may propose buffer distances different from those approved in the NBMP. Buffer adjustments shall be reviewed and recommended by a qualified avian biologist who has been approved by CPUC and BLM in consultation with the CDFW and USFWS. The NBMP shall provide a procedure and timing requirements for notifying CPUC, BLM, CDFW, and USFWS of any planned adjustments to nest buffers. Separate and distinct procedures will be provided for special-status birds. The NBMP will list the information to be included in buffer reduction notifications in a standardized format.

Nest deterrents. The NBMP shall describe any proposed measures or deterrents to prevent or reduce bird nesting activity on project equipment or facilities, such as buoys, visual or auditory hazing devices, bird repellents, securing of materials, and netting of materials, vehicles, and equipment. It shall also include timing for installation of nest deterrents and field confirmation to prevent effects to any active nest; guidance for the contractor to install, maintain, and remove nest deterrents according to product specifications; and periodic monitoring of nest deterrents to ensure proper installation and functioning and prevent injury or entrapment of birds or other animals. In the event that an active nest is located on project facilities, materials or equipment, SCE will avoid disturbance or use of the facilities, materials or equipment (e.g., by red-tag) until the nest is no longer active.

Communication. The NBMP shall specify the responsibilities of construction monitors in regards to nests and nest issues, and specify a direct communication protocol to ensure that nest information and potential adverse impacts to nesting birds can be promptly communicated from nest monitors to construction monitors, so that any needed actions can be taken immediately.

The NBMP shall specify a procedure to be implemented following accidental disturbance of nests, including wildlife rehabilitation options. It also shall describe any proposed measures, and applicable circumstances, to prevent take of precocial young of ground-nesting birds such as killdeer or quail. For example, chick fences may be used to prevent them from entering work areas and access roads. Finally, the NBMP will specify a procedure for removal of inactive nests, including verification that the nest is inactive and a notification/approval process.

Monitoring. SCE shall be responsible for monitoring the implementation, conformance, and efficacy of the avoidance measures (above). The NBMP shall include specific monitoring measures to track any active bird nest within or adjacent to project work areas, bird nesting activity, project-related disturbance, and outcome of each nest. For nests with reduced buffers, SCE shall monitor each nest until nestlings have fledged and dispersed or until the nest becomes inactive. Nests with default buffers do not require further monitoring once construction work is completed in the area. New nests discovered after work completion in an area would not require monitoring. In addition, monitoring shall include pre-construction surveys, daily sweeps of work areas and equipment, and any special monitoring requirements for particular activities (tree trimming, vegetation removal, etc.) or particular species (noise monitoring, etc.). Nest monitoring shall continue throughout the breeding season during each year of the project's construction activities.

Reporting. Throughout the construction phase of the project, nest locations, project activities in the vicinity of nests (including helicopter traces), and any adjustments to buffer areas shall be updated and available to CPUC monitors on a daily basis. All buffer reduction notifications and prompt notifications of nest-related non-compliance and corrective actions will be made via email to CPUC monitors. The draft NBMP shall include a proposed format for daily and weekly reporting (e.g., spreadsheet available online, tracking each nest). In addition, the NBMP shall specify the format and content of nest data to be provided in regular monitoring and compliance reports. At the end of each year's nest season, SCE will submit an annual NBMP report to the CPUC, BLM, CDFW, and USFWS. Specific contents and format of the annual report will be reviewed and approved by the CPUC and BLM in consultation with CDFW and USFWS.

Implementation locations: San Bernardino County (all); WR-MSHCP (all, regardless of SCE's PSE status); CV-MSHCP (all, regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).

Impact WIL-2: Construction, restoration, operations, and maintenance activities could cause direct or indirect loss of listed and special-status wildlife and direct or indirect effects to habitat for listed and special-status wildlife

The Proposed Project's expected direct and indirect impacts to special-status wildlife during construction, restoration, and O&M phases would be similar to the impacts described in Impact WIL-1.

Listed Wildlife

Four federally or state-listed threatened or endangered animal species were documented within the Proposed Project study area during surveys: desert tortoise, least Bell's vireo, Stephens' kangaroo rat, and Swainson's hawk. Four additional listed species have a moderate or high potential for occurrence: western yellow-billed cuckoo, southwestern willow flycatcher, little willow flycatcher, and coastal California gnatcatcher. Note that Swainson's hawk, little willow flycatcher, and western yellow-billed cuckoo would occur in the Proposed Project area only during migratory seasons. The Proposed Project passes through designated critical habitat for the coastal California gnatcatcher, and designated critical habitat for the southwestern willow flycatcher is located within 200 feet of the Proposed Project area. Listed species with a low potential to occur are Casey's June beetle, mountain yellow-legged frog, Coachella Valley fringe-toed lizard, and bald eagle.

Take of listed species may result from Proposed Project activities, as detailed in the following paragraphs. If SCE obtains PSE status under the MSHCPs, take of covered species within the WR-MSHCP or CV-MSHCP may be authorized within the two MSHCP areas under existing state and federal authorizations. Regardless of MSHCP participation, the Proposed Project may affect listed species outside the MSHCP areas or on BLM land within the CV-MSHCP. ESA Section 7 Consultation would be required for the Proposed Project's potential take of federally listed species, and CESA take authorization would be required for any take of state-listed species. If SCE does not obtain PSE status, these consultation or permitting requirements would also apply within the MSHCP areas.

The Proposed Project's impacts to listed wildlife species would be mitigated in part through mitigation measures identified in Section D.4 (Vegetation) and under Impact WIL-1, as follows:

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)

- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)
- WIL-1c (Prepare and implement a Nesting Bird Management Plan)

In addition, the following APMs are proposed by SCE, (Table D.5-1):

- APM BIO-5 Desert Tortoise
- APM BIO-6 Least Bell's Vireo, Southwestern Willow Flycatcher, And Western Yellow-Billed Cuckoo
- APM BIO-10 Coastal California Gnatcatcher and Designated Critical Habitat
- APM BIO-11 Stephens' Kangaroo Rat

However, these APMs are not sufficiently detailed to effectively reduce impacts and protect wildlife resources. As a result, Mitigation Measures WIL-2a through WIL-2e are recommended.

The following paragraphs address each listed species, describing species-specific impacts. Mitigation Measures WIL-2a through WIL-2e are recommended to mitigate the Proposed Project's impacts to listed species. (These two measures are set forth under "Mitigation Measures for Impact WIL-2" after the discussion of Impact WIL-2.)

- WIL-2a (Conduct desert tortoise surveys, monitoring, and avoidance)
- WIL-2b (Prepare and implement raven monitoring, management, and control plan)
- WIL-2c (Conduct surveys and avoidance for threatened or endangered riparian birds)
- WIL-2d (Conduct surveys and avoidance for Stephens' kangaroo rat)
- WIL-2e (Conduct surveys and avoidance for coastal California gnatcatcher)

State and federal permitting or consultation, and MSHCP participation (if SCE obtains PSE status) may result in additional measures to mitigate the Proposed Project's impacts to listed species.

Desert tortoise. Desert tortoise is federally and state-listed as threatened and is a covered species under the CV-MSHCP. Desert tortoise sign, burrows, and live tortoise were observed within and adjacent to the existing WOD corridor and within access road areas on reservation lands and within the CV-MSHCP area. Although potentially suitable habitat for desert tortoise is extensive, the distribution of the individuals observed was uneven, and indicated that the species may be more abundant in some areas and scarce or absent in others. The project could cause injury or mortality to desert tortoise during surface disturbing activities. Other impacts may include destruction of burrows and alteration of behavior and seasonal activities. Construction vehicles and routine operations and maintenance operations could result in injury or death to desert tortoises through vehicle collisions. This is especially true with juvenile desert tortoises, which are difficult to see due to their small size and profile. In addition, desert tortoises seeking shade under parked vehicles or equipment could be crushed when vehicles and equipment are moved.

Newly constructed transmission towers may provide artificial perches and nest sites for ravens, which prey on young desert tortoises. The Proposed Project would result in a net decrease in the overall number of transmission structures in desert tortoise habitat, but most of the new towers would be steel lattice, whereas many of the existing structures to be removed are wooden "H-frame" design. Steel lattice towers provide more horizontal and diagonal surfaces that can support raven nests. Due to these design differences, the Proposed Project would result in a net increase of approximately 100 lattice steel towers, increasing the availability of suitable raven nest sites. The portion of the Proposed Project route within desert tortoise habitat is near the I-10 Freeway, where multiple other human structures such as billboards, road signs, buildings, and inactive wind turbines are present. Suitable nest sites may not limit raven breeding opportunities in the eastern Proposed Project area, but the project may have some potential to increase raven numbers in desert tortoise habitat. Therefore, Mitigation Measure WIL-2b, (Prepare and implement raven monitoring, management, and control plan), is recommended to minimize raven predation on desert tortoises.

The project could also provide subsidies to ravens in the form of food sources from trash, water, and nesting materials from cleared brush and debris. This effect could indirectly lead to an increase in predation on the desert tortoise and other species by ravens.

Construction will directly impact suitable habitat for desert tortoise by permanent removal of habitat and temporary loss or degradation of habitat. Construction activities also could degrade desert tortoise habitat by compacting the soil, causing reduction of food and cover vegetation, promote loss of soil and nutrients, reduced water absorption, and increased difficulty of digging burrows. Construction activities can also introduce or increase the spread of non-native plant species, further degrading tortoise habitat. Desert tortoise habitat within the project area is primarily desert scrub and alluvial scrub on Segment 6 and the eastern end of Segment 5. The total estimated permanent and temporary impacts to these habitats on these segments are 95.3 and 978.8 acres respectively (see Table D.5-2).

Impacts to desert tortoise and their habitat could occur on reservation lands, BLM lands, and the area included within the CV-MSHCP. Take of desert tortoise habitat and incidental take of individual desert tortoises would be covered within the CV-MSHCP area if SCE becomes a PSE and implements the requirements of the CV-MSHCP (USFWS, 2008). In addition to the mitigation measures listed above, Mitigation Measure WIL-2a (Conduct desert tortoise surveys, monitoring, and avoidance) will ensure that project impacts to desert tortoise are mitigated adequately.

Table D.5-2. Alluvial Scrub and Desert Scrub Maximum Potential Impacts on Segments 5 and 6

	Permanent Impacts (acres)			Temporary Impacts (acres)		
Vegetation Community	Segment 5	Segment 6	Total	Segment 5	Segment 6	Total
Alluvial Scrub	5.2	2.0	7.2	62.3	17.2	79.5
Desert Scrub	26.4	61.7	88.1	401.1	498.2	899.3
Total Potential Impact	31.6	63.7	95.3	463.4	515.4	978.8

Listed riparian birds. Least Bell's vireo is federally and state-listed as endangered and is covered under the WR-MSHCP and CV-MSHCP. It occurs in the riparian woodland habitat along San Timoteo Creek and the riparian habitat to the east. These areas are within the WR-MSHCP. Least Bell's vireo is unlikely to occur in the project area within San Bernardino County or the CV-MSHCP area. Take of least Bell's vireo breeding and foraging habitat and incidental take of vireo nests, eggs, and nestlings would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004).

Southwestern willow flycatcher is federally and state-listed as endangered and is covered under the WR-MSHCP and CV-MSHCP. Designated critical habitat is found within 200 feet of the project area in San Timoteo Canyon at the east end of Segment 3, and within approximately 1,000 feet of the project area in the Santa Ana River west of the westernmost end of Segment 2. No southwestern willow flycatchers were observed during project surveys, but the species has a moderate potential to forage and a low potential to nest in portions of the project area within the WR-MSHCP, particularly in the riparian habitat along San Timoteo Canyon. It has a low potential to forage and is unlikely to nest in the project area within San Bernardino County; critical habitat in the Santa Ana River is separated from the project area in Segment 2 by a housing development; see Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7). Southwestern willow flycatcher is unlikely to forage or nest in the project area within the CV-MSHCP. Take of southwestern willow flycatcher foraging habitat, but not take of breeding territories, would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004).

Western yellow-billed cuckoo is federally listed threatened, state-listed as endangered, and a covered species under the WR-MSHCP. No western yellow-billed cuckoos were observed during project surveys, but the species was observed near El Casco Substation during surveys for the substation construction project (Aspen, 2007). It has a high potential to forage and a low potential to nest in portions of the project area within the WR-MSHCP. It has a low potential to forage and is unlikely to nest in the remainder of the project area. Take of western yellow-billed cuckoo foraging habitat, but not take of breeding territories, would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004). Potential impacts to western yellow-billed cuckoo habitat would be largely, if not completely, confined to the WR-MSHCP area.

Little willow flycatcher is a state-listed endangered species. It was not observed during project surveys, but may occur in the project area during migration. It is unlikely to nest anywhere in the project area. Little willow flycatcher is not a covered species under the WR-MSHCP or the CV-MSHCP and potential impacts to the species would not be mitigated by participation in the WR-MSHCP or CV-MSHCP. Its habitat requirements are similar to other riparian birds, and project impacts to this riparian habitat would be mitigated through measures described herein, or through MSHCP participation. Potential impacts to the species or its habitat may require incidental take authorization from CDFW.

Other listed riparian birds may be present in the project area during construction. Adult birds will generally flee from disturbance, but construction activities could result in damage to or loss of nests and injury or mortality to eggs and nestlings during surface disturbing activities. Other impacts may include alteration and disruption of foraging and breeding behavior. Construction would directly impact suitable habitat for listed riparian birds by temporary or permanent removal of habitat. Construction activities also could degrade habitat through soil compaction and the introduction and spread of non-native plant species.

As shown in Table D.5-3, potential permanent and temporary impacts to riparian habitat throughout the project area are 2.5 and 22.2 acres, respectively, with most of these impacts occurring in Segment 4. Impacts to listed riparian birds would be mitigated in part through the mitigation measures listed above. In addition to these measures, Mitigation Measure WIL-2c (Conduct surveys and avoidance for threatened or endangered riparian birds) will ensure that project impacts to the above listed riparian birds are mitigated adequately by including species specific details and performance criteria.

Stephens' kangaroo rat. Stephens' kangaroo rat (SKR) is a federally listed endangered and state-listed threatened species and is covered under the WR-MSHCP. During surveys for the project, one SKR was found within the vicinity of an access road in Segment 3 (one capture in 2012 and no captures in 2013 in the same area); this occurrence is within San Bernardino County. Potential habitat for SKR is limited to grassland and grassland/scrub ecotone in Segments 1, 2, 3, and 4. Potential habitat in Segments 1 and 2, and the west end of Segment 3 is within San Bernardino County. Potential habitat on the east end of Segment 3 and Segment 4 is within the WR-MSHCP area.

SKR may be present in the project area during construction, and construction activities could result in injury or mortality to SKR during surface disturbing activities. Other impacts may include destruction of burrows and alteration of foraging and breeding behavior. Use of construction vehicles and routine operations and maintenance operations could result in injury or death to SKR through vehicle collisions or crushing of burrows.

Construction would directly impact suitable, and possibly occupied, habitat for SKR. There are 528.2 acres of potentially suitable SKR habitat occur in the Proposed Project study area, of which up to 29.7 acres would be permanently affected and 187.9 acres temporarily affected (Table D.5-4).

Take of SKR habitat and incidental take of individual SKR would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004). Impacts to SKR would be mitigated in part through the mitigation measures listed above. In addition to these measures, Mitigation Measure WIL-2d (Conduct surveys and avoidance for Stephens' kangaroo rat) will ensure that project impacts to SKR are reduced to less than significant.

Table D.5-3. Riparian Woodland Maximum Potential Impacts

Segment	Permanent Impacts (acres)	Temporary Impacts (acres)
1	—	0.6
2	—	0.8
3	0.0*	2.6
4	2.5	16.6
5	—	1.7
6	—	—
Total Potential Impact	2.5	22.2

*Impact less than 0.05 and not included in table due to rounding error.

Table D.5-4. Stephens' Kangaroo Rat Habitat Maximum Potential Impacts

Vegetation Community	Acreage of Potential Habitat within the Project Study Area	Permanent Impacts (acres)	Temporary Impacts (acres)
Coastal Sage Scrub[1]	134.6	6.7	52.9
Grassland/Forbland	393.6	23.0	135.0
Total Potential Impact	528.2	29.7	187.9

1 - Excluding black sage scrub.

Coastal California gnatcatcher. The coastal California gnatcatcher (CAGN) is a federally listed threatened species and covered under the WR-MSHCP. Habitat for CAGN is mainly coastal sage scrub, which is found on the western portion of the project route in San Bernardino County, the WR-MSHCP area, and the western portion of the reservation. Designated critical habitat for CAGN is found on the west end of the project in San Bernardino County, along approximately 3.5 miles of Segment 2. CAGN was not detected in the Proposed Project study area during focused surveys conducted in 2012 and 2013. However, there is a moderate potential that it may occupy habitat in Segments 3 and 4, and a high potential in Segment 2.

CAGN may be present in the project area during construction. Adult birds will generally flee from disturbance, but construction activities could result in damage to or loss of nests and injury or mortality to eggs and nestlings during surface disturbing activities. Other impacts may include alteration and disruption of foraging and breeding behavior.

Suitable CAGN habitat, including designated critical habitat, would be impacted by the project, including permanent and temporary habitat loss and temporary disturbance to surrounding habitat. Construction activities also could degrade habitat through soil compaction and the introduction and spread of non-native plant species. The project would permanently affect up to 79.3 acres of coastal sage scrub and temporarily remove up to 453.5 additional acres (see Table D.4-4 in Section D.4). Within designated critical habitat, the Proposed Project would permanently impact up to 28.3 acres, of which 11.1 acres are potentially suitable coastal sage scrub habitat. In addition, the project would temporarily impact up to 187.1 acres of designated critical habitat, of which approximately 72.8 acres is potentially suitable coastal sage scrub habitat (Table D.5-5).

Take of CAGN breeding and foraging habitat and incidental take of gnatcatcher nests, eggs, and nestlings would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004). Potential impacts to CAGN and its habitat, including designated critical habitat, in San Bernardino County requires Section 7 Consultation and may require incidental take authorization. Potential impacts within the reservation require Section 7 Consultation and may require incidental take authorization. Impacts to CAGN would be mitigated in part through the mitigation measures listed above. In addition to these measures, Mitigation Measure WIL-2e (Conduct surveys and avoidance for coastal California gnatcatcher) will ensure that project impacts to CAGN are reduced to less than significant.

Table D.5-5. Coastal California Gnatcatcher Critical Habitat Maximum Potential Impacts

Vegetation Community	Acreage within the Project Study Area	Permanent Impacts (acres)	Temporary Impacts (acres)
Coastal Sage Scrub	220.4	11.1	72.8
Grassland/Forbland	312.1	13.8	88.6
Riparian	9.6	0.1	3.0
Developed/Disturbed	81.1	3.3	22.7
Total Critical Habitat	623.2	28.3	187.1

Other listed species. Four listed species have a low potential to occur in the project area: Casey's June beetle, Sierra Madre yellow-legged frog, Coachella Valley fringe-toed lizard, and bald eagle.

Casey's June beetle is federally listed endangered species. Habitat for larvae is alluvial sands where they live underground and feed on plant roots and other organic material. Adults emerge in the spring and are active for two to four weeks. This species' currently known distribution is limited to the alluvial floodplain in Palm Canyon, at the south end of Palm Springs. There is potentially suitable habitat for Casey's June beetle in Segment 6, but the species was not detected during project surveys, and the project area is outside the species' current known range. No impacts to Casey's June beetle are expected.

Sierra Madre (mountain) yellow-legged frog is a federally and state-listed endangered species and a covered species under the WR-MSHCP. Habitat for this species is permanent water in ponds, lakes, and streams, at moderate to high elevations in the San Gabriel, San Jacinto, and San Bernardino Mountains. Sierra Madre yellow-legged frog has been reported in habitat upstream of the project area in the San Gorgonio River (Segment 5) and Whitewater River (Segment 6). There is also an unconfirmed, and likely erroneous, report of this species at gravel quarry ponds at Robertson's Plant 66 (Segment 5). The U.S. Geological Survey has done exhaustive surveys to locate any remaining populations of this species and none have been reported from the project area. There is no suitable habitat in the project area for Sierra Madre yellow-legged frog, and no impacts are expected.

Coachella Valley fringe-toed lizard is a federally listed threatened and state-listed endangered species, and a covered species under the CV-MSHCP. Habitat for this species is fine, loose, aeolian sand in sparse desert scrub vegetation. There is potentially suitable habitat for Coachella Valley fringe-toed lizard in Segment 6 east of the Whitewater River. The species was not detected during project surveys and the project area may be outside its current range. No project effects to Coachella Valley fringe-toed lizard are expected.

Bald eagle is protected under the federal Bald and Golden Eagle Protection Act and is a state-listed endangered species and a California fully protected species; it is a covered species under the WR-MSHCP. Bald eagles generally forage in areas with lakes or reservoirs with fish or waterfowl for prey. The bald eagle nests in large trees in secluded areas with a permanent water source and is unlikely to nest anywhere within the vicinity of the project area. This species was not observed during project surveys, but there is suitable wintering habitat (artificial lakes) near Segment 3, and it has been reported as an occasional winter visitor there.

There is a low potential for any of these other listed species to be present in the project area during construction, but if present, construction activities could result in injury or mortality to Casey's June beetle, Sierra Madre (mountain) yellow-legged frog, and Coachella Valley fringe-toed lizard during surface disturbing activities. Vehicles could cause injury or death to these species through collisions or crushing. Other impacts may include alteration of foraging and breeding behavior.

Adult bald eagles will generally flee from disturbance, and it is unlikely that any bald eagle nests would occur in the vicinity of the project area. Foraging habitat for bald eagle is unlikely to be affected by the project. Potential project impacts to this species include alteration and disruption of foraging behavior. These impacts (if any) would be negligible, and no additional mitigation is recommended.

Potential habitat for Casey's June beetle and Coachella Valley fringe-toed lizard would be impacted by permanent removal of habitat and temporary loss or degradation of habitat. Construction activities also could degrade habitat through soil compaction and the introduction and spread of non-native plants. Take of habitat and incidental take of animals would be covered within the CV-MSHCP area for Coachella Valley fringe-toed lizard if SCE becomes a PSE and implements the requirements of the CV-MSHCP and WR-MSHCP (USFWS, 2004).

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would serve to minimize or avoid take of any of these species, should they occur within the project area.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)

Other critical habitat. Designated critical habitat for two additional listed species, the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) and Santa Ana sucker (*Catostomus santaanae*), is located in the Santa Ana River and surrounding wash habitat to the west and north and outside of the Proposed Project study area in Segments 1 and 2, in San Bernardino County. It is over 1,000 feet from the Mountain View 1 staging yard and San Bernardino Substation at the north end of Segment 1. This critical habitat is separated from the project area by industrial development; see Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7). There is no suitable habitat or designated critical habitat for either species within the project area. Designated critical habitat for southwestern willow flycatcher (discussed above) and Santa Ana sucker is located along the Santa Ana River approximately 1,000 feet west of the westernmost end of Segment 2. This critical habitat is separated from the project area by a housing development; see Figures Ap.7-1a through Ap.7-1k, Land Management and Critical Habitat Areas (in Appendix 7).

These critical habitat areas appear along drainages, which provide the primary constituent elements for these species. In all cases, these habitats are separated from the Proposed Project by intervening land uses that provide some buffer between the habitat areas and the Proposed Project, and no direct impacts are anticipated. Indirect impacts could occur if dust from construction activities or sediment or pollutants from the project were carried or washed from the project area into the Santa Ana River drainage and caused degradation of habitat.

The following mitigation measures identified in Section D.4 and under Impact WIL-1 and additional mitigation measures protecting air quality and surface waters would minimize the potential for any impacts to the drainages in these critical habitat areas.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1b (Ensure wildlife impact avoidance and minimization)

Other Special-status Wildlife

Forty-five non-listed special-status wildlife species were observed during surveys and 26 additional special-status animals have a moderate or high potential for occurrence within the Proposed Project study area, as described in Table Ap.7-2 (in Appendix 7).

The Proposed Project's impacts to non-listed special-status wildlife species would be mitigated in part through mitigation measures identified in Section D.4 (Vegetation) and under Impact WIL-1, as follows:

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)
- WIL-1c (Prepare and implement a Nesting Bird Management Plan)

While SCE has proposed APMs to protect burrowing owl and the pocket mouse, these measures have been found to be insufficiently detailed, and they are superseded by Mitigation Measures recommended in this section.

The following paragraphs address each special-status species, describing species-specific impacts. The following additional Mitigation Measures are recommended to mitigate the Proposed Project's impacts to these species. (These two measures are set forth under "Mitigation Measures for Impact WIL–2" after the discussion of Impact WIL-2.)

- WIL-2f (Conduct surveys and avoidance for golden eagle)
- WIL-2g (Conduct surveys and avoidance for burrowing owl)
- WIL-2h (Conduct surveys and avoidance for special-status herpetofauna)
- WIL-2i (Conduct surveys and avoidance for bats)
- WIL-2j (Conduct surveys and avoidance for special-status small mammals)
- WIL-2k (Conduct surveys and avoidance for American badger, ringtail, and desert kit fox)

MSHCP participation (if SCE obtains PSE status) may result in additional measures to mitigate the Proposed Project's impacts to these species.

Coachella Valley Jerusalem cricket. The Coachella Valley Jerusalem cricket is a California Special Animal and is covered under the CV-MSHCP. Habitat for this species is aeolian sand, found in Segment 6 within the floodplain on the east side of the Whitewater River and east of Whitewater Canyon. Focused surveys conducted in 2011-2012 did not detect Coachella Valley Jerusalem cricket. The project could cause direct and indirect impacts to Coachella Valley Jerusalem cricket through permanent and temporary loss or degradation of aeolian sand habitat. Other potential impacts are disturbance of foraging, dispersal, and breeding activities. Coachella Valley Jerusalem cricket may be present during construction and may be crushed by vehicles, equipment, or personnel or adversely affected by visual disturbances, noise and vibration, or lighting, from construction activities. If SCE obtains PSE status, take of habitat and incidental take of Coachella Valley Jerusalem cricket would be covered under the CV-MSHCP (USFWS, 2008).

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for permanent and temporary effects on habitat for Coachella Valley Jerusalem cricket, and potential loss of individual Coachella Valley Jerusalem cricket.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)

Special-status Raptors

Golden Eagle. The golden eagle is protected under the federal Bald and Golden Eagle Protection Act and is a California fully protected species; it is a covered species under the WR-MSHCP. Golden eagles were observed during 2012 and 2013 wildlife surveys, either soaring or perched within the Proposed Project study area. Additionally, active territories and nests were detected in 2013 during focused golden eagle surveys within a 4-nautical-mile (4.6-mile) survey buffer of the WOD corridor. Golden eagles forage in the project study area in Segments 3, 4, and 5, predominantly in open habitat near the communities of Banning and Cabazon, and have a high potential to forage in Segment 6 as well. Active and potentially active nests have been detected within 10 miles of Segments 4, 5, and 6.

In southern California, golden eagles forage in grasslands, brushlands (coastal sage scrub and sparse chaparral), deserts, oak savannas, and open coniferous forests. Nesting habitat is primarily rugged, mountainous country and nests are built on cliffs, rock outcroppings, and occasionally large trees (USFWS, 2004).

The project could cause direct and indirect impacts on golden eagles through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging and nesting activities. Most of the natural habitats in the project area are potentially foraging habitat for golden eagles; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages. Natural nesting habitat is lacking within the project area; however, golden eagles may nest on large transmission line structures. No direct take of golden eagles is expected.

Take of golden eagle nesting and foraging habitat would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004). However, no lethal take of golden eagles and no take or disturbance of active golden eagle nests is authorized under the WR-MSHCP. Regardless of MSHCP participation, Consultation with CDFW and USFWS would be required for take of eagles, and incidental take authorization may be required.

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to individual golden eagles and nests, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)
- WIL-1c (Prepare and implement a Nesting Bird Management Plan)

In addition, Mitigation Measure WIL-2f (Conduct surveys and avoidance for golden eagle), is identified to further mitigate potential Project impacts to golden eagle.

Swainson's Hawk. Swainson's hawk is state-listed as threatened and is covered under the WR-MSHCP. Swainson's hawk migrants were observed during 2012 and 2013 project surveys near Segments 3 and 4. The species also has a moderate potential for occurrence in the remainder of the project area during migration. The project area is outside the species known breeding range and nesting is not expected.

During migration, Swainson's hawks rest and forage in grasslands and fields, often perching on fence posts and utility poles (USFWS, 2004). The project could cause direct and indirect impacts on Swainson's hawk through permanent and temporary loss or degradation of foraging habitat and disturbance of foraging activities. Most of the natural habitats and the agricultural lands in the project area are potential foraging habitat for migrating Swainson's hawk; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages. No direct take of Swainson's hawk is expected.

Take of Swainson's hawk foraging habitat would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004; page 578). However, no take of individual Swainson's hawk is authorized under the WR-MSHCP, which says "Regardless of MSHCP participation, Consultation with CDFW would be required for take of Swainson's hawk, and incidental take authorization may be required."

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to individual Swainson's hawks, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)
- WIL-1c (Prepare and implement a Nesting Bird Management Plan)

White-tailed Kite. White-tailed kite is a state fully protected species, and is covered under the WR-MSHCP. It was observed foraging in riparian habitat associated with San Timoteo Creek during 2012 project surveys. Suitable foraging and nesting habitat is present within the Proposed Project study area, particularly in Segments 3 and 4.

The white-tailed kite forages in grasslands, agricultural lands, shrublands, wetlands, and oak woodlands and riparian areas adjacent to open lands. Nesting habitat includes riparian woodland and oak woodland (USFWS, 2004).

The project could cause direct and indirect impacts on white-tailed kite through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging and nesting activities. Most of the natural habitats and the agricultural lands in the project area are potential foraging habitat for white-tailed kite and riparian and woodland areas are potential nesting habitat; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages.

Take of white-tailed kite breeding and foraging habitat would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004; page 610). However, no take of individual white-tailed kite or nests is authorized under the WR-MSHCP. As a California fully protected species, no take of white-tailed kite may be authorized except through MSHCP coverage.

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to individual white-tailed kites and nests, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)
- WIL-1c (Prepare and implement a Nesting Bird Management Plan)

American Peregrine Falcon. The American peregrine falcon is a fully protected species in California and is covered under the WR-MSHCP. It was formerly a federally listed endangered species, but was delisted in 1999 due to recovery. It has been observed on or near the project area. It has a moderate potential to forage throughout the project area, and a low potential to nest there.

The American peregrine falcon preys on birds that are caught in flight. It forages over grasslands, agricultural lands, wetlands, and woodlands. Nests are typically built on cliff ledges, but peregrine falcons may nest on large buildings, bridges, and other structures. There is limited natural nesting habitat available in the vicinity of the project area, but peregrine falcons may rarely nest in transmission towers.

The project could cause direct and indirect impacts to peregrine falcon through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging activities. Most of the natural habitats and the agricultural lands in the project area are potential foraging habitat for peregrine falcon; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages.

Take of peregrine falcon habitat would be covered within the WR-MSHCP area if SCE becomes a PSE and implements the requirements of the WR-MSHCP (USFWS, 2004; page 550). However, no take of individual peregrine falcon or nests is authorized under the WR-MSHCP. As a California fully protected species, no take of peregrine falcon may be authorized except through MSHCP coverage.

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to individual peregrine falcons and nests, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)
- WIL-1c (Prepare and implement a Nesting Bird Management Plan)

Other Special-status Raptors. Special-status raptors observed during project surveys (other than those discussed above) are: osprey (California Special Animal, covered under WR-MSHCP), Cooper's hawk (California Special Animal, covered under WR-MSHCP), ferruginous hawk (California Special Animal, covered under WR-MSHCP), northern harrier (California Species of Special Concern, covered under WR-MSHCP), merlin (California Special Animal, covered under WR-MSHCP), and prairie falcon (California Special Animal, covered under WR-MSHCP). Of these species, only the Cooper's hawk and prairie falcon have a moderate or high potential to nest in or near the project area.

The project could cause direct and indirect impacts to special-status raptors through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging activities. Other impacts may include alteration and disruption of foraging behavior.

Prairie falcon nesting habitat is generally similar to golden eagles', as described above. Cooper's hawks may be present in the project area during construction, and may nest on transmission structures, including within the hollow arms of tubular steel poles. Adult Cooper's hawks will generally flee from disturbance, but construction activities could result in damage to or loss of nests and injury or mortality to eggs and nestlings during tree trimming or removal and construction activities in new or existing transmission structures. Other impacts may include alteration and disruption of foraging and breeding behavior.

Potential habitat for the special-status raptors is found throughout the project area; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages. Take of foraging, roosting, and breeding habitat is covered under the WR-MSHCP within the area of that plan and for the covered species as listed above. Incidental take of individuals or nests is not permitted (USFWS, 2004). Regardless of MSHCP participation, Consultation with CDFW and USFWS would be required, and incidental take authorization may be required.

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to individual raptors and nests, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)
- WIL-1c (Prepare and implement a Nesting Bird Management Plan)

Burrowing Owl

The burrowing owl is a California Species of Special Concern and protected under the MBTA and California Fish and Game Code. It is covered under the WR-MSHCP and the CV-MSHCP. It has been documented on Segments 5 and 6 of the project, and has a high potential for foraging and nesting on Segments 2, 3, and 4, and a moderate potential for foraging and nesting on Segment 1.

Habitat for burrowing owl is level, sparsely vegetated, open areas such as grassland, agricultural land, scrubland, and disturbed or landscaped open areas (e.g., vacant lots, golf courses, airfields, cemeteries, road margins). The burrowing owl forages on the ground for small reptiles and mammals and invertebrates. It shelters and nests in underground burrows and tends to take cover in its burrow rather than flee from disturbance. It may use abandoned burrows of ground squirrels or other animals, or dig its own burrow if soil conditions allow. Burrowing owl populations in California consist of both year-round residents and wintering owls from outside of the area. Resident owls will use and maintain the burrow year-round (USFWS, 2004).

The project could cause direct and indirect impacts on burrowing owl through permanent and temporary loss or degradation of suitable habitat, destruction of burrows, and disturbance to foraging and breeding activities.

Burrowing owl may be present in the project area during construction. Adult burrowing owls will generally shelter in their burrow rather than flee from disturbance, and construction activities could result in injury and mortality to adults, damage or destruction of burrows, and injury or mortality to eggs and nestlings during grading, vegetation removal, and site preparation. Other impacts include potential injury and mortality from vehicle collisions.

Take of habitat would be covered within the WR-MSHCP and CV-MSHCP areas if SCE becomes a PSE and implements the requirements of the two MSHCPs (USFWS, 2004; USFWS, 2008).

While SCE has proposed APM BIO-4 to protect burrowing owl, this measure is insufficiently detailed, and it is superseded by Mitigation Measure WIL-2g (Conduct surveys and avoidance for burrowing owl), recommended in this section.

Mitigation measures identified in Section D.4 and under Impact WIL-1 listed above (under golden eagle) would, in part, reduce the potential for disturbance to individual burrowing owls, and the permanent and temporary effects to habitat. Due to its behavior, often taking cover within a burrow to escape threats (rather than fleeing), special measures to prevent take of burrowing owl are needed. Mitigation Measure WIL-2g (Conduct surveys and avoidance for burrowing owl) would avoid take of burrowing owl and minimize impacts to its habitat.

Other Special-status Birds. Twenty-four additional special-status birds were observed during project surveys, and three additional species have a high or moderate potential for occurrence. Nine of these species are covered under the WR-MSHCP (great blue heron, black-crowned night heron, loggerhead shrike, California horned lark, purple martin, southern California rufous-crowned sparrow, grasshopper sparrow, Bell's sage sparrow, tricolored blackbird), one is covered under the CV-MSHCP (Le Conte's thrasher), and two are covered under both (yellow-breasted chat, yellow warbler). Some species only occur in the project area during migration or wintering: others occur during the breeding season, or are year-round residents. Please see Table Ap.7-2 (in Appendix 7) for details.

The project could cause direct and indirect impacts to special-status birds through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging and breeding activities. Potential habitat for special-status species is found throughout much of the project area; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages.

Take of foraging and breeding habitat is covered under the WR-MSHCP or CV-MSHCP within the area of each plan and for the covered species as listed above. Permitting of incidental take of individuals varies with species (USFWS, 2004). No take would be authorized outside the two MSHCP coverage areas or within them if SCE does not become a Participating Special Entity in one or both MSHCPs.

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to special-status birds and nests, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)
- WIL-1c (Prepare and implement a Nesting Bird Management Plan)

Special-status Terrestrial Herpetofauna. Special-status terrestrial herpetofauna (reptiles and amphibians) observed during project surveys (other than desert tortoise, discussed above) are: western spadefoot toad (California Species of Special Concern, covered under WR-MSHCP), coast horned lizard (California Species of Special Concern, covered under WR-MSHCP), coastal western whiptail (California Special Animal, covered under WR-MSHCP), silvery legless lizard (California Species of Special Concern), rosy boa (California Special Animal), and red-diamond rattlesnake (California Species of Special Concern, covered under WR-MSHCP).

Other species with a moderate or high potential to occur within the project area are: San Diego banded gecko (California Special Animal, covered under WR-MSHCP), orange-throated whiptail (California Species of Special Concern, covered under WR-MSHCP), San Bernardino ringneck snake (California Special Animal), coast patch-nosed snake (California Species of Special Concern), and two-striped garter snake (California Species of Special Concern).

The project could cause direct and indirect impacts on special-status terrestrial herpetofauna through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging, dispersal, and breeding activities. Special-status terrestrial herpetofauna may be present during construction and may be adversely affected by visual disturbances, noise and vibration, lighting, and dust from construction activities. Burrows, nests, or hibernacula located within project disturbance areas may be damaged or destroyed, and adults or young within may be injured or killed. Individuals in the vicinity of construction activities may be disturbed or frightened away by human presence, noise, and activity. Reproduction of amphibians may be affected by impacts to water quality.

Potential habitat for special-status herpetofauna is found throughout much of the project area; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages. Take of habitat and incidental take of individuals is covered under the WR-MSHCP within the area of that plan and for the covered species as listed above (USFWS, 2004).

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to special-status herpetofauna and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)

In addition, Mitigation Measure WIL-2h (Conduct surveys and avoidance for special-status terrestrial herpetofauna), would reduce the potential for loss of individual special-status terrestrial herpetofauna.

Special-status Bats. One special-status bat species was detected during project surveys: western mastiff bat (California Species of Special Concern). Other special-status bat with a moderate or high potential to occur within the project area are: pallid bat (California Species of Special Concern), western red bat (California Species of Special Concern), hoary bat (California Special Animal), western (southern) yellow bat (California Species of Special Concern, covered under CV-MSHCP), western small-footed myotis (California Special Animal), long-eared myotis (California Special Concern Animal), Yuma myotis (California Special Animal), and silver-haired bat (California Special Animal).

Most special-status bats roost in rock crevices, caves, abandoned mine shafts, or old buildings. Others may roost in tree cavities, bark crevices, or foliage. Roost sites may be used seasonally (e.g., hibernacula) or daily (day roosts, used during inactive daylight hours). Maternity roosts (where female bats congregate to give birth and raise young) are particularly important.

Some bats hibernate during winter, others migrate south. During the breeding season, bats generally roost during the day, either alone or in communal roost sites, depending on species. The special-status bats with potential to occur in the project area are all insectivorous, catching their prey either on the wing or on the ground.

The project could cause direct and indirect impacts to special-status bats through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging, dispersal, and breeding activities. Special-status bats may be present during construction and may be adversely affected by visual disturbances, noise and vibration, lighting, and dust from construction activities. Day roosts, hibernacula, and maternity roosts located within project disturbance areas may be damaged or destroyed, and adults or young may be injured or killed. Individual bats in the vicinity of construction activities may be disturbed or frightened away by human presence, noise, and activity.

Potential habitat for special-status bats is found throughout much of the project area; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages. Preferred roosting habitat for the western (southern) yellow bat is fan palm oasis woodland. Take of habitat for western (southern) yellow bat is covered under the CV-MSHCP within the area of that plan (USFWS, 2008).

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to special-status bats, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)

In addition, Mitigation Measure WIL-2i (Conduct surveys and avoidance for bats), would reduce the potential for loss of special-status bats.

Special-status Small Mammals. Special-status small mammals observed during project surveys (other than the species discussed above) are: San Diego black-tailed jackrabbit (California Species of Special Concern, covered under WR-MSHCP), northwestern San Diego pocket mouse (California Species of Special Concern, covered under WR-MSHCP), pallid San Diego pocket mouse (California Species of Special Concern), Palm Springs pocket mouse (California Species of Special Concern, covered under CV-MSHCP), Los Angeles pocket mouse (California Species of Special Concern, covered under WR-MSHCP), and San Diego desert woodrat (California Species of Special Concern, covered under WR-MSHCP). One additional special-status small mammal species has a moderate potential to occur within the project area: Palm Springs round-tailed ground squirrel (California Species of Special Concern).

The project could cause direct and indirect impacts to special-status small mammals through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging, dispersal, and breeding activities. Special-status small mammals may be present during construction and may be adversely affected by visual disturbances, noise and vibration, lighting, and dust associated with construction activities. Small mammal burrows or nests located within project disturbance areas may be damaged or destroyed, and adults or young within the burrows or nests may be injured or killed. Individual small mammals in the vicinity of construction activities may be disturbed or frightened away by human presence, noise, and activity.

The San Diego desert woodrat constructs above-ground middens, composed of sticks, rocks, and other materials. The midden is used for cover, nesting, and food caching, and may be occupied and added on to for generations. It is usually built against a rock crevice or at the base of a tree, shrub, or cactus. Middens typically have multiple chambers and several entrances. In addition to the potential impacts listed above, impacts to San Diego desert woodrat include damage to or destruction of middens during vegetation clearing activities, loss of food caches, and adults or young within the middens being injured or killed.

Potential habitat for the special-status small mammals is found throughout much of the project area; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages. Take of habitat and individual animals is covered under the WR-MSHCP within the area of that plan and for the covered species as listed above (USFWS, 2004).

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to special-status small mammals, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)

The PEA identifies APM BIO-12 as mitigation for potential impacts to Los Angeles pocket mouse and Palm Springs pocket mouse; however this measure has been found to be insufficiently detailed, and it is superseded by Mitigation Measure WIL-2j (Conduct surveys and avoidance for special-status small mammals). This mitigation measure, in combination with the measures listed above, would reduce the potential for loss of individual special-status small mammals.

American Badger, Ringtail, and Desert Kit Fox. The American badger is a California Species of Special Concern. It is not covered by the WR-MSHCP or CV-MSHCP. It has a moderate potential for occurrence throughout natural open space areas in the project area. Badgers prefer open areas in grasslands and shrublands with dry, friable soils for burrowing. Badgers dig burrows for cover and for rearing cubs.

The ringtail is fully protected in California. It is not covered by the WR-MSHCP or CV-MSHCP. It has a moderate potential for occurrence throughout natural open space areas in the project area. Suitable habitat for ringtail is forest and shrubland with rocky areas, usually near permanent water and riparian areas. Ringtails den and rear their cubs in rock crevices, hollow logs, abandoned burrows, or woodrat middens.

The desert kit fox is classified as a protected furbearing mammal by CDFW. It is not covered by the WR-MSHCP or CV-MSHCP. It has a moderate potential for occurrence on the arid, eastern end (Segments 4, 5, and 6) of the project. Desert kit fox habitat includes open, arid scrublands, grasslands, and agricultural lands. Kit foxes dig burrows for cover and for rearing pups. Canine distemper outbreaks have been a recent concern.

The project could cause direct and indirect impacts on American badger, ringtail, and desert kit fox through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging and breeding activities. American badger, ringtail, and desert kit fox may be present during construction and may be adversely affected by visual disturbances, noise and vibration, lighting, and dust from construction activities. Badger, ringtail, or kit fox dens located within project disturbance areas may be damaged or destroyed, and adults or pups/kits within the dens may be injured or killed. Individuals in the vicinity of construction activities may be disturbed or frightened away by human presence, noise, and activity.

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to desert kit fox, ringtail, and badger, and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)

In addition, Mitigation Measure WIL-2k (Conduct surveys and avoidance for American badger, ringtail, and desert kit fox), would reduce the potential for disturbance to desert kit fox, ringtail, and badger and their dens and young.

Nelson's Bighorn Sheep. The USFWS and CDFW recognize multiple populations of Nelson's bighorn sheep referred to as distinct population segments (DPS). The peninsular DPS occupies the Peninsular Ranges of southern California and is federally listed as endangered and state listed as threatened. The range of the peninsular DPS does not extend north of Interstate 10 and is approximately 0.8 miles (4,200 feet) south of the Proposed Project study area and vicinity. The bighorn sheep population that could occur in the project area is not state or federally listed, but all bighorn sheep are fully protected in California with the exception of legal sport hunting in specific areas. The peninsular population of bighorn is covered under the CV-MSHCP, but the non-peninsular population is not.

The non-peninsular bighorn population is known from the Whitewater Canyon and Whitewater River area about 3.5 miles upstream from Segment 6. Bighorn sheep prefer open, steep terrain, particularly for lambing, but may use lowland habitat for foraging and dispersal. There is a moderate potential for Nelson's bighorn sheep (non-peninsular population) to occur in lowland habitat in or near the project area (Segments 5 and 6) during foraging and dispersal activities, but not during lambing. No bighorn sheep were observed during surveys conducted for the project from 2011 to 2013. The Proposed Project could cause direct and indirect impacts to bighorn sheep through permanent and temporary loss or degradation of suitable habitat and disturbance of foraging and dispersal activities. Bighorn sheep may be present during construction and may be adversely affected by visual disturbances, noise and vibration, and dust from construction activities. Bighorn sheep in the vicinity of construction activities may be disturbed or frightened away by human presence, noise, and activity.

In the project area, potential bighorn forage and dispersal habitat includes the native vegetation communities on Segments 5 and 6, particularly desert scrub and alluvial scrub; see Table D.4-4 (Section D.4) for temporary and permanent habitat impact acreages.

The following mitigation measures identified in Section D.4 and under Impact WIL-1 would reduce the potential for disturbance to Nelson's bighorn sheep and the permanent and temporary effects to habitat.

- VEG-1a (Conduct biological monitoring and reporting)
- VEG-1b (Prepare and implement worker environmental awareness program [WEAP])
- VEG-1c (Minimize native vegetation and habitat loss)
- VEG-1d (Restore or revegetate temporary disturbance areas)
- VEG-1e (Compensate for permanent habitat loss)
- VEG-2a (Prepare and implement an integrated weed management plan)
- WIL-1a (Conduct pre-construction biological resource surveys)
- WIL-1b (Ensure wildlife impact avoidance and minimization)

Mitigation Measures for Impact WIL-2: Construction, restoration, operations, and maintenance activities could cause direct or indirect loss of listed and special-status wildlife and direct or indirect effects to habitat for listed and special-status wildlife

WIL-2a **Conduct desert tortoise surveys, monitoring, and avoidance.** Methods for clearance surveys, fence specification and installation, tortoise handling, artificial burrow construction, egg handling, and other procedures shall be consistent with those described in the USFWS (2009) *Desert Tortoise Field Manual* or more current guidance provided by CDFW and USFWS.

Desert tortoise shall be handled only by a USFWS/CDFW permitted and authorized biologist (Authorized Biologist) following appropriate USFWS protocols and in compliance with appropriate regulatory permits. A biological monitor shall monitor construction activities in all areas with the potential to support desert tortoise. Observations of desert tortoise or sign shall be immediately communicated to the Authorized Biologist.

Within suitable habitat for desert tortoise, SCE shall survey the project area for desert tortoise burrows and pallets within fourteen (14) days preceding the initial start of construction. Follow-up surveys shall also be conducted within fourteen (14) days preceding additional construction after a gap in significant construction activities of 60 calendar days or more. Surveys shall include 100 percent of the area to be disturbed and a surrounding buffer of 100 feet.

Subject to authorization by CDFW and USFWS, tortoise burrows and pallets encountered within the disturbance area (if any) shall be conspicuously flagged by the surveying biologist(s) and avoided during construction activities. If a burrow suitable for desert tortoise cannot be avoided, it shall be excavated carefully using hand tools, by or under the supervision of an Authorized Biologist, and collapsed or blocked to prevent desert tortoise reentry. If the burrow is occupied, the Authorized Biologist may move the tortoise to another burrow.

Project personnel shall inspect for desert tortoises under parked vehicles or equipment prior to moving same. If a desert tortoise is found beneath a vehicle or equipment, the vehicle or equipment shall not be moved until the tortoise has voluntarily moved to a safe distance away. If the tortoise does not move on its own accord after 20 minutes, the tortoise may be moved by an Authorized Biologist, subject to authorization by CDFW and USFWS.

If a desert tortoise is found in a work area, the tortoise shall be allowed to passively traverse the site while construction in the immediate area is halted. If the tortoise does not move out of harm's way after 20 minutes, the tortoise may be moved by an Authorized Biologist, subject to conditions and authorization by CDFW and USFWS.

Subject to authorization by CDFW and USFWS, desert tortoises shall be moved the minimum distance possible within appropriate habitat. In general, desert tortoise will not be moved in excess of 1,000 feet for adults and 300 feet for hatchlings. Desert tortoises that are moved shall be placed in the shade of a shrub. After being moved, the desert tortoise shall be monitored to ensure its safety. Any time a tortoise is handled, the Authorized Biologist shall take photographs and record pertinent data in their daily monitoring report. This information shall be summarized and submitted to CPUC and BLM in annual environmental compliance reports.

Subject to authorization by CDFW and USFWS, a desert tortoise removed from its burrow shall be placed in an unoccupied burrow of approximately the same size and orientation. If an existing burrow is unavailable, the Authorized Biologist will construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow. Desert tortoises moved during inactive periods will be monitored for at least two days after placement in the new burrow to ensure their safety.

Subject to authorization by CDFW and USFWS, if a desert tortoise is moved at a time of the day when ambient temperatures are unfavorable (less than 40 degrees F or greater than 90 degrees F) it shall be held overnight in a clean cardboard box. The desert tortoise shall be kept in the care of the Authorized Biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes will be appropriately discarded after one use.

Implementation locations: This mitigation measure shall apply in desert tortoise habitat within the project area (Segments 5 and 6), subject to the stipulations listed above. Specifically, this mitigation measure applies on BLM lands, throughout the CV-MSHCP area (regardless of SCE's PSE status), and is recommended on all Morongo Tribal Lands. No suitable desert tortoise habitat is present within San Bernardino County and the WR-MSHCP; therefore, this mitigation measure does not apply in these jurisdictions.

WIL-2b **Prepare and implement Raven Monitoring, Management, and Control Plan.** SCE shall prepare and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) consistent with USFWS raven management guidelines and that meets the approval of the CPUC and BLM in consultation with USFWS, and CDFW. The purpose of the Raven Plan shall be to minimize project-related predator subsidies and prevent any increases in raven numbers or activity within desert tortoise habitat during construction, restoration, and O&M phases. The Plan shall address all project components and their potential effects on raven numbers and activity. The threshold for implementation of raven control measures shall be any increases in raven numbers from baseline conditions, as detected by monitoring to be implemented pursuant to the Plan. Regardless of raven monitoring results, SCE shall be responsible for all other aspects of raven management described in the Raven Plan, such as avoidance and minimization of project-related trash, water sources, or perch/roost/nest sites that could contribute to increased raven numbers. In addition, to offset the cumulative contributions of the project to desert tortoise impacts from increased raven numbers, SCE shall contribute to the USFWS Regional Raven Management Program. SCE shall:

1. **Prepare and Implement a Raven Management Plan** that shall include, but shall not be limited to the following components. The Plan shall be reviewed and approved by CPUC, BLM, USFWS, and CDFW prior to the start of construction activities.
   a. Identify all potential project activities, structures, components, and other effects that could provide predator subsidies or attractants, including potential sources of food and water, and nesting materials, as well as nest or perch sites. These will include, but will not be limited to: waste food material, road-killed animals, water storage, potential pooling from leaks, dust control, or wastewater, debris from brush clearing, and perch or roost sites on project facilities and infrastructure.
   b. Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities.
   c. Appoint a qualified biologist who will implement a monitoring schedule and field methods for the purpose of locating any ravens present in the project vicinity and detecting any increase in raven numbers or activity.
   d. Specify raven activity thresholds for implementation of control measures.

e. Describe control practices for ravens to be implemented as needed based on the monitoring results.

f. Address monitoring and nest removal during construction and for the life of the project.

g. Describe reporting schedules and requirements.

2. **Contribute to the USFWS Regional Raven Management Program.** No later than 30 days prior to the start of construction, SCE shall contribute to the USFWS Regional Raven Management Program by making a one-time payment of $105 per acre of long-term or permanent project disturbance within the geographic range of desert tortoise, or as specified by the USFWS, to the National Fish and Wildlife Foundation Renewable Energy Action Team raven control account.

Implementation locations: This mitigation measure applies on BLM lands and is recommended on all Morongo Tribal Lands. No suitable desert tortoise habitat is present within San Bernardino County and the WR-MSHCP; therefore, this mitigation measure does not apply in these jurisdictions. In the CV-MSHCP, this mitigation measure shall apply in its entirety regardless of SCE's PSE status.

WIL-2c **Conduct surveys and avoidance for threatened or endangered riparian birds.** Construction activities shall avoid suitable habitat for listed riparian birds. If suitable habitat cannot be avoided, SCE shall consult with CDFW and USFWS and obtain appropriate take authorizations or permits. SCE shall implement the conservation measures contained within these permits.

If construction activities will occur during the breeding season potentially suitable habitat for listed riparian birds, a qualified biologist shall conduct protocol surveys of the project area and adjacent areas within 500 feet. USFWS protocol surveys shall be conducted for southwestern willow flycatcher, yellow-billed cuckoo, and least Bell's vireo. The surveys shall be of adequate duration to verify potential nest sites if work is scheduled to occur during the breeding season. Where protocol surveys determine that listed riparian birds are present, SCE shall conduct additional focused nest location surveys, to determine the locations of nests and territories. Survey areas shall include a 500-foot buffer around project disturbance areas.

Protocol surveys, shall be conducted within one year prior to the start of construction and shall continue annually during each nesting season until completion of construction and restoration activities. At a minimum, surveys shall be conducted from 15 May to 17 July for southwestern willow flycatcher, from 10 April to 31 July for least Bell's vireo, and from 1 June to 31 August for yellow-billed cuckoo.

These surveys may be modified through coordination with the USFWS, CDFW, BLM, and the CPUC based on the condition of habitat, the observation of the species, or avoidance of riparian areas during the breeding season. SCE shall submit documentation providing results of the protocol surveys for listed riparian birds to the CPUC and BLM for review and approval in consultation with USFWS and CDFW.

If an active breeding territory or nest is confirmed, the CPUC, BLM, USFWS, and CDFW shall be notified immediately. All active nests shall be monitored on a weekly basis until the nestlings fledge or the nest becomes inactive. SCE shall provide monitoring reports to the CPUC and BLM for review in consultation with USFWS and CDFW.

In coordination with the USFWS and CDFW, a 500-foot disturbance-free ground buffer and 1,000-foot vertical helicopter buffer shall be established around the active nest and demarcated by fencing or flagging. No construction or vehicle traffic shall occur within nest buffers, except on existing paved public roads.

If an active breeding territory or nest is confirmed within 500 feet of any project activity site, SCE shall prepare and implement a Wildlife Noise Monitoring Plan throughout construction and demolition activities taking place while listed riparian birds occupy the nesting territory. Sound levels at the nest sites shall not exceed 8 dBA above ambient levels or 70 dBA (hourly average Leq), whichever is greater. Ambient levels will be established prior to initiation of construction and demolition, using the same methodology that will be used to take noise measurements during monitoring.

If the hourly average noise threshold is exceeded, or if the biological monitor determines that construction activities are disturbing nesting birds, additional noise reduction techniques shall be implemented to reduce project noise below the thresholds. Additional noise monitoring will be conducted to verify the reduction of noise levels below the thresholds. Noise reduction techniques can include, but are not limited to:

- Temporary noise barriers or sound walls
- Noise pads or dampers
- Replace and update noisy equipment
- Moveable task noise barriers
- Queue trucks to distribute idling noise
- Locate vehicle access points and loading and shipping facilities away from the nest site
- Reduce the number of noisy activities that occur simultaneously
- Relocate noisy stationary equipment away from the nest sites

Implementation locations: This mitigation measure applies on BLM lands, throughout the WR-MSHCP and CV-MSHCP areas (regardless of SCE's PSE status), and within San Bernardino County, and is recommended on all Morongo Tribal Lands.

WIL-2d **Conduct surveys and avoidance for Stephens' kangaroo rat.** Prior to the start of construction, within suitable habitat for Stephens' kangaroo rat (SKR), SCE shall conduct focused surveys to determine if SKR sign (burrows, scat, and etc.) is present in all areas within 100 feet of work sites or other project activities that would permanently or temporarily affect soils or vegetation. All surveys shall be conducted by a qualified biologist who holds the appropriate USFWS permits to conduct trapping surveys for SKR. If sign is present, then SCE shall conduct focused trapping surveys according to accepted protocols to determine presence or absence of SKR. If SKR are present, then SCE shall take additional measures to prevent or minimize take, such as installation of exclusion fences or other measures, subject to authorization by USFWS and CDFW.

Construction activities shall avoid suitable SKR habitat to the extent feasible. If SKR habitat cannot be avoided, SCE shall consult with CDFW and USFWS and obtain appropriate take authorization or permits. SCE shall implement the conservation measures contained within these permits.

Implementation locations: This mitigation measure shall apply within San Bernardino County, throughout the WR-MSHCP area (regardless of SCE's PSE status), and is recommended within Morongo Tribal Lands. No suitable SKR habitat is present in the CV-MSHCP portions of the ROW or on BLM land, so this mitigation measure shall not apply within those areas.

WIL-2e **Conduct surveys and avoidance for coastal California gnatcatcher.** SCE shall conduct protocol level surveys for coastal California gnatcatchers (CAGN) in all areas of coastal sage scrub habitat that may be affected by the project. Survey areas will include a 500-foot buffer around project disturbance areas. Presence or absence of CAGN shall be determined prior to construction activities. In occupied CAGN habitat, SCE shall conduct additional focused nest location surveys to determine the locations of nests and territories. Survey areas shall include a 500-foot buffer around project disturbance areas.

Surveys shall be conducted by qualified and permitted biologists. Surveys shall be of adequate duration to verify potential nest sites if work is scheduled to occur during the breeding season. Prior to construction, SCE shall submit documentation providing the results of the pre-construction focused surveys for CAGN to the CPUC and BLM for review and approval in consultation with USFWS and CDFW.

Protocol or focused nest location surveys, as appropriate, shall be conducted within one year prior to the start of construction and shall continue annually until completion of construction and restoration activities.

If an active breeding territory or nest is confirmed, the CPUC, BLM, USFWS, and CDFW shall be notified immediately and the observation will be included in the daily monitoring report. All active nests shall be monitored on a weekly basis until the nestlings fledge or the nest becomes inactive. SCE shall provide monitoring reports to the CPUC and BLM for review on a weekly basis.

In coordination with the USFWS and CDFW, a 500-foot disturbance-free ground buffer and 1,000-foot vertical helicopter disturbance-free buffer shall be established around the active nest and demarcated by fencing or flagging. These buffers may be adjusted in consultation with USFWS and CDFW based on type of work activity performed. No construction or vehicle traffic shall occur within nest buffers, except on existing paved public roads.

If an active breeding territory or nest is confirmed within 500 feet of any project activity site, the authorized nesting bird monitor shall monitor the nesting bird to evaluate impacts to the bird. If the construction, and associated noise, impacts nesting, in the opinion of the authorized nesting bird monitor, construction within 500 feet will immediately discontinue. If the authorized nesting bird monitor determines that construction may continue, SCE shall prepare and implement a Wildlife Noise Monitoring Plan throughout construction and demolition activities taking place while CAGN occupy the nesting territory. Sound levels at the nest sites shall not exceed 8 dBA above ambient levels or 70 dBA (hourly average Leq), whichever is greater. Ambient levels will be established prior to initiation of construction and demolition, using the same methodology that will be used to take noise measurements during monitoring.

If the hourly average noise threshold is exceeded, or if the biological monitor determines that construction activities are disturbing nesting CAGN, additional noise reduction techniques shall be implemented to reduce project noise below the thresholds. Additional noise monitoring will be conducted to verify the reduction of noise levels below the thresholds. Noise reduction techniques can include, but are not limited to:

- Temporary noise barriers or sound walls
- Noise pads or dampers
- Replace and update noisy equipment
- Moveable task noise barriers
- Queue trucks to distribute idling noise

- Locate vehicle access points and loading and shipping facilities away from the nest site
- Reduce the number of noisy activities that occur simultaneously
- Relocate noisy stationary equipment away from the nest sites

Construction activities shall avoid suitable habitat for CAGN, to the extent feasible. If suitable habitat cannot be avoided, SCE shall consult with CDFW and USFWS to obtain appropriate take authorization or permits. SCE shall implement the conservation measures contained within these permits.

Implementation locations: This mitigation measure shall apply within San Bernardino County, throughout the WR-MSHCP lands (regardless of SCE's PSE status), and is recommended within Morongo Tribal Lands. No suitable CAGN habitat is present in the CV-MSHCP portions of the ROW or on BLM land, so this mitigation measure shall not apply within those areas.

WIL-2f **Conduct surveys and avoidance for golden eagle.** SCE shall implement the following measures to document golden eagle occurrence in the project area and surrounding mountains. Survey schedule and requirements will be as identified below unless otherwise authorized by the CPUC and BLM in consultation with the USFWS and CDFW.

- **Annual Nesting Season Surveys.** Beginning at least one year prior to the start of construction, and continuing throughout the construction phase of the project, SCE shall contract with a qualified biologist to conduct nesting season surveys of golden eagle habitat use within a 2-mile radius of the portions of the project area where work will occur during the breeding season (December 1 through July 31). Nesting season surveys will determine occupancy, productivity, and chronology of known or newly discovered nesting territories within the 2-mile radius. Survey methods for the inventory shall be either ground-based or helicopter-based, as described in the Golden Eagle Technical Guidance (Pagel et al., 2010) or more current guidance from the USFWS.

- **Nesting Season Inventory Data.** At a minimum, data collected during the nesting season surveys shall include the following: territory status (unknown, vacant, occupied, breeding successful, breeding unsuccessful); nest location, nest elevation; age class of golden eagles observed; nesting chronology; number of young at each visit; photographs; and substrate upon which nest is placed.

- **Determination of Unoccupied Territory Status.** A nesting territory or inventoried habitat shall be considered unoccupied by golden eagles only after completing at least two full surveys in a single breeding season.

- **Nest Buffer.** If an occupied nest (as defined by Pagel et al., 2010) is detected within 2 miles of the project, SCE shall implement a one mile line-of-sight and one-half mile no line-of-sight buffer to ensure that project construction activities do not result in injury or disturbance to golden eagles. Triggers for adaptive management shall include any evidence of project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. Adaptive management actions, include, but are not limited to, cessation of construction activities that are deemed by a qualified biologist to be the source of golden eagle disturbance.

- **Reporting.** Golden eagle survey data and, if applicable, nest activity monitoring results and any adaptive management actions taken, will be provided to CPUC, BLM, CDFW, and USFWS in monthly monitoring reports, as seasonal data becomes available and if specific nest monitoring or any adaptive management actions are taken, and summarized in annual project monitoring reports.

Implementation locations: This mitigation measure shall apply within San Bernardino County, on BLM lands, and within the CV-MSHCP and WR-MSHCP areas (regardless of SCE's PSE status), and is recommended within Morongo Tribal Lands.

WIL-2g **Conduct surveys and avoidance for burrowing owl.** Burrowing owl surveys shall be conducted in accordance with the most current CDFW guidelines (CDFG, 2012; or updated guidelines as they become available). SCE shall take measures to avoid impacts to any active burrowing owl burrow within or adjacent to a work area. The default buffer for a burrowing owl burrow is 300 feet for ground construction, and 300 feet horizontal and 200 feet vertical for helicopter construction. The Nesting Bird Management Plan (Mitigation Measure WIL-1c) will specify a procedure for adjusting this buffer, if needed. Binocular surveys may be substituted for protocol field surveys on private lands adjacent to the project site only when SCE has made reasonable attempts to obtain permission to enter the property for survey work but was unable to obtain such permission.

If active burrowing owl burrows are located within project work areas, SCE may passively relocate the owls by preparing and implementing a Burrowing Owl Passive Relocation Plan, as described below. SCE shall prepare a draft Burrowing Owl Passive Relocation Plan for review and approval by CPUC and BLM in consultation with CDFW and USFWS prior to the start of any ground-disturbing activities. SCE may not initiate burrowing owl passive relocation prior to finalization of the Plan and approval by CPUC and BLM. No active relocation shall be permitted. No passive relocation of burrowing owls shall be permitted during breeding season, unless a qualified biologist verifies through non-invasive methods that an occupied burrow is not occupied by a mated pair, and only upon authorization by CDFW. The Plan shall include, but not be limited to, the following elements:

- **Assessment of Suitable Burrow Availability.** The Plan shall include an inventory of existing, suitable, and unoccupied burrow sites within 300 feet of the affected project work site. Suitable burrows will include inactive desert kit fox, ground squirrel, or desert tortoise burrows that are deep enough to provide suitable burrowing owl nesting sites, as determined by a qualified biologist. If two or more suitable and unoccupied burrows are present in the area for each burrowing owl that will be passively relocated, then no replacement burrows will need to be built.
- **Replacement Burrows.** For each burrowing owl that will be passively relocated, if fewer than two suitable unoccupied burrows are available within 300 feet of the affected project work site, then SCE shall construct at least two replacement burrows within 300 feet of the affected project work site. Burrow replacement sites shall be in areas of suitable habitat for burrowing owl nesting, and subject to minimal human disturbance and access. The Plan shall describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or any burrowing owls already present in the relocation area. The Plan shall provide guidelines for creation or enhancement of at least two natural or artificial burrows for each active burrow within the project disturbance area, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFW guidelines (CDFG, 2012; or more current guidance as it becomes available) and shall be approved by the CPUC, BLM, CDFW, and USFWS.

- **Methods.** Provide detailed methods and guidance for passive relocation of burrowing owls, outside the breeding season. An occupied burrow may not be disturbed during the nesting season (generally, but not limited to, February 1 to August 31), unless a qualified biologist determines, by non-invasive methods, that it is not occupied by a mated pair. Passive relocation would include installation of one-way doors on burrow entrances that would let owls out of the burrow but would not let them back in. Once owls have been passively relocated, burrows will be carefully excavated by hand and collapsed by, or under the direct supervision, of a qualified biologist.
- **Monitoring and Reporting.** Describe monitoring and management of the replacement burrow site(s), and provide a reporting plan. The objective shall be to manage the relocation area for the benefit of burrowing owls, with the specific goal of maintaining the functionality of the burrows for a minimum of two years. Monitoring reports shall be available to the CPUC and BLM on a weekly basis.

Implementation locations: This mitigation measure shall apply within San Bernardino County, on BLM lands, and within the WR-MSHCP and CV-MSHCP areas (regardless of SCE's PSE status), and is recommended within Morongo Tribal Lands.

WIL-2h **Conduct surveys and avoidance for special-status terrestrial herpetofauna.** This measure will not apply to desert tortoise; instead, surveys and avoidance for desert tortoise are addressed in Mitigation Measure WIL-2a. Biological monitors shall conduct clearance surveys in areas with suitable habitat for special-status terrestrial herpetofauna prior to construction each day, monitor construction activities for compliance, and submit monitoring reports to the CPUC and BLM for review on a weekly basis. Following the clearance surveys, either (1) exclusion fencing will be erected or (2) a biological monitor will be on the site during construction activities, to prevent take of special-status herpetofauna. If the installation of exclusion fencing is deemed necessary, the biological monitor shall direct the installation of the fence.

If any terrestrial herpetofauna are found on the construction site, the animal will be allowed to move away from the construction site on its own, or a qualified biologist will relocate it nearby suitable habitat outside the construction area and place it in the shade of a shrub. If potentially suitable burrows or rock piles are found, they will be checked for occupancy. Occupied burrows will be flagged and avoided (employing a 50-foot buffer) during construction. If the burrow cannot be avoided, it will be excavated and the occupant relocated to an unoccupied burrow outside the construction area and of approximately the same size as the one from which it was removed. If an existing burrow is unavailable, the biologist will construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original.

Implementation locations: This mitigation measure shall apply within San Bernardino County, on BLM lands, within the WR-MSHCP and CV-MSHCP areas (regardless of SCE's PSE status), and is recommended within Morongo Tribal Lands.

WIL-2i **Conduct surveys and avoidance for bats.** SCE shall conduct surveys for roosting bats within 300 feet of project activities, within 14 days prior to any grading of rocky outcrops or removal of towers or trees, particularly palm trees and large trees (12 inches in diameter or greater at 4.5 feet above grade) with loose bark or other cavities. Surveys shall be conducted during the breeding season (1 March to 31 July) and the non-breeding season. Surveys shall be performed by a qualified bat biologist (i.e., a biologist holding a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle bats). The resume of the biologist shall be provided to the CPUC and BLM for concurrence in consultation with CDFW and USFWS prior to the biologist beginning field duties on the project. Surveys shall include a minimum of one day and one evening.

Any active bat roosts, including occupied day roosts, maternity roosts, and hibernacula, will be identified and clearly marked. An exclusion area will be established 165 feet from any active roost, and these areas will be avoided during construction activities. If active roosts are found, then focused surveys shall be conducted to determine if the sites support special-status bat species.

SCE shall submit documentation providing pre-construction survey results and any avoidance of roosting and nursery sites to the CPUC and BLM for review and approval.

Non-special-status bats. If non-breeding bat hibernacula are found in towers or trees scheduled to be removed or in crevices in rock outcrops within the grading footprint, the bats shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures must be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action will allow all bats to leave during the course of one week. Roosts that need to be removed, in situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist, shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).

If active maternity roosts or hibernacula are found, the rock outcrop or tree occupied by the roost shall be avoided (i.e., not removed) by the project. If avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other CDFW approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the approval of the CDFW, BLM, and CPUC that there are alternative roost sites used by the maternity colony and young are not present, then no further action is required and it will not be necessary to provide alternate roosting habitat. However, if there are no alternative roosts sites used by the maternity colony, substitute bat roosting habitat shall be provided, as detailed below. If an active maternity roost is located in an area to be impacted by the project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July) using the exclusion techniques described above.

If a maternity roost will be impacted by the project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats requirements in coordination with CDFW. By making the roosting habitat available prior to eviction, the colony will have a better chance of finding and using the roost. Large concrete walls (e.g., on bridges) on south or southwestern slopes that are retrofitted with slots and cavities are an example of structures that may provide alternative roosting habitat appropriate for maternity colonies. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW shall also be notified of any hibernacula or active nurseries within the construction zone.

Special-status bats. If special-status bat species occur at these day roosts, maternity roosts, or hibernacula, then construction activities shall avoid these sites and a surrounding buffer distance of 300 feet. If construction activities cannot avoid these sites, construction at these sites shall be delayed until the breeding cycles for the special-status bats are completed. SCE shall consult with a bat specialist in order to determine when the breeding cycle for the special-status bats is completed. SCE shall consult with CDFW regarding eviction of non-breeding special-status bats.

Implementation locations: This mitigation measure shall apply within San Bernardino County, on BLM lands, within the WR-MSHCP and CV-MSHCP areas (regardless of SCE's PSE status), and is recommended within Morongo Tribal Lands.

WIL-2j **Conduct surveys and avoidance for special-status small mammals.** SCE shall implement pre-construction surveys for special-status small mammals including San Diego black-tailed jackrabbit, northwestern San Diego pocket, pallid San Diego pocket mouse, Palm Springs pocket mouse, Los Angeles pocket mouse, Palm Springs round-tailed ground squirrel, and San Diego desert woodrat in suitable habitats. SCE shall submit documentation providing pre-construction survey results to the CPUC and BLM for review and approval in consultation with CDFW and USFWS. Prior to initiating construction-related activities, SCE shall prepare and implement construction minimization measures and habitat conservation measures for review and approval by CPUC and BLM in consultation with USFWS and CDFW to minimize habitat loss and potential take.

Active woodrat nests that may be occupied by *Neotoma lepida* shall be flagged and ground-disturbing activities shall be avoided within a minimum of 10 feet surrounding each active nest unless otherwise authorized by the CDFW and CPUC. If avoidance is not possible, SCE shall take the following sequential steps: (1) all understory vegetation will be cleared in the area immediately surrounding active nests followed by a period of one night without further disturbance to allow woodrats to vacate the nest, (2) each occupied nest will then be disturbed by a qualified wildlife biologist until all woodrats leave the nest and seek refuge off-site, and (3) the nest sticks shall be removed from the project site and piled at the base of a nearby shrub or tree. Relocated nests shall not be spaced closer than 100 feet apart, unless a qualified wildlife biologist has determined that a specific habitat can support a higher density of nests. SCE shall document all woodrat nests moved in weekly monitoring reports, and will include a written summary in each annual report to the CPUC, BLM, and CDFW. The resumes of the qualified biologists shall be provided to the CPUC and BLM (as appropriate) for concurrence.

Implementation locations: This mitigation measure shall apply within San Bernardino County, on BLM lands, within the WR-MSHCP and CV-MSHCP areas (regardless of SCE's PSE status), and is recommended within Morongo Tribal Lands.

WIL-2k **Conduct surveys and avoidance for American badger, ringtail, and desert kit fox.** SCE shall conduct pre-construction surveys for desert kit fox, ringtail, and American badger no more than 30 days prior to initiation of construction activities. Surveys shall be conducted in areas that contain habitat for this these species and shall include project disturbance areas and access roads plus a 300 buffer surrounding these areas. SCE shall submit documentation providing pre-construction survey results to the CPUC and BLM for review and approval. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal or active natal.

Inactive dens located in project disturbance areas may be excavated by hand and backfilled to prevent reuse, only upon confirmation that they are inactive.

Active or potentially active dens shall be flagged and project activities, with exceptions as listed below, within 100 feet (non-natal dens) or 500 feet (natal dens or any active den during the breeding season) shall be avoided. Ingress/egress of construction vehicles and equipment through buffers and low intensity activities such as inspections and BMP maintenance within buffers is allowed, provided a qualified biologist determines that these activities will not impact dens or denning animals. Buffers may be modified with concurrence of CPUC and BLM, in consultation with CDFW and USFWS. If active dens are found within project disturbance areas and avoidance is not possible, SCE shall take action as specified below, after notifying and obtaining concurrence from CPUC, BLM, and CDFW.

Active and potentially active non-natal dens. Outside the breeding season, any potentially active dens that would be directly impacted by construction activities shall be monitored by a qualified mammologist or biologist for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den may be excavated and backfilled by hand. If tracks are observed, the den may be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage continued use. After verification that the den is no longer active the den may be excavated and backfilled by hand.

Active natal dens. Active natal dens (any den with cubs or pups) or any den active during the breeding season will not be excavated or passively relocated. The cub or pup-rearing season is generally from January 15 through mid-September. A 500-foot no-disturbance buffer shall be maintained around all active natal dens. Discovery of an active natal den that could be impacted by the project shall be reported to the CPUC, BLM, and CDFW within 24 hours of the discovery along with a map of the den location and a copy of the survey results. A qualified biologist shall monitor the natal den until he or she determines that the pups have dispersed. Any disturbance to denning animals or activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, methods listed above for non-natal dens may be used to discourage den reuse. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that no animals are trapped in the den.

If canine distemper is reported in desert kit fox on the site or surrounding areas, then SCE shall coordinate with CPUC, BLM, and CDFW to identify appropriate actions prior to continuing implementation of this mitigation measure in respect to desert kit fox. Any observations of a kit fox that appears sick or any kit fox mortality shall be reported to CPUC, CDFW, and BLM within one work day.

In the event that passive relocation techniques fail, SCE shall contact the CPUC, BLM, and CDFW to explore other relocation options.

All den monitoring and excavation activities and passive relocations shall be documented and reported to the CDFW, BLM, and CPUC in weekly monitoring reports, and a written summary will be included in each annual monitoring report.

Implementation locations: This mitigation measure shall apply within San Bernardino County, on BLM lands, within the CV-MSHCP and WR-MSHCP areas (regardless of SCE's PSE status), and is recommended within Morongo Tribal Lands.

Impact WIL-3: Transmission lines would present a collision or electrocution hazard to birds, including special-status birds

Raptors, ravens, and other large birds often perch and nest on tall structures, including electrical transmission towers and poles. Golden eagles, peregrine falcons, and other large raptors are most susceptible to electrocution on transmission structures because of their size, distribution, and behavior (APLIC, 1996; APLIC, 2006). Electrocution occurs when a bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. This happens most frequently when a large bird attempts to perch on a transmission structure with insufficient clearance between these elements. Consequently, the design characteristics of transmission structures are a major factor in bird electrocutions (APLIC, 1996). The majority of raptor electrocutions are caused by lines that are energized at voltage levels between 1 kV and 69 kV and the likelihood of electrocutions occurring at voltages greater than 69 kV is extremely low (APLIC, 1996).

Bird collisions with powerlines generally occur when: (1) a power line or other aerial structure transects a daily flight path used by a concentration of birds, and (2) migrants are traveling at reduced altitudes and encounter tall structures in their path (Brown, 1993). Collision rates generally increase in low light conditions, during inclement weather, such as rain or snow, during strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing from danger. Collisions are more probable near wetlands, valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths.

Passerines (i.e., songbirds) and waterfowl (e.g., ducks) collide with powerlines (APLIC, 1994), particularly during nocturnal migrations or poor weather conditions (Avery et al., 1978). However, passerines and waterfowl may have a lower potential for collisions than larger birds, such as raptors, due to behavioral factors. Passerines and waterfowl tend to fly under power lines, as opposed to larger species, which generally fly over the lines and risk colliding with the higher static lines, and many smaller birds tend to reduce their flight activity during poor weather conditions (Avery et al., 1978).

It is difficult to predict the magnitude of collision-caused bird mortality without extensive information on bird species and movements in the project vicinity and these data are not available. However, it is generally expected that collision mortality would be greatest where the movements of susceptible species are the greatest, such as along migratory pathways, along waterways, or over agricultural areas.

The Proposed Project would upgrade and replace existing facilities (e.g., transmission structures and conductors) without adding to the overall numbers of towers or conductors. The project would not introduce new transmission facilities into location where none existed previously. Therefore, collision and electrocution hazard conditions for the project are expected to be similar to existing conditions.

The PEA states that all transmission facilities for the project would be designed to be avian-safe, following the intent of *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (APLIC, 2006); and all transmission facilities would be evaluated for potential collision risk and, where determined to be high risk, lines would be marked with collision reduction devices in accordance with *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC, 2012). However, these specifications are not incorporated into an APM. Mitigation Measure WIL-3a (Evaluate bird collision risk and implement APLIC design guidelines) is identified to ensure that risk of collision and electrocution are minimized to the greatest extent feasible.

Mitigation Measure for Impact WIL-3: Transmission lines would present a collision or electrocution hazard to birds, including special-status birds

WIL-3a **Evaluate bird collision risk and implement APLIC design guidelines.** SCE shall adhere to recommendations published by APLIC (2012, *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*).

Impact WIL-4: Project activities and facilities could cause adverse effects to habitat linkages or wildlife movement corridors

As discussed under Section D.5.1.1, movement and dispersal corridors (essential connectivity areas) that connect large blocks of habitat (natural landscape blocks) are essential to the long-term viability of plant and wildlife populations. The western part of the Proposed Project route is within the Badlands area. The Badlands is a natural landscape block with ecological connectivity with the San Jacinto Mountains, San Jacinto Wildlife Area, Lake Perris State Recreation Area, and Box Springs Mountain Park and reserve, and potential limited connection to the San Bernardino Mountains. The San Gorgonio Pass is an essential connectivity area between the San Jacinto and San Bernardino Mountains. Terrestrial movement across the pass is obstructed by land uses and linear transportation corridors, but the pass is an important corridor for migrating birds. Existing transmission lines, wind turbines, and other structures currently exist throughout the San Gorgonio Pass area. The east-west alignment of the Proposed Project reduces its impact somewhat because it is parallel to the typical flight pattern through the San Gorgonio Pass. East of Banning, the project route crosses generally open areas, where extensive wildlife movement habitat is interrupted by linear transportation corridors.

Construction activities would result in localized short-term hindrance of movement by resident or migratory wildlife due to temporary noise, lighting, dust, and human activity in the work area. In the Proposed Project Area, such movement is, in most cases, associated with daily activities involving reproduction, foraging for food, and sheltering. Construction would not interfere substantially with the long-term movement of any native resident or migratory species because impacts would be temporary and localized to different work areas within the Proposed Project study area for the duration of construction. Helicopter work would generally be short-term and localized, and naturally avoided by birds and local wildlife.

Native resident or migratory fish are not known to occur within the project area, but some fish species may occur in San Timoteo Creek or Whitewater River, both of which are perennially flowing waterways within the project ROW. No project facilities or activities would cause blockages to fish passage in these streams.

Normal operation and maintenance of the lines are performed from existing access roads with no surface disturbance. Repairs to existing facilities, such as repairing or replacing existing poles and structures, could occur in undisturbed areas. The operation of the Proposed Project is not expected to interfere with the long-term movement of any native resident or migratory species.

The Proposed Project involves the upgrade and replacement of existing facilities (e.g., structures, access roads, existing substation modifications, and staging areas); therefore, ecological connectivity conditions for the Proposed Project would be similar to existing conditions. Because the project would not cause increased barriers or hindrances to wildlife movement, no mitigation is recommended.

D.5.3.4 Impacts of Connected Actions

This section identifies and describes the expected impacts to wildlife resources of the solar projects identified as connected actions. This impact analysis is based on the wildlife resources described in the Environmental Setting for Connected Actions (Section D.5.1.3) and on the Descriptions of Connected Projects (Section B.7.2). Each connected project would be subject to review, approval, and mitigation under CEQA, NEPA, or both (depending on specific location and jurisdiction).

Impact WIL-1: Noise, lighting, vehicle traffic on access roads, and other project-related disturbance during construction, operations, and maintenance would affect wildlife including nesting birds, eggs, or chicks occupying surrounding vegetation and habitat, and could cause territory abandonment, behavioral changes, wildlife injury, or mortality

Each of the solar projects would disturb and displace wildlife on the project sites, ranging in size from approximately 400 to 4,000 acres. Project-specific effects to wildlife would depend on existing vegetation and habitat, and wildlife occurring there. In general, these effects would be similar to the effects of Impact WIL-1 as described for the Proposed Project, except that they would occur primarily within large contiguous properties, and partially along linear project features. By contrast, the bulk of the Proposed Project's impacts are along a linear ROW.

Desert Center Area. The Palen, Desert Harvest, and two other solar projects located in the Desert Center area would be likely to affect a suite of wildlife species similar to those occurring in the easternmost segment of the Proposed Project (Segment 6). The Palen and Desert Harvest environmental documents identify mitigation measures to minimize and mitigate wildlife disturbance and displacement. The confidential projects' impacts can be minimized or avoided by implementing a series of measures to minimize and mitigate impacts, such as biological monitoring and reporting, worker training, offset for habitat loss, and wildlife specific measures similar to Mitigation Measures WIL-1a, WIL-1b, and WIL-1c identified in this document.

Blythe Area. The confidential projects located in the Blythe area are could be located on natural desert habitat, or on active or disused agricultural lands. Natural uplands would support desert wildlife similar to that discussed for the Desert Center area. Floodplain and wetland areas are likely to support a large variety of migratory and nesting birds. During winter, many birds may rest or feed in agricultural lands. These impacts can be minimized or avoided by implementing a series of measures to minimize and mitigate impacts, such as biological monitoring and reporting, worker training, offset for habitat loss, and wildlife specific measures similar to Mitigation Measures WIL-1a, WIL-1b, and WIL-1c identified in this document.

Impact WIL-2: Construction, restoration, operations, and maintenance activities could cause direct or indirect loss of listed and special-status wildlife and direct or indirect effects to habitat for listed and special-status wildlife

Depending on their locations, any of the solar projects could result in the take of listed threatened or endangered wildlife species, in particular desert tortoise. Where there is potential for take of listed species, each project would be subject to conformance with CESA and ESA. In addition, any of the projects could cause loss or other adverse impacts to non-listed special-status species, such as golden eagle, burrowing owl, and desert kit fox.

Desert Center Area. The Palen, Desert Harvest, and two other projects located in the Desert Center area likely would affect desert tortoise and possibly other listed or special-status wildlife species, as described in the Palen and Desert Harvest projects' environmental documents (CEC, 2010, Section VI.A; BLM, 2012, Section 4.4). These impacts can be minimized or mitigated by implementing a series of measures described above (Impact WIL-2 in Section D.5.3.3) as well as species-specific field surveys, avoidance, and (for listed species) agency consultation. Mitigation measures identified in the Palen and Desert Harvest projects' environmental documents (CEC, 2010, Section VI.A; BLM, 2012, Section 4.4) include conducting pre-construction surveys, monitoring, and avoidance of special-status wildlife. Similarly, the other two solar projects' impacts can be minimized or avoided by conducting species-specific surveys for each special-status wildlife species potentially occurring on the sites. These measures would be similar to Mitigation Measures WIL-2a through WIL-2k specified in Section D.5.3.3. All 4 projects must obtain incidental take authorization from the USFWS, CDFW, or both for any potential take of federally or state listed threatened or endangered wildlife (e.g., desert tortoise). Federal incidental take authorization would require mitigation or conservation measures to avoid jeopardizing the listed species, while state authorization would require that adverse impacts to the listed species are "fully mitigated." Impacts to golden eagles, if any, may be mitigated through a project-specific Eagle Conservation Plan, in coordination with the USFWS. Operational impacts to birds, including special-status birds, are addressed below, under Impact WIL-3.

Blythe Area. The solar projects located in the Blythe area could affect desert tortoise and possibly other listed or special-status wildlife species, depending on the project locations. These impacts can be minimized or mitigated by implementing a series of measures described above (Impact WIL-2 in Section D.5.3.3) as well as species-specific field surveys, avoidance, and (for listed species) agency consultation. The confidential projects' impacts can be minimized or avoided by conducting species-specific surveys for each special-status wildlife species potentially occurring on the sites, comparable to Mitigation Measures WIL-2a through WIL-2k specified in Section D.5.3.3. The confidential projects must obtain incidental take authorization from the USFWS, CDFW, or both for any potential take of federally or state listed threatened or endangered wildlife (e.g., desert tortoise). Federal incidental take authorization would require mitigation or conservation measures to avoid jeopardizing the listed species, while state authorization would require that adverse impacts to the listed species are "fully mitigated." Impacts to golden eagles, if any, may be mitigated through a project-specific Eagle Conservation Plan, in coordination with the USFWS. Operational impacts to birds, including special-status birds, are addressed below, under Impact WIL-3.

Impact WIL-3: Transmission lines would present a collision, electrocution, or solar flux hazards to birds, including special-status birds

For purposes of the analysis of connected solar project, this impact has been re-defined to include solar panels and solar troughs. Photovoltaic solar panels and solar trough technologies pose risks of injury or death to birds and other flying wildlife (bats and insects). This discussion focuses primarily on birds but also may apply in part to bats and insects. Birds or other wildlife may collide with solar panels or mirrors, or the transmission lines (generator tie-lines, or gen-ties) linking generators to the larger transmission system. Large birds may suffer electrocution by contacting energized conductors or hardware on project facilities.

Gen-tie line collision and electrocution hazards. Each solar project would include a gen-tie line to deliver electrical power from the solar plant to the regional transmission system. Hazards posed by these gen-tie lines include wildlife collision and possible electrocution hazards as described for the Proposed Project under Impact WIL-3. The gen-tie collision hazard is similar to the transmission line collision hazard described in Section D.5.3.4, and is dependent on the location and length of each gen-tie line. If there is an important collision hazard, it can be mitigated by installing "bird diverters" to increase line visibility. In some cases collision hazard may be more substantial, due to length of the gen-tie line or proximity to important habitat areas such as wetlands. If so, addition mitigation may be appropriate, such as habitat creation or restoration, to increase nesting habitat or other resources for birds and thus offset the collision-related bird mortality.

The majority of raptor electrocutions are caused by distribution and subtransmission lines, energized at less than 69 kV, and the likelihood of electrocutions occurring at voltages greater than 69 kV is extremely low (APLIC, 1996). In part, this is because higher voltage lines are farther apart, making simultaneous contact of two conductors less likely. As an upgrade project within an existing transmission corridor, the Proposed Project would not result in a new collision hazard beyond the environmental baseline. However, the gen-tie lines for each solar project are likely to be new structures, rather than replacements. The electrocution hazard can be avoided or mitigated by implementing APLIC design standards so that energized components are separated far enough to prevent electrocution, as described in the DHSP FEIR (BLM, 2012, Section 4.4) and the Palen Presiding Member's Proposed Decision (CEC, 2010, Section VI.A.).

Panel and solar trough collision hazards. Large-scale solar facilities present a relatively new and unresearched potential risk for bird collisions. To a bird, PV panels or mirrored troughs at solar concentrators may mimic the reflective and light polarizing characteristics of water. Birds may mistake fields of PV panels or troughs as water bodies, and may be attracted to them. This potential phenomenon is referred to as the "lake effect." When flying above a solar facility, birds may attempt to land on what they perceive as water, and instead collide with PV panels or other structures, resulting in injury or death. If birds successfully land within a solar facility, some water or wetland birds may not have sufficient open space or water surface to take off again. Other forms of distress may also occur (e.g., exhaustion after depleting energy reserves to fly to the perceived water body). Much of what is known about collision risk or lake effect at solar PV facilities originates from preliminary monitoring data from the Desert Sunlight Solar Farm, a PV project located in the Desert Center area. There is evidence of this lake effect at the Desert Sunlight project (National Fish and Wildlife Forensics Laboratory, 2014), where several birds that are normally associated with lakes or similar open water, including special-status species, have been found either dead or injured on the site. A federally endangered species, the Yuma clapper rail, was among the recorded mortalities.

This information was taken into account in Riverside County's CEQA review of the McCoy and Desert Harvest Solar Projects (Riverside County, 2013). For the McCoy Solar Project, a 750 MW solar PV project located on about 8,200 acres in the Blythe area, Riverside County imposed mitigation to include a robust monitoring program for bird mortality, as well as an adaptive management program to restore bird habitat to offset the project's impacts, should the monitoring program detect excessive bird mortality. As understanding of the lake effect and other risks of solar PV technology improves, impacts assessment and mitigation strategies of future projects may become less reliant on future monitoring and adaptive management.

Desert Center Area. The connected actions in the Desert Center area include three solar PV projects (the 150 MW Desert Harvest project and two confidential projects of 50 and 250 MW) and the Palen Project, using solar trough technology.

The electrocution and collision hazards of the Desert Harvest and Palen gen-tie lines were evaluated in their respective environmental documents (BLM, 2012, Section 4.4; CEC, 2010, Section I.A.). These impacts would be mitigated through habitat set-aside and design features to minimize risk. For the two other solar PV projects, gen-tie lines can present both an electrocution and a collision hazard. If project design presents an electrocution hazard, this impact can be mitigated by implementing APLIC design standards so that energized components are separated far enough to prevent electrocution. Depending on their locations, the gen-tie lines may present collision hazards. In addition, the projects' fields of solar panels or troughs could present collision or lake effect hazards to birds. Gen-tie collision and lake-effect mortality could both be mitigated through a robust monitoring program and adaptive measures to offset bird mortality through habitat restoration off-site, patterned after the McCoy Solar Project's mitigation (County of Riverside, 2013).

Blythe Area. The locations of the solar PV projects in the Blythe area are unknown. As PV projects, they would not present a solar flux hazard to birds. The lengths and locations of their gen-tie lines are unknown. As 150 and 224 MW projects, the gen-tie lines are expected to present minimal electrocution hazard but, depending on their locations, they may present a collision hazard. If project design presents an electrocution hazard, this impact likely would be mitigated by implementing APLIC design standards so that energized components are separated far enough to prevent electrocution. In addition, the projects' solar fields could present collision or lake effect hazards to birds.

The Blythe area is nearer the Colorado River than the Desert Center area. The area provides large expanses of floodplain, wetland, and agricultural habitats. It is an important migratory route for numerous birds, as well as a breeding and wintering stopover destination. The large numbers of birds and proximity to important habitat areas may increase the gen-tie line collision hazard in the Blythe area by comparison with the other areas, because large numbers of birds may fly near gen-tie lines as they approach breeding and wintering habitats. Conversely, the availability of significant open water and wetland habitat in the Blythe area may reduce the lake effect hazard because fewer birds would mistake the PV solar fields for open water given that they have alternate suitable water habitat close by.

Gen-tie collision and lake effect mortality are expected to be mitigated through a robust monitoring program and adaptive measures to offset bird mortality through habitat restoration off-site, patterned after the McCoy Solar Project's mitigation (County of Riverside, 2013).

Impact WIL-4: Project activities and facilities could cause adverse effects to habitat linkages or wildlife movement corridors

Desert Center Area. The USFWS has identified the upper Chuckwalla Valley, within the Desert Center area, as important to biological connectivity and gene flow among desert tortoise populations located to the north and south. Linear barriers to movement include the I-10 Freeway and the Colorado River Aqueduct. In addition, scattered agricultural and residential land uses further limit the ability of desert tortoises to move from north to south across the valley. For the DHSP, adverse impacts to wildlife movement would be mitigated through set-aside and long-term management of open space lands in the "I-10 corridor" between Chiriaco Summit and Desert Center. The details of these land acquisitions are set forth in Mitigation Measure VEG-6 of the DHSP EIS (BLM, 2012).

The CEC's (2010, Section VI.A) analysis of the Palen project concluded that the project and alternatives 2 and 3 could result in the potential disruption of connectivity corridors between tortoise Critical Habitat Units located north and south of I-10. The Palen Project's impacts to wildlife movement would be further mitigated through habitat set-aside and management, as specified in CEC's Condition of Certification BIO-12 (CEC, 2014, Section VI.A.)

Depending on their locations, the other two solar projects in the Desert Center area could further restrict desert tortoise movement through the upper Chuckwalla Valley, or they could have relatively minor effects on wildlife movement. Projects on disused agricultural land, or in the broad valleys and bajadas to the east of Desert Center, are unlikely to substantially restrict wildlife movement. However, projects that located in the in the "I-10 corridor" between Chiriaco Summit and Desert Center could further reduce the ability for wildlife, including desert tortoise, to move north and south between the Colorado Desert and Joshua Tree National Park. In the DHSP and Palen Projects, habitat set-asides and management would mitigate project effects to wildlife movement. For the DHSP, the terms of the set aside conditions were developed to specify compensation habitat within the wildlife connectivity area of concern to USFWS biologists. If the other two solar projects would have important impacts to wildlife movement, then similar project-specific conditions may be developed to mitigate those impacts.

Blythe Area. Potential impacts to wildlife movement in the Blythe area depend on the locations of the solar projects. Use of existing or disused agricultural lands in and around Blythe would not likely have important effects on wildlife movement, because the terrestrial wildlife species that may depend on local movement routes or linkages are unlikely to use those disturbed agricultural areas, even without project development. Alternately, projects sited on natural open space could have more substantial impacts to wildlife movement. The Palo Verde Mesa, south of Blythe, is an extensive intact landscape with ample wildlife movement opportunities throughout the area. Large-scale land use conversion by solar project development in this area would likely limit or restrict wildlife movement, but could be mitigated through long-term set-asides and management of comparable open space within the same region. The region north of Blythe, including McCoy Wash, is probably more susceptible to habitat fragmentation from several large-scale renewable energy projects. Projects in that region, depending on their locations, could cause impacts to important areas for wildlife movement and biological connectivity. However, for most potential project sites, these impacts could be mitigated through habitat set-aside and management, with the compensation acreage specifically selected to conserve wildlife movement habitat.

D.5.4 Environmental Impacts of Project Alternatives

Three alternatives are considered in this section. These alternatives would be located within the existing WOD ROW. Alternatives are described in detail in Appendix 5 (Alternatives Screening Report) and are summarized in Section C. The No Action Alternative is evaluated in Section D.5.5.

Wildlife resources that occur in or have the potential to occur in the ROW are described by segment in Section D.5.1.2 above. The description of the environmental setting would apply equally to the alternatives. Several of the impacts to vegetation (discussed in Section D.4 Biological Resources - Vegetation) also apply to wildlife resources. This is especially true of habitat-related impacts, such as vegetation removal. In addition, several of the mitigation measures for vegetation resources identified in Section D.4.3.3 also serve to mitigate wildlife resources impacts. These impacts and mitigation measures are listed in Section D.5.3.3.1. Please refer to Section D.4.3.3 for the analysis and full text of each mitigation measure for vegetation ("VEG"). Analyses of vegetation and habitat impacts for the Tower Relocation, Iowa Street 66 kV Underground, and Phased Build alternatives are presented in Sections D.4.4.1, D.4.4.2, and D.4.4.3, respectively.

D.5.4.1 Tower Relocation Alternative

The Tower Relocation Alternative would locate certain transmission structures in Segments 4, 5, and 6 farther from existing homes than would be the case under the Proposed Project.

Four impacts related to wildlife resources were identified for the Proposed Project. These impacts also would apply to the Tower Relocation Alternative, which overall would be the same as the Proposed Project, with the exception of the relocated transmission towers that are described above and in Appendix 5. The full text of all wildlife mitigation measures ("WIL") referenced in this section is presented in Section D.5.3.3.

With the exception of the relocated structures in Segments 4, 5, and 6, the Proposed Project, when incorporating this alternative, would include the same structures that would be constructed under the Proposed Project. In general, the relocated towers would be moved approximately 50 feet farther from the southern edge of the ROW.

Impact WIL-1: Noise, lighting, vehicle traffic on access roads, and other project-related disturbance during construction, operations, and maintenance would affect wildlife including nesting birds, eggs, or chicks occupying surrounding vegetation and habitat, and could cause territory abandonment, behavioral changes, wildlife injury, or mortality

Direct impacts have an immediate causal link in time and location to an action creating the impact. Indirect impacts are caused by the project, but can occur later in time or at a distance from the project. Examples of direct effects to wildlife are disturbance from noise and vibration, lighting, dust, and vehicle traffic; loss or degradation of habitat; destruction of burrows or nests; and mortality of individuals. Indirect effects include introduction and spread of invasive species that may cause habitat degradation or reduction of available food sources and increased predation.

Under the Tower Relocation Alternative, the minor adjustment to the location of certain towers would not increase the amount of project-related disturbance compared to the Proposed Project, but the longer construction timeframe under this alternative would extend the duration of project-related disturbances during construction. With the exception of the extended construction timeframe, the impacts of the Tower Relocation Alternative, compared to existing conditions, would be similar to the Proposed Project as analyzed in Section D.5.3.3.

Future O&M would be similar to current O&M activities on the existing lines, including temporary impacts for road maintenance. These activities may include road or facilities site maintenance, transmission structure or conductor repairs, and similar activities. With the Tower Relocation Alternative implemented in Segments 4, 5, and 6, O&M effects to wildlife would be similar to existing conditions.

The impacts on wildlife due to project-related disturbance would be reduced through implementation of Mitigation Measures VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement worker environmental awareness program [WEAP]), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), VEG-2a (Prepare and implement an integrated weed management plan), WIL-1a (Conduct pre-construction biological resources surveys), WIL-1b (Ensure wildlife impact avoidance and minimization), and WIL-1c (Prepare and implement a Nesting Bird Management Plan). With implementation of these mitigation measures, the impacts associated with the Tower Relocation Alternative, as compared to the Proposed Project, would be minimized.

Impact WIL-2: Construction, restoration, operations, and maintenance activities could cause direct or indirect loss of listed and special-status wildlife and direct or indirect effects to habitat for listed and special-status wildlife

The expected direct and indirect impacts to special-status wildlife during construction, restoration, and O&M phases under the Tower Relocation Alternative would be similar to the impacts described in Impact WIL-1.

Under the Tower Relocation Alternative, the minor adjustment to the location of some towers is not expected to increase the amount of direct and indirect loss of listed and special-status wildlife and habitat compared to the Proposed Project. The longer construction timeframe would increase the potential for direct and indirect loss of listed and special-status wildlife during the construction phase. The affected sections of the ROW are in or adjacent to suburban areas. No listed wildlife species were documented in these areas surveys. Special-status wildlife species found in or near the affected sections were burrowing owl, San Diego pocket mouse, ferruginous hawk (migrant), and Los Angeles pocket mouse (SCE, 2013).

With the exception of the extended construction timeframe, the impacts of the Tower Relocation Alternative would be similar to the Proposed Project as analyzed in Section D.5.3.3.

The impacts on listed and special-status wildlife and habitat would be reduced through implementation of Mitigation Measures VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement worker environmental awareness program), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), VEG-2a (Prepare and implement an integrated weed management plan), WIL-1a (Conduct pre-construction biological resources surveys), WIL-1b (Ensure wildlife impact avoidance and minimization), WIL-1c (Prepare and implement a Nesting Bird Management Plan), WIL-2a (Conduct desert tortoise surveys, monitoring, and avoidance), WIL-2b (Prepare and implement raven monitoring, management, and control plan), WIL-2c (Conduct surveys and avoidance for threatened or endangered riparian birds), WIL-2d (Conduct surveys and avoidance for Stephens' kangaroo rat), WIL-2e (Conduct surveys and avoidance for coastal California gnatcatcher), WIL-2f (Conduct surveys and avoidance for golden eagle), WIL-2g (Conduct surveys and avoidance for burrowing owl), WIL-2h (Conduct surveys and avoidance for special-status herpetofauna), WIL-2i (Conduct surveys and avoidance for bats), WIL-2j (Conduct surveys and avoidance for special-status small mammals), and WIL-2k (Conduct surveys and avoidance for American badger, ringtail, and desert kit fox). Additional mitigation measures protecting air quality (Section D.3.3.3) and water resources (Section D.19.3.3) would minimize the potential for any impacts to drainages within critical habitat areas.

Impact WIL-3: Transmission lines would present a collision or electrocution hazard to birds, including special-status birds

Raptors, ravens, and other large birds often perch and nest on tall structures, including electrical transmission towers and poles. Golden eagles, peregrine falcons, and other large raptors are most susceptible to electrocution on transmission structures because of their size, distribution, and behavior (APLIC, 1996; APLIC, 2006). Electrocution occurs when a bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. This happens most frequently when a large bird attempts to perch on a transmission structure with insufficient clearance between these elements. Consequently, the design characteristics of transmission structures are a major factor in bird electrocutions (APLIC, 1996). The majority of raptor electrocutions are caused by lines that are energized at voltage levels between 1 kV and 69 kV and the likelihood of electrocutions occurring at voltages greater than 69 kV is extremely low because of the wider spacing of higher voltage conductors (APLIC, 1996).

Under the Tower Relocation Alternative, the minor adjustment to the location of the affected towers would have no different effect on the collision or electrocution hazard to birds that would result the Proposed Project. The collision or electrocution hazard to birds would be reduced through implementation of Mitigation Measure WIL-3a (Evaluate bird collision risk and implement APLIC design guidelines).

Impact WIL-4: Project activities and facilities could cause adverse effects to habitat linkages or wildlife movement corridors

Movement and dispersal corridors (essential connectivity areas) that connect large blocks of habitat (i.e., large areas of natural landscape) are essential to the long-term viability of plant and wildlife populations. Construction activities would result in localized short-term hindrance of movement by resident or migratory wildlife due to temporary noise, lighting, dust, and human activity in the work area. In the Proposed Project Area, such movement is, in most cases, associated with daily activities involving reproduction, foraging for food, and sheltering. Construction would not interfere substantially with the long-term movement of any native resident or migratory species because impacts would be temporary and localized to different work areas within the Proposed Project study area for the duration of construction. Helicopter work would generally be short-term and localized, and naturally avoided by birds and local wildlife.

The Tower Relocation Alternative would move the proposed position of certain towers, but would not increase the number of towers or the amount of land that would be disturbed.

The Proposed Project, with the alternative, involves the upgrade and replacement of existing facilities. Ecological connectivity after construction would be similar to already existing conditions. Because the Proposed Project would not increase barriers or hindrances to wildlife movement, no mitigation is recommended. Under the Tower Relocation Alternative, the minor adjustment to the location of some towers would not increase the adverse effects on wildlife movement compared to the Proposed Project or existing condition. The extended construction timeframe would potentially result in additional localized short-term hindrance of movement by resident or migratory wildlife. This would affect several relatively short sections of the ROW (see Section 4.2) for up to a year. Construction would be phased, with extended periods of inactivity between active phases at individual sites. This would also reduce any effects on wildlife movement, as compared to a long, continuous period of activity at a site.

D.5.4.2 Iowa Street 66 kV Underground Alternative

The Iowa Street 66 kV Underground Alternative would place a 1,600-foot segment of the Proposed Project's subtransmission line underground, rather than overhead.

Four impacts related to wildlife resources were identified for the Proposed Project. These impacts also would apply to the Iowa Street 66 kV Underground Alternative. With the exception of the underground portion of the subtransmission line that is described above and in Appendix 5, the overall project would be the same as the Proposed Project. . The full text of all wildlife mitigation measures ("WIL") referenced in this section is presented in Section D.5.3.3.

Impact WIL-1: Noise, lighting, vehicle traffic on access roads, and other project-related disturbance during construction, operations, and maintenance would affect wildlife including nesting birds, eggs, or chicks occupying surrounding vegetation and habitat, and could cause territory abandonment, behavioral changes, wildlife injury, or mortality

Direct impacts have an immediate causal link in time and location to an action creating the impact. Indirect impacts are caused by the project, but can occur later in time or at a distance from the project. Examples of direct effects to wildlife are disturbance from noise and vibration, lighting, dust, and vehicle traffic; loss or degradation of habitat; destruction of burrows or nests; and mortality of individuals. Indirect effects include introduction and spread of invasive species that may cause habitat degradation or reduction of available food sources and increased predation.

The section of subtransmission line affected under this alternative is in a suburban area. Any effects on wildlife would be minimal, as the construction activity would be primarily in the street. After construction there would be no adverse effect on wildlife from the buried line.

The Iowa Street 66 kV Underground Alternative would create additional ground disturbance and construction-related traffic and noise during the construction phase, as compared to the equivalent Proposed Project segment. The installation of an underground line would also require more time to construct than an equivalent length of overhead line. This would affect a 1,600-foot segment of the ROW running along a paved street through an area characterized by a mix of residential and commercial development, agriculture, and vacant land (see Ap.5-4).

The impacts on wildlife due to project-related disturbance would be reduced through implementation of Mitigation Measures VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement worker environmental awareness program), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), VEG-2a (Prepare and implement an integrated weed management plan), WIL-1a (Conduct pre-construction biological resources surveys), WIL-1b (Ensure wildlife impact avoidance and minimization), and WIL-1c (Prepare and implement a Nesting Bird Management Plan). With implementation of these mitigation measures, the impacts associated with the Iowa Street 66 kV Underground Alternative would be minimized.

Impact WIL-2: Construction, restoration, operations, and maintenance activities could cause direct or indirect loss of listed and special-status wildlife and direct or indirect effects to habitat for listed and special-status wildlife

The expected direct and indirect impacts to special-status wildlife during construction, restoration, and O&M phases under the Iowa Street 66 kV Underground Alternative would be similar to the impacts described in Impact WIL-1.

Construction of the Iowa Street 66 kV Underground Alternative would create additional ground disturbance and construction-related traffic and noise, as compared to the Proposed Project. The underground line would also require more time to construct than an equivalent length of overhead line. This would affect a 1,600-foot segment of the ROW running along a paved street through an area characterized by a mix of residential and commercial development, agriculture, and vacant land (see Figure Ap.5-4 in Appendix 5). No listed or special-status wildlife species were documented in this portion of the ROW during surveys, and habitat in this area is categorized as developed/disturbed (SCE, 2013).

If pre-construction surveys identified any unanticipated special status wildlife in the vicinity of this underground segment, the impacts on listed and special-status wildlife and habitat would be reduced through implementation of Mitigation Measures VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement worker environmental awareness program), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), VEG-2a (Prepare and implement an integrated weed management plan), WIL-1a (Conduct pre-construction biological resources surveys), WIL-1b (Ensure wildlife impact avoidance and minimization), WIL-1c (Prepare and implement a Nesting Bird Management Plan), WIL-2a (Conduct desert tortoise surveys, monitoring, and avoidance), WIL-2b (Prepare and implement raven monitoring, management, and control plan), WIL-2c (Conduct surveys and avoidance for threatened or endangered riparian birds), WIL-2d (Conduct surveys and avoidance for Stephens' kangaroo rat), WIL-2e (Conduct surveys and avoidance for coastal California gnatcatcher), WIL-2f (Conduct surveys and avoidance for golden eagle), WIL-2g (Conduct surveys and avoidance for burrowing owl), WIL-2h (Conduct surveys and avoidance for special-status herpetofauna), WIL-2i (Conduct surveys and avoidance for bats), WIL-2j (Conduct surveys and avoidance for special-status small mammals), and WIL-2k (Conduct surveys and avoidance for American badger, ringtail, and desert kit fox). Additional mitigation measures protecting air quality (Section D.3.3.3) and water resources (Section D.19.3.3) would minimize the potential for any impacts to drainages within critical habitat areas.

Impoct WIL-3: Tronsmission lines would present o collision or electrocution hozord to birds, including speciol-stotus birds

The Iowa Street 66 kV Underground Alternative would result in a reduced potential for the collision and electrocution hazard to birds compared to the Proposed Project, because 1,600 feet of proposed overhead line would be moved underground. No mitigation related to collision risk would be required for this alternative segment.

Impoct WIL-4: Project activities and facilities could cause adverse effects to hobitat linkoges or wildlife movement corridors

Movement and dispersal corridors (essential connectivity areas) that connect large blocks of habitat (i.e., large areas of natural landscape) are essential to the long-term viability of plant and wildlife populations. The area of this alternative does not include large blocks of habitat and does not provide movement and dispersal corridors. The area is a mix of residential and commercial development, agriculture, and vacant land.

Under the Iowa Street 66 kV Underground Alternative, there would be additional ground disturbance and construction-related traffic and noise, as compared to the Proposed Project. The installation of an underground line would also require more time to construct than an equivalent length of overhead line. The additional construction disturbance and extended construction timeframe would result in additional localized short-term hindrance of movement by resident or migratory wildlife. This would affect a 1,600-foot segment of ROW running along a paved street through an area characterized by a mix of residential and commercial development, agriculture, and vacant land (see Ap.5-4).

D.5.4.3 Phased Build Alternative

The Phased Build Alternative would retain existing double-circuit 220 kV transmission structures to the extent feasible, remove single-circuit structures, add new double 220 circuit structures, and string all structures with higher-capacity conductors.

Four impacts related to wildlife resources were identified for the Proposed Project. These impacts also would apply to the Phased Build Alternative. The full text of all wildlife mitigation measures ("WIL") referenced in this section is presented in Section D.5.3.3. This analysis builds on the discussion of this alternative in Section D.4.3.3, Vegetation. The following additional impacts are analyzed for wildlife resources.

Impoct WIL-1: Noise, lighting, vehicle troffic on access roads, and other project-related disturbance during construction, operations, ond maintenance would offect wildlife including nesting birds, eggs, or chicks occupying surrounding vegetation ond hobitat, and could cause territory abandonment, behoviorol chonges, wildlife injury, or mortolity

Direct impacts are those impacts that result from the project and occur at the same time and place. Indirect impacts are caused by the project, but can occur later in time or farther removed in distance and are still reasonably foreseeable and related to the operation of the project. Examples of direct effects to wildlife are disturbance from noise and vibration, lighting, dust, and vehicle traffic; loss or degradation of habitat; destruction of burrows or nests; and mortality of individuals. Indirect effects include introduction and spread of invasive species that may compete with native species and cause habitat degradation or reduction of available food sources and increased predation due to certain habitat alterations.

Vegetation removal would cause temporary or permanent loss of wildlife habitat along with the displacement and potential mortality of resident wildlife species that are poor dispersers, such as snakes, lizards, and small mammals. Construction could also result in the temporary degradation of adjacent habitat value due to disturbance, noise, increased human presence, and increased vehicle traffic during construction. Soil disturbance, weed removal, site clearing, or site preparation during the restoration or O&M project phases also could cause temporary habitat degradation or wildlife disturbance.

Direct loss of small mammals, reptiles, and other less mobile species could occur during each phase of the Proposed Project. This loss would result primarily from the use of construction vehicles and the grading of laydown areas for tower or pole erection. Fossorial species (burrowing animals) may be harmed through the crushing of burrows, the loss of refugia, and direct mortality from construction activities. Construction could also result in an increase in accidental road kills due to increased vehicle traffic along the construction corridor. Diurnally active reptiles and mammals are the most likely to be subject to mortality from construction vehicles. Other potential causes of wildlife mortality or injury include entrapment in trenches, pipes, or other supplies and equipment; drowning in stored water; or poisoning by ingestion or exposure to stored or spilled chemicals.

More mobile species such as birds and larger mammals are expected to disperse into adjacent habitat areas during the land clearing and grading phases associated with construction. They would be at increased risk of predation as they flush from cover during site clearing. After leaving their home territories, displaced animals may be unable to find suitable food or cover in new, unfamiliar areas. They may find themselves within the occupied territory of another individual of the same or similar species, leading to competition for resources. These adverse displacement effects would apply to common wildlife species and to special-status species.

Noise and vibration, dust, visual disturbance from increased human activity, and exhaust emissions from heavy equipment during construction could cause wildlife to avoid habitats adjacent to the construction sites. Construction could impact wildlife in adjacent habitats by interfering with breeding or foraging activities, altering movement patterns, or causing animals to temporarily avoid areas adjacent to the construction zone. Nocturnally active wildlife would tend to be affected less by construction than would diurnally active species. Wildlife species are most vulnerable to construction-related disturbances during their breeding seasons. Disturbances from construction could result in nest, roost, or territory abandonment and subsequent reproductive failure if these disturbances were to occur during an affected species' breeding season.

Wildlife "subsidies" such as food or water, could attract wildlife to the project area where they may be at increased risk of road strike or other injury or mortality. In addition, wildlife subsidies may attract predators such as ravens, coyotes, or feral dogs to the project area, where they may prey on other species, including special-status species. Pet animals, particularly dogs, may harass or injure wildlife in the project vicinity, or introduce illness such as canine distemper into native wildlife populations.

Vegetation removal and construction disturbance can also introduce or increase the spread of non-native plant species, causing wildlife habitat degradation.

Displacement or mortality of fully protected species or protected furbearers, regardless of other conservation status, may violate state and federal regulations. Birds, nests, and nestlings are generally protected under the Migratory Bird Treaty Act and California Fish and Game Code, regardless of other conservation designations. Thus, displacement or mortality of nesting birds (including eggs or nestlings), fully protected species, or protected furbearers, regardless of other conservation status designations, may violate state and federal regulations.

Nesting birds may be found throughout the Proposed Project area, including native vegetation, landscaped areas, open areas on the ground, existing transmission structures, and construction vehicles or equipment left inactive for short periods (e.g., a few days). Many project activities could remove nests or cause the displacement of breeding birds and the abandonment of active nests, either within work areas or in adjacent habitat (including transmission line structures). For some special-status bird species, the CV-MSHCP or WR-MSHCP may provide take authorization; this authorization would apply to the Proposed Project if SCE becomes a Participating Special Entity (PSE).

All future O&M would be similar to current O&M activities on the existing lines, including temporary impacts for road maintenance. These activities may include road or facilities site maintenance, transmission structure or conductor repairs, and similar activities. The Proposed Project's O&M effects to wildlife would be similar to existing conditions.

Under the Phased Build Alternative, one set of existing double-circuit towers would be retained and reconductored rather than being removed and replaced by new towers. The removal of the existing single-circuit structures and their replacement with a set of new double-circuit towers would be similar to the Proposed Project. Overall, the alternative would require less tower removal, pad preparation, and tower erection than the Proposed Project. Consequently, less disturbance of wildlife during the construction period would occur. During operations and maintenance, the Phased Build Alternative would have similar effects on wildlife as the Proposed Project because similar numbers of towers, lines, and roads would be in place.

The impacts on wildlife due to project-related disturbance under this alternative would be reduced through implementation of Mitigation Measures VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement worker environmental awareness program [WEAP]), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), VEG-2a (Prepare and implement an integrated weed management plan), WIL-1a (Conduct pre-construction biological resources surveys), WIL-1b (Ensure wildlife impact avoidance and minimization), and WIL-1c (Prepare and implement a Nesting Bird Management Plan). With implementation of these mitigation measures, the impacts associated with the Phased Build Alternative would be minimized.

Impact WIL-2: Construction, restoration, operations, and maintenance activities could cause direct or indirect loss of listed and special-status wildlife and direct or indirect effects to habitat for listed and special-status wildlife

The Proposed Project's expected direct and indirect impacts to special-status wildlife during construction, restoration, and O&M phases would be similar to the impacts described in Impact WIL-1.

Listed Wildlife

Four federally or state-listed threatened or endangered animal species were documented within the project study area during surveys: desert tortoise, least Bell's vireo, Stephens' kangaroo rat, and Swainson's hawk. Four additional listed species have a moderate or high potential for occurrence: western yellow-billed cuckoo, southwestern willow flycatcher, little willow flycatcher, and coastal California gnatcatcher.(Note that Swainson's hawk, little willow flycatcher, and western yellow-billed cuckoo would occur in the Proposed Project area only during migratory seasons.) The project ROW passes through designated critical habitat for the coastal California gnatcatcher, and designated critical habitat for the southwestern willow flycatcher is located within 200 feet of the project area. Listed species with a low potential to occur are Casey's June beetle, mountain yellow-legged frog, Coachella Valley fringe-toed lizard, and bald eagle.

Take of listed species may result from project activities. If SCE obtains PSE status under the MSHCPs, take of covered species within the WR-MSHCP or CV-MSHCP may be authorized within the two MSHCP areas under existing state and federal authorizations. Regardless of MSHCP participation, the Proposed Project may affect listed species outside the MSHCP areas or on BLM land within the CV-MSHCP. ESA Section 7 Consultation would be required for the project's potential take of federally listed species, and CESA take authorization would be required for any take of state-listed species. If SCE does not obtain PSE status, these consultation or permitting requirements would also apply within the MSHCP areas.

Under the Phased Build Alternative, construction site restoration could cause loss of listed and special-status wildlife and would have adverse effects on their habitat. However, with the reduced level of construction and less ground disturbance, these impacts would be less that under the Proposed Project. During O&M, the impacts under this alternative and under the Proposed Project would be similar.

The impacts of this alternative on listed and special-status wildlife and habitat would be reduced through implementation of Mitigation Measures VEG-1a (Conduct biological monitoring and reporting), VEG-1b (Prepare and implement worker environmental awareness program), VEG-1c (Minimize native vegetation and habitat loss), VEG-1d (Restore or revegetate temporary disturbance areas), VEG-1e (Compensate for permanent habitat loss), VEG-2a (Prepare and implement an Integrated Weed Management Plan), WIL-1a (Conduct pre-construction biological resources surveys), WIL-1b (Ensure wildlife impact avoidance and minimization), WIL-1c (Prepare and implement a Nesting Bird Management Plan), WIL-2a (Conduct desert tortoise surveys, monitoring, and avoidance), WIL-2b (Prepare and implement raven monitoring, management, and control plan), WIL-2c (Conduct surveys and avoidance for threatened or endangered riparian birds), WIL-2d (Conduct surveys and avoidance for Stephens' kangaroo rat), WIL-2e (Conduct surveys and avoidance for coastal California gnatcatcher), WIL-2f (Conduct surveys and avoidance for golden eagle), WIL-2g (Conduct surveys and avoidance for burrowing owl), WIL-2h (Conduct surveys and avoidance for special-status herpetofauna), WIL-2i (Conduct surveys and avoidance for bats), WIL-2j (Conduct surveys and avoidance for special-status small mammals), and WIL-2k (Conduct surveys and avoidance for American badger, ringtail, and desert kit fox). Additional mitigation measures protecting air quality (Section D.3.3.3) and water resources (Section D.19.3.3) would minimize the potential for any impacts to drainages within critical habitat areas. State and federal permitting or consultation, and MSHCP participation (if SCE obtains PSE status) may result in additional measures to mitigate the Proposed Project's impacts to listed species.

With implementation of these mitigation measures, the impacts associated with the Phased Build Alternative would be minimized.

Impact WIL-3: Transmission lines would present a collision or electrocution hazard to birds, including special-status birds

Raptors, ravens, and other large birds often perch and nest on tall structures, including electrical transmission towers and poles. Golden eagles, peregrine falcons, and other large raptors are most susceptible to electrocution on transmission structures because of their size, distribution, and behavior (APLIC, 1996; APLIC, 2006). Electrocution occurs when a bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. This happens most frequently when a large bird attempts to perch on a transmission structure with insufficient clearance between these elements. Consequently, the design characteristics of transmission structures are a major factor in bird electrocutions (APLIC, 1996). The majority of raptor electrocutions are caused by lines that are energized at voltage levels between 1 kV and 69 kV and the likelihood of electrocutions occurring at voltages greater than 69 kV is extremely low because of the wider spacing of higher voltage conductors (APLIC, 1996).

Both the Phased Build Alternative and the Proposed Project would upgrade structures and conductors in a corridor in which multiple transmission lines already exist. Collision and electrocution hazard conditions from the project would be similar to existing conditions. The collision or electrocution hazard to birds would be reduced through implementation of Mitigation Measure WIL-3a (Evaluate bird collision risk and implement APLIC design guidelines).

The impacts of the Phased Build Alternative on collision and electrocution hazards to birds would be the same as the Proposed Project.

Impact WIL-4: Project activities and facilities could cause adverse effects to habitat linkages or wildlife movement corridors

Corridors that connect large blocks of habitat (i.e., large areas of natural landscape) and provide for movement and dispersal of species are essential to the long-term viability of plant and wildlife populations. Construction activities would result in localized short-term hindrance of movement by resident or migratory wildlife due to temporary noise, lighting, dust, and human activity in the work area. In the project ROW, such movement is, in most cases, associated with daily activities involving reproduction, foraging for food, and sheltering. Construction would not interfere substantially with the long-term movement of any native resident or migratory species because impacts would be temporary and localized to different work areas for the duration of construction. Helicopter work would generally be short-term and localized, and naturally avoided by birds and local wildlife.

Construction of the Phased Build Alternative would result in short-term hindrance of movement by resident or migratory wildlife if barriers are established, such as fencing around yards. These would be localized and wildlife could migrate around the obstructions. In the long-term, during operations the presence of new and existing towers would not interfere substantially with the movement of any native resident or migratory species. The project involves the upgrade and replacement of existing facilities, with some structures being removed and other structures installed. Therefore, ecological connectivity for the Proposed Project and for the Phased Build Alternative would be similar to existing conditions, with towers spaced along the alignment. This leaves substantial open space for wildlife movement under the lines. Because there would be no increased barriers or hindrances to wildlife movement, no mitigation is recommended.

Similarly, the Phased Build Alternative would not increase the adverse effects on wildlife movement compared to the Proposed Project. The impacts of the Phased Build Alternative would be similar to the Proposed Project as analyzed in Section D.5.3.3.

D.5.5 Environmental Impacts of No Action Alternative

D.5.5.1 No Action Alternative Option 1

The No Action Alternative Option 1 is described in Section C.6.3.1. It would consist of a new 500 kV circuit, primarily following the Devers-Valley transmission corridor and extending 26 miles between Devers Substation. It would also require a new 40-acre substation south of Beaumont, and 4 new 220 kV circuits extending 7 miles from the new Beaumont Substation to El Casco Substation, primarily following the existing El Casco 115 kV ROW. The remainder of the No Action Alternative, from El Casco Substation to the San Bernardino and Vista Substations, would be identical to the Proposed Project. Information on environmental resources and project impacts are derived for the Devers–Palo Verde 500 kV No. 2 Project EIR/EIS (CPUC and BLM, 2006) and the El Casco System Project Draft EIR (CPUC, 2007), which include nearly all of the No Action alignment.

From Devers Substation to west of Cabazon, the land is subject to the Coachella Valley MSHCP. At that point, the alignment to Beaumont Substation and on to El Casco Substation would be subject to the Western Riverside MSHCP. Sections of the alignment on federal lands would be subject to the requirements of the management agencies having jurisdiction.

Devers to Beaumont Substation. Two species of invertebrates, Coachella Valley giant sand-treader cricket and Coachella Valley Jerusalem cricket, have a high potential to occur along the route between Devers Substation and the foothills of the San Jacinto Mountains. Suitable habitat for both species, which consists of active sand dunes and ephemeral sand fields, is present in a patchy distribution in this area. Two listed species of reptiles, the desert tortoise and Coachella Valley fringe-toed lizard, have been documented near the Devers Substation and in the area just west of the substation. Two sensitive reptiles, the San Diego horned lizard and northern red diamond rattlesnake, have been observed in this in the eastern portion of the D-V corridor, and six other sensitive reptile species have a high to moderate potential to occur. Two listed species of bird, the least Bell's vireo and coastal California gnatcatcher, have a high potential to occur in habitat located in the vicinity of this alternative. Sixteen additional sensitive bird species also potentially occur because suitable habitat is present and the species has been documented in the vicinity. The endangered Stephens' kangaroo rat is known to occur in the Potrero ACEC/Conservation Unit. In fact, one of the primary conservation goals for the Potrero Conservation Unit is the preservation of a large population of Stephens' kangaroo rat. The Peninsular bighorn sheep is a federally endangered species, and has designated Critical Habitat through which the route would pass.

The direct loss of small mammals, reptiles, and other less mobile species could occur in the undeveloped areas along the alignment. The loss of vegetation would also result in the temporary loss of breeding and foraging habitat for wildlife. The removal of habitat during the bird breeding season would likely result in the displacement of breeding birds and the abandonment of active nests. Measures such as conducting pre-construction surveys and monitoring for breeding birds would reduce impacts to nesting birds. Impacts to animal species would be addressed by conducting species-focused surveys and biological monitoring during construction. Implementation of a Habitat Restoration/Compensation Plan also would help mitigate impacts. The Devers to Beaumont Substation alignment would follow the existing Devers to Valley alignment. In the analysis of the Devers to Valley alignment in the DPV2 EIR/EIS, all impacts to biological resources were less than significant or less than significant with mitigation.

Beaumont Substation. This grassland site is on gently rolling topography approximately 1 mile north of the Potrero ACEC, an area managed for multiple species, including a large population of Stephens' kangaroo rat. To the extent they have not been disturbed or destroyed by agricultural practices or invasive plants, the biological resources of the site may be similar to those found in the northern portion of the Potrero ACEC. Impacts would be mitigated by the same measures applicable to the transmission route between Devers and Beaumont Substations, as noted above.

Beaumont to El Casco Substation. Twenty-one sensitive wildlife species (including MSHCP Covered Species) were observed in the area during surveys conducted in 2005–2007 (CPUC, 2008). These included coast horned lizard, Cooper's hawk, golden eagle, northern harrier, western yellow-billed cuckoo, yellow warbler, white-tailed kite, willow flycatcher (two subspecies), California horned lark, merlin, prairie falcon, peregrine falcon, yellow-breasted chat, loggerhead shrike, least Bell's vireo, coyote, northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, bobcat, and Los Angeles pocket mouse. Portions of San Timoteo Creek likely support common species including California tree frogs and western toad. Among the special-status species observed within riparian habitats in the project area were least Bell's vireo, western yellow-billed cuckoo, yellow warbler, yellow-breasted chat, and southwestern willow flycatcher. Raptors are plentiful in the region, and suitable nesting and foraging habitat for raptor species occurs throughout the area.

Impacts to wildlife in this segment of the No Action Alternative would be similar to those occurring in the 500 kV segment. As with those impacts, mitigation measures would include requiring focused surveys for species known or likely to be in the area, biological monitoring during construction, and implementation of a Habitat Restoration/Compensation Plan.

D.5.5.2 No Action Alternative Option 2

No Action Alternative Option 2 would require the construction of over 40 miles of new 500 kV transmission line, following the existing Valley-Serrano 500 kV line. The alternative is described in Section C.6.3.2, and illustrated on Figure C-6b. The eastern portion of the corridor is located within the Western Riverside County MSHCP. The western portion of the route is located in the Central/Coastal Orange County and Orange County Transportation Authority Natural Community Conservation Planning (NCCP)/Habitat Conservation Plan (HCP) areas.

Based on a search of the California Natural Diversity Database (CNDDB), 18 special-status wildlife species have been documented to occur in or near the project area. Examples of these species are least Bell's vireo (*Vireo bellii pusillus*; federally listed endangered, state-listed endangered), Stephens' kangaroo rat (*Dipodomys stephensi*; federally listed endangered, state-listed threatened), arroyo toad (*Anoxyrus colifornicus*; federally listed endangered, California Species of Special Concern (SSC)), coastal California gnatcatcher (*Polioptilo colifornico colifornico*; federally listed threatened, SSC), burrowing owl (*Athene cuniculorio*; SSC), coast horned lizard (*Phrynosomo bloinvillii*; SSC), orangethroated whiptail (*Aspidoscelis hyperythro*; SSC), and western spadefoot toad (*Speo hammondii*; SSC).

The direct loss of small mammals, reptiles, and other less mobile species could occur in the undeveloped areas along the alignment. The loss of vegetation would also result in the temporary loss of breeding and foraging habitat for wildlife. The removal of habitat during the bird breeding season would likely result in the displacement of breeding birds and the abandonment of active nests. Measures such as conducting pre-construction surveys and monitoring for breeding birds would reduce impacts to nesting birds. Impacts to animal species would be addressed by conducting species-focused surveys and biological monitoring during construction. Implementation of a Habitat Restoration/Compensation Plan also would help mitigate impacts.

D.5.6 Mitigation Monitoring, Compliance, and Reporting

Table D.5-6 presents the mitigation monitoring program for wildlife. Due to the length of the mitigation measure text, ***the full text for each measure is not presented in this table, but is provided in Section D.5.3.3 above.***

Table D.5-6. Mitigation Monitoring Program – Biological Resources, Wildlife

MITIGATION MEASURE	WIL-1a: Conduct pre-construction biological resources surveys (full text in Section D.5.3.3)
Location	Construction activity in all segments.
Monitoring / Reporting Action	SCE submits field biologists' resumes and pre-construction survey results; CPUC/BLM monitor approves report format and contents and verifies biologists' qualifications and field survey results.

Table D.5-6. Mitigation Monitoring Program – Biological Resources, Wildlife

Effectiveness Criteria	Biologists' qualifications to include relevant field experience for resources of concern; pre-construction reports to include appropriate field methods and accurate results of each survey
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Prior to construction and during construction. Ten days prior to project activities at any given work site; nest surveys no more than four days prior to beginning work.
MITIGATION MEASURE	**WIL-1b: Ensure wildlife impact avoidance and minimization (full text in Section D.5.3.3)**
Location	San Bernardino County; WR-MSHCP; CV-MSHCP; BLM land; and Reservation Land (recommended)
Monitoring / Reporting Action	SCE submits required plans and guidelines for implementing identified measures to reduce impacts for review and approval by the CPUC and BLM in consultation with CDFW and USFWS. SCE monitors compliance; conducts daily inspections of bird deterrent netting (if installed) and weekly inspections of exclusion fences (if installed); conducts daily inspections of excavations; reports dead animals of non-special-status species to local animal control agency; reports dead animals of special-status species to CDFW; reports entrapped or injured special-status wildlife to CDFW or USFWS. SCE reports relocations of special-status rattlesnakes to CPUC, BLM, and CDFW.
Effectiveness Criteria	Avoidance and minimization of impacts to wildlife
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS
Timing	Prior to construction and during construction
MITIGATION MEASURE	**WIL-1c: Prepare and implement a Nesting Bird Management Plan (full text in Section D.5.3.3)**
Location	All segments.
Monitoring / Reporting Action	SCE submits a Nesting Bird Management Plan to include pre-construction surveys, daily sweeps of construction sites, and nest monitoring; CPUC/BLM approves plan format and contents in consultation with CDFW and USFWS. SCE submits prompt email notification of buffer reduction notifications and nest-related non-compliances to CPUC/BLM monitor. SCE notifies CPUC, BLM, CDFW, and USFWS prior to implementing buffer reductions. SCE provides daily updates to CPUC/BLM monitor on nest locations, project activities in the vicinity of nests (including helicopter traces), and adjustments to buffer areas. SCE submits annual report to CPUC, BLM, CDFW, and USFWS.
Effectiveness Criteria	Avoid or minimize impacts to nesting birds.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Throughout nesting seasons during construction phase.
MITIGATION MEASURE	**WIL-2a: Conduct desert tortoise surveys, monitoring, and avoidance (full text in Section D.5.3.3)**
Location	All areas with suitable habitat.
Monitoring / Reporting Action	SCE submits results of pre-construction surveys; CPUC/BLM monitor approves report format and contents in consultation with CDFW and USFWS. SCE monitors construction activities in all suitable habitat. SCE documents any instances where a tortoise was handled in daily monitoring reports and provides a summary to CPUC/BLM in annual environmental compliance reports.
Effectiveness Criteria	Avoid take of desert tortoise.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Within 14 days prior to construction, and during construction.
MITIGATION MEASURE	**WIL-2b: Prepare and implement Raven Monitoring, Management, and Control Plan (full text in Section D.5.3.3)**
Location	All areas with suitable desert tortoise habitat.

Table D.5-6. Mitigation Monitoring Program – Biological Resources, Wildlife

Monitoring / Reporting Action	SCE submits a Raven Monitoring, Management, and Control Plan; CPUC/BLM monitor approves report format and contents in consultation with CDFW and USFWS.
Effectiveness Criteria	Minimize project-related predator subsidies and prevent increases in raven numbers or activity within desert tortoise habitat.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Prior to the start of construction, and during construction, restoration, and O&M phases.
MITIGATION MEASURE	**WIL-2c: Conduct surveys and avoidance for threatened or endangered riparian birds (full text in Section D.5.3.3)**
Location	All areas with suitable habitat.
Monitoring / Reporting Action	SCE submits results of pre-construction protocol nesting-season surveys; CPUC/BLM monitor approves report format and contents in consultation with CDFW and USFWS and verifies field survey results. SCE provides immediate notification of discovery of an active breeding territory or nest to CPUC, BLM, CDFW, and USFWS and documents in daily monitoring report. SCE monitors active nests on a weekly basis and provides weekly monitoring reports to CPUC/BLM for review in consultation with CDFW and USFWS. SCE prepares a Wildlife Noise Monitoring Plan if an active breeding territory or nest is confirmed within 500 feet of any project activity site.
Effectiveness Criteria	Avoid take of threatened or endangered riparian birds; avoid or minimize take of suitable habitat.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Within one year prior to the start of construction and annually during nesting season throughout construction and restoration phases.
MITIGATION MEASURE	**WIL-2d: Conduct surveys and avoidance for Stephens' kangaroo rat (full text in Section D.5.3.3)**
Location	All areas with suitable habitat.
Monitoring / Reporting Action	SCE submits results of pre-construction focused surveys; CPUC/BLM monitor approves report format and contents in consultation with CDFW and USFWS.
Effectiveness Criteria	Avoid or minimize take of Stephens' kangaroo rat and its habitat.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Prior to the start of construction activities and during construction.
MITIGATION MEASURE	**WIL-2e: Conduct surveys and avoidance for coastal California gnatcatcher (full text in Section D.5.3.3)**
Location	All areas with suitable habitat.
Monitoring / Reporting Action	SCE submits results of pre-construction protocol level surveys in suitable habitat and additional focused nest/territory surveys in occupied habitat; CPUC/BLM monitor approves report format and contents in consultation with CDFW and USFWS. SCE provides immediate notification of discovery of an active breeding territory or nest to CPUC, BLM, CDFW, and USFWS and documents in daily monitoring report. SCE monitors active nests on a weekly basis and provides weekly monitoring reports to CPUC/BLM for review in consultation with CDFW and USFWS. SCE prepares a Wildlife Noise Monitoring Plan if an active breeding territory or nest is confirmed within 500 feet of any project activity site.
Effectiveness Criteria	Avoid take of coastal California gnatcatcher; avoid or minimize take of suitable habitat.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Within one year prior to the start of construction activities and during construction and restoration phases.
MITIGATION MEASURE	**WIL-2f: Conduct surveys and avoidance for golden eagle (full text in Section D.5.3.3)**
Location	All areas with suitable habitat within 10 miles of the project area.

Table D.5-6. Mitigation Monitoring Program – Biological Resources, Wildlife

Monitoring / Reporting Action	SCE submits results of winter and nesting season surveys conducted prior to and during construction to CPUC, BLM, CDFW, and USFWS. SCE submits Golden Eagle Monitoring and Management Plan (if needed); CPUC/BLM monitor approves plan format and contents in consultation with CDFW and USFWS. SCE submits nest activity monitoring results and adaptive management actions, if applicable, to CPUC, BLM, CDFW, and USFWS in monthly monitoring reports, with a summary in annual monitoring reports.
Effectiveness Criteria	Avoid injury or disturbance to golden eagles.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	At least one year prior to the start of construction activities and during construction.
MITIGATION MEASURE	**WIL-2g: Conduct surveys and avoidance for burrowing owl (full text in Section D.5.3.3)**
Location	All areas with suitable habitat.
Monitoring / Reporting Action	SCE submits pre-construction survey results; CPUC/BLM monitor verifies field survey results. SCE submits Burrowing Owl Passive Relocation Plan (if needed); CPUC/BLM monitor approves plan format and contents in consultation with CDFW and USFWS. SCE monitors replacement burrows (if installed) and submits weekly monitoring reports to CPUC and BLM.
Effectiveness Criteria	Avoid impacts to burrowing owls and occupied burrows; passive relocation of non-nesting burrowing owls.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Prior to the start of ground-disturbing activities and during construction.
MITIGATION MEASURE	**WIL-2h: Conduct surveys and avoidance for special-status terrestrial herpetofauna (full text in Section D.5.3.3)**
Location	All areas with suitable habitat.
Monitoring / Reporting Action	SCE conducts daily pre-construction sweeps, monitors construction for compliance, and submits weekly monitoring reports to CPUC and BLM.
Effectiveness Criteria	Avoid take of special-status terrestrial herpetofauna.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	During construction.
MITIGATION MEASURE	**WIL-2i: Conduct surveys and avoidance for bats (full text in Section D.5.3.3)**
Location	All areas where rocky outcrops will be graded or structures or trees will be removed.
Monitoring / Reporting Action	SCE submits pre-construction survey results; CPUC/BLM monitor approves report format and contents in consultation with CDFW and USFWS and verifies field survey results. SCE submits field biologists' resumes; CPUC/BLM monitor verifies biologists' qualifications.
Effectiveness Criteria	Avoidance or passive relocation of active bat roosts.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Within 14 days prior to grading of rocky outcrops or removal of structures or trees; during construction.
MITIGATION MEASURE	**WIL-2j: Conduct surveys and avoidance for special-status small mammals (full text in Section D.5.3.3)**
Location	All areas with suitable habitat.
Monitoring / Reporting Action	SCE submits construction impact minimization measures and habitat conservation measures and pre-construction survey results; CPUC/BLM monitor approves report format and contents in consultation with CDFW and USFWS and verifies field survey results. SCE submits field biologists' resumes; CPUC/BLM monitor verifies biologists' qualifications. SCE documents woodrat nest relocations in weekly monitoring reports, with a summary in annual monitoring reports, and submits to CDFW, BLM, and CPUC.
Effectiveness Criteria	Avoid take of special-status small mammals and minimize habitat impacts.

Table D.5-6. Mitigation Monitoring Program – Biological Resources, Wildlife

Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Prior to initiation of construction activities and during construction.
MITIGATION MEASURE	**WIL-2k: Conduct surveys and avoidance for American badger, ringtail, and desert kit fox (full text in Section D.5.3.3)**
Location	All areas with suitable habitat.
Monitoring / Reporting Action	SCE submits pre-construction survey results; CPUC/BLM monitor approves report format and contents and verifies field survey results. SCE documents den monitoring, excavations, and passive relocations in weekly monitoring reports, with a summary in annual monitoring reports, and submits to CDFW, BLM, and CPUC.
Effectiveness Criteria	Avoidance of active natal dens; avoidance or passive relocation of active non-natal dens.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	No more than 30 days prior to initiation of construction activities; during construction.
MITIGATION MEASURE	**WIL-3a: Evaluate bird collision risk and implement APLIC design guidelines (full text in Section D.5.3.3)**
Location	All segments.
Monitoring / Reporting Action	SCE shall provide an evaluation of risk for all Proposed Project facilities to CPUC and BLM for review and approval, in consultation with CDFW and USFWS.
Effectiveness Criteria	Conformance with APLIC design guidelines.
Responsible Agency	CPUC; BLM Palm Springs–South Coast Field Office in coordination with CDFW and USFWS.
Timing	Prior to initiating tower construction or conductor replacement.

D.5.7 References

AMEC (AMEC Environmental and Infrastructure, Inc.). 2012a. West of Devers Upgrade Project. Focused Surveys for Sensitive Herpetofauna, Devers Substation to Beaumont. Prepared for Southern California Edison. June.

_____. 2012b. Focused Survey for Desert Tortoise Devers Substation to Morongo Indian Reservation, Riverside County, California. Prepared for Southern California Edison, West of Devers Upgrade Project. January.

_____. 2012c. West of Devers Upgrade Project. Draft Habitat Assessments and Focused Surveys for Special-status Invertebrates. Prepared for Southern California Edison. June 4.

APLIC (Avian Power Line Interaction Committee). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012.

_____. 2006. Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006.

_____. 1996. Suggested Practices For Avian Protection on Power Lines: The State of the Art in 1996.

_____. 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994.

Avery, M. L., P. F. Spring, and N. S. Dailey. 1978. Avian mortality at man-made structures: an annotated bibliography. U.S. Fish and Wildlife Service, Biological Services Program, National Power Plant Team. FWS/OBS-75/58. 108 pp.

Beier, P. and S. Loe. 1992. A checklist for evaluating impacts to wildlife movement corridors. Wildlife Society Bulletin. 20: 434-440.

BLM (Bureau of Land Management). 2013. Palen Solar Electric Generating System Draft Supplemental EIS.

_____. 2012. Desert Harvest Solar Farm Final EIS. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Harvest_Solar_Project.html. Accessed February 16, 2015.

BLM and Riverside County. 2014. Blythe Mesa Solar Project Draft EIR/EA, Sections 3.2.4 and 4.2.4. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Blythe_Mesa_Solar_Power_Project.html. Accessed February 16, 2015.

Brown, W. M. 1993. Avian collisions with utility structures: biological perspectives. Pages 12.1–12.13 in J. W. Huckabee, ed. Proceedings of the international workshop on avian interactions with utility structures. Electric Power Research Institute. Palo Alto, California.

Caltrans (California Department of Transportation) and CDFG (California Department of Fish and Game). 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. http://www.dfg.ca.gov/habcon/connectivity/

CDFG (California Department of Fish and Game). 2012. Staff report on burrowing owl mitigation. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843

CEC (California Energy Commission). 2010. Presiding Member's Proposed Decision. Palen Solar Power Project. http://docketpublic.energy.ca.gov/PublicDocuments/Regulatory/Non%20Active%20AFC's/09-AFC-7%20Palen%20Solar/2010/November/TN%2058990%2011-12-10%20Presiding%20Members%20Proposed%20Decision.pdf. Accessed October 21, 2015.

_____. 2008. CPV Sentinel Energy Project Final Staff Assessment, Biological Resources section. http://|www.|energy.|ca.|gov/|2008publications/|CEC-700-2008-005/|CEC-700-2008-005-FSA.|PDF. Accessed February 16, 2015.

CNDDB (California Natural Diversity Database). 2014. RareFind. California Department of Fish and Wildlife. The Resource Agency, State of California, Sacramento, California.

CPUC (California Public Utilities Commission). 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm. Accessed April 15, 2015.

CPUC and BLM. 2006. SCE Devers–Palo Verde 500 kV No. 2 Project EIR/EIS, Sections on West of Devers Alternative. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-deir.htm. Accessed April 15, 2015.

CPUC and USDA (United States Department of Agriculture) Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

CVAG (Coachella Valley Association of Governments). 2007. Final Recirculated Coachella Valley MSHCP. http://www.cvmshcp.org/Plan_Documents.htm

eBird. 2014. Bird observations at Bridge Street fields (off Gilman Springs Road, south of Beaumont). Accessed March 27, 2014. http://ebird.org/ebird/hotspot/L619537

GANDA (Garcia and Associates, Inc.). 2011. West of Devers Project Habitat Assessment Report. Prepared for Southern California Edison. November 23.

_____. 2010. Draft Sensitive Wildlife Investigations for the Morongo Relocation South of Interstate 10 Project. Prepared for Southern California Edison. September 13.

Garrett, K., and J. Dunn. 1981. Birds of Southern California. Los Angeles Audubon Society. 408pp.

Google. 2015. Google Earth version 7.1.5.1557.

LSA (LSA Associates, Inc.). 2013a. Species observations made by either LSA staff or their subconsultants during 2013 general and focused surveys conducted for the Proposed Project.

_____. 2013b. Biological Resources Technical Report and Appendices, West of Devers Upgrade Project, San Bernardino and Riverside Counties, California. Prepared for Southern California Edison. October 2013.

_____. 2012. Species observations made by either LSA staff or their subconsultants during 2012 general and focused surveys conducted for the Proposed Project.

_____. 2010. Biological Assessment: Morongo Relocation South of Interstate 10 Alternatives Project, Riverside County, California. Prepared for Southern California Edison. January.

Martin, T. E. and G. R. Geupel. 1993. Nest monitoring plots: methods for locating nests and monitoring success. J. Field Ornithology 64: 507-519.

National Fish and Wildlife Forensics Laboratory. 2014. Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. http://alternativeenergy.procon.org/sourcefiles/avian-mortality-solar-energy-ivanpah-apr-2014.pdf. Accessed February 27, 2015.

Pagel, J. E., D. M. Whittington, and G. T. Allen. 2010. Interim golden eagle technical guidance: inventory and monitoring protocols; and other recommendations in support of eagle management and permit issuance. Division of Migratory Bird management, U.S. Fish and Wildlife Service, Arlington Virginia. 26 pp.

Patton, J. L., Huckaby, D. G., and Álvarez-Castañeda, S. T. 2008. The evolutionary history and a systematic revision of woodrats of the Neotoma lepida group. Univ. Calif. Publ. Zool. 135.

Riverside County. 2013. McCoy Solar Energy Project Revised Draft Environmental Impact Report.

_____. 2003. Western Riverside County Multiple Species Habitat Conservation Plan. http://www.rcip.org/Documents/draft_2_mshcp_vol_2/b_02.pdf

Rotenberry, J. T., Preston, K. L., and Knick, S. T. 2006. GIS-based Niche Modeling for Mapping Species' Habitat. Ecology 87(6):1458-1464. http://izt.ciens.ucv.ve/ecologia/Archivos/ECO_POB_2006/ECOPO7_2006/Rotenberry%20et%20al%202006.pdf

SCE (Southern California Edison). 2014. SCE response to data request BIO-17 and BIO-18 from Aspen Environmental Group. Southern California Edison. April.

_____. 2013. West of Devers Upgrade Project. Proponent's Environmental Assessment (PEA). Prepared for the California Public Utilities Commission (CPUC). October. http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm

USFWS (U.S. Fish and Wildlife Service). 2012. Mountain Yellow-legged Frog (*Rana muscosa*), Southern California Distinct Population Segment, 5-Year Review: Summary and Evaluation. http://ecos.fws.gov/docs/five_year_review/doc4001.pdf

_____. 2009b. Desert Tortoise Field Manual. http://www.fws.gov/ventura/species_information/protocols_guidelines/

_____. 2008. Biological and Conference Opinion: Coachella Valley County Multiple Species Habitat Conservation Plan and Natural Communities Conservation Plan.

_____. 2004. Biological and Conference Opinion: Western Riverside County Multiple Species Habitat Conservation Plan.

Williams, D. F. 1986. Mammalian species of special concern in California. Calif. Dept. Fish and Game, Sacramento. Admin. Rep. 86-1. 112pp. http://www.dfg.ca.gov/wildlife/nongame/publications/bm_research/docs/86_27.pdf

WRI (Wildlife Research Institute, Inc.). 2013. Golden Eagle (*Aquila chrysaetas*) Survey Report for the West of Devers Upgrade Project in Riverside and San Bernardino Counties, California. Prepared for Southern California Edison. July 31.

Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (eds.). 1990. California's Wildlife. Vol. III. Mammals. California Department of Fish and Wildlife, Sacramento.

Zouhar, K., J. K. Smith, S. Sutherland, and M. L. Brooks. 2008. Wildland Fire in Ecosystems: Fire and Nonnative Invasive Plants. General Technical Report RMRSGTR-42-Vol. 6, USDA Forest Service Rocky Mountain Research Station, Ogden, Utah: 355 pp.

D.6 Climate Change

This section describes the affected environment for Climate Change and greenhouse gas (GHG) emissions in Section D.6.1 and presents the relevant regulations and standards in Section D.6.2. Sections D.6.3 through D.6.5 describe the impacts of the Proposed Project and the alternatives. Section D.6.6 presents the mitigation measures and mitigation monitoring requirements, and D.6.7 lists references cited.

D.6.1 Environmental Setting / Affected Environment

Globally, temperature, precipitation, sea level, ocean currents, wind patterns, and storm activity are all affected by the presence of greenhouse gas (GHG) pollutants in the atmosphere. In contrast to air quality, which generally is a regional or local concern, human-caused emissions of GHGs have been linked to climate change on a global scale. GHGs allow ultraviolet radiation to enter the atmosphere and warm the Earth's surface and prevent some infrared radiation emitted by the Earth from escaping into space. Human activity contributes to emissions of six primary GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6).

The largest anthropogenic source of GHGs is fossil fuel combustion, which primarily results in CO_2 emissions. Other GHG emissions tracked by State inventories occur in much smaller quantities. However, the global warming potential of CH_4 is about 25 times that of CO_2 (CARB, 2014a). The use of sulfur hexafluoride (SF_6) in power transformers and circuit breakers at power plants, switchyards, and substations also poses a concern, because this pollutant can slowly escape from the equipment, and it has an extremely high global warming potential (GWP). One pound of SF_6 has the equivalent warming potential of approximately 22,800 pounds of CO_2. When quantifying GHG emissions, the different global warming potentials of GHG pollutants are usually taken into account by normalizing their rates to an equivalent CO_2 emission rate (CO2e).

In 2008, when California first formalized a strategy for achieving GHG reductions, the State produced approximately 487 million metric tons of CO_2 equivalent (MMTCO2e), an amount equal to about 537 million tons (CARB, 2014b). (One metric ton (MT) equals 1,000 kilograms, which is 2,204.6 pounds or about 1.1 short tons.) In 2012, California's emissions were approximately 459 MMTCO2e (CARB, 2014b), less than one percent of the 49,000 MMTCO2e emitted globally (IPCC, 2014).

D.6.1.1 Regional Setting and Approach to Data Collection

The environmental setting for climate change and GHG is based upon a review of the official emissions inventory, and information from regional, State, and federal agencies on the effects of climate change and programs for GHG controls. Project-specific emission forecasts are from the applicant. The resources used for this analysis were gathered from the following sources:

- Intergovernmental Panel on Climate Change (IPCC),
- U.S. Environmental Protection Agency (U.S. EPA),
- State of California, Air Resources Board (CARB),
- California Office of Environmental Health Hazard Assessment (OEHHA),
- South Coast Air Quality Management District (SCAQMD), and
- Other information found in the Proponent's Environmental Assessment (PEA).

D.6.1.2 Environmental Setting

The Proposed Project falls within two California air basins, as discussed in Section D.3 Air Quality. In the context of climate change and GHG emissions, the discussion of the environmental setting would be the same for each Segment of the Proposed Project because of the global effects of climate change and because the inventory and programs for control of GHG emissions are statewide.

Climate Change Indicators and Evidence

Climate scientists make global-scale observations and reconstructions of the climate system. For the period 1950 onwards, relatively comprehensive data sets of observations are available. Consensus expressed by the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) shows that: "warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased" (IPCC, 2013).

Focusing on California, the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) compiles various indicators and evidence to illustrate the many aspects of climate change, namely, how temperature and precipitation are changing, and how these changes are affecting the environment, specifically freshwater and marine systems, as well as humans, plants, and animals (OEHHA, 2013). Since California's initial GHG strategy of 2008, the scientific evidence has continued to indicate that the climate is changing. This evidence includes rising temperatures, shifting snow and rainfall patterns, and increased incidence of extreme weather events (CARB, 2014a).

Table D.6-1 summarizes the recent OEHHA findings for California on climate change drivers, observed changes in climate, how natural physical systems respond, and emerging issues. The documented effects of climate change also include impacts on terrestrial, marine, and freshwater biological systems, with resulting changes in habitat, agriculture, and food supply. Examples of the terrestrial effects include increasing tree mortality, large wildfires, and changes in vegetation density and distribution (OEHHA, 2013).

Table D.6-1. Summary of OEHHA Findings on Climate Change Indicators in California

Climate Change Drivers
▪ **GHG Emissions.** California emissions of greenhouse gases, namely carbon dioxide, methane, nitrous oxide, and high global warming potential gases have seen an overall increase between 1990 and 2011. In recent years, however, emissions have generally been declining. Emissions per $1,000 of the state's economic output, measured as gross state product (GSP) have decreased from 2000 through 2011, despite increases in GSP and in the state's population. Carbon dioxide from the combustion of fossil fuels for transportation accounts for the largest proportion of emissions.
▪ **Atmospheric GHG concentrations.** Atmospheric concentrations of the greenhouse gases carbon dioxide and methane have been increasing in coastal areas of the state. This is consistent with global trends, as represented by levels measured at Mauna Loa, Hawaii. Carbon dioxide levels at Mauna Loa rose from 315.7 parts per million (ppm) in 1958 to 389.7 ppm in 2010. Levels tend to be higher in California; for example, CO2 values were between 392.7 to 398.3 ppm in 2010.
▪ **Atmospheric black carbon concentrations.** Atmospheric concentrations of black carbon, a powerful short-lived climate pollutant, have dropped significantly over the past several decades. A component of soot, black carbon is emitted by diesel-burning vehicles, residential wood burning and wildfires. Reductions in black carbon levels since the 1980s are due largely to reduced diesel engine emissions attributable to state air quality programs. Because black carbon is removed from the atmosphere in about a week, reducing its emissions represents an effective short-term strategy to reduce climate warming.
▪ **Acidification of coastal waters.** The ocean absorbs nearly one-quarter of the carbon dioxide released into the atmosphere by human activities each year. As atmospheric levels of carbon dioxide increase, so do levels in the ocean, changing the chemistry of seawater. The coastal waters at Monterey Bay have increased in acidity since 1993 at a rate greater than in the open ocean near Hawaii.

Table D.6-1. Summary of OEHHA Findings on Climate Change Indicators in California

Observed Changes in Climate
▪ **Annual air temperature.** Since 1895, annual average air temperatures in California have increased by about 1.5 degrees Fahrenheit (°F), with minimum temperatures increasing at a rate almost twice as fast as the increase in maximum temperatures (approximately 2°F/100 years and 1°F/100 years, respectively). In most regions of the state, warming accelerated over the past three decades.
▪ **Extreme heat events.** During the summer, heat extremes—measured as the intensity, frequency, duration and regional extent of heat patterns—have increased since 1950, especially at night. Nighttime heat waves have been increasing in all regions of the state. The Coastal North and Mojave regions have experienced the greatest increase in daytime heat waves.
▪ **Winter chill.** Warming is evident in other indicators. In the fruit growing valleys of California, winter chill time, a factor critical for fruit trees to produce flowers and fruit, has been decreasing since 1950.
▪ **Freezing level elevation.** At Lake Tahoe, freezing level elevation—the altitude in the atmosphere at which temperatures drop below freezing—has risen by about 150 meters (500 feet) over the past twenty years, indicating warmer conditions at higher elevations.
▪ **Precipitation.** Large year-to-year variability in the amount of annual precipitation and periods of consecutive dry or wet years are evident, with no apparent trend.
Responses of Natural Physical Systems to Climate Change
▪ **Annual Sierra Nevada snowmelt runoff.** Spring snowmelt from the Sierra Nevada to the Sacramento River has declined over the past century. Lower water volumes of snowmelt runoff indicate warmer winter temperatures. More precipitation falls as rain instead of snow and directly flows from watersheds before the spring. As a result, the portion of runoff that occurs between April and June has declined by about 9 percent. In addition to its impacts on the state's water supply, reduced spring runoff can have adverse ecological impacts.
▪ **Snow-water content.** While no overall trend is discernible in statewide snow-water content (the amount of water stored in snowpack), a decreasing trend has been observed in the northern Sierra Nevada, and an increasing trend in the southern Sierra Nevada. An integral part of California's water supply, snowpacks store water that is later available to runoff or percolate into soils in spring and summer.
▪ **Glacier change.** Glaciers in the Sierra Nevada have decreased in area over the past century, consistent with a worldwide trend in response to a warming climate. A study of seven glaciers found their areal extent in 2004 to range from 22 to 69 percent of their area in 1900. Glacier shrinkage results in earlier peak water runoff and drier summer conditions, and worldwide is an important contributor to global sea level rise.
▪ **Sea level rise.** Sea levels measured at stations in San Francisco and La Jolla have risen at a rate of 8 and 6 inches over the century, respectively. Sea level rise in California could lead to flooding of low-lying areas, loss of coastal wetlands such as portions of the San Francisco Bay Delta system, erosion of cliffs and beaches, saltwater contamination of drinking water, impacts on roads and bridges and harmful ecological effects along the coastline.
▪ **Lake water temperature.** Average water temperatures in Lake Tahoe have risen by nearly 1°F in the past 30 years. Warmer waters in Lake Tahoe may be responsible for reduced lake clarity and making conditions favorable for certain algae and introduced species. Temperature data derived from satellite observations also show a significant warming trend since 1992 for summer nighttime temperatures at six lakes in California and Nevada, including Lake Tahoe.
▪ **Coastal ocean temperature.** Sea surface temperatures at La Jolla have increased by about 1.8°F over the past century at about twice the global rate. Warmer ocean waters contribute to global sea level rise and extreme weather events, and can impact the marine ecosystem and its populations.
Emerging Climate Change Issues
▪ An increase in the frequency, severity and duration of harmful algal blooms in all aquatic environments, which are known to be influenced by water temperature. ▪ Reduced duration and extent of winter fog in the Central Valley, with warming winter temperatures. ▪ Increased survival and spread of forest disease-causing pathogens and insects, along with increased susceptibility of trees, which are affected by temperature, precipitation or forest fires. ▪ In addition to heat waves and wildfires, changes in the frequency and intensity of extreme events such as droughts and floods.

Source: OEHHA, 2013 (Indicators of Climate Change in California; Executive Summary, pp. i-iv).

CARB Baseline Emissions Inventory

The baseline GHG emissions for all sectors of the California economy that occurred in 1990 were 431 MMTCO2e (ARB, 2014a), updated from 427 MMTCO2e originally derived by CARB in 2007. While emissions generally grew between 1990 and 2004, statewide GHG emission rates have declined from a high of 493 MMTCO2e in 2004 to 459 MMTCO2e in 2012 (ARB, 2014b), as shown in Table D.6-2.

Table D.6-2. California GHG Emissions Inventory (MMTCO2e)

Source Category	1990	2009	2010	2011	2012
Transportation[1]	150.7	171.5	170.5	168.1	167.4
Electric Power	110.6	101.3	90.3	88.0	95.1
Commercial and Residential	44.1	42.7	43.8	44.3	42.3
Industrial[2]	103.0	85.0	88.5	88.3	89.2
Recycling and Waste	—	8.2	8.3	8.4	8.5
High GWP	—	14.0	15.9	17.4	18.4
Agriculture	23.4	35.8	35.7	36.3	37.9
Other Fuel Use and High GWP[3]	1.3	—	—	—	—
Forestry, Net Carbon Sink[3]	-6.5	—	—	—	—
Total Emissions	**427**	**458.4**	**453.1**	**450.9**	**458.7**

Notes: California 1990 GHG Emissions Level, as originally derived using IPCC Second Assessment Report's Global Warming Potentials.
1 - Transportation category includes off-road equipment used in construction, mining, oil drilling, and other vehicles and mobile sources.
2 - Industrial category includes refineries, oil and gas extraction, and other industries including combustion of fuels plus fugitive emissions.
3 - Slightly different categorization of economy-wide fuel use, high GWP gases, agriculture, and forestry for the 1990 level.
Source: ARB, 2007 (California 1990 GHG Emissions Level); ARB, 2014b (California GHG Inventory for 2000-2012, by Scoping Plan Category).

Statewide GHG inventoried emissions currently rely upon GWP's assigned in the IPCC Fourth Assessment Report (CARB, 2014b). However, CARB may subsequently recalculate levels necessary to reflect the GWPs in the IPCC Fifth Assessment Report of 2014 or later updates (CARB, 2014a).

D.6.1.3 Environmental Setting for Connected Actions

The connected actions fall within two California air basins: Salton Sea Air Basin and the Mojave Desert Air Basin. As discussed in Section D.6.1.2, the inventory and programs for control of GHG emissions are statewide, and the effects of climate change are analyzed on a global scale. In the context of climate change, the environmental setting for the connected actions would be the same as the discussion presented in Section D.6.1.2 for the Proposed Project.

D.6.2 Applicable Regulations, Plans, and Standards

D.6.2.1 Federal

U.S. EPA GHG Mandatory Reporting Program (40 CFR Part 98)

This rule requires mandatory reporting of GHG emissions for industrial facilities and power plants that emit more than 25,000 MTCO2e per year. The reporting program (40 CFR Part 98.300, Subpart DD) applies to electric and transmission distribution equipment that use high GWP gases, including SF_6, for insulation. Currently, there are no federal regulations limiting GHG emissions from the types of sources that would occur with the Proposed Project. The circuit breakers and gas switches owned by SCE are sources of GHG subject to reporting due to the leakage of SF_6.

U.S. EPA Federal Clean Air Act

The U.S. EPA Prevention of Significant Deterioration (PSD) and New Source Review programs under the federal Clean Air Act (CAA) and implementing regulations (40 CFR Parts 51 & 52) require review of CO_2 emission control strategies for any new or modified stationary source that emits more than 100,000 tons per year of GHG. Lower thresholds also can trigger PSD review of CO_2 control technologies for large stationary sources that would otherwise be subject to the PSD program for other criteria air pollutants. The permitting programs are enforced either by the local air quality management district or the U.S. EPA, depending on delegation of authority. Although power plants would be subject to these requirements, none of these programs would apply to the types of sources that would occur with the Proposed Project.

Council on Environmental Quality (CEQ) Draft Guidance

To facilitate compliance of federal actions with the provisions of NEPA, the CEQ has developed draft guidance on when and how to consider the effects of GHG (December 2014). Consistent with this guidance, the following analysis includes quantification of GHG emissions to demonstrate whether emissions from the proposed action would be below a level (25,000 MTCO2e annually) that warrants quantitative disclosure. The guidance also suggests addressing the implications of climate change for the environmental effects of a proposed action. The electric transmission upgrades contemplated by this proposed action would be expected to improve the transmission corridor to increase reliability of service and to maintain integrity of the transmission system. As such, the proposed action would be likely to improve the resilience of basic infrastructure during extreme weather. This would improve the ability of the infrastructure to provide electric transmission service while withstanding climate-related impacts. Reducing the potential for transmission system service interruptions should improve public health and safety by avoiding catastrophic service failures or power outages as a result of extreme weather.

D.6.2.2 State

California Global Warming Solutions Act of 2006 (Assembly Bill 32)

This law (AB 32, Chapter 488, Statutes of 2006) requires CARB to adopt a Statewide greenhouse gas emissions limit equivalent to the Statewide GHG emissions levels in 1990, to be achieved by 2020. A longer range GHG reduction goal was set in June 2005 by California Executive Order S-3-05, which requires an 80 percent reduction of greenhouse gases from 1990 levels by 2050.

AB 32 directs the CARB to develop regulations and a mandatory reporting system to track and monitor GHG emissions levels. In passing AB 32, the California Legislature found that:

> *Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*

CARB adopted the 2020 Statewide target and mandatory reporting requirements initially in December 2007 and the AB 32 Scoping Plan in December 2008 (CARB, 2008). In 2014, CARB updated the target and adopted the First Update to the Climate Change Scoping Plan (CARB, 2014a). Enforceable cap-and-trade rules became effective in 2013 for a wide range of large industrial and fossil-fuel burning sources, including electricity generation facilities. In 2015, the program expands to cover GHG emissions from all of the California economy.

Steps taken by the CPUC to address climate change include the requirements imposed on utilities under the Electricity Greenhouse Gas Emission Standards Act (SB 1368[1]), which requires that generation and contracts be subject to a GHG Environmental Performance Standard of 1,100 pounds (or 0.5 metric tons) of CO_2 per megawatt-hour (MWh) of electricity produced. The Emissions Performance Standard applies to base load power from new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or longer, including contracts with power plants located outside of California.[2] Implementation of the Climate Change Scoping Plan requires careful coordination on the State's energy policies, meaning that CPUC and CARB are working closely to implement the recommendations in the Scoping Plan, especially one key element of the plan: achieving a renewable energy mix of 33 percent that is reliably delivered to electricity customers.

California Renewable Energy Resources Act of 2011 (Senate Bill X1-2)

In April 2011, Senate Bill 2 of the 1st Extraordinary Session (SB X1-2) was signed into law. SB X1-2 expressly applies the new 33 percent Renewable Portfolio Standard (RPS) by December 31, 2020 to all retail sellers of electricity and establishes renewable energy standards for interim years of: an average of 20 percent from 2011 through 2013; a minimum of 20 percent thereafter through 2016; and, a minimum of 25 percent by December 31, 2016. This codified the requirement to achieve 33 percent RPS statewide by the end of 2020, consistent with the AB 32 Scoping Plan and the First Update to the Climate Change Scoping Plan (CARB, 2014a).

Mandatory Reporting of Greenhouse Gas Emissions (17 CCR 95100 to 95158)

Mandatory reporting of GHG emissions applies to electric generating facilities with a nameplate capacity equal or greater than 1 MW capacity or on-site stationary combustion GHG emissions exceeding 10,000 metric tons per year (17 CCR 95101). This threshold has applied to power plants since 2012. Prior to that, an earlier version of this threshold required reporting for power plants emitting over 2,500 metric tons per year. As a deliverer of electricity and an Electric Power Entity under this rule, SCE must report GHG emissions for electricity delivered to end-use customers and electricity imported and exported; as an owner of fossil fuel electric power generation facilities, the GHG emissions from the power plants owned by SCE must also be reported.

Cap-and-Trade Program (17 CCR 95800 to 96022)

The California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (Cap-and-Trade Program) was approved by CARB in October 2011. The GHG Cap-and-Trade Program applies to covered entities within certain source categories, including electrical distribution utilities, that are subject to GHG quantification through the mandatory reporting rule. Covered entities comply with the statewide emissions cap and the Cap-and-Trade Program by submitting eligible compliance instruments equivalent to their GHG emissions by November 1 of each year. Valid compliance instruments include allowances and compliance offset credits issued by ARB. Each compliance instrument represents one metric ton of carbon dioxide equivalent. The first surrender date for the initial 30 percent of 2013 vintage emissions was November 1, 2014 [Section 95856]. SCE is subject to the Cap-and-Trade Program by being a "first deliverer of electricity," as an electricity importer and as an owner of in-state fossil fueled electric power plants.

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1 Public Utilities Code § 8340 et seq.

2 See Rule at http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/64072.htm

CARB SF_6 Regulations (17 CCR 95350)

In 2010, CARB adopted a regulation for reducing SF_6 emissions from electric power system gas insulated switchgear. The regulation requires owners of such switchgear to: (1) annually report their SF_6 emissions; (2) determine the emission rate relative to the SF_6 capacity of the switchgear; (3) provide a complete inventory of all gas insulated switchgears and their SF_6 capacities; (4) produce a SF_6 gas container inventory; and (5) keep all information current for CARB enforcement staff inspection and verification. The circuit breakers and gas switches owned by SCE at the substations and in the project corridor are subject to this regulation.

Governor's Office of Planning and Research, Guidelines on GHG in CEQA (SB 97)

In 2009, the California Natural Resources Agency adopted amendments to the State CEQA Guidelines for reviewing the environmental impacts of greenhouse gas emissions, to implement the Legislature's directive in Public Resources Code Section 21083.05 (enacted as part of SB 97 (Chapter 185, Statutes, 2007)). The Natural Resources Agency developed a Final Statement of Reasons that guides the scope of GHG analyses for CEQA documents (CNRA, 2009). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in developing a given project and infrastructure) is generally beyond the scope of a given CEQA document because of a lack of consensus guidance on life-cycle analysis methodologies (CNRA, 2009).

D.6.2.3 Local

South Coast Air Quality Management District

The local air quality management district, the South Coast Air Quality Management District (SCAQMD), implements the air permitting programs under the federal Clean Air Act, including New Source Review and the PSD program. In this way, SCAQMD requires major sources to demonstrate suitable controls for GHG or CO_2. Fossil-fueled electrical generating facilities that are interconnected to the transmission system may be subject to performance standards through these air pollution permit requirements. However, no local air pollution control rules or requirements for GHG would apply to or limit GHG emissions from the types of sources that would occur with the Proposed Project.

SCAQMD Vision for Clean Air: A Framework for Air Quality and Climate Planning. In 2012, the air district released a public review draft of a planning framework that combines air pollution control strategies with climate goals. Although actions are identified for informational purposes only, the assumptions in the strategies for future emissions controls assumed that electric grid capacity would grow while allowing a heavy reliance on renewables, and that the future transportation fleet would become more reliant on electric power (SCAQMD, 2012).

Cities and Counties

Some local municipalities and local governments have policies on energy resources or GHG control policies as part of local climate action plans. The CEQA Guidelines (Section 15183.5) include recommendations on the minimum content that agencies should provide in a local "Plan for the Reduction of Greenhouse Gas Emissions," although public agencies are not required to adopt such a plan. Of the jurisdictions in the project corridor, only the County of San Bernardino, General Plan, Conservation Element, addresses GHG with the policy being to reduce GHG within the County. Typically, local climate action plans do not address the types of sources that are dominated by construction-related activity, like that anticipated to occur with development of the Proposed Project.

D.6.3 Environmental Impacts of the Proposed Project

D.6.3.1 Approach to Impact Assessment

This impact assessment describes the Proposed Project's contribution towards global climate change through GHG emissions that occur as a result of the project. Because the direct environmental effect of GHG emissions is to influence global climate change, which in turn has numerous indirect effects on the environment and humans, the area of influence for these impacts would be global. However, those cumulative global impacts would be manifested as impacts on resources and ecosystems in California, as well as nationally. Additionally, as this analysis concerns cumulative global impacts, there is no separate cumulative impacts analysis for global climate change.

Project-related GHG emissions fall into those directly caused by project activities and those that occur as an indirect effect of the project's construction or operation. Estimates of GHG directly emitted by project-related activities rely on factors from the CARB OFFROAD2011 and EMFAC2011 models and U.S. EPA emission factors. The data within the CARB models and U.S. EPA documentation provide appropriate factors directly applicable to the project-specific fleet of equipment most likely to be used, based on SCE's development plans. These emissions are quantified to arrive at a total GHG emissions rate for construction activities and for typical annual operation of the project. GHG emitted as indirect effects of the project are listed and characterized although they are not quantified. Examples of indirect effects include: the loss of CO_2 uptake due to land use conversion; the GHG emissions attributable to providing the necessary water supply or electricity supply; and incremental changes in GHG emissions caused by changes in how power plants are dispatched as a result of the new transmission facilities.

D.6.3.1.1 Applicant Proposed Measures

SCE proposed no Applicant Proposed Measures related to climate change.

D.6.3.2 Impact Criteria

NEPA does not have specific significance criteria. However, NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). For the purposes of this analysis, impacts to climate change or impacts related to GHG emissions depend on whether the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have an impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.
- The SCAQMD developed draft guidance that other lead agencies can implement in determining the level of impact of emissions foreseeable as a result of a project. The SCAQMD recommends a threshold level of 10,000 metric tons for annually recurring emissions from stationary sources (SCAQMD, 2011). Emissions from construction activities are amortized over a 30-year project life and compared to this level, although construction activities are normally dominated by mobile sources rather than stationary sources.

D.6.3.3 Impacts and Mitigation Measures

Impact GHG-1: Construction and operations would generate greenhouse gas emissions

The Proposed Project would generate GHG emissions through construction activities, routine inspection, operations, and maintenance over the life of the facilities. These emissions are discussed in more detail under the separate following headings.

Impacts During Construction

Construction of the Proposed Project, including the removal of existing transmission line facilities, would generate GHG emissions from the vehicles and equipment needed to complete the upgrades. Diesel and gasoline-powered construction equipment would emit GHG at work sites and in transit between work areas, including substations undergoing modifications, along the routes of the proposed 220 kV transmission lines, along the routes of the new and modified 66 kV subtransmission lines, along the routes of new telecommunications infrastructure, and at staging yards. The anticipated fleet of equipment and vehicles and activity estimates appear in Section B.3 of this EIS.

Motor vehicles, off-road equipment, and other construction equipment would directly emit CO_2, CH_4, and N_2O due to fuel use and combustion. The emission estimates used here rely on factors from the CARB OFFROAD and EMFAC2011 databases and U.S. EPA emission factors. Motor vehicle fuel combustion emissions in terms of CO2e are approximately 95 percent CO_2, and CH_4 and N_2O emissions occur at rates of less than 1 percent of the mass of combustion CO_2 emissions. The equipment and vehicles used during construction would not emit other GHGs that are high GWP gases such as SF_6, hydrofluorocarbons, and perfluorocarbons. However, the existing and proposed circuit breakers and gas switches affected by the project include gas insulated switchgear containing SF_6, and thus, would be sources of SF_6 during project operations; construction activities would not emit these GHG constituents.

The GHG emissions during construction of various components are quantified in Table D.6-3.

Table D.6-3. Construction-Phase GHG Emissions (MTCO2e, Total)

Source	Total CO2e
Substation Upgrades	985
Segment 1 (220 kV)	3,560
Segment 2 (220 kV)	4,865
Segment 3 (220 kV)	9,616
Segment 4 (220 kV)	11,931
Segment 5 (220 kV)	3,010
Segment 6 (220 kV)	7,739
Temporary Guard Structures/Shoo-fly	4,896
Subtransmission (66 kV)	926
Telecommunications	327
Total Construction Emissions	**47,856**

Motor vehicle emissions of CO_2 equivalent are approximately 95% CO_2.
One metric ton (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
Source: SCE, 2013 (PEA Table 4.7-2).

Table D.6-3 shows that an estimated total of 47,856 MTCO2e would be generated over the entire duration of construction activities. These construction-related GHG emissions would not recur over the life of the project. The emissions would be spread over the development schedule that SCE expects to be 36 to 48 months, after which construction-related emissions would cease. To compare with an annual threshold, the finite GHG emissions during construction are normally averaged (or amortized) over the useful life of the project. The non-recurring construction emissions applied over the anticipated 30-year service life of the Proposed Project results in an average rate of roughly 1,600 MTCO2e per year. This level of amortized construction GHG emissions would be under the threshold level of 10,000 metric tons that applies to electric generating facilities for annual mandatory reporting of GHG (17 CCR 95101), and these emissions would also be below a threshold level of 10,000 metric tons that applies to annually recurring emissions (SCAQMD, 2011). Air Quality Mitigation Measures AQ-1b, Control Off-Road Equipment Emissions and AQ-1c, Control Helicopter Emissions, which were intended to minimize criteria pollutant emissions, would also reduce GHG emissions during construction.

Impacts During Operations and Maintenance

Routine operations and maintenance of the Proposed Project and associated transmission lines, substation improvements, subtransmission line segments, and other project facilities would result in low levels GHG emissions from the equipment and vehicles used by SCE to mobilize crews. The proposed installation of new circuit breakers and gas switches at the substations would also introduce new gas insulated switchgear that would be a source of GHG due to the leakage of SF_6.

The quantity of potential SF_6 emissions and the mobile source emissions would be about 49 metric tons CO2e annually (SCE, 2013). The new circuit breakers would be required to comply with the CARB-adopted standards for SF_6 use in gas insulated circuit breakers, and with the CARB requirements to control SF_6 and maintain recordkeeping. The level of GHG due to SF_6 emissions would be minor. The GHG during operations and maintenance are quantified in Table D.6-4.

Table D.6-4. Operation-Related GHG Emissions (MTCO2e/yr)

Source	SF6 as CO2e	Total CO2e
SF_6 Losses from Circuit Breakers	25	25
Maintenance Trucks	—	1
Helicopters	—	9
Pickup Trucks	—	2
Boom/Crane Trucks	—	12
Operations and Maintenance	**25**	**49**

Source: SCE, 2013 (PEA Table 4.7-2 and PEA Appendix E).

Table D.6-4 shows that GHG emissions during routine operations and maintenance would be well below the threshold for mandatory reporting and the SCAQMD threshold (10,000 MTCO2e/yr).

Other Indirect Effects

The indirect effects of the project on GHG emissions would primarily be due to changing the deliverability of electricity generation facilities. One of SCE's objectives for the Proposed Project is to "integrate and fully deliver the output of new generation projects located in the Blythe and Desert Center areas" some of which include renewable energy resources. The Proposed Project would improve the ability to deliver electricity from the existing and likely future renewable resources in the southeastern California desert to the Los Angeles basin. Power produced from the renewable resources and made deliverable by the project would reduce, displace, or eliminate emissions that would otherwise occur from other power generation facilities including fossil fueled-fired power plants. Delivering electricity to coastal loads would enable an indirect, unquantified reduction in GHG emissions from electricity generation there, primarily within the South Coast Air Basin (SCAB).

A small amount of indirect GHG emissions would be created as a result of providing a water supply and wastewater treatment needed by the project. Additionally, land use conversion and vegetation removal that occurs with permanent ground disturbance may reduce the rate of natural carbon uptake into soils and vegetation (carbon sequestration). Soils and plants in the areas of disturbance currently provide a natural carbon sink. By permanently disturbing the land, some portion of natural carbon sequestration provided by the existing soils and vegetation would be eliminated. Vegetation management and restoration practices during project operation can partially restore the natural removal of CO_2 from the atmosphere that would otherwise be lost through construction-related ground disturbance. Of the total acres expected to be disturbed during construction, nearly 90 percent would be restored by the project (see Section B.3.3.3 and land disturbance acres in Table B-10 and Table B-11); because the Proposed Project would not establish major new ROW or result in substantial land use conversion, the loss of potential CO_2 uptake would be minimal. Although these indirect GHG emissions cannot be readily estimated, they would not create any notable net GHG emissions increase in comparison with the direct emissions quantified for construction.

Conclusion and Overall Effects

The overall levels of GHG emissions caused during construction, operations and maintenance would be adverse, but they would not occur at levels requiring reporting or at levels exceeding any established threshold. No mitigation is required.

Impact GHG-2: Project implementation could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions

The Climate Change Scoping Plan, initially approved by CARB in 2008 with an update in 2014 (CARB, 2014a), provides an outline of actions to reduce California's GHG emissions. The scoping plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs.

One of SCE's objectives for the Proposed Project is to "integrate and fully deliver the output of new generation projects located in the Blythe and Desert Center areas" some of which include renewable energy resources. Additionally, SCE expects the Proposed Project to "facilitate progress toward achieving California's RPS goals." (See Section A.2 of this EIS for a detailed discussion of the project objectives.)

Mandatory RPS Procurement Reports filed with the CPUC show that SCE served 19.9 percent of its 2012 retail electricity sales from renewable power (CPUC, 2014), and SCE reports achieving 20.7 percent during the 2011 to 2013 RPS compliance period (SCE, 2014a). In SCE's *2013 Preliminary Annual RPS Report*, filed August 1, 2014, the Proposed Project is attributed with interconnecting and delivering 4,000 MW of expected renewable generating capacity (SCE, 2014b) and continuing to grow SCE's portion of electricity sales from renewable power. The existing West of Devers Interim Project, that went into service in October 2013, but that would be removed with the Proposed Project, allowed SCE to integrate 1,050 MW of renewable generation (SCE, 2014b).

The Proposed Project would improve the infrastructure used in transmission and distribution of California's energy supply. Accordingly, the Proposed Project would improve California's ability to supply renewable energy to customers and achieve statewide renewable energy goals. Achieving compliance with the 33 percent RPS is one key element of the Climate Change Scoping Plan. Similarly, the Proposed Project would not affect or conflict with any local goals or programs to achieve GHG reduction targets.

SCE must comply with CARB SF_6 regulations to inventory, report, and minimize SF_6 leaks through the use of new technology. By complying with these requirements, the Proposed Project would not conflict with any applicable GHG management plan, policy, or regulation. No mitigation is required.

D.6.3.4 Impacts of Connected Actions

Impact GHG-1: Construction and operations would generate greenhouse gas emissions

Each of the connected actions is a solar generation project, and their construction would involve similar equipment and activities. As discussed in the climate change analyses in the environmental review documents for the Desert Harvest, Palen, and Blythe Mesa projects, direct GHG emissions would be generated from off-road equipment, on-road construction vehicle trips, and routine maintenance of the facilities (BLM, 2012). Equivalent annual average GHG emissions for construction and operation of these known projects were calculated to be the following:

- Desert Harvest Project – 979.43 MTCO2e for construction and 522.62 MTCO2e for operation (BLM, 2012);
- Palen Solar Power Project – 101,000 MTCO2e for construction and 14,818 MTCO2e for operation (CEC, 2010);[3]
- Blythe Mesa Solar Project – 183 MTCO2e for construction and 271 MTCO2e for operation (POWER Engineers, 2014).

The range of estimated GHG emissions for these known connected projects reflects the varying technologies used for each project. For example, the Palen Solar Power Project would use auxiliary boilers that would generate greater operation emissions than solar PV projects. It is assumed that given similar construction equipment and methods, the connected solar PV projects would generate construction and operation GHG emissions to a similar degree as the known solar PV projects.

The total annual GHG emissions for the Desert Harvest Project and the Blythe Mesa Solar Project would be 1,502 MTCO2e and 454 MTCO2e, respectively, which is well below the federal threshold of 25,000 MTCO2e per year and the SCAQMD's adopted interim GHG significance threshold of 10,000 MTCO2e per year for industrial projects. While the GHG emissions from the Palen project would exceed the federal mandatory reporting threshold and the SCAQMD's significance threshold, the CEC determined in its decision document that this renewable energy generation facility is determined by rule to comply with the Greenhouse Gas Emission Performance Standard requirements of SB 1368 and an estimated GHG emission rate of 0.015 MTCO2e/MWh, well below the Greenhouse Gas Emission Performance Standard (CEC, 2010).

The connected actions are solar generation projects. Emissions from their construction and operation would result in GHG emissions considerably less than the existing statewide average GHG emission per unit of electricity generation (i.e., renewable and non-renewable generation) and would enable GHG emission reductions in the electricity generation sector. No mitigation is required.

Impact GHG-2: Project implementation could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions

Although the construction and operation of the projects identified as connected actions would generate GHG emissions, the amount of emissions would be considerably less than the GHG emissions from existing fossil fuel-fired power plants providing generation to California. To the extent that the output from the renewable energy projects replaces fossil-fuel generation, those projects would contribute to the continued reduction of GHG emissions in the interconnected California and the western United States electricity systems. The solar power projects that are connected actions listed in Table B-22 would have similar contributions to reducing GHG emissions within the State's electricity generation sector. The renewable generators would provide energy to California's retail sellers of electricity and partially enable the load serving entities (each utility that procures the power) to achieve compliance with the RPS program. As such, the connected actions would be notable contributors to the successful implementation of AB 32, the AB 32 Scoping Plan, SB X1-2, and Executive Orders for GHG reductions. Similarly, the connected actions would not conflict with any other applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. No mitigation is required.

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3 The Palen Solar Power Project calculations are for a proposed solar trough 500 MW facility.

D.6.4 Environmental Impacts of Project Alternatives

Three alternatives are considered in this section; all of these alternatives would be located within the existing WOD ROW. The No Action Alternative is evaluated in Section D.6.5. Alternatives are described in detail in Appendix 5 (Alternatives Screening Report) and are summarized in Section C.

The environmental setting for climate change is described in Section D.6.1.2 above; the description of the environmental setting would apply equally to the alternatives.

D.6.4.1 Tower Relocation Alternative

The Tower Relocation Alternative would locate certain transmission structures in Segments 4, 5, and 6 farther from existing homes than would be the case under the Proposed Project.

Two impacts related to climate change were identified for the Proposed Project. These impacts also would apply to the Tower Relocation Alternative, which overall would be the same as the Proposed Project, except for the relocated transmission towers that are described above and in Appendix 5. The full text of all mitigation measures referenced in this section is presented in Section D.6.3.3, except where otherwise noted.

Impact GHG-1: Construction and operations would generate greenhouse gas emissions

Construction of the Proposed Project, including the removal of existing transmission line facilities, would generate GHG emissions from the vehicles and equipment needed to complete the upgrades. Diesel and gasoline-powered construction equipment would emit GHG at work sites and in transit between work areas, including substations undergoing modifications, along the routes of the proposed 220 kV transmission lines, along the routes of the new and modified 66 kV subtransmission lines, along the routes of new telecommunications infrastructure, and at staging yards.

Under the Tower Relocation Alternative, the minor adjustment to the location of some towers in Segments 4, 5, and 6 would have little effect on the amount of project-generated greenhouse gas emissions, as compared to the Proposed Project. Although this alternative could extend the construction timeframe by as much as one year, the type and intensity of construction activity would be substantially the same as in the Proposed Project. Even with an extended construction timeframe, the amortized GHG emissions from construction of this alternative would be nearly the same as in the Proposed Project and under the threshold level for mandatory reporting and the SCAQMD threshold (10,000 MTCO2e/yr).

The overall levels of GHG emissions caused during all timeframes for this alternative, including construction, operations and maintenance, and restoration would be adverse, but they would not occur at levels requiring reporting or at levels exceeding any established threshold. No mitigation is required.

Impact GHG-2: Project implementation could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions

The Climate Change Scoping Plan, initially approved by CARB in 2008 with an update in 2014 (CARB, 2014a), provides an outline of actions to reduce California's GHG emissions. The scoping plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs.

One of SCE's objectives for the Proposed Project is to "integrate and fully deliver the output of new generation projects located in the Blythe and Desert Center areas" some of which include renewable energy resources. Additionally, SCE expects the Proposed Project to "facilitate progress toward achieving California's RPS goals."

The minor changes to the location of specific towers would not result in a conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions. Like the Proposed Project, the Tower Relocation Alternative would improve the infrastructure used in transmission and distribution of California's energy supply. Accordingly, this alternative would improve California's ability to supply renewable energy to customers and achieve statewide renewable energy goals. Achieving compliance with the 33 percent RPS is one key element of the CARB 2014 Climate Change Scoping Plan. Similarly, this alternative would not affect or conflict with any local goals or programs to achieve GHG reduction targets.

SCE must comply with CARB SF_6 regulations to inventory, report, and minimize SF_6 leaks through the use of new technology. By complying with these requirements, this alternative would not conflict with any applicable GHG management plan, policy, or regulation. No mitigation is required.

D.6.4.2 Iowa Street 66 kV Underground Alternative

The Iowa Street 66 kV Underground Alternative would place a 1,600-foot segment of subtransmission line underground, rather than overhead. This would require trenching in the street, rather than installation of poles in this segment of the Proposed Project.

Two impacts were identified under the Proposed Project for climate change. These impacts also would apply to the Iowa Street 66 kV Underground Alternative, which overall would be the same as the Proposed Project, except for the underground portion of the subtransmission line that is described above and in Appendix 5. The full text of all mitigation measures referenced in this section is presented in Section D.6.3.3, except where otherwise noted.

Impact GHG-1: Construction and operations would generate greenhouse gas emissions

Construction of the Proposed Project, including the removal of existing transmission line facilities, would generate GHG emissions from the vehicles and equipment needed to complete the upgrades. Diesel and gasoline-powered construction equipment would emit GHG at work sites and in transit between work areas, including substations undergoing modifications, along the routes of the proposed 220 kV transmission lines, along the routes of the new and modified 66 kV subtransmission lines, along the routes of new telecommunications infrastructure, and at staging yards.

The underground segment constructed in t the Iowa Street 66 kV Underground Alternative would increase slightly the amount of greenhouse gas emissions compared to the Proposed Project, due to the increased duration and intensity of construction in this segment. Overall, the amortized GHG emissions from construction of this alternative would be nearly the same as in the Proposed Project and would be under the threshold level for mandatory reporting and the SCAQMD threshold (10,000 MTCO2e/yr). The overall levels of GHG emissions caused during all timeframes for this alternative, including construction, operations, and maintenance would be adverse, but they would not occur at levels requiring reporting or at levels exceeding any established threshold. No mitigation is required.

Impact GHG-2: Project implementation could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions

This short underground segment would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions. No mitigation is required.

D.6.4.3 Phased Build Alternative

The Phased Build Alternative would retain existing double-circuit 220 kV transmission structures to the extent feasible, remove single-circuit structures, add new double-circuit 220 kV structures, and string all structures with higher-capacity conductors.

Two impacts related to climate change were identified for the Proposed Project. These impacts also would apply to the Phased Build Alternative, which would be located in the same corridor as the Proposed Project and would involve similar although less intense construction activities. The full text of all mitigation measures referenced in this section is presented in Section D.6.3.3

Impact GHG-1: Construction and operations would generate greenhouse gas emissions

The Proposed Project would generate GHG emissions through construction activities, routine inspection, operations, and maintenance over the life of the facilities. Construction of the Phased Build Alternative, including the removal of existing transmission line facilities, would generate GHG emissions from the vehicles and equipment needed to complete the upgrades. Diesel and gasoline-powered construction equipment would emit GHG at work sites and in transit between work areas, including substations undergoing modifications, along the routes of the proposed 220 kV transmission lines, along the routes of the new and modified 66 kV subtransmission lines, along the routes of new telecommunications infrastructure, and at staging yards. The anticipated fleet of equipment and vehicles and activity estimates appear in Section B.3 of this EIS.

Motor vehicles, off-road equipment, and other construction equipment would directly emit CO_2, CH_4, and N_2O due to fuel use and combustion. Motor vehicle fuel combustion emissions in terms of CO2e are approximately 95 percent CO_2, and CH_4 and N_2O emissions occur at rates of less than 1 percent of the mass of combustion CO_2 emissions. The equipment and vehicles used during construction would not emit other GHGs that are high GWP gases such as SF_6, hydrofluorocarbons, and perfluorocarbons. However, the existing and proposed circuit breakers and gas switches affected by the project include gas insulated switchgear containing SF_6, and thus, would be sources of SF_6 during project operations; construction activities would not emit these GHG constituents.

The GHG emissions during construction of various components are quantified in Table D.6-3 (in Section D.6.3.3). For the Proposed Project, an estimated total of 47,856 MTCO2e would be generated over the entire duration of construction activities. These construction-related GHG emissions would not recur over the life of the project. The emissions would be spread over the development schedule of 36 to 48 months, after which construction-related emissions would cease. To compare with an annual threshold, the finite GHG emissions during construction are normally averaged (or amortized) over the useful life of the project. The non-recurring construction emissions applied over the anticipated 30-year service life of the Proposed Project results in an average rate of roughly 1,600 MTCO2e per year. This level of amortized construction GHG emissions would be under the threshold level of 10,000 metric tons that applies to electric generating facilities for annual mandatory reporting of GHG (17 CCR 95101), and these emissions would also be below a threshold level of 10,000 metric tons that applies to annually recurring emissions (SCAQMD, 2011). Air Quality Mitigation Measures AQ-1b, Control Off-Road Equipment Emissions and AQ-1c, Control Helicopter Emissions, which were intended to minimize criteria pollutant emissions, would also reduce GHG emissions during construction.

Operations and Maintenance

Routine operations and maintenance of the Proposed Project and associated transmission lines, substation improvements, subtransmission line segments, and other project facilities would result in low levels

GHG emissions from the equipment and vehicles used by SCE to mobilize crews. The proposed installation of new circuit breakers and gas switches at the substations would also introduce new gas insulated switchgear that would be a source of GHG due to the leakage of SF_6.

The quantity of potential SF_6 emissions and the mobile source emissions would be about 49 metric tons CO2e annually (SCE, 2013). The new circuit breakers would be required to comply with the CARB-adopted standards for SF_6 use in gas insulated circuit breakers, and with the CARB requirements to control SF_6 and maintain recordkeeping. The level of GHG due to SF_6 emissions would be minor. The GHG during operations and maintenance are quantified in Table D.6-4 (in Section D.6.3.3).

GHG emissions during routine operations and maintenance would be well below the threshold for mandatory reporting and the SCAQMD threshold (10,000 MTCO2e/yr).

Indirect Effects

The indirect effects of the project on GHG emissions would primarily be due to changing the deliverability of electricity generation facilities. One of SCE's objectives for the Proposed Project is to "integrate and fully deliver the output of new generation projects located in the Blythe and Desert Center areas" some of which include renewable energy resources. The Proposed Project would improve the ability to deliver electricity from the existing and likely future renewable resources in the southeastern California desert to the Los Angeles basin. Power produced from the renewable resources and made deliverable by the project would reduce, displace, or eliminate emissions that would otherwise occur from other power generation facilities including fossil fueled-fired power plants. Delivering electricity to coastal loads would enable an indirect, unquantified reduction in GHG emissions from electricity generation there, primarily within the South Coast Air Basin (SCAB).

A small amount of indirect GHG emissions would be created as a result of providing a water supply and wastewater treatment needed by the project. Additionally, land use conversion and vegetation removal that occurs with permanent ground disturbance may reduce the rate of natural carbon uptake into soils and vegetation (carbon sequestration). Soils and plants in the areas of disturbance currently provide a natural carbon sink. By permanently disturbing the land, some portion of natural carbon sequestration provided by the existing soils and vegetation would be eliminated. Vegetation management and restoration practices during project operation can partially restore the natural removal of CO_2 from the atmosphere that would otherwise be lost through construction-related ground disturbance. Of the total acres expected to be disturbed during construction, nearly 90 percent would be restored by the project. Because the Proposed Project would not establish major new ROW or result in substantial land use conversion, the loss of potential CO_2 uptake would be minimal. Although these indirect GHG emissions cannot be readily estimated, they would not create any notable net GHG emissions increase in comparison with the direct emissions quantified for construction.

As with the Proposed Project, the Phased Build Alternative would generate GHG emissions through construction activities, routine inspection, operations, and maintenance over the life of the facilities. Construction of this alternative, including the removal of existing transmission line facilities, would generate GHG emissions from the vehicles and equipment needed to complete the upgrades. By retaining the existing 220 kV double-circuit towers, there would be less use of equipment and vehicles required for removing structures and erecting new structures. The alternative would generate less emissions than the Proposed Project. The amortized GHG emissions from construction of this alternative would be lower than those of the Proposed Project and under the threshold level for mandatory reporting and the SCAQMD threshold (10,000 MTCO2e/yr). Routine operations and maintenance of the Phased Build Alternative would be similar to the Proposed Project, although electric generation facilities would need to produce more energy to overcome higher electrical losses that occur with the alternative conductors. The actual level of losses, which depends on line loading, and potential sources of energy that would need to change dispatch to overcome the losses have not been quantified.

The overall levels of GHG emissions caused during construction of the Phased Build Alternative and subsequent operations and maintenance would be adverse, but they would not occur at levels requiring reporting or at levels exceeding any established threshold. No mitigation is required.

The indirect effects of this alternative on GHG emissions would primarily be due to changing the deliverability of electricity generation facilities, including renewable energy resources. Power produced from the renewable resources and made deliverable by the project would reduce, displace, or eliminate emissions that would otherwise occur from other power generation facilities including fossil fueled-fired power plants. The overall levels of GHG emissions caused during all timeframes for this alternative, including construction, operations, and maintenance, would be adverse, but they would not occur at levels requiring reporting or at levels exceeding any established threshold. No mitigation is required.

Impact GHG-2: Project implementation could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions

The Climate Change Scoping Plan, initially approved by CARB in 2008 with an update in 2014 (CARB, 2014a), provides an outline of actions to reduce California's GHG emissions. The scoping plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs.

One of SCE's objectives for the Proposed Project is to "integrate and fully deliver the output of new generation projects located in the Blythe and Desert Center areas" some of which include renewable energy resources. Additionally, SCE expects the Proposed Project to "facilitate progress toward achieving California's RPS goals."

Similar to the Proposed Project, the Phased Build Alternative would improve the infrastructure used in transmission and distribution of California's energy supply. Accordingly, this alternative would improve California's ability to supply renewable energy to customers and achieve statewide renewable energy goals. Achieving compliance with the 33 percent RPS is one key element of the CARB 2014 Climate Change Scoping Plan. Similarly, this alternative would not affect or conflict with any local goals or programs to achieve GHG reduction targets.

SCE must comply with CARB SF_6 regulations to inventory, report, and minimize SF_6 leaks through the use of new technology. By complying with these requirements, this alternative would not conflict with any applicable GHG management plan, policy, or regulation. No mitigation is required.

D.6.5 Environmental Impacts of No Action Alternative

D.6.5.1 No Action Alternative Option 1

The No Action Alternative Option 1 is described in Section C.6.3.1. It would consist of a new 500 kV circuit, primarily following the Devers-Valley transmission corridor and extending 26 miles between Devers Substation. It would also require a new 40-acre substation south of Beaumont, and 4 new 220 kV circuits extending 7 miles from the new Beaumont Substation to El Casco Substation, primarily following the existing El Casco 115 kV ROW. The remainder of the No Action Alternative, from El Casco Substation to the San Bernardino and Vista Substations, would be identical to the Proposed Project. Information on environmental resources and project impacts is derived from the Devers–Palo Verde 500 kV No. 2 Project EIR/EIS (CPUC and BLM, 2006) and the El Casco System Project Draft EIR (CPUC, 2007); which include nearly all of the No Action alignment.

No Action Alternative Transmission Lines and Beaumont Substation. The No Action Alternative between Devers and El Casco essentially would parallel the Proposed Project corridor between the two substations, but be approximately 3 miles to the south, south of Interstate 10. Construction of the No Action Alternative would involve impacts on GHG similar to those that would occur in the Proposed Project or alternatives. The overall levels of GHG emissions caused during construction, operations and maintenance would be adverse, but they would not occur at levels requiring reporting or at levels exceeding any established threshold.

D.6.5.2 No Action Alternative Option 2

No Action Alternative Option 2 would require the construction of over 40 miles of new 500 kV transmission line, following the existing Valley-Serrano 500 kV line. The alternative is described in Section C.6.3.2, and illustrated on Figure C-6b. The use of construction vehicles and equipment (including helicopters) would result in GHG emissions similar to those that would occur in the Proposed Project. However, GHG emissions would be slightly increased compared to those in the Proposed Project due to the need for extensive helicopter use for construction in rugged terrain, including within the Cleveland National Forest. The overall levels of greenhouse gas emissions caused during construction would be similar to those described in the Proposed Project and in No Action Alternative Option 1.

D.6.6 Mitigation Monitoring, Compliance, and Reporting

No mitigation measures are required for Climate Change and GHG impacts.

D.6.7 References

BLM (Bureau of Land Management). 2012. Desert Harvest Solar Project Final Environmental Impact Statement and Proposed California Desert Conservation Area Plan Amendment. CACA #49491. November.

CEC (California Energy Commission). 2010. Palen Solar Power Project: Commission Decision. Docket 09-AFC-7.

CARB (California Air Resources Board). 2014a. *First Updote to the Climote Chonge Scoping Plon: Building on the Fromework*. Including Board Resolution 14-16, adopted by the Air Resources Board: May 22, 2014.

_____. 2014b. California Greenhouse Gas Inventory for 2000-2012 — by Category as Defined in the 2008 Scoping Plan. Last updated March 24, 2014. http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-12_2014-03-24.pdf.

CNRA (California Natural Resources Agency). 2009. *Finol Stotement of Reosons for Regulotory Action, Amendments to the Stote CEQA Guidelines Addressing Anolysis ond Mitigotion of Greenhouse Gos Emissions Pursuont to SB 97*. December.

CPUC (California Public Utilities Commission). 2014. *Bienniol RPS Program Updote* In Compliance with Public Utilities Code Section 399.19. Final Report. February 2014.

_____. 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm. Accessed April 15, 2015.

CPUC and BLM. 2006. SCE Devers–Palo Verde 500 kV No. 2 Project EIR/EIS, Sections on West of Devers Alternative. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-deir.htm. Accessed April 15, 2015.

CPUC and USDA (United States Department of Agriculture) Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

IPCC (Intergovernmental Panel on Climate Change). 2014. Summary for Policymakers, In: Climate Change 2014, Mitigation of Climate Change. *Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

IPCC. 2013. Summary for Policymakers, Working Group I (WGI). In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*

OEHHA (Office of Environmental Health Hazard Assessment of the California Environmental Protection Agency). 2013. *Indicators of Climate Change in California.*

SCAQMD (South Coast Air Quality Management District). 2012. *Vision for Clean Air*: A Framework for Air Quality and Climate Planning. Public Review Draft June 27, 2012. http://www.aqmd.gov/home/library/clean-air-plans/vision-for-clean-air.

_____. 2011. *SCAQMD Air Quality Significance Thresholds*. Revised: March 2011. http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

SCE (Southern California Edison). 2014a. Southern California Edison Company (U 338-E) *33% RPS Procurement Progress Report. Reporting progress towards meeting the procurement quantity requirements for California's RPS Program*. Pursuant to Rulemaking 11-05-005. April 1, 2014.

_____. 2014b. Southern California Edison Company's (U 338-E) *2013 Preliminary Annual 33% Report* (Public Version). Pursuant to Rulemaking 11-05-005. August 1, 2014.

_____. 2013. Proponent's Environmental Assessment West of Devers Upgrade Project.

D.7 Cultural Resources

This section provides contextual information on the Cultural Resources located within the Proposed Project area and analyzes the potential impacts that project-related ground-disturbing activities may have on those resources. In addition, appropriate measures to avoid or reduce significant impacts on cultural resources are identified. Information for the Proposed Project and Alternatives was gathered from the PEA (SCE, 2013) prepared by SCE for the CPUC, along with archaeological survey and evaluation reports prepared on SCE's behalf by LSA Associates, Inc. (LSA) ASM Affiliates (ASM), and SCE. These data were reviewed and verified by the CPUC consultants who developed this EIS. Specifically, the affected environment for Cultural Resources is described in Section D.7.1 and relevant regulations and standards are presented in Section D.7.2. Impacts of the Proposed Project and the alternatives are described in Sections D.7.3 through D.7.5. Section D.7.6 presents the mitigation measures and mitigation monitoring requirements, and D.7.7 lists references cited.

D.7.1 Environmental Setting / Affected Environment

The study area encompasses the northern Peninsular Ranges, the southeastern Transverse Ranges, and the westernmost portions of the Colorado Desert geomorphic provinces of California. The Peninsular Ranges are composed of a northwest-southwest oriented complex of blocks separated by similarly trending faults that extend approximately 125 miles from the Los Angeles Basin to the tip of Baja California (Norris and Webb, 1990). The Peninsular Ranges are bounded on the east by the Colorado Desert and on the west by the Pacific Coast (Morton and Miller, 2006). The highest point in the range is San Jacinto Peak at 10,805 feet (ft) above mean sea level (amsl) (Norris and Webb, 1990).

The Transverse Ranges extend 325 miles west-east from the Santa Ynez Mountains in Santa Barbara County, to the San Gabriel Mountains in Los Angeles County, and to the San Bernardino Mountains in San Bernardino County (Norris and Webb, 1990). Within the study area, the San Bernardino Mountains rise 11,502 ft amsl at the highest peak, and extend 65 miles from the Cajon Pass and the San Andreas fault on the west and southwest, to Twentynine Palms and the Morongo Valley in the east and southeast (Norris and Webb, 1990).

The Proposed Project area extends east to the Coachella Valley within the westernmost portions of the Colorado Desert (Dibblee and Minch, 2004). The Colorado Desert is a low-lying geomorphic region bounded by the Mojave Desert to the north, the Colorado River on the east, the Peninsular Ranges on the west, and extends south into Mexico. The Coachella Valley is located within the Salton Trough; a large structural depression that extends from the San Gorgonio Pass in the north to the Gulf of Mexico in the south (Norris and Webb, 1990).

D.7.1.1 Regional Setting and Approach to Data Collection

A cultural resource is defined as any object or specific location of past human activity, occupation, or use, identifiable through historical documentation, inventory, or oral evidence. Cultural resources can be separated into three categories: archaeological, building and structural, and traditional resources.

Archaeological resources include both historic and prehistoric remains of human activity. Historic resources can consist of structures (such as cement foundations), historic objects (such as bottles and cans), and sites (such as refuse deposits or scatters). Prehistoric resources can include lithic scatters, ceramic scatters, quarries, habitation sites, temporary camps/rock rings, ceremonial sites, and trails.

Building and structural sites can vary from historic buildings to canals, historic roads and trails, bridges, ditches, and cemeteries.

A traditional cultural resource or traditional cultural property (TCP) can include Native American sacred sites (such as rock art sites) and traditional resources or ethnic communities important for maintaining the cultural traditions of any group.

Data Collection Methodology

For the Proposed Project, records searches were conducted at the Eastern Information Center (EIC) at the University of California, Riverside and at the San Bernardino Archeological Information Center (SBAIC) at the San Bernardino County Museum in Redlands, California. Records searches consisted of a review of relevant historic maps, and excavation and survey reports. Site forms for recorded sites within a 0.5-mile radius of the project route (including substations, staging yards, telecommunications lines, and subtransmission lines) were copied.

Field surveys were conducted in order to verify the location of any previously identified cultural resources and to inspect previously unsurveyed lands within the project study area. Field surveys are useful for identifying aboveground or surface cultural resources and for identifying high-probability areas. However, negative pedestrian survey results do not preclude the possibility that buried archaeological deposits could be discovered. LSA conducted pedestrian field surveys between December 2011 and July 2013 (McLean et al., 2013). Additional surveys were conducted by ASM in July, August, and September 2014 (DeCarlo and Winslow, 2015a).

All previously recorded and newly identified resources located within the project's Area of Potential Effect (APE; see below) were evaluated for significance against National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) criteria. These guidelines are detailed in Section D.7.2. Evaluations were made on the basis of surface observations, intensive archival research and/or test excavations (DeCarlo and Winslow, 2015a, 2015b, 2015c; LSA and Williams, 2014; Williams and Belcourt, 2015).

The BLM, as the Federal Lead Agency under NEPA, has initiated required government-to-government consultation with appropriate Native American groups regarding project effects on traditional cultural values. Consistent with the principles stated in Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments, November 6, 2000) and the Executive Memorandum of April 29, 1994 (Government to Government Relations with Native American Tribal Governments), BLM invited 14 individuals and tribes to participate in project consultation. It is BLM's intent to continue formal consultation with these tribal representatives.

Area of Potential Effect (APE)

The APE for direct effects for project licensing/permitting and subsequent construction, as defined by BLM, corresponds to the area within any existing Right-of-Way (ROW), which for the 220 kV transmission lines varies from 100 to 800 feet wide and any new ROW acquired under the project; a 50-foot-wide buffer on each side of the centerline of any existing road, 66 kV subtransmission line, or distribution line that will be modified or newly developed for use during construction that otherwise extends beyond the 220 kV transmission line corridor ROW; and the land disturbance footprint for any staging area, materials yard, helicopter assembly yard, etc., as well as the entire area of any substations constructed or modified for the project. The APE for indirect effects includes a 0.5-mile-wide buffer on each side of the direct effects APE. Indirect effects to location, setting, feeling, and association of properties eligible for or listed on the National Register of Historical Places (NRHP) under Criterion A, B, or C, and unevaluated or unrecorded resources identified by Indian tribes were considered.

Findings Summary

LSA's archival research indicated that a total of 87 surveys had been conducted within a half-mile of the Proposed Project route. Of these, 43 reports include various portions of the current study area. Information gathered from archival research and field surveys was also used to assess the potential for encountering previously unrecorded cultural resources in the Proposed Project area.

Through intensive archaeological survey and archival research, LSA and ASM (McLean et al., 2013; DeCarlo and Winslow, 2015a, 2015b, 2015c; LSA and Williams, 2014; Williams and Belcourt, 2015) identified 325 cultural resources within or immediately adjacent to the project's APE. All cultural resources were documented on California Department of Parks and Recreation forms (DPR 523) or their records updated during studies for the Proposed Project. Of the 325 identified cultural resources, only 118 are within the direct APE of the Proposed Project and may experience impacts.

D.7.1.2 Environmental Setting

Prehistoric Background

The prehistoric cultural sequence within the Proposed Project route has been summarized by Williams and Belcourt (2014:7-13) as follows:

The prehistoric cultural setting for the project area is reflected in the archaeology and prehistoric cultural sequence for the California desert regions, a distinctive sequence that spans some 10,000 years of human cultural development and environmental adaptation (Crabtree, 1981; Warren, 1984; Schaefer, 1994; Schaefer and Laylander, 2007; Sutton et al., 2007). For the Colorado Desert region, resolution of chronological sequencing, the general rarity of cultural deposits dating to the archaic periods, the abundance of diversity of adaptive patterns and the chronology of occupation associated with Lake Cahuilla are issues that challenge modern researchers.

Pleistocene/Early Holocene. A prevailing interest in the origins of native cultures within the desert regions has led to a body of controversial data interpreted by some as evidence of cultural development predating the terminal Pleistocene, or older than 10,000-12,000 years ago. However, an Early Pleistocene occupation of the California deserts has not been demonstrated, and current consensus recognizes Clovis as the earliest cultural complex represented (Moratto, 1984).

Approximately 12,000–7000 before present (BP) during the Early Holocene, the area between San Bernardino and San Gorgonio Pass was occupied by Native American people (Moratto, 1984:110–113). Early Holocene Cultures of California have been interpreted as diversified foraging economies. Elsewhere, evidence suggests a social structure based primarily on the hunting of now extinct megafauna. The occurrence of extremely large and occasionally fluted bifaces associated with the use of the spear and atlatl marks sites from this time (Moratto, 1984:81).

In much of California, the Western Pluvial Lakes Tradition (WPLT) has been proposed as a concept to "...bring order to some of the taxonomic chaos..." in an effort to organize the "...terminological jungle that has obscured basic archaeological patterns and relationships..." (Moratto, 1984:92). In general, the WPLT toolkit commonly includes crescentics, large flake and core scrapers, choppers, scraper planes, hammerstones, different core types, drills, and gravers (Moratto, 1984:93). A primary characteristic of WPLT sites is their location on the shores of pluvial lakes from northern central California to southern California (Moratto, 1984:81, 103). The Lake Mojave Complex is one of the best known expressions of the WPLT.

Situated between San Bernardino and the San Gorgonio Pass area, the southeastern end of the project's APE/study area lies near the greatest northwestern extent of ancient Lake Cahuilla, a catchment basin measuring more than 100 miles long by 30 miles wide filled during diversions of the Colorado River. Ancient Lake Mojave, over 60 miles northeast of the project study area, is located on the north side of the San Bernardino Mountains. Prehistoric sites and material from both ancient lake areas are relevant to the current discussion.

The Lake Mojave Period was characterized by a generalized hunting and gathering subsistence system that is thought to be ancestral to archaic cultures of the Pinto period and, as such, has become the comparative unit for Early Man in the Mojave Desert (Warren and Crabtree, 1986:184). Lake Mojave ground stone artifacts are large and unshaped with minimal grinding wear. Notable features of Lake Mojave flaked stone technology are the use of percussion flaking for all stages of tool manufacture and the high proportion of fine-grained igneous lithic material. Flaked stone artifacts include large stemmed Lake Mojave and Silver Lake projectile points, leaf-shaped bifaces, bifacial cores, crescentics, domed and keeled scrapers, shaft straighteners, and large core-cobble tools (Hall, 1993:19; Horne and McDougall, 1997:9).

Middle Holocene. During this period, 7000–3500 BP, Pinto Period culture succeeds Lake Mojave Culture, and is well documented in the Mojave Desert where widespread occurrence of the Pinto cultural complex has been demonstrated (Crabtree, 1981:40; Sutton et al., 2007:238). Tool stone technologies appear as a continuum advancing from the flaked stone tool kits assigned to earlier Paleoindian sequences. Pinto Period flaked stone artifacts include weakly shouldered, concave-base Pinto points, large and small leaf-shaped bifaces, domed and keeled scrapers, and an abundance of core and cobble tools. Percussion flaking of fine-grained igneous lithic material continued to dominate the lithic assemblage from this period. An increase of ground stone implements, both shaped and unshaped, indicate an increased reliance on seed processing (Hall, 1993:21; Horne and McDougall, 1997:9). Revised dating estimates of Pinto deposits in the Mojave Desert demonstrate that intensive levels of plant processing began sometime before 7000 years B.P., before the onset of severe Middle Holocene desiccation (Sutton et al., 2007).

Investigations at Indian Hill rock shelter (CA-SDI-2537), located in the southwest margin of the Colorado Desert along the foot of the Peninsular Range, revealed a substantial Late Archaic component that spans the transition from the Middle Holocene to the Late Holocene/Late Prehistoric. The Middle Holocene component is represented by multiple rock-lined storage cache pits, numerous hearths, Elko Eared dart points, other flaked stone and milling equipment, and inhumations, one of which was radiocarbon dated at 4,070±100 years BP. Both lacustrine and terrestrial biotic economic resources were also identified (McDonald, 1992:131).

Analyses of dart points from Indian Hill rock shelter indicate that these points were reworked after suffering impact damage into shorter and blunter profiles, and that 11 broken dart points possess breakage patterns consistent with impact damage, indicating that the site served as a "home base" or "hunting camp" where retooling took place. Milling equipment in the assemblage consists mostly of broken and fire-affected manos and metates that were often recycled as hammerstones, cooking stones, and as construction material in cache pits and hearths (McDonald, 1992:240).

Cultural research in the Colorado Desert has recently exposed site deposits and features dating to the Late Holocene, all located within the Salton Trough and Coachella Valley, and generally bracketing the northern margins of the Lake Cahuilla Basin. More than a dozen deeply buried cultural deposits exposed by construction grading have been documented. The majority of these deposits occur within sand dune formations; some in flats, where alluvial sands and lake bottom sediments are interblended; and one (CA-RIV-6797) located well below the Lake Cahuilla shoreline where the Archaic deposit rests 0.5m below later lakebed silts and clays. A suite of 30 radiocarbon assays from 13 distinct deposits and features demonstrate cultural occupation along the northern margins of the Lake Cahuilla basin going back at least 3,000 years (Love and Dahdul, 2002).

For the Late Archaic Period, the northern Lake Cahuilla basin appears to demonstrate a growing complexity in cultural development leading into the Late Prehistoric Period. This is represented in the numbers of various site types distributed across the landscape, in the stone tool assemblages reflecting subsistence practices focusing on lacustrine and/or terrestrial biotic resources, and in the representation of regional economic trade and exchange as evidenced by the presence of marine shell ornaments from the Gulf of California and obsidian tool stone from the Coso Volcanic Fields (Williams and Belcourt, 2014: 11).

Late Holocene. Within the project during the Late Holocene, the ethnographically recognized Cahuilla occupied the region of western Coachella Valley and the San Gorgonio Pass. To the south of the study area, the San Jacinto Valley was most likely a transition zone occupied by both the Cahuilla and Luiseño (Bean and Vane, 1978). During the ethnohistoric period, the Serrano were also present in the San Gorgonio Pass, and the Cahuilla were present in the San Jacinto Valley and San Timoteo Canyon.

The Cahuilla, Luiseño, and Serrano, are Takic-speaking people of the Uto-Aztecan linguistic stock (Bean and Vane, 1979; Miller, 1984). The Cahuilla and Luiseño are of the Cupan sub-group, while the Serrano (and Gabrielino) are of the Serrano-Gabrielino sub-group (Miller, 1984). Before the more recent Takic linguistic grouping, the Cahuilla, Luiseño, Gabrielino, and Serrano were included within the southern Californian branch of the Shoshonean family by Kroeber (1907, 1925). Cahuilla, Serrano, and Luiseño settlement patterns and culture are further addressed in the following Ethnographic section.

Speakers of the Uto-Aztecan family were located in the Great Basin, southern California, and an area stretching from southern Arizona into northwest and central Mexico (Miller, 1984). While the exact chronology involving the immigration and Late Holocene settlement of the Takic-speaking groups in southern California remains uncertain, it is generally accepted that the population of Native Americans in the region substantially increased towards the end of the Late Prehistoric Period. Additionally, after A.D. 1600, the desiccation of Lake Cahuilla resulted in an intensification of land use in the San Gorgonio Pass, the San Jacinto Plain, and Perris Valley regions that was reflected into the ethnohistoric period (Bean et al., 1991; Wilke, 1974, 1978; Schaefer, 1994).

The changes in settlement and subsistence patterns and increase in population in the Late Prehistoric Period may have been influenced by climatic factors and the cycles of filling and drying of Lake Cahuilla. Around A.D. 700, Lake Cahuilla began its last stand as a freshwater lake. Within this period, there were four, and possibly five, lacustral intervals. Early accounts suggest that between A.D.1500 and 1600, the Colorado River reversed its course and the lake levels dropped, resulting in a reestablishment of desert conditions. However, more recent research suggests that the lake experienced an infill during the middle to late seventeenth century, a time characterized by warm and arid conditions referred to as the Medieval Warm Period (approximately A.D. 800 to 1350) (Sutton et al., 2007).

The primary research debates surrounding Lake Cahuilla land use revolve around arguments of whether settlement adjacent to the lake was year-round or seasonal; what role the lake played in the shift of settlement patterns; and relationships to population increases seen in the seventeenth and eighteenth centuries. According to Weide (1974), the shoreline of Lake Cahuilla fluctuated, the habitats were unstable and unreliable, and lakeshore settlement patterns must have been seasonal. Wilke (1978) argues that Lake Cahuilla was stable and supported year-round, or nearly year-round, settlement bases.

Based on the concept of Lake Cahuilla providing a stable habitat that supported year-round settlement, Wilke (1978) inferred that the sudden drying up of Lake Cahuilla resulted in the permanent shift of populations from the lakeshore to locations of low desert or upland resources, such as Coachella Valley or the Peninsular Range. However, it is unclear if the shift in lakeshore populations after the final recession of the lake reflects a more subtle, rather than a major, readjustment in settlement change. If the hypothesis of Lake Cahuilla being used more as a secondary, seasonal resource is taken into account, then the drying up of the lake would not have had such a dramatic effect on regional settlement patterns (Wilke, 1978; Schaefer, 1994).

While the Medieval Warm Period does not support an argument for a stable lake, it may well have been a contributing factor influencing Late Prehistoric settlement around the shore of Lake Cahuilla. South of the study area, studies conducted for the Eastside Reservoir Project hypothesized that the Medieval Warm Period may account for the lack of sites in the Eastside Reservoir Project area dating to the Saratoga Springs Period (A.D. 500 to 1200), claiming that desert and inland areas of western Riverside County may not have been suitable to support residential bases. The studies further hypothesized that settlements may have been clustered at more reliable water sources during this time, such as the coast, Lake Cahuilla, or Lake Elsinore (Goldberg, 2001).

On the other hand, the Eastside Reservoir Project's Late Prehistoric (A.D. 1200 to 1540) and Protohistoric (A.D. 1540 to 1770s) periods coincide with the Little Ice Age, generally dated from A.D. 1400 to 1875 (Goldberg, 2001; Sutton et al., 2007). During these periods, the climate was cooler and moister, and the sites identified within the Eastside Reservoir Project area reflect a substantial increase in diversity and number, longer occupation periods, and more sedentary land use. Intensification of land use also occurred in neighboring San Gorgonio Pass and Perris Valley (Bean et al., 1991; Wilke, 1974). However, the role that the desiccation of Lake Cahuilla played in the population growth and in the intensification of land use in these areas is still not entirely clear (Schaefer, 1994; Laylander, 2006).

Ethnographic Background

The Proposed Project crosses through the ethnographic territories of the Cahuilla, Luiseño, and Serrano people. The following paragraphs from *Archival Research and Evaluation Results of 33 Cultural Resources for Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California* (Williams and Belcourt, 2014:13-15) provide a brief description of each group.

During the ethnohistoric period a great deal of settlement shifting took place. By the early twentieth century, Serrano were present in the San Gorgonio Pass along with the Cahuilla, Cahuilla and Luiseño were present in San Jacinto Valley, and some Cahuilla groups from the San Jacinto Mountains had moved to the San Bernardino Valley and then to San Timoteo Canyon in the mid-1800s.

Much of what is known about the native occupants of southern California at the time of Spanish contact comes from ethnographic and ethnological studies conducted in the early part of the twentieth century. Unfortunately, in the late eighteenth and nineteenth centuries, Spanish and Mexican influences greatly reduced native populations, particularly those along the coast. The more western Luiseño and other coastal tribes were most affected by the missions. Due to the inland geographical location of the Cahuilla and Serrano territories, the Spanish institutions did not directly affect them as much (Strong, 1929; Bean, 1978).

Cahuilla. The Cahuilla inhabited a territory from the San Bernardino Mountains in the north to Borrego Springs and the Chocolate Mountains in the south, a portion of Colorado Desert west of Orocopia Mountain to the east, the San Jacinto Plain near Riverside, and the eastern slopes of Palomar Mountain to the west. The Cahuilla occupied portions of the project vicinity within the western Coachella Valley and San Gorgonio Pass. Cahuilla territory was bisected by the Coco-Maricopa Trail, one element in the Pacific Coast-Great Plains trading routes used by native populations. Their territory was also at the periphery of two other trail systems: the Santa Fe and the Yuman trails. Subsequently, the Cahuilla regularly interacted with neighboring tribes.

Villages were situated in canyons or on alluvial fans, areas that provided adequate water and food sources as well as protection from strong winds. Group members left the permanent villages for specific purposes including trade, hunting, or gathering. The Cahuilla relied on hunting rabbits and other small game, and gathering acorns, mesquite and screw beans, pinyon nuts, and cactus bulbs for subsistence. In addition, Cahuilla practiced proto-agriculture where corn, beans, squash, and melon were harvested. Cahuilla used stone mortars and pestles, manos and metates, wooden mortars, baskets, pottery, arrow shaft straighteners, willow and mesquite bows and arrows, and numerous ceremonial instruments (Bean, 1972; Carrico et al., 1982).

Luiseño. The Luiseño possessed a more rigid social structure and greater population density than the Cahuilla or Serrano. However, it has been suggested that social organization was more complex among the populous coastal villages, and less so among smaller inland settlements. Sedentary villages were located in diverse ecological zones, and exploitation of resource areas was strictly controlled by ownership of resource territories along family, lineage, and village lines (Strong, 1929).

The Luiseño settlement pattern was seasonally based. In the winter, the larger clan coalesced into a shared habitation village and lived primarily on stored foods, such as acorns. Beginning in the spring, the winter village group divided into smaller groups, each group occupying and exploiting a small area where fresh vegetal resources could be gathered. Occasionally, journeys to the coast to collect shellfish may also have occurred. This breakup of the village group into family groups at the end of winter, after the stored fall crops were depleted, was a normal occurrence in hunter-gatherer societies and compensated for sparse spring resources, which generally were harder to find and less plentiful. At the end of summer and beginning of fall, a secondary base camp, frequently situated near an oak grove, was inhabited for acorn collecting as well as hunting. These summer-fall camps were also subdivisions of the primary winter camp, being occupied by smaller clan subdivisions of the larger clan-group (Bean and Shipek, 1978; White, 1963).

Serrano. Researchers document the Serrano as highly mobile, utilitarian-based societies, residing in permanent villages with satellite camps spread throughout their territories (Bean et al., 1981; Kroeber, 1925). Plant and animal resources were widely dispersed across the landscape. Therefore, many collecting and food processing areas were used throughout the year as different resources became available in various life zones (Davis, 1974). The Serrano were loosely organized into exogamous clans that served as the largest autonomous political and landholding unit (Strong, 1929). There was no form of pan-tribal political union among the clans, all bonds being strictly ceremonial in nature with alignments arising along lines of economic, marital, or ceremonial reciprocity. In addition to forming bonds with other Serrano clans, they also formed alliances with Cahuilla, Chemehuevi, Gabrielino, and Cupeño groups (Bean and Smith, 1978:572).

Serrano subsistence included gathering, hunting, and (occasionally) fishing. Material culture included a wide variety of implements, including baskets; pottery; stone milling equipment; stone, wood, and bone implements; rabbit skin blankets; and woven nets and storage pouches (Drucker, 1937). Their structures consisted of family residences and ramadas, storage granaries, and sweathouses. Village locations most often included a large ceremonial house that also served as a religious center, for use by the lineage leader. Because the San Bernardino Mountains were the central home of the Serrano, villages were primarily located in the forest; however, many were located in the foothills and a few on the desert floor.

The primary factor for village choice was proximity to a year-round water source (Strong, 1929; Bean and Smith, 1978).

Historic Background

Historic cultural activities within the Proposed Project route began within what is now San Bernardino and Riverside Counties in the late 1700s. Williams and Belcourt (2014:7-13) summarize the historical activities of Spanish, Mexican, and American rule, occupation, and land use within the project and vicinity as follows:

Hernando de Alarcón sailed up the Colorado River in 1540, marking the first European entrance into the Arizona/California region. Alarcón stopped at a point near Yuma and did not travel far enough north to enter the project. More substantial Spanish exploration began with the entradas of Father Jacobo Sedelmayr in 1744, when he traversed the region near what is now Blythe. Almost 30 years passed before Francisco Garces and his party crossed areas near the project in 1771 and then again in 1776.

In 1769, a Spanish expedition headed by Gaspar de Portolá and Junípero Serra traveled north from San Diego to seek out locations for a chain of presidios and missions to extend the Spanish Empire from Baja California into Alta California. The Presidio of San Diego and mission San Diego de Alcalá were established in San Diego in July 1769, followed by the Presidio of Monterey and mission San Carlos Borromeo de Carmelo in 1770 in northern California. Other missions established close to the study area include San Gabriel Arcángel (1771), San Juan Capistrano (1776), and San Luis Rey de Francia (1798) (Williams and Belcourt, 2014: 16).

The first Spaniard to visit what is now Riverside County was Don Pedro Fages, commander at the San Diego presidio, in 1772. In the pursuit of deserted soldiers, Fages traveled from San Diego east to the desert in Imperial County and then northwest through the San Jacinto Mountains and San Jacinto Valley towards Riverside (Lech, 2004). The first well-documented Spanish contact within inland southern California was by Spanish military captain Juan Bautista de Anza, who led expeditions in 1774 and 1775 from Sonora to Monterey to explore a land route northward through California from Sonora (1774), and to bring settlers across this land route to strengthen the colonization of San Francisco (1775). Anza's route crossed the Colorado River near its confluence with the Gila River, near modern-day Yuma, Arizona. West of the Colorado River, the expeditions turned westward, avoiding the Algodones dunes and moving between the available water sources. Once reaching the Peninsular Range, the expeditions headed north-northwest, with Anza's route following a similar one as Fages' from the San Jacinto Mountains and northwest through Bautista Canyon into the San Jacinto Valley (Bolton, 1930; Rolle, 1963).

Anza's 1774 expedition into Alta California included 34 people with horses and cattle, while the 1775 colonizing expedition brought 240 people, of whom 151 were women and children, and more sizeable herds. Little documentation exists of Anza's route being used after the 1774 and 1775 expeditions. Seven years later, the Spanish government closed the route due to uprisings by the Yuman Indians. However, by that time, the missions were established and increasingly self-sufficient, thus diminishing the need for resupply from Sonora (Williams and Belcourt, 2014: 16).

Due to the inland geographical location of the Cahuilla and Serrano territories, the Spanish missions did not have as direct an effect upon them as they did upon the Luiseño and other coastal tribes. However, in the late 1810s, ranchos and mission outposts, called *asistencias*, were established near the Cahuilla and Serrano territories, thereby increasing the amount of Spanish contact. An *asistencia* was established south of the study area in Pala in 1818, and the San Bernardino *asistencia* was established in 1819 on the Guachama Rancho, located partly within the project study area. Additionally, Rancho San Jacinto was established for cattle grazing in the San Jacinto Valley. In 1820, Father Payeras, a senior mission official, suggested that the San Bernardino and Pala *osistencios* be developed into full missions to establish an inland mission system. However, Mexico won its independence from Spain in 1821, and shortly thereafter a decline in mission activity occurred followed by the secularization of the missions in the 1830s (Lech, 2004).

Between 1834 and 1836, secularization of the missions was implemented. Although California's governor José Maria Echeandía suggested in the 1820s that the former mission lands should be used for Indian village settlement, the Secularization Act passed by the Mexican government in 1833 enabled successive governors to disperse the land as they wanted. Lands previously held by the missions began to be divided into *ronchos*, granted to private Mexican citizens. In 1835, Jose Antonio Estudillo of San Diego submitted the first petition in Riverside County for the San Jacinto Rancho. Although Estudillo's petition was for four square leagues (approximately 30,000 acres), in 1842 he was granted close to the maximum size allowed of 11 square leagues. In 1845, Estudillo's son-in-law, Miguel de Pedrorena, filed a petition for half of the San Jacinto Viejo Rancho and a small additional portion of land to the northeast in the hills east of Lamb Canyon. This portion, the northern half of the San Jacinto Viejo Rancho, became known as the *Roncho Son Jacinto Nuevo y Potrero* (Lech, 2004).

During the time of Spanish encroachment, the majority of the Mojave Desert was rarely traversed until after Mexican independence in 1821. Unlike the coastal areas and foothills of southern California, there were no Spanish- or Mexican-period land grants established in the Mojave or Colorado deserts. Around this time, Jose Romero and Juan Maria Estudillo crossed the study area via Indio and the Colorado River. The expedition reportedly traveled northeast between the Orocopia and Chuckwalla Mountains and then turned east. Surveys for potential railroad routes followed a similar path in the 1850s, with a trail established that became known as Frink's Route or Brown's Wagon Road. As was the case with many early Spanish, Mexican, and American overland routes, the famed Coco-Maricopa Trail that began as an Indian trail served as a mail route between Sonora Mexico and Alta California and then later as the Bradshaw Trail (Bean and Mason, 1962).

In 1848, the United States (U.S.) acquired California through the Treaty of Guadalupe Hidalgo. Although California had begun to see the arrival of Americans from the east in the 1830s and 1840s, it was after acquisition by the U.S. that the growth of the American population in California began to increase. Southern California was increasingly developed and occupied as more Americans migrated to the region in pursuit of land, gold and other minerals, agriculture, and speculation interests (Lech, 2004).

Initially, southern California was divided into only two counties: Los Angeles and San Diego. In 1853, San Bernardino County was added, placing what is now Riverside County primarily within San Diego County and partially within San Bernardino County. In the early era of the American period, the U.S. government quickly went to work surveying their newly acquired land in order to facilitate settlement; however, the Treaty of Guadalupe Hidalgo bound the U.S. to honor the land claims of Mexican citizens who were granted ownership of ranchos by the Mexican government. The Land Act of 1851 ("Act to Ascertain and Settle the Private Land Claims in the State of California") established a board of commissioners to review land grant claims. Patents for the *Roncho Son Jocinto* and *Roncho Son Jocinto Nuevo y Potrero* grants were issued in 1880 and 1883 to the heirs of Estudillo and Pedrorena, respectively (Williams and Belcourt, 2014:17, 18).

The California Gold Rush of 1849 affected the northern regions of the state but had little effect on inland areas of the south. Men with gold wanderlust poured into the gold regions of northern California by a variety of routes, but very few tempted the dry and inhospitable passage across the Mojave and Colorado deserts. Nonetheless, some small-scale mining took place within the Colorado Desert in the 1860-1890 eras as a result of strikes near Blythe. Individuals, rather than formal mining companies, eked out their living working claims in the La Paz and Castle Dome areas. One of these prospectors, William Bradshaw, established an overland stage route that linked the mining boomtown of La Paz, Arizona, with San Bernardino. Known as the Bradshaw Trail, the route followed ancient Cahuilla and Maricopa trails that linked wells and springs located throughout the desert (Vredenburgh et al., 1981).

The coming of the railroads to the deserts would change the face of the region. In the early 1880s, the Atlantic and Pacific Railroad (now the Santa Fe Railway) completed its track system across the California desert. Until the coming of paved roads and automobiles in the 1930s, the railroad served as the major transportation artery across the deserts (Fickewirth, 1992; Myrick, 1962).

One of the main thoroughfares commissioned was Highway 60. This highway was originally slated to follow U.S. Route 66 from Los Angeles to Chicago, but intervention by the southern states led to it becoming one of two major transcontinental highways with U.S. Route 60 running from Virginia Beach, Virginia, to Los Angeles. For over 40 years, U.S. 60 served as a key distribution route for goods throughout the southern portion of the U.S. In 1964, California implemented a plan to simplify its highway numbering system, and as a result, U.S. Highway 60 was decommissioned. During the construction of Interstate 10 (I-10), previously Route 10, U.S. 60 was provisionally reinstated from Beaumont to Blythe. When all of Route 10 was upgraded to a freeway, this U.S. Highway designation disappeared and U.S. 60 became California State Route SR-60. Portions of I-10 from Beaumont to Blythe still contain markers designating it jointly as I-10 and U.S. Highway 60, while some signs still carry evidence of the original U.S. 60 shield, though covered by the SR-60 signs. Much of the old U.S. 60 is still preserved, with some sections in the desert remaining virtually untouched since it ceased to be a legislative route. Additional evidence of U.S. 60 can still be seen in stacks of highway survey monuments used by construction workers while upgrading the road to federal conditions as dictated by the 1926 mandate (Cooper, 2004).

Water has always played an important role in the development of southern California, and the location of the Mojave Desert between the Colorado River and coastal communities predisposed it to becoming the major thoroughfare for aqueducts, pumping stations, and canals. In 1922, California reached an agreement with the other states (with the exception of Arizona) in the Colorado River watershed basin allowing the allotment of water needed to construct the Colorado River Aqueduct (CRA). Construction of the CRA by the Metropolitan Water District (MWD) of Southern California occurred along various points simultaneously between 1934 and 1941, helping to fuel a torpid economy in the midst of the Great Depression. This massive undertaking allowed the MWD, through its contractors and subcontractors, to employ up to 10,500 people at any given time with a total employment of 35,648 over an eight-year period, making it southern California's single largest work opportunity during the Great Depression. The MWD also established better infrastructure in the desert with the grading of new roads, a water supply system, power lines, and telephone lines, leading to new towns associated with the construction of the CRA (Gruen, 1998).

Continuing into the post war era, Americans began to embrace the automobile as never before. The boom years of the 1950s and early 1960s led to a new phenomenon, the off-road vehicle. Enamored with four wheel drive, powerful engines, and large tires, a new breed of Americans sped across the California desert seeking recreation and the sense of freedom that the wide-open spaces of the desert afforded. Magazines of the era, including *Desert Magazine* and *Off Roader*, extolled the virtues of relic collecting, visiting ghost towns, and penetrating the far-flung corners of the desert that would have been virtually unthinkable only a few decades before.

In sum, Euro-American history in the study area is dominated by development of linear infrastructures (roads, aqueducts, and transmission lines), by mining, and in the past 50 years by off-road vehicle use.

The military, cattle ranchers, and the occasional farmer have left their mark on the desert, too, but to a far lesser extent. The archaeological record within the study area will generally reflect these themes and can be expected to span the last 200 years of history (Williams and Belcourt, 2014:19).

D.7.1.2.1 Segment 1: San Bernardino

Segment 1 of the Proposed Project contains seven cultural resources (Table D.7-1). These include one protohistoric ranch and six historical cultural resources. The protohistoric site, CA-SBR-2311H, is the Guachama Ranchería. The historical resources consist of a segment of the Burlington Northern Santa Fe Railroad (CA-SBR-6847H), a segment of the Southern Pacific Railroad (CA-SBR-10330H), a historic-era farm (CA-SBR-16501H), a refuse scatter (CA-SBR-17243H), and two substations (P-36-26219 and P-36-26220).

Table D.7-1. Cultural Resources Within the APE of Segment 1 – San Bernardino

Resource	Description	NRHP/CRHR Eligibility Status
P-36-2311 (CA-SBR-2311H)	Protohistoric Guachama Rancheria	Ineligible *
P-36-6847 (CA-SBR-6847H)	Burlington Northern Santa Fe Railroad	Ineligible *
P-36-10330 (CA-SBR-10330H)	Southern Pacific Railroad	Eligible
P-36-26031 (CA-SBR-16501H)	Historic-era Farm	Ineligible
P-36-26219	San Bernardino Substation	Ineligible
P-36-26220	Timoteo Substation	Ineligible
P-36-27712 (CA-SBR-17243H)	Historic-era refuse scatter	Ineligible

*For the purposes of the Proposed Project, the portion of this resource within the project APE does not contribute to the eligibility of the resource as a whole.

One site, the Southern Pacific Railroad (CA-SBR-10330H), is eligible for listing on the NRHP and CRHR. The Guachama Ranchería (CA-SBR-2311H) is a protohistoric Native American/Spanish mission outpost established in 1819. In order to determine the eligible status of CA-SBR-2311H, testing was conducted for the portion of the site within the Proposed Project APE. While the Guachama Rancheria was a significant place for California and the United States, the current condition of the resource has lost all integrity within the Proposed Project APE. The Guachama Rancheria was associated with important early missionaries; however no association with individuals important to the development of the mission System could be ascertained. No structural remains of the Guachama Rancheria were noted and very little cultural material was recovered from CA-SBR-2311H as a result of the testing program. It is unlikely that further research of the portion of the site within the Proposed Project APE will yield new or important information regarding the Guachama Rancheria. Therefore, the portion of this resource within the Proposed Project APE does not contribute to the eligibility of Guachama Rancheria for listing on the NRHP or the CRHR. Various segments of the Burlington Northern Santa Fe Railroad (CA-SBR-6847H) have been previously documented and recommended ineligible for the CRHR. Additional archival research was conducted for the segment of the Burlington Northern Santa Fe Railroad (CA-SBR-6847H) within the Proposed Project APE. The research noted that the spur is not associated with a significant event or person in national or local history; it is not architecturally significant; and additional research is unlikely to yield new or important information regarding the history of the region. Therefore, this spur is not a contributing element to the Burlington Northern Santa Fe Railroad's eligibility for listing on the NRHP or the CRHR. Owing to a lack of data potential and/or loss of integrity, the historic-era farm (CA-SBR-16501H) and historic-era refuse scatter (CA-SBR-17243H) are ineligible for listing on the NRHP or the CRHR. The two substations, P-36-26219 and P-36-26220, were constructed after 1950 and lack buildings that would qualify for listing on the NRHP or the CRHR. Therefore, due to their overall unmeritorious appearance, P-36-26219 and P-36-26220 are not eligible for listing on the NRHP or the CRHR. No further management of these six resources is required.

D.7.1.2.2 Segment 2: Colton and Loma Linda

Segment 2 of the Proposed Project contains four cultural resources (Table D.7-2). All of these resources date to the historic period, including the Gage Canal (CA-SBR-7168H), a farm (CA-SBR-11624H), a foundation (P-36-20240) and a substation (P-36-26221). It should be noted that the Gage Canal (CA-SBR-7168H) is located entirely underground within the project's APE.

The initial documentation of the Gage Canal (CA-SBR-7168H) noted that the canal retained integrity; however no recommendation was made regarding eligibility status. Segments of the canal have been updated and recommended as ineligible for the NRHP and the CRHR. Additional archival research was conducted for the segment of the Gage Canal (CA-SBR-7168H) within the Proposed Project APE. The research noted that due to extensive upgrading, no evidence of the original wood and cement structure is present anywhere within the Proposed Project APE. Therefore, the current condition of the historic canal is no longer associated with a significant event or person in national or local history; it is no longer architecturally significant; and the resource has been well-documented and further research is unlikely to yield new or important information regarding the history of water conveyance systems in the region. Therefore, the segment within the Proposed Project APE does not contribute to the eligibility of the Gage Canal for listing on the NRHP or the CRHR. Due to a lack of data potential and/or loss of integrity the historic-era farm (CA-SBR-11624) and a foundation (P-36-20240) are ineligible for listing on the NRHP or the CRHR. The Vista Substation (P-36-26221) was constructed in 1945. An architectural analysis of the buildings within the Substation noted that: none of the buildings are associated with a significant event or person in national or local history; none are architecturally significant; and none have the potential to yield new information. Therefore, the Vista Substation (P-36-26221) is not eligible for listing on the NRHP or the CRHR. No further management of these four resources is required.

Table D.7-2. Cultural Resources Within the APE of Segment 2 – Colton and Loma Linda

Resource	Description	NRHP/CRHR Eligibility Status
P-36-7168 (CA-SBR-7168H)	Historic Gage Canal	Ineligible *
P-36-11624 (CA-SBR-11624H)	Historic-era Farm	Ineligible
P-36-20240	Historic-era Foundation	Ineligible
P-36-26221	Vista Substation	Ineligible

*For the purposes of the Proposed Project, the portion of this resource within the project APE does not contribute to the eligibility of the resource as a whole.

D.7.1.2.3 Segment 3: San Timoteo Canyon

Segment 3 of the Proposed Project contains three cultural resources (Table D.7-3). All of these resources date to the historic period, including the Vanderventer Ranch (CA-RIV-2262H), a farm (P-33-13431), and a check dam (P-33-22344).

One site, the Vanderventer Ranch (CA-RIV-2262H), is eligible for listing on the NRHP and CRHR. The historic-era farm (P-33-13431) is ineligible for listing on the NRHP or the CRHR due to a lack of data potential and loss of integrity. Although the check dam (P-33-22344) is located upstream, but some distance from the ranch buildings, on property owned by Eugene Vanderventer, an important figure in San Timoteo Canyon history, no association could be made between the dam and Eugene Vanderventer's use of the property. In addition, the integrity of the dam has been compromised. Therefore, the check dam (P-33-22344) is ineligible for listing on the NRHP or the CRHR. No further management of these two resources is required.

One resource, the historic Singleton Ranch District (P-33-15004 / P-33-7296), is located within Segment 3 and Segment 4 of the Proposed Project (see Table D.7-3). This resource is eligible for listing on the NRHP and CRHR.

Table D.7-3. Cultural Resources Within the APE of Segment 3 – San Timoteo Canyon

Resource	Description	NRHP/CRHR Eligibility Status
P-33-2262 (CA-RIV-2262H)	Historic Vanderventer Ranch	Eligible
P-33-13431	Historic-era Farm	Ineligible
P-33-22344	Historic-era Check Dam	Ineligible
P-33-15004 / P-33-7296	Historic Singleton Ranch District (In Segments 3 & 4)	Eligible

D.7.1.2.4 Segment 4: Beaumont and Banning

Segment 4 of the Proposed Project contains two cultural resources (Table D.7-4) in addition to a portion of the Singleton Ranch District discussed above (see Table D.7.3). Both of these resources date to the historic period, including a refuse scatter (CA-RIV-7462) and the Smith Creek Ditch (CA-RIV-7997). Due to a lack of data potential and loss of integrity, the historic-era refuse scatter (CA-RIV-7462) is not eligible for listing on the NRHP or the CRHR. Extensive archival research and site documentation has fully realized the data potential of the Smith Creek Ditch (CA-RIV-7997) and this site is not eligible for listing on the NRHP or the CRHR. Therefore, no further management of these two resources is required.

Table D.7-4. Cultural Resources Within the APE of Segment 4 – Beaumont and Banning

Resource	Description	NRHP/CRHR Eligibility Status
P-33-13427 (CA-RIV-7462)	Historic-era refuse scatter	Ineligible
P-33-15033 (CA-RIV-7997)	Historic-era Smith Creek Ditch	Ineligible

D.7.1.2.5 Segment 5: Morongo Tribal Lands and Surrounding Areas

Segment 5 of the Proposed Project contains 29 cultural resources (Table D.7-5). These include one prehistoric site, 19 historical cultural resources, and nine isolated artifacts. The prehistoric site consists of a lithic scatter (CA-RIV-1296). The historical resources consist of the St. Boniface Indian School and Cemetery (CA-RIV-4213H), a Pedley-type dam (P-33-7870), the Millard Canyon stone canal (CA-RIV-7926), the Banning Substation (P-33-15843), the San Gorgonio Memorial Park (P-33-16898), a flume (CA-RIV-11395), and 13 historic-era refuse scatters (CA-RIV-8850, CA-RIV-11397, CA-RIV-11398, CA-RIV-11399, CA-RIV-11400, CA-RIV-11401, CA-RIV-11402, CA-RIV-11412, CA-RIV-11422, CA-RIV-11423, CA-RIV-11424, CA-RIV-11425, and CA-RIV-11427). Isolated artifacts consist of a tin lunchbox, a metate, a metal tricycle wheel and perfume bottle, a Listerine bottle, a glass bottle base, a concrete pipe fragment, and several metal cans.

One site, the historic flume (CA-RIV-11395), will not be impacted by the project and was not formally evaluated for the NRHP or the CRHR. Two sites, the Millard Canyon stone canal (CA-RIV-7926) and the St. Boniface Indian School and Cemetery (CA-RIV-4213H), have been determined eligible for listing on the NRHP and CRHR. A site visit to the prehistoric lithic scatter (CA-RIV-1296) was conducted for the Proposed Project and the crew was unable to identify any cultural material. In addition, most of the plotted location of the site had been graded during the construction of the existing structures. Given the lack of cultural material and condition of the site, the prehistoric lithic scatter (CA-RIV-1296) is not eligible for the NRHP or CRHR. Although the San Gorgonio Memorial Park (P-33-16898) is associated with the early development of the San Gorgonio area, and dates as early as the 1870s, it does not possess the qualities required for eligibility to the NRHP or CRHR. It is not associated with a significant event or person in national or local history and additional research is unlikely to yield new or important information regarding the history of the region. Therefore, the San Gorgonio Memorial Park (P-33-16898) is not eligible for the NRHP or CRHR. Regardless of the eligibility status of the San Gorgonio Memorial Park (P-33-16898), SCE will avoid impacts to this resource during Proposed Project construction efforts. Owing to a lack of data potential and lack of association, the 13 historic-era refuse scatters (CA-RIV-8850, CA-RIV-11397, CA-RIV-11398, CA-RIV-11399, CA-RIV-11400, CA-RIV-11401, CA-RIV-11402, CA-RIV-11412, CA-RIV-11422, CA-RIV-11423, CA-RIV-11424, CA-RIV-11425, and CA-RIV-11427) are ineligible for listing on the NRHP or the CRHR. The Banning Substation (P-33-15843) was completely reconstructed in 1954 and is not associated with a significant event or person in national or local history, is not architecturally significant, and does not have the potential to yield new information. Therefore, this resource is not eligible for listing on the NRHP or the CRHR. Archival research indicated that P-33-7870 was not a Pedley-type dam. Site documentation has fully realized the data potential of the dam (P-33-7870) and this site is not eligible for listing on the NRHP or the CRHR. Isolated artifacts are not eligible for listing on the NRHP or the CRHR. Therefore, no further management of these resources is required.

Table D.7-5. Cultural Resources Within the APE of Segment 5 – Morongo Tribal Lands and Surrounding Areas

Resource	Description	NRHP/CRHR Eligibility Status
P-33-1296 (CA-RIV-1296)	Prehistoric lithic scatter	Ineligible
P-33-4213 (CA-RIV-4213H)	St. Boniface Indian School and Cemetery	Eligible
P-33-07870	Historic-era Pedley-type Dam	Ineligible
P-33-13432	Isolated artifact – tin lunch box and thermos top	Ineligible
P-33-14871 (CA-RIV-7926)	Historic Millard Canyon stone canal	Eligible
P-33-15760	Isolated artifact – metate	Ineligible
P-33-15843	Banning Substation	Ineligible
P-33-16898	San Gorgonio Memorial Park	Ineligible
P-33-16993 (CA-RIV-8850)	Historic-era refuse scatter	Ineligible
P-33-22289	Isolated artifact – metal food or oil can	Ineligible
P-33-22292	Isolated artifact – Listerine bottle	Ineligible
P-33-22293	Isolated artifact – metal tricycle wheel and perfume bottle	Ineligible
P-33-22308	Isolated artifact – concrete pipe fragment	Ineligible
P-33-22342	Isolated artifact – metal oil can	Ineligible
P-33-22343	Isolated artifact – metal oil can	Ineligible
P-33-22345 (CA-RIV-11395)	Historic-era flume	Unevaluated; will not be impacted by the project
P-33-22347 (CA-RIV-11397)	Historic-era refuse scatter	Ineligible
P-33-22348 (CA-RIV-11398)	Historic-era refuse scatter	Ineligible
P-33-22349 (CA-RIV-11399)	Historic-era refuse scatter	Ineligible
P-33-22350 (CA-RIV-11400)	Historic-era refuse scatter	Ineligible
P-33-22351 (CA-RIV-11401)	Historic-era refuse scatter	Ineligible
P-33-22352 (CA-RIV-11402)	Historic-era refuse scatter	Ineligible
P-33-22362 (CA-RIV-11412)	Historic-era refuse scatter	Ineligible
P-33-22371 (CA-RIV-11422)	Historic-era refuse scatter	Ineligible
P-33-22372 (CA-RIV-11423)	Historic-era refuse scatter	Ineligible
P-33-22373 (CA-RIV-11424)	Historic-era refuse scatter	Ineligible
P-33-22375 (CA-RIV-11427)	Historic-era refuse scatter	Ineligible
P-33-22514 (CA-RIV-11425)	Historic-era refuse scatter	Ineligible
P-33-24046	Isolated artifact – glass bottle base	Ineligible

D.7.1.2.6 Segment 6: Whitewater and Devers

Segment 6 of the Proposed Project contains 60 cultural resources (Table D.7-6). These include three prehistoric sites, 22 historical cultural resources, and 35 isolated artifacts. The prehistoric sites consist of two lithic scatters (CA-RIV-11416 and CA-RIV-11417) and one bedrock milling station (P-33-24040). The historical resources consist of the Colorado River Aqueduct (CA-RIV-6726), a foundation (CA-RIV-11414), and 20 historic-era refuse scatters (CA-RIV-9312, CA-RIV-11403, CA-RIV-11404, CA-RIV-11405, CA-RIV-11406, CA-RIV-11407, CA-RIV-11409, CA-RIV-11410, CA-RIV-11411, CA-RIV-11413, CA-RIV-11415, CA-RIV-11419, CA-RIV-11421, CA-RIV-11431, CA-RIV-11432, CA-RIV-11433, CA-RIV-11434, CA-RIV-11436, CA-RIV-11437, and CA-RIV-11814). Isolated artifacts consist of a flake, a cobble core, a USGS benchmark, a clear glass bottle, a Coca-Cola bottle, and many metal cans.

One site, the Colorado River Aqueduct (CA-RIV-6726), has been determined eligible for listing on the NRHP and CRHR. CA-RIV-11416 and CA-RIV-11417 are sparse prehistoric lithic scatters consisting of a few primary and secondary flakes and a core. A site visit was conducted for the Proposed Project and the crew documented all the lithic debris at the two sites. A shallow surface scrape was excavated at CA-RIV-11416 and no additional artifacts were identified. CA-RIV-11417 is located within a depositional environment and the potential is low for a buried deposit. These lithic scatters (CA-RIV-11416 and CA-RIV-11417) are not associated with a specific event or person important in a moment in prehistory. Although the sites have retained integrity of location and setting there is a lack of temporally or culturally diagnostic artifacts or subsurface components. Therefore, they do not have the potential to yield new information and the sites are not eligible for the NHRP or CRHR. P-33-24040 is a prehistoric bedrock milling station consisting of two faint milling slicks. No other cultural material was noted within the site boundaries. Two shallow surface scrapes were excavated near the milling slicks and no cultural materials were identified. P-33-24040 is not associated with a specific event or person important in a moment in prehistory. Although the site has retained integrity of location and setting there is a lack of temporally or culturally diagnostic artifacts or subsurface components. Therefore, it does not have the potential to yield new information and the site is not eligible for the NHRP or CRHR. Owing to a lack of data potential and lack of association, the remaining 21 historic-era sites (CA-RIV-11414, CA-RIV 9312, CA-RIV 11403, CA-RIV 11404, CA-RIV 11405, CA-RIV 11406, CA-RIV 11407, CA-RIV 11409, CA-RIV 11410, CA-RIV 11411, CA-RIV 11413, CA-RIV 11414, CA-RIV 11415, CA-RIV 11419, CA-RIV 11421, CA-RIV 11431, CA-RIV 11432, CA-RIV 11433, CA-RIV 11434, CA-RIV 11436, CA-RIV 11437, and CA-RIV 11814) are ineligible for listing on the NRHP or the CRHR. Isolated artifacts are not eligible for listing on the NRHP or the CRHR. Therefore, no further management of these resources is required.

Table D.7-6. Cultural Resources Within the APE of Segment 6 – Whitewater and Devers Resources

Resource	Description	NRHP/CRHR Eligibility Status
P-33-11265 (CA-RIV-6726)	Colorado River Aqueduct	Eligible
P-33-18123 (CA-RIV-9312)	Historic-era refuse scatter	Ineligible
P-33-19671	Isolated artifact – metal tobacco can	Ineligible
P-33-22287 (CA-RIV-11419)	Historic-era refuse scatter	Ineligible
P-33-22288	Isolated artifact – clear glass bottle	Ineligible
P-33-22290	Isolated artifact – rhyolite cobble core	Ineligible
P-33-22291	Isolated artifact – metavolcanic flake	Ineligible
P-33-22306	Isolated artifact – three metal cans	Ineligible
P-33-22307	Isolated artifact – USGS benchmark	Ineligible
P-33-22309	Isolated artifact – four metal cans	Ineligible
P-33-22310	Isolated artifact – three metal cans	Ineligible

Table D.7-6. Cultural Resources Within the APE of Segment 6 – Whitewater and Devers Resources

Resource	Description	NRHP/CRHR Eligibility Status
P-33-22311	Isolated artifact – four metal cans	Ineligible
P-33-22312	Isolated artifact – one metal can	Ineligible
P-33-22313	Isolated artifact – one metal can	Ineligible
P-33-22314	Isolated artifact – one coca-cola bottle	Ineligible
P-33-22315	Isolated artifact – one metal can	Ineligible
P-33-22316	Isolated artifact – one metal can	Ineligible
P-33-22317	Isolated artifact – one metal can	Ineligible
P-33-22318	Isolated artifact – metal popcorn tin	Ineligible
P-33-22319	Isolated artifact – one metal can	Ineligible
P-33-22320	Isolated artifact – two metal cans	Ineligible
P-33-22321	Isolated artifact – one metal can	Ineligible
P-33-22322	Isolated artifact – one metal can	Ineligible
P-33-22324	Isolated artifact – one metal can	Ineligible
P-33-22325	Isolated artifact – one metal can	Ineligible
P-33-22326	Isolated artifact – one metal can	Ineligible
P-33-22327	Isolated artifact – one metal can	Ineligible
P-33-22328	Isolated artifact – one metal oil can	Ineligible
P-33-22331	Isolated artifact – one metal can	Ineligible
P-33-22334	Isolated artifact – one metal can	Ineligible
P-33-22335	Isolated artifact – one metal can	Ineligible
P-33-22338	Isolated artifact – one metal can	Ineligible
P-33-22339	Isolated artifact – one metal can	Ineligible
P-33-22340	Isolated artifact – one metal can	Ineligible
P-33-22341	Isolated artifact – one metal can	Ineligible
P-33-22353 (CA-RIV-11403)	Historic-era refuse scatter	Ineligible
P-33-22354 (CA-RIV-11404)	Historic-era refuse scatter	Ineligible
P-33-22355 (CA-RIV-11405)	Historic-era refuse scatter	Ineligible
P-33-22356 (CA-RIV-11406)	Historic-era refuse scatter	Ineligible
P-33-22357 (CA-RIV-11407)	Historic-era refuse scatter	Ineligible
P-33-22359 (CA-RIV-11409)	Historic-era refuse scatter	Ineligible
P-33-22360 (CA-RIV-11410)	Historic-era refuse scatter	Ineligible
P-33-22361 (CA-RIV-11411)	Historic-era refuse scatter	Ineligible
P-33-22363 (CA-RIV-11413)	Historic-era refuse scatter	Ineligible
P-33-22364 (CA-RIV-11414)	Historic-era foundation	Ineligible
P-33-22365 (CA-RIV-11415)	Historic-era refuse scatter	Ineligible
P-33-22366 (CA-RIV-11416)	Prehistoric lithic scatter	Ineligible
P-33-22367 (CA-RIV-11417)	Prehistoric lithic scatter	Ineligible
P-33-22370 (CA-RIV-11421)	Historic-era refuse scatter	Ineligible
P-33-22379 (CA-RIV-11431)	Historic-era refuse scatter	Ineligible
P-33-22380 (CA-RIV-11432)	Historic-era refuse scatter	Ineligible
P-33-22381 (CA-RIV-11433)	Historic-era refuse scatter	Ineligible
P-33-22382 (CA-RIV-11434)	Historic-era refuse scatter	Ineligible
P-33-22384 (CA-RIV-11436)	Historic-era refuse scatter	Ineligible
P-33-22385 (CA-RIV-11437)	Historic-era refuse scatter	Ineligible

Table D.7-6. Cultural Resources Within the APE of Segment 6 – Whitewater and Devers Resources

Resource	Description	NRHP/CRHR Eligibility Status
P-33-24039 (CA-RIV-11814)	Historic-era refuse scatter	Ineligible
P-33-24040	Prehistoric bedrock milling station	Ineligible
P-33-24043	Isolated artifact – one metal can	Ineligible
P-33-24044	Isolated artifact – one metal can	Ineligible
P-33-24045	Isolated artifact – one metal can	Ineligible

D.7.1.2.7 Multiple Segments and Lines

Five cultural resources are located within multiple segments and lines (Table D.7-7). All of these resources date to the historic period and consist of the Southern Pacific Railroad (CA-RIV-6381H), San Timoteo Canyon Road (CA-RIV-8189), the Memphis 12 kV Distribution Line (P-33-23484), the Devers-Vista 220 kV Transmission Line (P-33-22389/P-36-36050), and the Hayfield-Chino 220 kV Transmission Line (P-33-15035/P-36-26051).

One site, Southern Pacific Railroad (CA-RIV-6381H), is eligible for listing on the NRHP and the CRHR. Although associated with early ranching and farming in the San Timoteo Canyon area dating as early as the 1840s, due to realignment and consistent maintenance, San Timoteo Canyon Road (CA-RIV-8189) no longer possesses the integrity or qualities required for eligibility to the NRHP or CRHR. In addition, it is not associated with a significant event or person in national or local history and additional research is unlikely to yield new or important information. Therefore, San Timoteo Canyon Road (CA-RIV-8189) is not eligible for the NRHP or CRHR. The Memphis 12 kV Distribution Line (P-33-23484) and the Devers-Vista 220 kV Transmission Line (P-33-22389/P-36-36050) were constructed in 1966 and 1970, respectively, and are not associated with a significant event or person in national or local history, are not architecturally significant, and do not have the potential to yield new information. Therefore, these two transmission lines are not eligible for listing on the NRHP or the CRHR. The Hayfield-Chino 220 kV Transmission Line (P-33-15035/P-36-26051) was constructed between 1945 and 1946; however, the majority of the line was removed and/or rebuilt in the 1970s. This transmission line is not associated with a significant event or person in national or local history, is not architecturally significant, and does not have the potential to yield new information. Therefore, this resource is not eligible for listing on the NRHP or the CRHR. No further management of these four resources is required.

Table D.7-7. Cultural Resources Within Multiple Segments and Lines

Resource	Description	NRHP/CRHR Eligibility Status
P-33-9498 (CA-RIV-6381H)	Southern Pacific Railroad	Eligible
P-33-15035 / P-36-26051 ·	Hayfield-Chino 220 kV transmission Line	Ineligible
P-33-15720 (CA-RIV-8189)	San Timoteo Canyon Road	Ineligible
P-33-22389 / P-36-36050	Devers-Vista 220 kV transmission line	Ineligible
P-33-23484	Memphis 12 kV distribution line	Ineligible

D.7.1.2.8 Temporary Staging Yards

One of the Temporary Staging Yards, Hathaway 2 Yard, for the Proposed Project contains two cultural resources (Table D.7-8). Both of these resources date to the historic period and consist of refuse scatters (CA-RIV-11439 and CA-RIV-11440). These resources are not eligible for listing on the NRHP or the CRHR due to a lack of data potential and lack of association. Therefore, no further management of these two resources is required.

Table D.7-8. Cultural Resources Within the Temporary Staging Yards (Hathaway 2 Yard)

Resource	Description	NRHP/CRHR Eligibility Status
P-33-22387 (CA-RIV-11439)	Historic-era refuse scatter	Ineligible
P-33-22388 (CA-RIV-11440)	Historic-era refuse scatter	Ineligible

D.7.1.2.9 Telecommunication Lines

The Telecommunication route of the Proposed Project contains two cultural resources (Table D.7-9). These include a historic road segment (First Street; P-33-20721), and an isolated glass bottle neck (P-33-12643).

First Street (P-33-20721) is noted on a 1950s USGS quadrangle map; however, it does not possess the integrity or qualities required for eligibility to the NRHP or CRHR. It is not associated with a significant event or person in national or local history and additional research is unlikely to yield new or important information regarding the region. Therefore, First Street (P-33-20721) is not eligible for the NRHP or CRHR. Isolated artifacts are not eligible for listing on the NRHP or the CRHR. Therefore, no further management of these resources is required.

Table D.7-9. Cultural Resources Within the Telecommunication Route

Resource	Description	NRHP/CRHR Eligibility Status
P-33-12643	Isolated artifact – amethyst glass bottle neck	Ineligible
P-33-20721	First Street	Ineligible

D.7.1.2.10 Subtransmission Lines

The Subtransmission route of the Proposed Project contains two cultural resources (Table D.7-10). Both of these resources date to the historic period and consist of the San Bernardino–Redlands-Timoteo and San Bernardino–Redlands-Tennessee 66 kV Lines (P-36-26224) and isolated glass fragments (P-36-26030).

The San Bernardino–Redlands-Timoteo and San Bernardino–Redlands-Tennessee 66 kV Lines (P-36-26224) were constructed between 1966 and 1967 and are not associated with a significant event or person in national or local history, are not architecturally significant, and do not have the potential to yield new information. Therefore, the San Bernardino–Redlands-Timoteo and San Bernardino–Redlands-Tennessee 66 kV Lines (P-36-26224) is not eligible for listing on the NRHP or the CRHR. Isolated artifacts are not eligible for listing on the NRHP or the CRHR. No further management of these resources is required.

Table D.7-10. Cultural Resources Within the Subtransmission Route

Resource	Description	NRHP/CRHR Eligibility Status
P-36-26030	Isolated artifact – three glass fragments	Ineligible
P-36-26224	San Bernardino–Redlands-Timoteo and San Bernardino–Redlands-Tennessee 66 kV Lines	Ineligible

D.7.1.2.11 Substations

The Substation site of the Proposed Project contains one cultural resource, the Tennessee Substation (P-36-26222). This substation was constructed in 1966 and is not associated with a significant event or person in national or local history, is not architecturally significant, and does not have the potential to yield new information. Therefore, the Tennessee Substation (P-36-26222) is not eligible for listing on the NRHP or the CRHR. No further management of this resource is required.

D.7.1.3 Environmental Setting for Connected Actions

Desert Center Area. The prehistoric, ethnographic, and historic background within the Desert Center area is has been summarized from the Desert Harvest Solar Project Final EIS and Proposed CDCA Plan Amendment (BLM, 2012:3.6-11–3.6-30) as follows:

Prehistoric Background. The Chuckwalla Valley was a relatively closed resource exploitation zone. It served as an east-west oriented trade route/corridor between the Pacific Ocean and the Colorado River/ greater Southwest. An extensive network of trails is present within the Chuckwalla Valley. Given its orientation and location, the valley may have been neutral territory (i.e., a buffer zone), unclaimed by neighboring native peoples.

Within the Chuckwalla Valley, prehistoric sites are clustered around springs, wells, and other obvious important features/resources. Sites include villages with cemeteries, occupation sites with and without pottery, large and small concentrations of ceramic sherds and flaked stone tools, rock art sites, rock shelters with perishable items, rock rings/stone circles, geoglyphs, and cleared areas, a vast network of trails, markers and shrines, and quarry sites.

A cluster of temporary habitation and special activity (task) sites occurs around a quarry workshop in the Chuckwalla Valley. During the Holocene, the Chuckwalla Valley most likely was occupied, abandoned, and reoccupied by a succession of ethnic groups. In the Early Holocene (i.e., Lake Mohave complex times), the area may have been relatively densely inhabited. During the Middle Holocene (i.e., Pinto and Gypsum complexes period) it may only have been sporadically visited. The subsequent Late Holocene Rose Spring and Late Prehistoric periods probably witnessed reoccupation of the valley by Yuman and Numic-speaking peoples.

Ethnographic Background. A number of ethnographically documented culture groups are associated with the Chuckwalla Valley through historical use and oral history. These include the Cahuilla, Serrano, Chemehuevi, Mohave, Quechan (Yuma), Maricopa, and Halchidoma. All of these groups were at home in the deserts, but lived primarily near reliable water sources including the Colorado River, inland lakes, and numerous seeps and springs.

Research covering the ethnographic period for this region suggests a fluidity in territorial boundaries over time. In general, this fluidity is represented in the use, abandonment, intrusion, and displacement of the people along the Colorado River, in particular. Further, much of this shifting in territories and boundaries during the ethnographic period can be attributed to intertribal warfare. Such activities may have fluctuated between territorial controls of the local resources to a joint-use model where multiple groups may have had varying levels of access to those resources.

Historic Background. Sixteenth-century maritime Spanish explorer Hernando de Alarcon made the first in-roads into the region in 1540, ascending 85 miles up the Colorado River to the head of navigation near present-day Yuma. Nearly seventy years later, Francisco Garcés (a Franciscan Padre) also seeking a route to the coast, forded the Colorado River at the mouth of the Gila River, traveling west through the desert before despairing and turning back. His efforts were eventually rewarded in March 1774, arriving at Mission San Gabriel, accompanying the expedition of Captain Juan Bautista de Anza. Jose Maria Romero, a Mexican Army captain, explored a second route between 1823 and 1826, along the indigenous Halchidhoma Trail. He had learned of this route a couple of years earlier when a group of Cocomaricopa Indians from Arizona arrived at Mission San Gabriel, having reportedly crossed the Colorado River near present-day Blythe, journeying westward through the Chuckwalla Valley and over the San Gorgonio Pass. Other historic activities in the area include transportation and establishing railroads and highways across the Chuckwalla Valley; construction of the Colorado River Aqueduct in the 1930s; small-scale mining of gold, silver, lead, copper, uranium, fluorite, and manganese; and establishment of the Desert Training Center/California-Arizona Maneuver Area (DTC/C-AMA) for military exercises during World War II.

Known Resources. Dozens of cultural resources have been previously documented within the Chuckwalla Valley and Desert Center area. More than 50 of these resources are eligible for the NRHP/CRHR. These resources consist of prehistoric sites (i.e., lithic scatters, potdrops, habitation sites, rock rings, trails, reductions stations, milling stations, districts [quarry and petroglyph], and isolated artifacts), historic-era sites (i.e., refuse scatters, DTC sites, prospecting areas, and isolated artifacts), and built environment resources (i.e., road segments, transmission lines, structures, and railroads). In addition, many NRHP/CRHR eligible traditional cultural properties (TCPs) are known to be in the Desert Center area.

Blythe Area. The prehistoric, ethnographic, and historic background within the Blythe Area is presented in the Blythe Mesa Solar Project Draft Environmental Impact Report/Environmental Assessment (BLM, 2014: Vol. 1, 3-77–3-84) and is summarized as follows:

Prehistoric Background. Native American occupation of the Colorado Desert can be divided into three cultural periods: Paleoindian Period (San Dieguito) (ca. 12,000–7000 years before present (B.P.); Archaic Period (Pinto and Amargosa) (ca 7000—1500 B.P.); and, Late Prehistoric (Patayan Complex) (1,500 to 150 BP), which ended in the ethnographic period.

The Paleoindian inhabitants were nomadic large-game hunters whose tool assemblage included choppers; percussion-flaked scrapers and knives; large, well-made, fluted, leaf-shaped, or stemmed projectile points (e.g., Lake Mojave, Silver Lake); crescents; heavy core/cobble tools; hammerstones; bifacial cores; and scraper planes. The subsistence strategy used during the San Dieguito period focused primarily on hunting both large and small game as well as gathering plants throughout the seasons. Near the end of this period the climate began to warm, which caused the lakes and marshes to dry, resulting in the need for different subsistence and settlement strategies.

Late Archaic site types include residential bases with large, diverse artifact assemblages, abundant faunal remains, and cultural features; temporary bases; temporary camps; and task-specific activity areas. Diagnostic projectile points of this period include more refined notched (Elko), concave base (Humboldt), and small-stemmed (Gypsum) forms. The mortar and pestle were used to process acorns, an important storable resource. *Haliotis* and *Olivella* shell beads and ornaments and split-twig animal figurines indicate that interior California occupants were in contact with populations on the California coast and in the southern Great Basin.

The Patayan Complex is marked by strong regional cultural development relative to the economic system and settlement patterns. In the Southern California desert regions, cultural development was heavily influenced by the Patayan culture of the lower Colorado River area. This period includes a pre-ceramic transitional phase ranging between 1,500 and 1,200 years BP. The Patayan complex is distinguished from the transitional phase by the introduction of pottery using the paddle-and-anvil technique as well as the use of bow-and-arrow technology. Also noted is the use of floodplain agriculture. Diagnostic artifacts include Saratoga Springs projectile points, small triangular projectile points, mortars and pestles, steatite ornaments and containers, perforated stones, circular shell fishhooks, numerous and varied bone tools, and bone and shell ornaments. Elaborate mortuary customs and extensive trade networks are also characteristic of this period.

Ethnographic and Historic Background. The ethnographic and historic background of the Blythe area is similar to that of the Desert Center area (see above).

Known Resources. Dozens of cultural resources have been previously documented within the Blythe area. However, only a few of these resources are eligible for the NRHP/CRHR. Resources in the area consist of prehistoric sites (i.e., lithic scatters, ceramic scatters, rock rings, trails, and isolated artifacts), historic-era sites (i.e., refuse scatters, Desert Training Center sites, and prospecting areas), and built environment resources (i.e., road segments and transmission lines).

D.7.2 Applicable Regulations, Plans, and Standards

D.7.2.1 Federal

National Environmental Policy Act. The National Environmental Policy Act (NEPA) of 1969, as amended, requires analysis of potential environmental impacts to important historic, cultural, and natural aspects of our national heritage (42 U.S.C. §§ 4321-4375; 40 C.F.R. §§ 1500-1508). The discussion of impacts pursuant to NEPA is defined by the Council on Environmental Quality (CEQ) regulations and requires consideration of the temporal scale, spatial extent, and intensity of the change that would be introduced by the Proposed Project.

National Historic Preservation Act. The Federal Government has developed laws and regulations designed to protect cultural resources that may be affected by actions undertaken, regulated, or funded by federal agencies. Under the National Historic Preservation Act (NHPA) of 1966 the Proposed Project is considered a federally licensed "undertaking" per 36 CFR § 800.2 (*o*) and subject to compliance with Section 106 of the NHPA of 1966, as amended. Under these guidelines, federal agencies are required to identify cultural resources that may be affected by project actions, assess the significance of these resources and their eligibility for inclusion on the *National Register of Historic Places* (NRHP) as per 16 USC 470w (5), and consult with the Advisory Council on Historic Preservation (ACHP) regarding project effects on significant resources. Eligibility is based on criteria defined by the Department of the Interior. Generally, districts, archaeological sites, buildings, structures, and objects that possess integrity are potentially eligible for inclusion on the NRHP under the following criteria:

A) that are associated with events that have made a significant contribution to the broad patterns of our history; or

B) that are associated with the lives of persons significant in our past; or

C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR § 60.4).

If a cultural resource is determined to be an eligible historic property under 36 CFR § 60.4, then Section 106 requires that the effects of the proposed undertaking be assessed and considered in planning the undertaking. According to 36 CFR § 800: Regulations of the Advisory Council on Historic Preservation Governing the Section 106 Review Process, the lead agency, State Historic Preservation Office (SHPO), and Council

> *....should be sensitive to the special concerns of Indian tribes in historic preservation issues, which often extend beyond Indian lands to other historic properties. ...When an undertaking may affect properties of historic value to an Indian tribe on non-Indian lands, the consulting parties shall afford such tribe the opportunity to participate as interested persons. Traditional cultural leaders and other Native Americans are considered interested persons with respect to undertakings that my affect historic properties of significance to such persons (36 CFR § 800:3).*

Native American Graves Protection and Repatriation Act. The Native American Graves Protection and Repatriation Act (NAGPRA) was enacted on November 16, 1990, to address the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to Native American cultural items, including human remains, funerary objects, sacred objects, and objects of cultural patrimony. NAGPRA assigned implementation responsibilities to the Secretary of the Interior.

If human remains are encountered on Federal lands, NAGPRA states that the responsible Federal official must be notified immediately and that no further disturbance shall occur in the area until clearance is given by the responsible Federal official (43 C.F.R. § 10.4). If the remains are determined to be Native American Indian, the Federal agency will then notify the appropriate federally recognized Native American tribe and initiate consultation.

Archeological Resources Protection Act. If federal or Indian lands are involved, the Archeological Resources Protection Act (ARPA) may impose additional requirements on an agency. ARPA: (1) Prohibits unauthorized excavation on federal and Indian lands; (2) Establishes standards for permissible excavation; (3) Prescribes civil and criminal penalties; (4) Requires agencies to identify archeological sites; and (5) Encourages cooperation between federal agencies and private individuals.

Antiquities Act of 1906. The Antiquities Act of 1906 states, in part: That any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

Bureau of Land Management Resource Management Plans. The BLM's multiple-use mission, set forth in the Federal Land Policy and Management Act of 1976, mandates that BLM manage public land resources for a variety of uses, including natural, cultural, and historical resources. The BLM uses Resource Management Plans to guide the development, conservation, and use of BLM public lands in California. The issues addressed in these plans include but are not limited to cultural resources, Native American values, wildlife, vegetation, wilderness, recreation geology, minerals, and energy production and utility corridors. There are several Resource Management Plans that are applicable to the regional study area for the APE/project study area, including the following:

- California Desert Conservation Area (CDCA) Plan;
- Coachella Valley/CDCA Plan Amendment; and
- South Coast Resource Management Plan.

The CDCA Plan provides guidance for 25 million acres, nearly half of which are in BLM jurisdiction, encompassing the conservation area in the counties of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, and San Bernardino. The energy production and utility corridors element objectives of the existing plan include implementing a network of joint-use planning corridors to meet projected utility needs, to avoid sensitive resources wherever possible, and to consider alternative fuel resources. Cultural Resources objectives include ensuring that cultural resources are given full consideration in land use planning and management decisions, ensuring that BLM authorized actions avoid inadvertent impacts to cultural resources, and ensuring proper data recovery of significant cultural resources where adverse impacts cannot be avoided.

Recent refinements to the CDCA plan were made through six regional amendments, including the Coachella Valley amendment. The Coachella Valley/CDCA Plan Amendment (December 2002) primarily addresses habitat conservation, wild and scenic river eligibility, standards and guidelines for land health, and designation of routes of travel. On September 23, 2011, the BLM released for public comment a Draft South Coast Resource Management Plan (RMP) Revision and Draft Environmental Impact Statement (EIS). This public comment period ended December 23, 2011. The South Coast Draft RMP provides guidance for the management of approximately 300,000 acres of BLM-administered public lands in portions of five southern California counties: San Diego, Riverside, San Bernardino, Orange, and Los Angeles. These public lands include over 130,000 acres of BLM-administered surface lands and 167,000 acres of Federal mineral ownership where the surface is privately owned. The Draft RMP/EIS is a revision to the existing South Coast RMP (1994). An updated plan has not yet been approved.

D.7.2.2 State

California Environmental Quality Act. Cultural resource management work conducted as part of the Proposed Project is to comply with the California Environmental Quality Act (CEQA) Statute and Guidelines, which direct lead agencies to first determine whether cultural resources are "historically significant" resources. CEQA requires that impacts that a project may have on cultural resources be assessed and requires mitigation if significant (or "unique") cultural resources are to be impacted (Section 21083.2 [a-1] and CEQA Guidelines Appendix G). Generally, a cultural resource is considered "historically significant" if the resource is 45 years old or older, possesses integrity of location, design, setting, materials, workmanship, feeling, and association, and meets the requirements for listing on the California Register of Historical Resources (CRHR) under any one of the following criteria:

1. *Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;*
2. *Is associated with the lives of persons important in our past;*
3. *Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,*
4. *Has yielded, or may be likely to yield, information important in prehistory or history (Title 14 CCR, § 15064.5).*

The statutes and guidelines specify how cultural resources are to be managed in the context of projects, such as the Proposed Project. Briefly, archival and field surveys must be conducted, and identified cultural resources must be inventoried and evaluated in prescribed ways. Prehistoric and historical archaeological resources, as well as historical resources such as standing structures and other built-environment features, deemed "historically significant" must be considered in project planning and development. As well, any proposed project that may affect "historically significant" cultural resources must be submitted to the SHPO for review and comment prior to project approval by the responsible agency and prior to construction.

If a Lead Agency determines that an archaeological site is a historical resource, the provisions of California Public Resources Code (CPRC) §21084.1 and CEQA Guidelines §15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site is to be treated in accordance with the provisions of PRC §21083 regarding unique archaeological resources. The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of a project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines §15064[c][4]).

CEQA Guidelines Section 15064.5(e) and Assembly Bill 2641 are to be followed. These require that all construction activities cease immediately and the County Coroner and a qualified archaeologist must be notified. If the coroner determines the remains the Native American Heritage Commission (NAHC) must be notified.

Public Resources Code Sections 15064.5(e) and 15064.5(d), et seq. If human remains of any kind are found during construction activities on non-federal or reservation land, these codes require that excavation activities be stopped and that the county coroner be called in to assess the remains. The coroner will examine the remains and determine the next appropriate action based on his or her findings. If the county coroner determines that the remains to be of Native American origin, the Native American Heritage Commission (NAHC) must be contacted by the coroner within 24 hours. The NAHC will then identify a most-likely descendant to be consulted regarding treatment and/or reburial of the remains.

Native American Heritage Commission. Section 5097.91 of the California Public Resources Code established the NAHC, whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Section 5097.98 of the CPRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

D.7.2.3 Local

The CPUC has jurisdiction over the siting and design of the Proposed Project because the CPUC regulates and authorizes the construction of investor-owned public utility (IOU) facilities. Although such projects are exempt from local land use and zoning regulations and permitting, General Order (GO) No. 131-D, Section III.C requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain any nondiscretionary local permits."

Banning. The City of Banning General Plan notes that there are a number of historic and archaeological sites of cultural importance within the General Plan Study Area (City of Banning, 2006). The General Plan also states that the potential exists for discovering additional sites in the future, primarily in the northerly portion of the General Plan Study Area near the Banning Water Canyon. The General Plan also states that continued development associated with build out of the General Plan could result in disturbance or destruction of cultural resources due to grading, site excavation, construction, and increased foot and vehicular traffic.

The APE/project study area crosses areas identified by the City as having sensitivities for cultural resources ranging from "low" to "moderate" to "high" (Ibid.) In order to reduce project-related cumulative impacts, the goals, policies and programs of the General Plan are directed toward the protection and preservation of cultural resources within the City. The General Plan restricts development in areas that are potentially highly sensitive to cultural resources such as in the canyons, washes and alluvial fans in the northerly portions of the City. It also encourages the continued development of programs by the City and private organizations for the identification, designation, and preservation of important cultural resources within the boundaries of the City.

The City requires cultural resources surveys and studies for projects, except single-family dwellings on existing lots of record, that have the potential to disturb or destroy sensitive resources. The City through its General Plan ensures that every reasonable effort is made to manage cultural resources within its jurisdiction. It has established the Banning Historical Society and the Historic Site Preservation Board. The City also plans to prepare a historic preservation plan. Further, the City will not allow development that would have adverse impacts on locally or regionally known important resources within or outside the General Plan area. The General Plan states that, by adopting and following the policies and programs contained within its General Plan, no significant cumulative impacts associated with cultural resources will occur.

Beaumont. In order to preserve and protect the City of Beaumont's cultural resources, Goal 5 of the City's General Plan states that the City of Beaumont will participate in cultural resources management and/or preservation efforts (City Beaumont, 2007). In order to meet this goal, the Cultural Resource Management section of the City's General Plan states: "...should archaeological or paleontological resources be encountered during excavation and grading activities, all work would cease until appropriate salvage measures are established. Appendix G of the CEQA Guidelines shall be followed for excavation monitoring and salvage work that may be necessary. Salvage and preservation efforts will be undertaken pursuant to Appendix G requirements outlined in CEQA."

The General Plan also states that following the Plan's policies and complying with existing State and Federal guidelines when engaged in development projects within the City will reduce potential cultural (paleontological, prehistoric, and historic) resource impacts to a less than significant level.

Calimesa. According to the General Plan of the City of Calimesa, areas with high sensitivity for archaeological and paleontological resources, such as the San Timoteo Badlands, shall be subject to an in-depth review through the provisions of special studies focusing on resource sensitivity (City of Calimesa, 1994). The studies shall include feasible measures to protect and preserve the resource.

Goal 4 of the City's General Plan states that the City shall promote cultural awareness through preservation of the City's historical, archaeological, and paleontological resources. Policies 4.1 to 4.3 were developed to meet this goal. See Table D.7-11 (Local Land Use Documents Applicable to Cultural Resources for the Proposed Project).

The Cultural Awareness Program of the City, contained within the General Plan, requires that development in areas that have not been subject to prior cultural resource surveys shall be required to perform surveys and submit their findings to the City. When resources are identified, appropriate testing, preservation, mitigation, or salvage shall be carried out prior to grading or excavation activities. The City shall use these surveys to refine its cultural resources map. The map shall be used as a guide for requiring future surveys and studies as part of proposed development or redevelopment.

The Cultural Awareness Program of the City also requires that qualified archaeologists and paleontologists be present during the excavation of sites that have a high potential for archaeological or paleontological resources. Removal of fossils, Native American remains, or archaeological artifacts shall occur in compliance with State regulations. The City shall consider prohibiting development when impacts to cultural resources cannot be mitigated. It shall set up a procedure by which uncovered archaeological and paleontological resources would be removed and transferred for preservation at a local educational and scientific facility for research or display.

Colton. The General Plan of the City of Colton is currently being updated (1987). At present, the City does not have an estimated time of approval on its amended general plan (City of Colton Planning Department, 2013). The City's Historic Preservation Ordinance was developed to address Government Code Sections 37361 and 25373 that recognize the value of identifying, protecting, and preserving places, buildings, structures, and other objects of historical, aesthetic, and cultural importance. In order to protect and preserve these resources, the ordinance calls for the adoption of reasonable and fair regulations to recognize, document, preserve, and maintain resources of cultural, aesthetic, or historical significance. The General Plan also states that these regulations will serve to integrate the preservation of resources and the extraction of relevant data from such resources into public and private land management and development processes, and to identify as early as possible and resolve conflicts between the preservation of cultural resources and alternative land uses. The Cultural Resources Preservation Element, adopted by the City in September 2000, states similar goals and policies of (1) identify, protect, and preserve Colton's rich archaeological resources for the enjoyment of future generations; (2) identify, designate and preserve specific historically significant structures, landscapes and facilities; and (3) educate the public about Colton's heritage and resources (City of Colton, 2000).

Grand Terrace. The General Plan of the City of Grand Terrace states that there are a number of sites within the City that have been recorded as containing cultural resources (City of Grand Terrace, 2010). However, there are no known areas of the City that have been previously identified as places of historical, cultural, or archaeological significance that should be identified as being significant enough to be preserved as open space. Nonetheless, the City recognizes that important information may still be contained within the known cultural resource sites and sites that have not yet been discovered.

Loma Linda. The General Plan of the City of Loma Linda states that there are no recorded prehistoric sites within the General Plan Study area; however, the Guachama Rancheria is an important historically known Native American property within the Loma Linda Planning Area with a potential for associated prehistoric resources (City of Loma Linda, 2009).

The Loma Linda Planning Area includes many sites of historic value and the area has been the subject of many historic studies with the latest conducted in 1988. The 1988 study identified a total of 197 historical properties within the General Plan Area; however, only 22 were evaluated for potential eligibility for listing in the NRHP (Ibid.). The 1988 study also identified four potential Historic Districts. The General Plan states that it is likely that additional contributing features along with buildings will be identified once a more up to date historic resources study is completed.

The Conservation and Open Space Element of the General Plan of the City of Loma Linda states that the City shall "preserve and protect the City's historic structures and neighborhoods. Identify and preserve the archaeological and paleontological resources in Loma Linda."

Palm Springs. The General Plan of the City of Palm Springs Recreation, Open Space, and Conservation Element recognizes that culture and history are integral to the Palm Springs community (City of Palm Springs, 2007). The Recreation, Open Space, and Conservation Element calls for the preservation of archaeological, cultural, and historic resources within the community. The General Plan contains maps showing areas likely to have prehistoric or historic cultural resources within the City and its Sphere of Influence. The General Plan requires site assessments for projects in these mapped areas.

Redlands. The General Plan of the City of Redlands recognizes that many archaeological and paleontological resources will occur in the remaining, unexcavated open space areas within and adjacent to the City (City of Redlands, 1997). As such, the City recognizes the need to conserve these resources through City Policies.

The General Plan states that the San Bernardino Archaeological Information Center (SBAIC) estimates that less than 10 percent of the urban area has been surveyed for archaeological finds, and perhaps 25 percent of the rural portions of the planning area have been surveyed. In addition, the General Plan states that the locations of some resources are known. To allow a quick visual scan of potentially sensitive areas, however, the City and the SBAIC prepared an archaeological resource sensitivity map at a general scale.

San Bernardino. The General Plan of the City of San Bernardino recognizes that the City contains many historic and archaeological resources that may be threatened with demolition or removal (City of San Bernardino, 2005). As such, the City recognizes the need to conserve these resources through City policies, which provide guidance that addresses the preservation and reuse of the City's historic and archaeological resources. It is the City's intent to effectively preserve, enhance, and maintain sites and structures that have been deemed architecturally, historically, archaeologically, and/or culturally significant.

The General Plan includes information providing a historical background of City events based on a report prepared for the General Plan. The report contains a detailed history of San Bernardino, a detailed description of incentives for preservation, a glossary of terms, and a list of source documents.

As stated in the City's General Plan, the City desires to enjoy the social benefits of historic preservation that come in the form of increased community pride; realize a recognizable identity for San Bernardino that comes from a popular interest in the community's past; create a rich cultural community in which we will be able experience the City's past; enhance property values and increase economic and financial benefits in the older parts of our City; and create a unique environment that attracts investments and visitors through historic preservation, adaptive reuse, and compatible design controls.

Yucaipa. Cultural resources are addressed in the Open Space and Conservation Element of the City's General Plan (City of Yucaipa, 2004). The General Plan goals, policies, and actions support records searches and reviews, field surveys and evaluations, and avoidance of, or mitigation for, impacts to important cultural resources.

County of Riverside. The General Plan of the County of Riverside follows both Federal and State laws and guidelines for the definition of significance and sensitivity of cultural resources. According to the General Plan of the County of Riverside, cultural resources consist of places (historic and prehistoric archaeological sites), structures, or objects that provide evidence of past human activity. They are important for scientific, historic, and/or religious reasons to cultures, communities, groups, or individuals. The cultural history of Riverside County is divided into three general chronological units—prehistory, ethnohistory, and history—the last two of which overlap in the early years of the historical period. The first two divisions are restricted to Native American traditions, beginning with the settlement of the southern California region 10,000 to 12,000 years ago and extending through time to initial Euro-American settlement in the late 18th century when the mission system was established. The historic era begins around 1774 with the exploratory expeditions of Juan Bautista de Anza and continues into 1967, or 45 years before the present as defined by CEQA.

The General Plan contains a map figure depicting the relative sensitivity of the diverse landscapes of Riverside County for cultural resources. Three classifications are used: high, undetermined, and low. Properties with high potential include those listed or determined eligible for listing in the NRHP. The General Plan also contains tables that list each of the NRHP-eligible resources within the County. These maps and tables are useful in the early planning stages of projects to give planners and developers an initial sensitivity for an area.

In order to protect cultural resources within the County, the General Plan contains several policies and mitigation measures that relate to cultural resources. Table D.7-11 (Local Land Use Documents Applicable to Cultural Resources for the Proposed Project) summarizes elements of local land use documents that have policies applicable to cultural resources.

County of San Bernardino. The General Plan of the County of San Bernardino states that there are currently almost 12,000 known cultural resources within the County, and there are large areas that have never been surveyed or assessed for cultural resources. The General Plan states that there are likely an equal number of sites that have yet to be identified and could be affected by future development. The sites within the County include historic roads, trails, bridges, and buildings; historic engineering features; Native American villages, temporary camp sites, rock shelters, milling stations, lithic scatters, quarry sites, pottery scatters, cemeteries, cremation sites, petroglyphs, and pictographs, among other site types.

Table D.7-11. Local Land Use Documents Applicable to Cultural Resources for the Proposed Project

Document	Plans, Policies, Programs
City of Banning General Plan Archaeological and Cultural Resources Element	**Goal:** Documentation, maintenance, preservation, conservation and enhancement of archaeological and historic sites, artifacts, traditions and other elements of the City's cultural heritage.
City of Beaumont General Plan Resource Management Element	**Goal 5:** The City of Beaumont will participate in cultural resource management and/or preservation efforts. **Policy 15.** The City of Beaumont will identify and preserve those sites/buildings that are important to the community for the benefit of the future generations that will reside or work in the City. **Policy 16.** The City of Beaumont will prepare an inventory of private community and environmental organizations that may contribute effort or resources to improving the City's cultural awareness.
City of Calimesa General Plan Resource Management Element	**Goal 4:** Promote cultural awareness through preservation of the City's historical, archaeological and paleontological resources. **Policy 4.1:** Identify, protect and preserve, where possible, the historical resources of the City. **Policy 4.2:** Increase public awareness of California's cultural heritage and resources through education. **Policy 4.3:** Require the preservation of identified cultural resources to the extent possible, prior to new development, through dedication, removal, transfer, reuse, or other means.
City of Colton Cultural Resources Preservation Element	**Goal 1:** Identify, protect, and preserve Colton's rich archaeological resources for the enjoyment of future generations. **Goal 2:** Identify, designate, and preserve specific historically significant structure, landscapes, and facilities. **Goal 3:** Educate the public about Colton's heritage and resources.
City of Grand Terrace General Plan Open Space and Conservation Element	**Goal 4.9:** Comply with State and Federal regulations to ensure the protection of historical, archaeological, and paleontological resources. **Goal 4.9** of the General Plan states that Grand Terrace will "Comply with State and Federal regulations to ensure the protection of historical, archaeological, and paleontological resources." **Policy 4.9.1** was developed to implement Goal 4.9 and it states: "The City shall take reasonable steps to ensure that cultural resources are located, identified and evaluated to assure that appropriate action is taken as to the disposition of these resources. a. *Applicants with development proposals on sites that occur within areas which are determined through initial evaluation to be potentially significant shall submit results of a records such conducted by the San Bernardino Archaeological Information Center at the San Bernardino County Museum or other appropriate agency, for comment during initial environmental review in accordance with the notice and comment provisions applicable to responsible agencies under CEQA.* b. *For areas with documented or inferred resource presence, applicants shall provide studies to document the presence or absences of cultural resources. Such studies shall provide a detailed mitigation plan, including and monitoring program and recovery or preservation plan, based on the recommendations of a qualified archaeologist and/or paleontologist.* c. *In the event that a paleontological or archaeological resource is uncovered during the course of construction, ground-disturbing activities in the vicinity of the suspected resource shall be redirected until the nature and extent of the find can be evaluated by a qualified archaeologist and/or paleontologist (as determined by the City). As deemed appropriate by the City, any such resource uncovered during the course of project-related grading or construction shall be recorded and/or removed per applicable City and/or State regulations.*
City of Loma Linda Conservation and Open Space Element	**Goal:** The City shall preserve and protect the City's historic structures and neighborhoods. Identify and preserve the archaeological and paleontological resources in Loma Linda.

Table D.7-11. Local Land Use Documents Applicable to Cultural Resources for the Proposed Project

Document	Plans, Policies, Programs
City of Palm Springs General Plan Recreation, Open Space, and Conservation Element	**Goal RC10:** Support, encourage, and facilitate the preservation of significant archaeological, historic, and cultural resources in the community. **Policy RC10.1:** Support the preservation and protection of historically, architecturally, or archaeologically significant sites, places, districts, structures, landforms, objects, native burial sites and other features.
City of Redlands General Plan Open Space and Conservation Element	**Guiding Policy 7.30a:** Protect archaeological and paleontological resources for their aesthetic, scientific, educational, and cultural values. **Implementing Policy 7.30b:** Using the Archaeological Resource Sensitivity Map, review proposed development projects to determine whether the site contains known prehistoric or historic cultural resources and/or to determine the potential for discovery of additional cultural resources; refer all applications affecting sensitive areas to the Archaeological Information Center for further study. **Implementing Policy 7.30c:** Require that applicants for projects identified by the Archaeological Information Center as potentially affecting sensitive resource sites hire a consulting archaeologist to develop an archaeological resource mitigation plan and monitor the project to ensure that mitigation measures are implemented. **Implementing Policy 7.30d:** Require that areas found during construction to contain significant historic or prehistoric archaeological artifacts be examined by a qualified consulting archaeologist or historian for appropriate protection and preservation. **Implementing Policy 7.30e:** For projects involving Federal land, or requiring Federal permission or funding, ensure that applicants meet stricter criteria for archaeological resource review, prior to commencement of work.
City of San Bernardino General Plan Historical and Archaeological Resources Element	**Goal 11.1:** Develop a program to protect, preserve, and restore the sites, buildings and districts that have architectural, historical, archaeological, and/or cultural significance. **Policy 11.1.9:** Require that an environmental review be conducted on all applications (e.g., grading, building, and demolition) for resources designated or potentially designated as significant in order to ensure that these sites are preserved and protected. (LU-1) **Goal 11.5:** Protect and enhance our archaeological resources. **Policies 11.5.2:** Develop mitigation measures for projects located in archaeologically sensitive areas to protect such locations, remove artifacts, and retain them for educational display. Native American tribes should be consulted to determine the disposition of any Native American artifacts discovered.
City of Yucaipa General Plan-Open Space and Conservation Element	**Goal OS-11:** Preserve and protect the City's historical, archaeological and cultural resources. **Goal OS-12:** Ensure that community objectives for cultural resources avoid or minimize potential conflicts with traditional Native American beliefs and concerns. **Goal OS-13:** Ensure that significant paleontologic resources exposed during grading are recovered and preserved for scientific value.
County of Riverside General Plan Multipurpose Open Space Element	**Policy OS 19.2:** Review all proposed development for the possibility of archaeological sensitivity. **Policy OS 19.3:** Employ procedures to protect the confidentiality of and prevent inappropriate public exposure of sensitive archaeological resources when soliciting the assistance of public and volunteer organizations. **Policy OS 19.6:** Enforce the Historic Building Code so that historic buildings can be preserved and used without posing a hazard to public safety. **Policy OS 19.8:** Require that whenever existing information indicates that a site proposed for development may contain biological, cultural, paleontological, or other scientific resources, a report shall be filed stating the extent and potential significance of the resource that may exist within the proposed development and appropriate measures through which the impacts of development may be mitigated. **Policy OS 19.9:** This policy requires that when existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities, with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate repository, and file a report with the Planning Department documenting any paleontological resources that are found during the course of site grading.

Table D.7-11. Local Land Use Documents Applicable to Cultural Resources for the Proposed Project

Document	Plans, Policies, Programs
County of San Bernardino General Plan Conservation Element	**Policy CO 3.1:** Identify and protect important archaeological and historic cultural resources in areas of the County that have been determined to have known cultural resource sensitivity. **Policy CO 3.2:** Identify and protect important archaeological and historic cultural resources in all lands [where activity] involves disturbance of previously undisturbed ground. **Policy CO 3.3:** Ensure that important cultural resources are avoided or impacts minimized to protect Native American beliefs and traditions. **Policy CO 3.5:** Ensure that important cultural resources are avoided or minimized to protect Native American beliefs and traditions.

D.7.3 Environmental Impacts of the Proposed Project

D.7.3.1 Approach to Impact Assessment

Cultural resources are places or objects that are important for historical, scientific, and religious reasons and are of concern to cultures, communities, groups, or individuals. These resources may include buildings and architectural remains, archaeological sites and other artifacts that provide evidence of past human activity, human remains, or Traditional Cultural Properties.

In the context of a federally permitted undertaking, such as the Proposed Project, the management of cultural resources must be determined by the Federal Lead Agency under NEPA and Section 106 in consultation with the SHPO and other interested parties. Any action, as part of an undertaking, that could affect a historic property is subject to review and comment under Section 106 of the NHPA of 1966. Cultural resources that retain integrity and meet one or more of the criteria of eligibility [36 CFR 60.6] qualify as historic properties that are eligible for listing on the NRHP; such resources must be managed in compliance with the ACHP's regulations (36 CFR 800).

Within the State of California there are also provisions in CEQA, its Guidelines, and other provisions of the California Public Resources Code for the protection and preservation of significant cultural resources (i.e., "historical resources" and "unique archaeological resources"). The CEQA Guidelines provide three ways in which a resource can be a "historical resource," and thus a cultural resource meriting analysis: (1) the resource is listed on the CRHR; (2) the resource is included in a local register of historical resources (pursuant to §5020.1(k) of the Public Resources Code), or identified as significant in an historical resources survey (meeting the criteria in §5024.1(g) of the Public Resources Code); or (3) the lead agency determines the resource is "historically significant" by assessing CRHR listing guidelines that parallel the federal criteria (§15064.5(a)(1)-(3) of the CEQA Guidelines (as amended)). To qualify as a historical resource under (1) or (3), the resource must also retain the integrity of its physical identity that existed during its period of significance. Integrity is evaluated with regard to retention of location, design, setting, materials, workmanship, feeling, and association (14 C.C.R. 4852(c)). Finally, under both federal and California State law, Native American human remains and associated grave goods are granted special consideration.

Direct and indirect impacts only to historic properties (NRHP) and historical resources (CRHR) are considered in the assessment. Management of cultural resources ineligible for NRHP or CRHR listing is not required (36 CFR 800 and §15064.5(c)(4) of the CEQA Guidelines (as amended)).

D.7.3.1.1 Applicant Proposed Measures

SCE has committed to implementing a number of measures to reduce project impacts to cultural resources. These Applicant Proposed Measures (APMs) shown in Table D.7-12 are presented in Section B.6. They would reduce the potential impacts of construction and operation of the Proposed Project. In the following disclosure and analysis of the project's potential to impact cultural resources, it is assumed that the APMs would be implemented as elements of project development, planning, and construction. These APMs are superseded by mitigation measures developed to provide more detail and to more effectively reduce impacts (see Section D.7.3.3).

Table D.7-12. Applicant Proposed Measures – Cultural Resources

APM	Description
APM CUL-1	Prehistoric Resources: a. avoid (avoidance by design, preserve in place, capping); b. minimize (reduction of Area of Direct Impact/Effect); c. mitigate (data recovery). Historic Resources: a. avoid (avoidance by design, preserve in place, capping); b. minimize (reduction of Area of Direct Impact/Effect); c. mitigate (data recovery). Historic Architecture/Utility Infrastructure: a. avoid (avoidance by design, preserve in place); b. minimize (reduction of Area of Direct Impact/Effect); c. mitigate (historic context statement, Historic American Engineering Record, Historic American Building Survey, advanced DPR recordation). Traditional Cultural Property: a. consult with Native American stakeholders on perceived impacts/effects and negotiate mutually agreeable treatment.
APM CUL-2	Prior to construction, SCE would prepare a Construction Monitoring and Unanticipated Cultural Resources Discovery Plan or similar document to be implemented if an unanticipated discovery is made. At a minimum the Plan would detail the following elements: ▪ Worker and supervisor training in the identification of cultural remains that could be found in the Proposed Project area, and the implications of disturbance and collection of cultural resources per applicable federal and state laws. ▪ Worker and supervisor response procedures to be followed in the event of an unanticipated discovery, including appropriate points of contact for professionals qualified to make decisions about the potential significance of any find. ▪ Identification of persons authorized to stop or redirect work that could affect the discovery, and their on-call contact information. ▪ Procedures for monitoring construction activities in archaeologically sensitive areas. ▪ A minimum radius around any discovery within which work would be halted until the significance of the resource has been evaluated and mitigation implemented as appropriate. ▪ Procedures for identifying and evaluating the historical significance of a discovery. ▪ Procedures for consulting Native Americans when identifying and evaluating the significance of discoveries involving Native American cultural materials. ▪ Procedures to be followed for treatment of discovered human remains per current state law and protocol developed in consultation with Native Americans.

D.7.3.2 Impact Criteria[1-2][09][0-9][0-9]

NEPA does not have specific significance criteria. However, NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). Using the following criteria for the purposes of analysis, the project or an alternative would impact cultural resources if it would:

- Cause an adverse effect or substantial adverse change in the characteristic of a historic property or Traditional Cultural Property as defined by federal guidelines.

- Cause a substantial adverse change in the characteristics of a significant cultural resource or unique archaeological site as defined by State of California guidelines.
- Cause a substantial adverse change in the characteristics of a cultural resource included in a local register of historical resources.
- Uncover, expose, and/or damage Native American human remains.

Under all of these criteria, adverse changes and impacts include the following:

- Cause a physical, visual, or audible disturbance resulting from construction, operation, and development that would affect the integrity of a resource or the qualities that make it eligible for the NRHP or CRHR;
- Expose cultural resources to vandalism or unauthorized collecting;
- Cause a substantial increase in the potential for erosion or other natural processes that could affect cultural resources; or
- Cause neglect of a cultural resource that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe.

D.7.3.3 Impacts and Mitigation Measures

This section analyzes impacts to historic properties (NRHP-eligible)/historical resources (CRHR-eligible) identified within the Proposed Project. In total, 118 known resources are within the direct APE of the Proposed Project. Of those, 46 are isolated artifacts that do not require mitigation measures, because isolated artifacts, by definition, lack immediate cultural context and therefore lack the data potential that would be required to be considered eligible for the NRHP or CRHR inclusion. Sixty-four of the 118 resources have been determined ineligible for the NRHP or CRHR. One resource would not be impacted and was not evaluated. Seven of the 118 known resources have been determined eligible for the NRHP (Table D.7-13). While these resources are within the direct APE of the Proposed Project, they can be avoided entirely and would not experience any direct impacts when the mitigation measures identified below are used for avoidance and protection during construction.

Table D.7-13. NRHP/CRHR Eligible Cultural Resources Within the Project APE

Resource	Description	Location within the Project APE
P-36-10330 (CA-SBR-10330H)	Southern Pacific Railroad	In APE of ROW; no direct impacts.
P-33-14871 (CA-RIV-7926)	Historic Millard Canyon Stone Canal	In APE of ROW; no direct impacts. The project proposes to tear down two existing transmission lines that cross over the canal and rebuild new lines within the existing ROW using existing access roads that cross through the site.
P-33-11265 (CA-RIV-6726)	Colorado River Aqueduct	In APE of ROW; no direct impacts. Portion of aqueduct in APE is underground.
P-33-9498 (CA-RIV-6381H)	Southern Pacific Railroad	In APE of ROW; no direct impacts.
P-33-2262 (CA-RIV-2262H)	Historic Vanderventer Ranch	In APE of ROW; no direct impacts. Project proposes to use existing access road that crosses through site.
P-33-15004 / P-33-7296	Historic Singleton Ranch District	In APE of ROW; no direct impacts. Project proposes to use existing access road that crosses through site.
P-33-4213 (CA-RIV-4213H)	Historic St. Boniface Indian School and Cemetery	In APE of ROW; no direct impacts. Project proposes to use existing access road that crosses through site.

Impact CL-1: Construction, operation and maintenance, and restoration could cause an adverse change to known historic properties

As shown in Table D.7-13, there are seven NRHP/CRHR eligible cultural resources within the project APE. Inadvertent direct impacts may occur to theses known historic properties/historical resources during construction, operation and maintenance, and restoration through ground disturbing activities such as vegetation removal, grading, trenching, boring, and excavation for new structure locations and transmission lines, access roads, pull sites, and substations. Indirect impacts could also result from inadvertent or malicious vandalism, unauthorized collection of cultural resources on the surface of sites, or increased travel to construction sites. Indirect impacts to location, setting, feeling, and association of historic properties/historical resources are not anticipated.

Of the seven NRHP/CRHR eligible resources, one resource, the Colorado River Aqueduct (CA-RIV-6726, is entirely underground within the project's APE. Therefore, project activities will not directly or indirectly impact this resource. Another resource, the Southern Pacific Railroad (CA-SBR-10330H and CA-RIV-6381H) crosses through many segments of the project's APE. However, this resource is in constant operation and project activities will not directly or indirectly impact this resource. The remaining four NRHP/CRHR eligible resources, (Millard Canyon Stone Canal [CA-RIV-7926], Vanderventer Ranch [CA-RIV-2262H], Singleton Ranch District [P-33-15004/P-33-7296], and St. Boniface Indian School and Cemetery [CA-RIV-4213H]) may experience inadvertent direct impacts from project activities. The preferred treatment for historic properties/historical resources is to avoid and protect them. Within overhead segments of transmission corridors, avoidance would be accomplished by siting structures, laydown areas, pull sites, and access roads away from historic properties. Additional protection measures would include Environmentally Sensitive Area (ESA) fencing, monitoring, and construction restrictions. Such measures to avoid and protect resources are addressed by Mitigation Measures CL-1a (Avoid environmentally sensitive areas), CL-1b (Develop cultural resource management plan [CRMP]), CL-1c (Train construction personnel), and CL-1d (Conduct construction monitoring), which provide detail on how these activities would be implemented to ensure that inadvertent impacts do not occur.

Mitigation Measures for Impact CL-1: Construction, operation and maintenance, and restoration could cause an adverse change to known historic properties

CL-1a **Avoid environmentally sensitive areas.** SCE shall perform focused pre-construction surveys for any project areas not yet surveyed (e.g., new or modified staging areas, pull sites, or other work areas). Resources discovered during the surveys would be subject to Mitigation Measures CL-1b (Develop Cultural Resource Management Plan [CRMP]) and CL-1d (Conduct construction monitoring). Where operationally feasible, all NRHP- and CRHR-eligible resources shall be protected from direct project impacts by project redesign (i.e., relocation of the line, ancillary facilities, or temporary facilities or work areas). In addition, all historic properties/historic resources shall be avoided by all project construction, operation and maintenance, and restoration activities. Avoidance mechanisms shall include fencing off such areas as Environmentally Sensitive Areas (ESAs) for the duration of the Proposed Project or as outlined in the CRMP.

CL-1b **Develop Cultural Resource Management Plan (CRMP).** SCE shall prepare and submit for approval a Cultural Resource Management Plan (CRMP) to guide all cultural resource management activities during project construction. Management of cultural resources shall follow the standards and guidelines established by the National Park Service for implementing Section 106 of the National Historic Preservation Act ("Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines," 48 Federal Register 190 (29 September

1983), pp. 44716-44742). The CRMP shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction.

The CRMP shall define and map all known NRHP- and CRHR-eligible properties in or within 100 feet of the Proposed Project APE and shall identify the cultural values that contribute to their NRHP- and CRHR-eligibility. A cultural resources protection plan shall be included that details how NRHP- and CRHR-eligible properties will be avoided and protected during construction. Measures shall include, at a minimum, designation and marking of ESAs, archaeological monitoring, personnel training, and effectiveness reporting. The plan shall detail: what measures will be used; how, when, and where they will be implemented; and how protective measures and enforcement will be coordinated with construction personnel.

The CRMP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried NRHP- and CRHR-eligible cultural resources, including burials, cremations, or sacred features. The CRMP shall detail provisions for monitoring construction in these high-sensitivity areas. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing NRHP- and CRHR-eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the CRMP shall detail the methods, the consultation procedures, and the timelines for assessing NRHP- and CRHR-eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be reviewed by appropriate Native Americans and approved by the BLM, CPUC, and the California Office of Historic Preservation (OHP) prior to implementation.

The CRMP shall include provisions for analysis of data in a regional context, reporting of results within one year of completion of field studies, curation of artifacts (except from private land) and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by BLM, and dissemination of reports to local and State repositories, libraries, and interested professionals. The BLM will retain ownership of artifacts collected from BLM managed lands. SCE shall attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The CRMP shall specify that archaeologists and other discipline specialists conducting the studies meet the Professional Qualifications Standards mandated by the OHP.

CL-1c **Train construction personnel.** Prior to the initiation of construction, all construction personnel shall be trained, by a qualified archaeologist, regarding the recognition of possible buried cultural resources (i.e., prehistoric and/or historical artifacts, objects, or features) and protection of all archaeological resources during construction. SCE shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of cultural materials. All personnel shall be instructed that unauthorized removal or collection of artifacts is a violation of State law. Any excavation contract (or contracts for other activities that may have subsurface soil impacts) shall include clauses that require construction personnel to attend the Workers' Environmental Training Program so they are aware of the potential for inadvertently exposing buried archaeological deposits. SCE shall provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA and anticipated procedures to treat unexpected discoveries.

CL-1d **Conduct construction monitoring.** Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historic and prehistoric resources that could be encountered within the Proposed Project area. Monitoring shall occur in all areas of ground-disturbing activity that occur within 100 feet of a cultural resource ESA. The qualifications of the principal archaeologist and cultural resource monitors shall be approved by the CPUC and BLM. As specified in the CRMP, intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the principal archaeologist, as identified in the CRMP. Copies of monitoring reports shall be submitted to the CPUC/BLM on a weekly basis.

A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Native American tribes. SCE shall retain and schedule any required Native American monitors.

Impact CL-2: Construction, operation and maintenance, and restoration could cause an adverse change to unknown buried prehistoric and historical archaeological sites or buried Native American human remains

Unknown buried resources (prehistoric and historical archaeological sites) could be inadvertently unearthed during ground-disturbing activities associated with project construction, operation and maintenance, and restoration. The procedures and provisions in Mitigation Measure CL-2a (Treat previously unidentified cultural resources), below, provide detail on how this activity would be implemented.

No human remains are known to be within the Proposed Project area. However, there is always the possibility that unmarked burials may be unearthed during construction, operation and maintenance, and restoration. The procedures and provisions in Mitigation Measure CL-2b (Properly treat human remains), below, provide detail on how this activity would be implemented, in the unlikely event of an accidental discovery of any human remains.

Mitigation Measures for Impact CL-2: Construction, operation and maintenance, and restoration could cause an adverse change to unknown buried prehistoric and historical archaeological sites or buried Native American human remains

In addition to Mitigation Measures CL-2a and CL-2b, Mitigation Measure CL-1d (Construction monitoring) shall also be implemented for Impact CL-2.

CL-2a **Treat previously unidentified cultural resources.** If previously unidentified cultural resources are unearthed during construction activities, construction work in the immediate area of the find shall be halted and directed away from the discovery until a qualified archaeologist assesses the potential significance of the resource. Once the find has been inspected and a preliminary assessment made, SCE will consult with the CPUC and BLM to make the necessary plans for evaluation and treatment of the find(s).

CL-2b **Properly treat human remains.** SCE shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. Avoidance and protection of inadvertent discoveries which contain human remains shall be the preferred protection strategy with complete avoidance of impacts to such resources protected from direct project impacts by project redesign.

If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer and CPUC shall be informed immediately. If the remains are on federal land, the remains shall be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). If the remains are not on federal land, the remains shall be treated in accordance with Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and Public Resources Code Section 5097.98. SCE shall assist and support the CPUC and BLM, as appropriate, in all required NAGPRA and Section 106 actions, government to-government and consultations with Native Americans, agencies and commissions, and consulting parties as requested by the CPUC or BLM. SCE shall comply with and implement all required actions and studies that result from such consultations.

D.7.3.4 Impacts of Connected Actions

Impact CL-1: Construction, operation and maintenance, and restoration could cause an adverse change to known historic properties

"Historic properties," as described in Section D.7.2, include historical built environment resources, prehistoric archaeological sites, historical archaeological sites, and traditional cultural properties—regardless of their age. They are resources that are determined by a federal, State, or local agency to be eligible for listing on a historic register. The areas where solar projects have been identified as connected actions include historic resources. When archaeological resources, both historic and prehistoric, are found eligible for the NRHP/CRHR it is usually because of their potential for containing data that contribute to important research issues (Criterion D/4).

Mitigation through data-recovery excavations can salvage a portion of those important data, and apply them to relevant research. However, as data recovery mitigation is, in itself, destructive, avoidance is preferred wherever possible. Typical mitigation measures to avoid and protect cultural resources include: CL-1a (Avoid environmentally sensitive areas), CL-1b (Develop cultural resource management plan), CL-1c (Train construction personnel), and CL-1d (Conduct construction monitoring). This would apply to all geographic areas with solar projects.

Desert Center Area. The Palen Solar Power Project Reconfigured Alternative #2 analysis found that the project would have a significant direct impact on 49 resources either recommended eligible or assumed eligible for the NRHP/CRHR including direct impacts to nine prehistoric archaeological sites, direct impacts to 40 historic-period archaeological sites, and cumulative impacts to the Prehistoric Trails Network Cultural Landscape and DTC/C-AMA District (CEC, 2012). It would also impact 12 assumed-eligible resources including nine historic-period refuse scatters, two placer mining claim markers, and a temporary military camp. To mitigate these impacts, the CEC recommended a number of Conditions of Certification including specifying who would implement the conditions, their required training, a Cultural Resources Monitoring and Mitigation Plan, reports, monitoring, and treatment Conditions for direct impacts to specific resources.

The Desert Harvest Solar Project EIS found that it would have a direct effect on one prehistoric archaeological site and an indirect effect to the DTC/C-AMA (BLM, 2010). The additional 300 MW of solar PV that would be developed in the Desert Center region on approximately 2,400 acres are anticipated to have similar effects as Palen and Desert Harvest. These projects within the Desert Center area could impact historic properties directly during construction activities such as excavating and grading. Projects within the Desert Center Area could also indirectly impact historic properties, such as the NRHP-listed North Chuckwalla Petroglyph District and the NRHP-eligible proposed DTC/C-AMA District, by causing a visual intrusion to the setting of the historic property.

Blythe Area. The connected solar projects in this the Blythe area would involve development of 524 MW of solar PV projects on about 4,200 acres. Projects within the Blythe Area could impact historic properties directly during construction activities such as excavating and grading. As noted in Section B.7.2.3 (Impact Analysis Approach Summary) the Blythe Mesa Solar Project Draft EIR/EA is the analysis model for these projects. The EIR/EA found that the Blythe Mesa Solar Project would effect a portion of one proposed historic district, five historic-era archaeological sites, two historic-era built resources, 18 historic-era isolates, six prehistoric isolates, and one isolate with historic and prehistoric elements (Riverside County and BLM, 2015). None of these sites are considered historic properties pursuant to Section 106 of the NHPA and both the BLM and SHPO do not consider isolated artifacts eligible for the NRHP (Riverside County and BLM, 2015). No sites within the footprint were considered eligible for listing on the CRHR (Riverside County and BLM, 2015). In summary, there are dozens of known cultural resources within the Blythe Area; however, only a few of these resources are eligible for listing on the NRHP/CRHR.

Impact CL-2: Construction, operation and maintenance, and restoration could cause an adverse change to unknown buried prehistoric and historical archaeological sites or buried Native American human remains

In all of the areas where the solar projects may be located, the potential for impacts to unknown significant subsurface archaeological resources is considered moderate. This is the case because of the number of known archaeological sites within the Blythe Area in particular, and the extent of ground-disturbing activities associated with construction of large solar projects. Types of subsurface features that could be encountered at projects within the Desert Center and Blythe areas include prehistoric resources such as buried living surfaces, midden deposits, hearths, burials, and cremations. Historical resources that could be unearthed during project construction include refuse pits and privies. Recommended mitigation measures for treatment of buried archaeological resources encountered during project construction include: CL-2a (Treatment of previously unidentified cultural resources) and CL-2b (Properly treat human remains).

D.7.4 Environmental Impacts of Project Alternatives

Three alternatives are considered in this section; all of these alternatives would be located within the existing WOD ROW. The No Action Alternative is evaluated in Section D.7.5. Alternatives are described in detail in Appendix 5 (Alternatives Screening Report) and are summarized in Section C.

Cultural resources within the ROW are described by segment in Section D.7.1.2 above; the description of the environmental setting would apply equally to the alternatives.

D.7.4.1 Tower Relocation Alternative

The Tower Relocation Alternative would locate certain transmission structures in Segments 4, 5, and 6 farther from existing homes than would be the case under the Proposed Project.

Two impacts (CL-1 and CL-2) related to cultural resources were identified for the Proposed Project. These impacts also would apply to the Tower Relocation Alternative, which overall would be the same as the Proposed Project, except for the relocated transmission towers that are described above and in Appendix 5. The full text of all mitigation measures referenced in this section is presented in Section D.7.3.3, except where otherwise noted.

Impact CL-1: Construction, operation and maintenance, and restoration could cause an adverse change to known historic properties

There are seven NRHP/CRHR eligible cultural resources within the project APE. Inadvertent direct impacts may occur to theses known historic properties/historical resources during construction, operation and maintenance, and restoration through ground disturbing activities such as vegetation removal, grading, trenching, boring, and excavation for new structure locations and transmission lines, access roads, pull sites, and substations. Indirect impacts could also result from inadvertent or malicious vandalism, unauthorized collection of cultural resources on the surface of sites, or increased travel to construction sites. Indirect impacts to location, setting, feeling, and association of historic properties/historical resources are not anticipated.

Under the Tower Relocation Alternative, some proposed towers would be moved approximately 50 feet farther from the southern edge of the ROW. The minor adjustment to the location of these towers would not cause an adverse change to known historic properties. The NRHP/CRHR eligible cultural resources within the project APE are not within the area where relocated towers would occur. As a result, there is no difference between the effects of the Proposed Project and the Tower Relocation Alternative for known historic properties.

Impact CL-2: Construction, operation and maintenance, and restoration could cause an adverse change to unknown buried prehistoric and historical archaeological sites or buried Native American human remains

Unknown buried resources (prehistoric and historical archaeological sites) could be inadvertently unearthed during ground-disturbing activities associated with project construction, operation and maintenance, and restoration. No human remains are known to be within the Proposed Project area. However, there is always the possibility that unmarked burials may be unearthed during construction, operation and maintenance, and restoration.

The minor adjustment to the location of certain towers would not change the likelihood that construction could create an adverse effect to unknown buried prehistoric and historical archaeological sites or buried Native American human remains; this could result equally from construction of the Proposed Project. The severity of this adverse effect would be reduced through implementation of Mitigation Measures CL-2a (Treat previously unidentified cultural resources), CL-2b (Properly treat human remains), and CL-1d (Conduct construction monitoring). Even with implementation of mitigation, the accidental discovery and disturbance of previously unidentified human remains would continue to be a substantial adverse effect.

D.7.4.2 Iowa Street 66 kV Underground Alternative

The Iowa Street 66 kV Underground Alternative would place a 1,600-foot segment of subtransmission line underground, rather than overhead.

Two impacts (CL-1 and CL-2) were identified under the Proposed Project for cultural resources. These impacts also would apply to the Iowa Street 66 kV Underground Alternative, which overall would be the same as the Proposed Project, with the exception of the underground portion of the subtransmission line that is described above and in Appendix 5. The full text of all mitigation measures referenced in this section is presented in Section D.7.3.3, except where otherwise noted.

Impact CL-1: Construction, operation and maintenance, and restoration could cause an adverse change to known historic properties

There are seven NRHP/CRHR eligible cultural resources within the project APE. Inadvertent direct impacts may occur to theses known historic properties/historical resources during construction, operation and maintenance, and restoration through ground disturbing activities such as vegetation removal, grading, trenching, boring, and excavation for new structure locations and transmission lines, access roads, pull sites, and substations. Indirect impacts could also result from inadvertent or malicious vandalism, unauthorized collection of cultural resources on the surface of sites, or increased travel to construction sites. Indirect impacts to location, setting, feeling, and association of historic properties/historical resources are not anticipated.

None of the identified NRHP/CRHR eligible cultural resources within the APE occur in the vicinity of the underground segment. Therefore, the underground 66 kV subtransmission line installation would not cause an adverse change to known historic properties.

Impact CL-2: Construction, operation and maintenance, and restoration could cause an adverse change to unknown buried prehistoric and historical archaeological sites or buried Native American human remains

Unknown buried resources (prehistoric and historical archaeological sites) could be inadvertently unearthed during ground-disturbing activities associated with project construction, operation and maintenance, and restoration. No human remains are known to be within the Proposed Project area. However, there is always the possibility that unmarked burials may be unearthed during construction, operation and maintenance, and restoration.

The Iowa Street 66 kV Underground Alternative would require construction of a 1,600-foot segment of 66 kV subtransmission line underground instead of installing it on poles. This alternative would increase the amount of subsurface disturbance compared to the Proposed Project, which would increase the risk of an adverse effect to unknown buried prehistoric and historical archaeological sites or buried Native American human remains. The severity of this adverse effect would be reduced through implementation of Mitigation Measures CL-2a (Treat previously unidentified cultural resources), CL-2b (Properly treat human remains), and CL-1d (Conduct construction monitoring). Even with implementation of mitigation, the accidental discovery and disturbance of previously unidentified human remains would continue to be a substantial adverse effect.

D.7.4.3 Phased Build Alternative

The Phased Build Alternative is summarized in Section C.4.3 and described in detail in Appendix 5. The Phased Build Alternative would retain existing double-circuit 220 kV transmission structures to the extent feasible, remove single-circuit structures, add new double-circuit 220 kV structures, and string all structures with higher-capacity conductors.

Two impacts (CL-1 and CL-2) related to cultural resources were identified for the Proposed Project. These impacts also would apply to the Phased Build Alternative, which overall would be similar to the Proposed Project. However, the reduced amount of construction activities required for this alternative reduces the likelihood of impacts to cultural resources. The full text of all mitigation measures referenced in this section is presented in Section D.7.3.3.

Impact CL-1: Construction, operation and maintenance, and restoration could cause an adverse change to known historic properties

There are seven NRHP/CRHR eligible cultural resources within the project APE. Inadvertent direct impacts may occur to these known historic properties/historical resources during construction, operation and maintenance, and restoration. These impacts can occur through ground disturbing activities such as vegetation removal, grading, trenching, boring, and excavation for new structure locations and transmission lines, access roads, pull sites, and substations. Indirect impacts could also result from inadvertent or malicious vandalism, unauthorized collection of cultural resources on the surface of sites, or increased travel to construction sites. Indirect impacts to location, setting, feeling, and association of historic properties/historical resources are not anticipated.

Of the seven NRHP/CRHR eligible resources, one resource, the Colorado River Aqueduct (CA-RIV-6726, is entirely underground within the project's APE. Therefore, project activities will not directly or indirectly impact this resource. Another resource, the Southern Pacific Railroad (CA-SBR-10330H and CA-RIV-6381H) crosses through many segments of the project's APE. However, this resource is in constant operation and project activities will not directly or indirectly impact this resource. The remaining four NRHP/CRHR eligible resources, (Millard Canyon Stone Canal [CA-RIV-7926], Vanderventer Ranch [CA-RIV-2262H], Singleton Ranch District [P-33-15004/P-33-7296], and St. Boniface Indian School and Cemetery [CA-RIV-4213H]) may experience inadvertent direct impacts from project activities.

The preferred treatment for historic properties/historical resources is to avoid and protect them. Within overhead segments of transmission corridors, avoidance would be accomplished by siting structures, lay-down areas, pull sites, and access roads away from historic properties. Additional protection measures would include Environmentally Sensitive Area (ESA) fencing, monitoring, and construction restrictions.

The Phased Build Alternative would involve less construction than the Proposed Project because many existing double-circuit towers would be retained rather than being removed and replaced with new towers. As with the Proposed Project, four NRHP/CRHR eligible cultural resources located within the project APE may experience adverse effects during construction, operation, and maintenance through ground disturbing activities such as vegetation removal, grading, trenching, boring, and excavation for new structure locations and transmission lines, access roads, pull sites, and substations. Indirect impacts could also result from inadvertent or malicious vandalism, unauthorized collection of cultural resources on the surface of sites, or increased travel to construction sites. Indirect impacts to location, setting, feeling, and association of historic properties/historical resources are not anticipated.

The preferred treatment for historic properties/historical resources is to avoid and protect them. Within overhead segments of transmission corridors, avoidance would be accomplished by siting structures, lay-down areas, pull sites, and access roads away from historic properties. Additional protection measures would include Environmentally Sensitive Area (ESA) fencing, monitoring, and construction restrictions. Such measures to avoid and protect resources are addressed by Mitigation Measures CL-1a (Avoid environmentally sensitive areas), CL-1b (Develop Cultural resource management plan [CRMP]), CL-1c (Train construction personnel), and CL-1d (Conduct construction monitoring). With implementation of mitigation, this adverse effect would be minor.

Impact CL-2: Construction, operation and maintenance, and restoration could cause an adverse change to unknown buried prehistoric and historical archaeological sites or buried Native American human remains

Unknown buried resources (prehistoric and historical archaeological sites) could be inadvertently unearthed during ground-disturbing activities associated with project construction, operation and maintenance, and restoration. Although no human remains are known to be within the Proposed Project area, there is always the possibility that unmarked burials may be unearthed during construction, operation and maintenance, and restoration.

In general, there would be less ground disturbance under the Phased Build Alternative as compared to the Proposed Project. Nevertheless, there would be the potential for an adverse effect to unknown buried prehistoric and historical archaeological sites or buried Native American human remains.

Similar to the Proposed Project, unknown buried resources (prehistoric and historical archaeological sites) could be inadvertently unearthed during ground-disturbing activities associated with construction, operation and maintenance, and restoration of this alternative. The severity of this adverse effect would be reduced through implementation of Mitigation Measures CL-2a (Treat previously unidentified cultural resources), CL-2b (Properly treat human remains), and CL-1d (Conduct construction monitoring). Even with implementation of mitigation, the accidental discovery and disturbance of previously unidentified human remains would continue to be a substantial adverse effect.

D.7.5 Environmental Impacts of No Action Alternative

D.7.5.1 No Action Alternative Option 1

The No Action Alternative Option 1 is described in Section C.6.3.1. It would consist of a new 500 kV circuit, primarily following the Devers-Valley transmission corridor and extending 26 miles between Devers Substation. It would also require a new 40-acre substation south of Beaumont, and 4 new 220 kV circuits extending 7 miles from the new Beaumont Substation to El Casco Substation, primarily following the existing El Casco 115 kV ROW. The remainder of the No Action Alternative, from El Casco Substation to the San Bernardino and Vista Substations, would be identical to the Proposed Project. Information on environmental resources and project impacts is derived from the Devers–Palo Verde 500 kV No. 2 Project EIR/EIS (CPUC and BLM, 2006) and the El Casco System Project Draft EIR (CPUC, 2007); which include nearly all of the No Action alignment.

No Action Alternative Transmission Lines and Beaumont Substation. Known and undiscovered cultural resources may occur along the transmission ROW and at the Beaumont Substation. In the DPV2 EIR/EIS, 14 known cultural resources were identified between Devers and Valley Substations along the transmission route. These included 5 prehistoric sites, 5 historical deposits or features, 2 prehistoric/historical multicomponent sites, and 2 isolated artifacts. Unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains may be encountered. As well, traditional cultural properties may be identified. To reduce impacts, mitigation measures would be required. These would include avoiding culturally sensitive areas, developing a Cultural Resource Management Plan (addressing the identification of unanticipated discoveries and their treatment), training construction personnel regarding applicable laws and regulations, conducting monitoring during construction, and properly treating human remains. If unavoidable direct impacts occur to properties eligible for the National Register of Historic Places, mitigation through data recovery would reduce impacts, but the effect would still be considered significant and unavoidable. Depending on resource locations and project impacts, the significance of the impact could range from no impact to significant and unavoidable.

D.7.5.2 No Action Alternative Option 2

No Action Alternative Option 2 would require the construction of over 40 miles of new 500 kV transmission line, following the existing Valley-Serrano 500 kV line. The alternative is described in Section C.6.3.2, and illustrated on Figure C-6b.

Although this alternative would construct a 500 kV circuit within an existing transmission corridor, both known and undiscovered cultural resources may be encountered. The western portion of the route passes through the Weir Canyon Archeological District, which has been nominated for the National Register. The route also passes near Glen Ivy Hot Springs (approximately 1.5 miles south of MP 21), which is an area of high archaeological potential. Excavation for construction of transmission tower foundations and other subsurface disturbance could damage or destroy unknown buried prehistoric and historical archaeological sites or buried Native American human remains. The disturbance or destruction of Native American human remains would be a substantial adverse impact. In addition, eligible historic or traditional cultural properties may be identified along the route. Mitigation similar to that described in the Proposed Project and No Action Alternative Option 1 would be required to reduce the severity of these impacts.

D.7.6 Mitigation Monitoring, Compliance, and Reporting

Table D.7-14 presents the mitigation monitoring, compliance, and reporting actions for cultural resources.

Table D.7-14. Mitigation Monitoring Program – Cultural Resources

MITIGATION MEASURE	**CL-1a: Avoid environmentally sensitive areas.** SCE shall perform focused pre-construction surveys for any project areas not yet surveyed (e.g., new or modified staging areas, pull sites, or other work areas). Resources discovered during the surveys would be subject to Mitigation Measures CL-1b (Develop Cultural Resource Management Plan [CRMP]) and CL-1d (Conduct construction monitoring). Where operationally feasible, all NRHP- and CRHR-eligible resources shall be protected from direct project impacts by project redesign (i.e., relocation of the line, ancillary facilities, or temporary facilities or work areas). In addition, all historic properties/historic resources shall be avoided by all project construction, operation and maintenance, and restoration activities. Avoidance mechanisms shall include fencing off such areas as Environmentally Sensitive Areas (ESAs) for the duration of the Proposed Project or as outlined in the CRMP.
Location	Entire project
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SCE has performed surveys and complied with CRMP.
Effectiveness Criteria	Surveys are completed and any discovered resources are treated per the CRMP and sites are fenced as ESAs.
Responsible Agency	CPUC/BLM
Timing	Prior to construction
MITIGATION MEASURE	**CL-1b: Develop Cultural Resource Management Plan (CRMP).** SCE shall prepare and submit for approval a Cultural Resource Management Plan (CRMP) to guide all cultural resource management activities during project construction. Management of cultural resources shall follow the standards and guidelines established by the National Park Service for implementing Section 106 of the National Historic Preservation Act ("Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines," 48 Federal Register 190 (29 September 1983), pp. 44716-44742). The CRMP shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction. The CRMP shall define and map all known NRHP- and CRHR-eligible properties in or within 100 feet of the Proposed Project APE and shall identify the cultural values that contribute to their NRHP- and CRHR-eligibility. A cultural resources protection plan shall be included that details how NRHP- and CRHR-eligible properties will be avoided and protected during construction. Measures shall include, at a minimum, designation and marking of ESAs, archaeological monitoring, personnel training, and effectiveness reporting. The plan shall detail: what measures will be used; how, when, and where they will be implemented; and how protective measures and enforcement will be coordinated with construction personnel. The CRMP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried NRHP- and CRHR-eligible cultural resources, including burials, cremations, or sacred features. The CRMP shall detail provisions for monitoring construction in these high-sensitivity areas. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing NRHP- and CRHR-eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the CRMP shall detail the methods, the consultation procedures, and the timelines for assessing NRHP- and CRHR-eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be reviewed by appropriate Native Americans and approved by the BLM, CPUC, and the California Office of Historic Preservation (OHP) prior to implementation. The CRMP shall include provisions for analysis of data in a regional context, reporting of results within one year of completion of field studies, curation of artifacts (except from private land) and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by BLM, and dissemination of reports to local and State repositories, libraries, and interested professionals. The BLM will retain ownership of artifacts collected from BLM managed lands. SCE shall attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The CRMP shall specify that archaeologists and other discipline specialists conducting the studies meet the Professional Qualifications Standards mandated by the OHP.

Table D.7-14. Mitigation Monitoring Program – Cultural Resources

Location	Entire project
Monitoring / Reporting Action	CRMP is received and reviewed/approved; CRMP is implemented
Effectiveness Criteria	CRMP is submitted and approved, CRMP is implemented throughout project duration and identified resources are protected
Responsible Agency	CPUC/BLM
Timing	At least 60 days before the start of construction
MITIGATION MEASURE	**CL-1c: Train construction personnel.** Prior to the initiation of construction, all construction personnel shall be trained, by a qualified archaeologist, regarding the recognition of possible buried cultural resources (i.e., prehistoric and/or historical artifacts, objects, or features) and protection of all archaeological resources during construction. SCE shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of cultural materials. All personnel shall be instructed that unauthorized removal or collection of artifacts is a violation of State law. Any excavation contract (or contracts for other activities that may have subsurface soil impacts) shall include clauses that require construction personnel to attend the Worker's Environmental Training Program so they are aware of the potential for inadvertently exposing buried archaeological deposits. SCE shall provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA and anticipated procedures to treat unexpected discoveries.
Location	Entire project
Monitoring / Reporting Action	Confirm training is conducted prior to construction and for subsequent personnel added to the project
Effectiveness Criteria	All construction personnel working on the project have received training
Responsible Agency	CPUC/BLM
Timing	Prior to construction and for duration of project
MITIGATION MEASURE	**CL-1d: Conduct construction monitoring.** Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historic and prehistoric resources that could be encountered within the Proposed Project area. Monitoring shall occur in all areas of ground-disturbing activity that occur within 100 feet of a cultural resource ESA. The qualifications of the principal archaeologist and cultural resource monitors shall be approved by the CPUC and BLM. As specified in the CRMP, intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the principal archaeologist, as identified in the CRMP. Copies of monitoring reports shall be submitted to the CPUC/BLM on a weekly basis. A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Native American tribes. SCE shall retain and schedule any required Native American monitors.
Location	Entire project
Monitoring / Reporting Action	Confirm assignment of required cultural resources personnel and their ongoing monitoring of project ground-disturbing activities; monitoring reports received
Effectiveness Criteria	Archaeological monitoring is conducted as specified.
Responsible Agency	CPUC/BLM
Timing	Ongoing during ground-disturbing activities; monitoring reports submitted weekly.

Table D.7-14. Mitigation Monitoring Program – Cultural Resources

MITIGATION MEASURE	**CL-2a: Treat previously unidentified cultural resources.** If previously unidentified cultural resources are unearthed during construction activities, construction work in the immediate area of the find shall be halted and directed away from the discovery until a qualified archaeologist assesses the potential significance of the resource. Once the find has been inspected and a preliminary assessment made, SCE will consult with the CPUC and BLM to make the necessary plans for evaluation and treatment of the find(s).
Location	Entire project
Monitoring / Reporting Action	Notice is promptly given previously unidentified cultural resources; proper procedures are followed
Effectiveness Criteria	All discoveries are reported and treated in consistent with agreed upon methods
Responsible Agency	CPUC/BLM
Timing	Throughout duration of project
MITIGATION MEASURE	**CL-2b: Properly treat human remains.** SCE shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. Avoidance and protection of inadvertent discoveries which contain human remains shall be the preferred protection strategy with complete avoidance of impacts to such resources protected from direct project impacts by project redesign. If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer and CPUC shall be informed immediately. If the remains are on federal land, the remains shall be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). If the remains are not on federal land, the remains shall be treated in accordance with Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and Public Resources Code Section 5097.98. SCE shall assist and support the CPUC and BLM, as appropriate, in all required NAGPRA and Section 106 actions, government to-government and consultations with Native Americans, agencies and commissions, and consulting parties as requested by the CPUC or BLM. SCE shall comply with and implement all required actions and studies that result from such consultations.
Location	Entire project
Monitoring / Reporting Action	SCE provides notice to CPUC/BLM of discovery and appropriate follow-up occurs
Effectiveness Criteria	Human remains are treated in accordance with applicable laws and regulations
Responsible Agency	CPUC/BLM
Timing	Upon discovery of human remains

D.7.7 References

Bean, Lowell J. 1972. Mukat's People: The Cahuilia Indians of Southern California. University of California Press, Berkeley and Los Angeles.

_____. 1978. Cahuilla. In California, edited by R. F. Heizer, pp. 575–587. Handbook of North American Indians, Vol. 8. W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Bean, Lowell J., and William Marvin Mason. 1962. Diaries and Accounts of the Romero Expeditions in Arizona and California, 1823–26. W. Ritchie Press, Los Angeles.

Bean, Lowell J., and Florence C. Shipek. 1978. Luiseño. In California, edited by R. F. Heizer, pp. 550–563. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Bean, Lowell John, and Charles R. Smith. 1978. Gabrielino. In California, edited by R. F. Heizer, pp. 538-549. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Bean, Lowell J. and Sylvia B. Vane, eds. 1978. Persistence and Power: A Study of Native American Peoples in the Sonoran Desert and the Devers-Palo Verde High Voltage Transmission Line. With contributions by Lowell J. Bean, Henry F. Dobyns, M. Kay Martin, Richard W. Stoffle, Sylvia Brakke Vane, and David R. M. White. Prepared by Cultural Systems Research, Inc. for Southern California Edison, Rosemead, California. California Historical Resources Information System, Eastern Information Center, University of California, Riverside.

_____. 1979. Native Americans of Western Riverside County California and the Devers-Mira Loma 500 kV Transmission Line Route (Lamb-Canyon-Mira Loma Section). Prepared by Cultural Systems Research, Inc., Menlo Park, California, for Southern California Edison Company, Rosemead, California.

Bean, Lowell J., Sylvia B. Vane, Michael Lerch, and Jackson Young. 1981. Native American Places in the San Bernardino National Forest, San Bernardino and Riverside Counties, California. Report prepared by Cultural Systems Research, Inc., Menlo Park, for the US Forest Service, South Zone Contracting Office, Arcadia, California.

Bean, Lowell J., Sylvia B. Vane, and Jackson Young. 1991. The Cahuilla Landscape: The Santa Rosa and San Jacinto Mountains. Menlo Park, CA: Ballena Press.

Bolton, Herbert E. 1930. Anza's California Expeditions, Vols. I-IV. University of California Press, Berkeley.

BLM (Bureau of Land Management). 2014. Blythe Mesa Solar Power Project Draft EIS. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Blythe_Mesa_Solar_Power_Project.html. Accessed February 16, 2015.

_____. 2012. Desert Harvest Solar Farm Final EIS. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Harvest_Solar_Project.html. Accessed February 16, 2015.

Carrico, Richard, Frank Norris, Allan Schilz, and Richard Minnich. 1982. *Cultural Resources Overview, San Bernardino Nation Forest, California, Volume I.* Prepared for Unites States Forest Service, Contract No. 53-9JA9-0-219. Prepared by WESTEC Services, San Diego.

CEC (California Energy Commission). 2010. Palen Solar Power Project Commission Decision. December.

CPUC (California Public Utilities Commission). 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm. Accessed April 15, 2015.

CPUC and BLM. 2006. SCE Devers–Palo Verde 500 kV No. 2 Project EIR/EIS, Sections on West of Devers Alternative. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-deir.htm. Accessed April 15, 2015.

CPUC and USDA (United States Department of Agriculture) Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

City of Banning. 2006. *City of Banning General Plan.*

City of Beaumont. 2007. *City of Beaumont General Plan.*

City of Calimesa. 1994. *City of Calimesa General Plan.*

City of Colton Planning Department. 2013. Munoz, Manuel. July 18, 2013. Telephone conversation with Jason Miller, LSA.

City of Colton. 2004. Historic Preservation Ordinance 0-26-04 Section 1 (part).

_____. 2000. Cultural Resources Preservation Element.

City of Grand Terrace. 2010. *City of Grand Terrace General Plan.*

City of Loma Linda. 2009. *City of Loma Linda General Plan.*

City of Palm Springs. 2007. *City of Palm Springs General Plan.*

City of Redlands. 1997. *City of Redlands General Plan.*

City of San Bernardino. 2005. *City of San Bernardino General Plan.*

City of Yucaipa. 2004. July. *City of Yucaipa General Plan.*

Cooper, Casey. 2004. U.S. Highway 60. In Historic California U.S. Highways. Electronic document, http://gbenet.com/ushighways/US60/US60.html, accessed April 2005.

Crabtree, Robert H. 1981. Archaeology. In A Cultural Resources Overview of the Colorado Desert Planning Units. Eric W. Ritter, Series editor. Report on file, PSSCFO, BLM, Palm Springs, California.

Davis, James T. 1974. Trade Routes and Economic Exchange Among the Indians of California. Publications in Archaeology, Ethnology, and History 3. Ballena Press, Ramona, California.

DeCarlo, Matthew M., and Diane L. Winslow. 2015a. With contributions by Audry Williams and Andrew Belcourt. Engineering Refinements Survey and Recommendations of Eligibility for Cultural Resources with Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California.

_____. 2015b. With contributions by Audry Williams and Andrew Belcourt. Results of Archaeological Testing at Guachama Rancheria, P-36-002311; CA-SBR-2311H, for the Southern California Edison Company's West of Devers Upgrade Project, San Bernardino County, California.

_____. 2015c. With contributions by Audry Williams and Andrew Belcourt. Cultural Resources Impact Assessment and Evaluation Status for the Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California.

Dibblee, T.W., and Minch, J.A. 2004. Geologic map of the Whitewater quadrangle, Riverside County, California. Dibblee Geological Foundation, Dibblee Foundation Map DF-120, scale 1:24,000.

Drucker, Philip. 1937. Culture Element Distributions: V, Southern California. University of California Anthropological Records 1(1).

Fickewirth, A. A. 1992. California Railroads. Golden West Books, San Marino, California.

Goldberg, Susan. 2001. Land Use, Mobility, and Intensification Evaluation and Refinement of the Model. In Metropolitan Water District of Southern California, Eastside Reservoir Project, Final Report of Archaeological Investigations, Volume IV: Prehistoric Archaeology Synthesis of Findings, edited by S. K. Goldberg, Chapt. 14. Report prepared by Applied EarthWorks, Hemet, Calfiornia for Metropolitan Water District of Southern California, Los Angeles.

Gruen, J. Philip. 1998. Historic American Engineering Record, Colorado River Aqueduct from Colorado River to Lake Mathews, Parker Dam Vicinity, San Bernardino County, California. HAER CA-226. National Park Service, Washington, D.C.

Hall, Matt E. 1993. Archaeology of Seven Prehistoric Sites in Tiefort Basin, Fort Irwin, San Bernardino County, California.

Horne, Melinda C., and Dennis P. McDougall. 1997. Cultural Resource Survey in the Southern Portion of the National Training Center, Fort Irwin, San Bernardino County, California.

Kroeber, Alfred L. 1907. Shoshonean Dialects of California. University of California Publications in American Archaeology and Ethnology 4(3):66-165.

______. 1925. Handbook of the Indians of California. American Bureau of Ethnology Bulletin 78. Washington, D.C.

Laylander, Don. 2006. The Regional Consequences of Lake Cahuilla. San Diego State University Occasional Archaeology Papers 1:59-77. http://soap.edu/Volume1/Lake Cahuilla/cahuilla.htm.

Lech, Steve. 2004. Along the Old Roads: A History of the Portion of Southern California That Became Riverside County, 1772-1893. Steve Lech, Riverside, California.

Love, Bruce, and Mariam Dahdul. 2002. Desert Chronologies and the Archaic Period in the Coachella Valley. Pacific Coast Archaeological Society Quarterly 38(1-2).

McDonald, A. Meg. 1992. Indian Hill Rockshelter and Aboriginal Cultural Adaptation in Anza-Borrego Desert State Park, Southeastern California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Riverside.

McLean, Roderic, Natalie Brodie, and Jacqueline Hall. 2013. With contributions by Shannon Carmack, Phil Fulton, Ingri Quon, Erin Martinelli, Richard Erickson, and Jay Michalsky. Cultural Resources Assessment and Class III Inventory, Volume I, West of Devers Project, San Bernardino and Riverside Counties, California. Prepared by LSA Associates, Inc. September.

Miller, Wick R. 1984. The Classification of the Uto-Aztecan Languages Based on Lexical Evidence. International Journal of American Linguistics 50(1):1–24.

Moratto, Michael J. 1984. California Archaeology. Academic Press.

Morton, D. M., and Miller, F. K. 2006. Geologic map of the San Bernardino and Santa Ana 30' × 60' quadrangles, California. U.S. Geological Survey Open-File Report 2006-1217, scale 1:100,000.

Myrick, David F. 1962. Railroads of Nevada and Eastern California. Howell-North Books, Berkeley.

Norris, Robert M., and Robert W. Webb. 1990. Geology of California. John Wiley & Sons, New York.

Riverside County and BLM (Bureau of Land Management). 2015. Blythe Mesa Solar Project Final Environmental Impact Report/Environmental Assessment. Volume II. March.

Rolle, A. F. 1963. California: A History. Thomas Y. Crowell Company, New York.

Schaefer, Jerry. 1994. The Challenge of Archaeological Research in the Colorado Desert: Recent Approaches and Discoveries. Journal of California and Great Basin Anthropology 16(1):60–80.

Schaefer, Jerry, and Don Laylander. 2007. The Colorado Desert: Ancient Adaptations to Wetlands and Wastelands. In California Prehistory: Colonization, Culture, and Complexity, edited by T. L. Jones and K. A. Klar, pp. 247–257. Alta Mira Press.

SCE (Southern California Edison). 2014. Archival Research and Evaluation Results of 33 Cultural Resources for Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California. Assembled by Williams, Audry, and Andrew Belcourt, with contributions by Roderic McLean, Katie Vallaire, Natalie Brodie, and Jacqueline Hall. August.

_____. 2013. Proponent's Environmental Assessment, West of Devers Upgrade Project. October 25.

Strong, William D. 1929. Aboriginal Society in Southern California. University of California Publications in American Archaeology and Ethnology 26(1):1–358. Berkeley.

Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen. 2007. Advances in Understanding Mojave Desert Prehistory. In California Prehistory: Colonization, Culture, and Complexity. Edited by Terry L. Jones and Kathryn A. Klar, pp. 229–245. Alta Mira Press.

Vredenburgh, Larry M., Gary L. Shumway, and Russell D. Hartill. 1981. Desert Fever: An Overview of Mining in the California Desert. Living West Press, Canoga Park, California.

Warren, Claude N. 1984. The Desert Region. In California Archaeology, edited by M. J. Moratto, pp. 339–430. Academic Press, Orlando, Florida.

Warren, Claude N., and Robert H. Crabtree. 1986. Prehistory of the Southwestern Area. In Great Basin, edited by W. L. D'Azevedo, pp. 183–193. Handbook of the North American Indians, Vol. 11. W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Weide, David L. 1874. Regional Environmental History of the Yuha Desert. In Background to Prehistory of the Yuha Desert Region, edited by P. J. Wilke, pp. 9–20. Ballena Press Anthropological Papers 5. Ramona.

White, Raymond C. 1963. Luiseño Social Organization. University of California Publications in American Archaeology and Ethnology 48(2):91–194.

Wilke, Philip. 1974. Settlement and Subsistence at Perris Reservoir: A Summary of Archaeological Investigations. In Perris Reservoir Archaeology, edited by J. F. O'Connell, P. J. Wilke, T. F. King, and C. L. Mix, pp. 20–30. California Department of Parks and Recreation Reports No. 14. Sacramento.

_____. 1978. Late Prehistoric Human Ecology at Lake Cahuilla, Coachella Valley, California. Contributions of the University of California Archaeological Research Facility 38. University of California, Berkeley.

Williams, Audry, and Andrew Belcourt. 2014. With contributions by Roderic McLean, Katie Vallaire, Natalie Brodie, and Jacqueline Hall. Archival Research and Evaluation Results of 33 Cultural Resources for Southern California Edison Company's West opf Devers Upgrade Project, Riverside and San Bernardino Counties, California. Prepared by Southern California Edison. August.

D.8 Socioeconomics and Environmental Justice

This section describes the affected environment for Socioeconomics and Environmental Justice in Section D.8.1 and presents the relevant regulations and standards in Section D.8.2. Sections D.8.3 through D.8.5 describe the impacts of the Proposed Project and the alternatives. Section D.8.6 presents the mitigation measures and mitigation monitoring requirements, and D.8.7 lists references cited.

Socioeconomics identifies both the social and economic conditions found in the project area and considers how these conditions would be affected by the Proposed Project. Broadly, socioeconomics can include virtually any topic that touches on social and/or economic concerns. For the purposes of this EIS, socioeconomics includes population, housing, employment, and government revenues. The potential effect of the presence of nearby transmission lines on property values also is considered.

This section also presents an analysis of Environmental Justice, which considers whether minority and/or low-income populations in the project vicinity would be disproportionately affected by the Proposed Project.

D.8.1 Environmental Setting / Affected Environment

D.8.1.1 Regional Setting and Approach to Data Collection

D.8.1.1.1 Transmission System Upgrades

As described in Section B.2, the Proposed Project would be in southwestern San Bernardino and northwestern Riverside Counties, California. It would traverse unincorporated land in the counties, incorporated cities, Morongo Tribal lands, and land administered by the Bureau of Land Management (BLM). The central element of the Proposed Project is the upgrading of approximately 181 miles of transmission circuits within approximately 48 miles of right-of-way (ROW) connecting Devers Substation in Riverside County and the Vista and San Bernardino Substations in San Bernardino County. The upgrades would occur in the existing transmission corridor between the substations, except for a 3-mile portion of the Proposed Project on Morongo Tribal lands, which would be relocated to new ROW.

Data were collected on population (race and income), housing, and employment for areas within 0.5 miles of either side of the project's 220 kV ROW. Where this 1-mile-wide corridor intersects only a portion of a city or census tract, data for the entire city or census tract were collected. This 1-mile corridor constitutes the study corridor for analyzing Socioeconomics and Environmental Justice concerns. Where appropriate, and to provide context, countywide data are compared to data for the study corridor.

Regional and local socioeconomic and environmental justice information is presented in Sections D.8.1.1 through D.8.1.3. Data are from the Year 2010 U.S. Census. More recent 2012 5-year Census estimates were used where available.

D.8.1.1.2 Other Upgrades

In addition to the 220 kV upgrades, the Proposed Project includes:

- Upgrading substation equipment for 220 kV lines (Devers, El Casco, Etiwanda, San Bernardino, and Vista Substations)
- Removing 2 miles of 66 kV subtransmission lines and relocating them
- Removing and relocating 4 miles of 12 kV distribution lines
- Installing telecommunications lines and equipment

For the reasons explained below, these aspects of the Proposed Project are not considered further with regard to Socioeconomics and Environmental Justice.

Substation Upgrades. The work required inside Etiwanda Substations would consist of upgrades to and/or replacement of existing equipment. This would not have an environmental effect outside of the substations. For this reason, work at these substations is not considered further for Socioeconomic or Environmental Justice impacts.

Subtransmission Line and Distribution Line Upgrades. To upgrade the 220 kV lines in the Segment 1 ROW, approximately 2 miles of two existing 66 kV subtransmission circuits would be removed and rebuilt in new locations. One 66 kV line would extend from San Bernardino Substation to Timoteo Substation on Mountain View Avenue. The second 66 kV line would extend from near San Bernardino Substation to a connection with an existing 66 kV line on Barton Road. The relocation of these lines would not increase distribution system capacity. Erection of 66 kV poles along existing streets and ROWs would not contribute to the population growth and would not displace population or housing, which are socio-economic factors of concern. Consequently, these lines are not considered further with regard to socio-economic impacts.

All overhead segments of the 66 kV lines would be outside of census tracts having minority populations or income levels that would make them of concern for Environmental Justice. These thresholds of concern are whether the minority population percentage in a tract is greater than occurs in the county overall and whether the poverty level in a tract is greater than that found in the county overall. The underground sections of the 66 kV lines, as well as two underground segments of 12 kV distribution line fall within a tract that have potential Environmental Justice concerns. This census tract has a minority population of 68.1 percent, 1.3 percent higher than the San Bernardino countywide minority population of 66.8 percent. The only part of the underground 66 kV line near housing is an approximately 1,400-foot section that would be trenched in an alley leading to the Timoteo Substation located on Mountain View Avenue. This would involve digging an approximately 24 inches wide by 63+ inches deep trench in the alley to install the conduit. After the conduit and associated vaults are installed, the alley would be restored. New lines would be pulled through the installed conduit. Similarly, 12 kV distribution lines on Mission Road would be removed from poles and installed underground. Impacts related to these underground lines would be limited in duration and scope and impacts would not be disproportionate to impacts in other areas of project construction. Therefore, the 66 kV and 12 kV lines are not considered further in the evaluation of Environmental Justice.

D.8.1.2 Environmental Setting by Segment

Figure B-1 (in Section B) depicts the jurisdictions through which the Proposed Project would pass. In San Bernardino County, these include unincorporated land as well as the incorporated cities of San Bernardino, Loma Linda, Grand Terrace, Colton, and Redlands. In Riverside County, the areas through which the Proposed Project would pass include unincorporated land and the incorporated cities of Calimesa, Beaumont, and Banning. Cherry Valley and Cabazon are near the project alignment but not within the West of Devers study corridor; these locations are unincorporated population centers designated by the U.S. Census Bureau as Census Designated Places. The alignment also traverses the Morongo Tribal reservation and lands administered by BLM in Riverside County. The alignment crosses highways under the jurisdiction of the California Department of Transportation (Caltrans) in both counties.

Project Segments 1 and 2, and a portion of Segment 3, are in San Bernardino County. Approximately 70 percent of the project in San Bernardino County would be in developed areas and 30 percent would be in open space or sparsely developed land.

A large part of Segment 3 and all of Segments 4, 5, and 6 are in Riverside County. Approximately 20 percent of the land crossed by the Proposed Project in Riverside County would be in developed areas and 80 percent would be through open space or sparsely developed land.

D.8.1.2.1 Population, Housing, and Employment

Information was collected for the individual jurisdictions and census tracts potentially affected by the Proposed Project. Jurisdictional and census tract boundaries are not necessarily coincident; a jurisdiction may include many census tracts, and individual tracts may cross municipal boundaries. Maps are presented at the end of this section. Figure D.8-1 shows the location of the census tracts along the project alignment.

The collected information identifies current and projected population, housing availability, and employment. These data are provided in Tables D.8-1 (Population and Employment) and D.8-2 (Housing Availability).

Table D.8-1. Population and Employment

Location	2010 Total Population	2020 Projected Total Population[1]	Percent Change	2012 Total Employment	2012 Employment in Construction Trades
San Bernardino County	**2,041,029**	**2,750,000**	**34.7%**	**806,463**	**60,574 (7.5%)**
City of Colton	52,425	60,700	15.8%	21,155	1,750 (8.3%)
City of Grand Terrace	12,140	11,600	–4.4 %	6,096	498 (8.2%)
City of Yucaipa	51,319	55,800	8.7%	21,502	2,080 (9.7%)
City of San Bernardino	210,624	231,200	9.8%	72,995	5,953 (8.2%)
City of Redlands	69,078	75,500	9.3%	31,184	1,940 (6.2%)
City of Loma Linda	23,239	26,700	14.9%	10,440	282 (2.7%)
Riverside County	**2,192,982**	**2,592,000 3**	**18.2%**	**869,427**	**74,350 (8.6%)**
City of Calimesa	7,932	14,800	86.6%	2,917	373 (1.3%)
City of Beaumont	36,687	56,500	54.0%	15,095	1,131 (7.5%)
Cherry Valley	5,311	N/A	—	2,007	202 (10.1%)
City of Banning	29,682	42,200	42.2%	9,132	790 (8.7%)
Cabazon	2,121	N/A	—	588	149 (25.3%)
City of Desert Hot Springs	26,474	43,500	64.3%	9,241	812 (8.8%)
City of Palm Springs	45,115	48,900	8.4%	19,778	1,349 (6.8%)

1 - Data not available for Cherry Valley, Cabazon, and Morongo Tribal Lands

Sources: U.S. Census Bureau, American Fact Finder, 2012a. 2012 ACS 5-Year Estimates, Category ID S2403, "Industry by Sex and Median Earnings in the Past 12 Months (In 2012 Inflation-Adjusted Dollars) for the Civilian Employed Population 16 Years and Older," found at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_S2403&prodType=table. Accessed April 10, 2014.

Southern California Association of Governments, 2012. Regional Transportation Plan 2012, Growth Forecast Appendix, April 2012, found at: http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf. Accessed April 10, 2014

U.S. Census Bureau, American Fact Finder, 2012b. 2012 ACS 5-Year Estimates, Category ID B03002 "Not Hispanic or Latino, White Alone," found at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_B03002&prodType=table. Accessed March 19, 2014.

Table D.8-2. Housing Availability

Location	Number of Units	Number of Vacant Units[1]	Rental Vacancy Rate[2]
San Bernardino County	**698,715**	**99,017**	**6.9%**
City of Colton	16,497	1,656	10.0%
City of Grand Terrace	24,790	1,197	4.8%
City of Yucaipa	19,030	1,676	7.7%
City of San Bernardino	64,997	5,844	8.0%
City of Redlands	26,524	2,015	7.9%
City of Loma Linda	9,476	958	4.5%
Riverside County	**799,360**	**122,742**	**7.6%**
City of Calimesa	3,615	388	0.0%
City of Beaumont	13,312	1,291	6.3%
Cherry Valley	2,569	239	0.0%
City of Banning	13,860	1,573	7.4%
Cabazon	751	87	0.0%
City of Desert Hot Springs	11,316	2,581	14.7%
City of Palm Springs	36,034	13,165	12.0%

1 - Number of Vacant Units includes vacant homes for sale.
2 - Rental Vacancy Rate excludes vacant homes for sale; this is why some jurisdictions show Vacant Units but no Rental Vacancy.
Source: U.S. Census Bureau, American Fact Finder, 2012c. 2012 ACS 5-Year Estimates, Category ID DP04, "Selected Housing Characteristics," found at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_DP04&prodType=table. Accessed April 10, 2014.

D.8.1.2.2 Income and Revenue

SCE estimates that over a 12-year period (2008-2019), the WOD project would generate nearly $790 million in wages and $244 million in non-labor purchases, for a total of over $1 billion (SCE, 2014). These direct expenditures would have a multiplier effect in the economy, with the direct expenditures for labor and materials creating new jobs elsewhere in the economy. It is estimated that for every $1 million of proposed SCE expenditure, four jobs would be created in the California economy during the project's construction, meaning that for each direct job created by the Proposed Project, indirect and induced impacts would produce more than one additional job in the study area (SCE, 2014).

Public Revenues. SCE pays three primary taxes or fees: property tax; sales (our use) tax; and franchise fees. SCE also pays local fees to the various cities and counties within the project area, such as business license fees.

Property Taxes – Utility company assets, including transmission lines and substations, are assessed annually by the State Board of Equalization to determine the allocable assessed value to the various counties in which SCE currently has property and assets. The counties, in turn, determine SCE's property tax liability based on the allocated assessed value and the applicable property tax rate.

Currently, based on net book value (as of 12/31/2013), SCE's property tax liability related to existing West of Devers assets is approximately $172,000. Riverside County receives approximately $125,000 and San Bernardino County receives approximately $47,000.

By the estimated completion of the Proposed Project (2019/2020), the annual property tax liability related to the WOD Upgrade Project assets is anticipated to increase to approximately $13 million (SCE, 2014). Therefore, Riverside County's allocable portion may yield additional annual property tax revenues of approximately $9.4 million; San Bernardino County's annual property tax revenues from the WOD Upgrade Project assets may increase to approximately $3.6 million (SCE, 2014).

Sales (or Use) Taxes – A sales or use tax is imposed by the State of California for the sale, or storage, use or consumption of tangible personal property in the state. The current sales or use tax rate for the project area (Riverside and San Bernardino Counties) is 8 percent. This rate consists of a statewide sales tax base rate of 7.5%, which is comprised of 6.25 percent state, 0.25 percent county, and 1 percent local. In the project area, the additional 0.5 percent rate, which makes up the 8 percent total tax rate, is a district tax charged by Riverside and San Bernardino Counties. The current statutory allocations for the State and County portions go to the State's General Fund, Fiscal Recovery Fund, Local Public Safety Fund, State's Education Protection, and health and social services programs. The Local portion goes to county transportation funds and city/county operations. The District portion would go to the San Bernardino County Transportation Authority and the Riverside County Transportation Commission. Because the majority of the existing WOD facilities have been in place since they were constructed between 1945 and 1975, there have been minimal sales or use tax contribution toward the state, county, and local economies in the project area over recent years related to the existing WOD facilities.

The anticipated one-time sales or use tax contribution to the state and local economies from the WOD Upgrade Project is estimated to be approximately $11.2 million (SCE, 2014). The distribution based on current allocation of the 8 percent sales tax is as follows: state $8.7 million (6.25 percent); counties $ 0.4 million (0.25 percent); local $1.4 million (1.00 percent); and districts $0.7 million (0.50 percent) (SCE, 2014).

Franchise Fees – SCE obtains grants of franchise from local governments that generally grant SCE the ability to install, construct, use, alter, maintain and operate its electrical distribution and transmission system for the purpose of conducting, transforming and distributing electricity under, along, across or upon the public streets, ways, alleys, and places within a local government's franchise area. SCE pays a franchise fee to these local governments for its franchise grants that is based on 2 percent of gross annual receipts arising from use, operation, or possession of the franchise, but not less than 1 percent of gross annual receipts derived from the sale of electricity within the limits of the City, plus a Direct Access Municipal Surcharge. Based on a high-level estimate, SCE estimated a collective approximate $12 million in franchise fees were paid to local governments within the WOD Project area in 2013.

SCE estimates an annual increase of approximately 1 to 2 percent in franchise fees as a result of the WOD Upgrade Project (SCE, 2014). This equates to an annual increase of approximately $100,000 to $250,000 in franchise fee payments to local governments once the project is in service (SCE, 2014).

Secondary Tax Revenues – Additionally, indirect tax revenues related to the project would be derived from the wages paid to workers (income tax) and the purchases they make using those wages (sales tax). Over the course of project implementation through 2019, SCE estimates that the project would result in approximately $790 million in labor cost and $244 million in non-labor (material and other) costs. This expenditure, as noted in the discussion above of the contribution to the regional and state economy, would have a multiplier effect, creating new jobs whose employees would also pay income and sales tax.

D.8.1.2.3 Environmental Justice

Environmental justice evaluates impacts to minority and low-income populations. Census data on race and income were used to identify both minority populations and populations living below the federal poverty limit. The individual census tracts for which information was collected are shown in Figure D.8-1 (Census Tracts used in Socioeconomic Analysis). Table D.8-3 (Minority Population by Census Tract), Table

D.8-4 (Minority Population by Jurisdiction), and Table D.8-5 (Population with Income Below Poverty Level by Census Tract) provide data on race and income for census tracts along the project route. If any part of a census tract falls within the 1-mile-wide study corridor, the entire tract is included in this analysis.

Minority Populations

For purposes of this analysis, a minority population consists of those who identified themselves as being a member of a non-white race (or races), plus those indicating their ethnicity is Hispanic or Latino, regardless of how they indicated race. The 2010 Census asked people to indicate if they were ethnically Hispanic or Latino and also asked people to indicate their race or races. These separate questions resulted in some people indicating that ethnically they considered themselves Hispanic or Latino and racially they considered themselves white, while others indicating a Hispanic or Latino ethnicity indicated different races from white, including Other. To be conservative, all persons indicating a Hispanic or Latino ethnicity are included in the minority population race count, regardless of whether they indicated their race as white or another classification.

Based on 2012 data, 21 of the 32 census tracts within the study area are more than 50 percent minority. In the past, this would have flagged these as tracts of concern. This concern would be with regard to the proportion of project impacts being experienced by this population as compared to the regional population generally. However, the racial make-up of California and other states has changed over time; no one racial group is a majority. Rather than using 50 percent minority as the threshold for identifying minority tracts, the percent minority (non-white) population of the entire county was used as a threshold. It was found that in 9 of the 32 census tracts in the study area the percentage minority population is greater than the percentage minority population countywide. Seven of these higher than average minority tracts are in San Bernardino County and 2 are in Riverside County.

Table D.8-3 also shows the variance between the countywide minority population percentage and the minority population percentage in individual tracts. The 9 tracts where the minority population percentage exceeds the countywide minority population percentage are indicated in **bold.** The variance column in the table indicates the degree to which the minority population percentage of a tract varies from the countywide percentage. A positive value in the variance column indicates the minority population percentage for that Census Tract is higher than the countywide percentage; a negative value indicates a minority population percentage lower than the countywide minority percentage.

Table D.8-3. Minority Population by Census Tract[1,2]

Census Tract Number	Total Population	Minority Population	Percent Minority	Variance from Countywide Minority Population (%)
San Bernardino County	2,041,029	1,363,925	66.8	—
Census Tract 71.04	4405	2452	55.7	–11.1
Census Tract 71.05	3048	1878	61.6	–5.2
Census Tract 71.06	4296	2033	47.3	–19.5
Census Tract 71.07	3147	2224	**70.7**	**3.9**
Census Tract 71.08	2109	1816	**86.1**	**19.3**
Census Tract 71.09	6833	5407	**79.1**	**12.3**
Census Tract 71.10	5523	3800	**68.8**	**2**
Census Tract 72	7067	5736	**81.2**	**14.4**
Census Tract 73.02	9843	5628	57.2	–9.6
Census Tract 73.03	4656	2851	61.2	–5.6

Table D.8-3. Minority Population by Census Tract[1,2]

Census Tract Number	Total Population	Minority Population	Percent Minority	Variance from Countywide Minority Population (%)
Census Tract 73.05	3924	2829	**72.1**	**5.3**
Census Tract 73.06	5640	3839	**68.1**	**1.3**
Census Tract 78	4349	2417	55.6	–11.2
Census Tract 85	8672	2245	25.9	–40.9
Subtotal for Tracts	69,107	42,703	61.8	–5
Riverside County	2,192,982	1,325,402	60.4	—
Census Tract 424.01	2068	1298	**62.8**	**2.4**
Census Tract 424.12	5441	2752	50.6	–9.8
Census Tract 438.07	5552	2889	52.0	–8.4
Census Tract 438.09	2830	590	20.8	–39.6
Census Tract 438.10	4623	1960	42.4	–18
Census Tract 438.11	3810	1100	28.9	–31.5
Census Tract 438.13	3811	2056	53.9	–6.5
Census Tract 438.14	726	32	4.4	–56
Census Tract 438.18	3862	2092	54.2	–6.2
Census Tract 438.21	2796	1648	58.9	–1.5
Census Tract 438.22	2337	1210	51.8	–8.6
Census Tract 438.23	6992	3109	44.5	–15.9
Census Tract 439	6002	3495	58.2	–2.2
Census Tract 441.03	6012	3093	51.4	–9
Census Tract 441.04	2673	1135	42.5	–17.9
Census Tract 442	5301	4192	**79.1**	**18.7**
Census Tract 445.21	707	333	47.1	–13.3
Census Tract 445.22	4912	2485	50.6	–9.8
Subtotal for Tracts	70,455	35,469	50.4	–10

1 - Minority population consists of those who identifying themselves as being a member of a non-white race or races plus those indicating their ethnicity is Hispanic or Latino. The 2010 Census asked people to indicate if they were ethnically Hispanic or Latino. It also asked people to indicate if they were white or another race or races. These separate questions resulted in some people indicating that ethnically they considered themselves Hispanic or Latino and racially they considered themselves white. Some of those indicating they are ethnically Hispanic or Latino persons indicated different races, including Other. To be conservative, all persons indicating a Hispanic or Latino ethnicity are included in the minority population race count, regardless of whether they indicated their race as white or another classification.

2 - **Bold** indicates tracts with a greater percentage of minority population than is found in the county as a whole. The variance from the county average is calculated based on the countywide percentage [66.8 percent in San Bernardino County and 60.4 percent in Riverside County]. For example, if the minority population countywide is 66.8 percent, a 10 percent variance would be 6.7 percent [66.8 X 0.10 = 6.68].)

Source: U.S. Census Bureau, American Fact Finder, 2012b. 2012 ACS 5-Year Estimates, Category ID B03002 "Not Hispanic or Latino, White Alone," found at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_B03002&prodType=table. Accessed March 19, 2014.

Looking at the project vicinity more broadly than the census tracts, Table D.8-4 provides data on total population, minority population, and minority population percentage for San Bernardino and Riverside Counties as a whole, and for individual jurisdictions on or near the study corridor. The jurisdictions cover a larger area than individual census tracts and provide context for determining whether there would be a disproportionate impact on minority populations. Figure B-1 (in Section B) shows the county and municipal jurisdictions, Morongo Tribal lands, and BLM lands occurring in the project vicinity. Jurisdictions where a minority population percentage exceeds the county level of minority population are indicated in **bold.**

Table D.8-4. Minority Population by Jurisdiction[1,2]

Jurisdiction	Total Population	Minority Population	Percent Minority
San Bernardino County	2,041,029	1,363,925	66.8
Colton	52,425	45,631	**87.0**
Grand Terrace	12,140	6,600	54.4
San Bernardino	210,624	169,486	**80.5**
Redlands	69,078	31,196	45.2
Loma Linda	23,239	14,518	62.5
Yucaipa	51,319	17,861	34.8
Riverside County	2,192,982	1,325,402	60.4
Beaumont	36,687	19,933	54.3
Calimesa	7,932	1,969	24.8
Banning	29,682	15,490	52.2
Cabazon	2,121	1,059	49.9
Palm Springs	45,115	16,816	37.3
Desert Hot Springs	26,474	18,102	**68.4**
Cherry Valley	5,311	1,230	23.2
Morongo Tribal Land	710	652	**91.8**

1 - Minority population consists of those who identifying themselves as being a member of a non-white race or races plus those indicating their ethnicity is Hispanic or Latino. The 2010 Census asked people to indicate if they were ethnically Hispanic or Latino. It also asked people to indicate if they were white or another race or races. These separate questions resulted in some people indicating that ethnically they considered themselves Hispanic or Latino and racially they considered themselves white. Some persons indicating they are ethnically Hispanic or Latino persons indicated different races, including Other. To be conservative, all persons indicating a Hispanic or Latino ethnicity are included in the minority population race count, regardless of whether they indicated their race as white or another classification.

2 - **Bold** indicates jurisdictions with a minority population higher than the countywide percent minority.

Source: U.S. Census Bureau, American Fact Finder, 2012b. 2012 ACS 5-Year Estimates, Category ID B03002 "Not Hispanic or Latino, White Alone," found at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_B03002&prodType=table. Accessed March 19, 2014.

Low-Income Populations

Low-income populations were identified using the annual statistical poverty thresholds for the Bureau of the Census' Current Populations Reports, Series P-60 on Income and Poverty. Census data from 2012 were used to determine the portion of a census tract's population that is living below the federal poverty level and how this compares to the poverty status of the countywide population and individual jurisdiction populations. Tables D.8-5 and D.8-6 provide this information for the Proposed Project. Overall, for San Bernardino County, 17.6 percent of the county's population is below poverty level; in Riverside County it is 15.6 percent. These percentages are used as the low-income threshold for the respective counties for purposes of evaluating Environmental Justice. Tracts or jurisdictions with a greater percentage of persons below the poverty level than the countywide percentage are considered low-income tracts or jurisdiction. These are shown in **bold** in the tables.

Table D.8-5. Population with Income Below Poverty Level by Census Tract[1,2]

Census Tract	Total Population	Population Below Poverty Level	Percent Below Poverty Level
San Bernardino County	1,995,666	350,982	17.6
Census Tract 71.04	4377	68	1.6
Census Tract 71.05	3048	592	**19.4**

Table D.8-5. Population with Income Below Poverty Level by Census Tract[1,2]

Census Tract	Total Population	Population Below Poverty Level	Percent Below Poverty Level
Census Tract 71.06	4291	414	9.6
Census Tract 71.07	3128	986	**31.5**
Census Tract 71.08	2109	399	**18.9**
Census Tract 71.09	6659	1180	**17.7**
Census Tract 71.10	5471	303	5.5
Census Tract 72	6935	2513	**36.2**
Census Tract 73.02	9562	895	9.4
Census Tract 73.03	4463	983	22
Census Tract 73.05	3912	880	**22.5**
Census Tract 73.06	5475	343	6.3
Census Tract 78	4349	739	17
Census Tract 85	8672	372	4.3
Subtotal for Tracts	72,451	10,667	14.7
Riverside County	2,157,713	335,557	15.6
Census Tract 424.01	2003	179	8.9
Census Tract 424.12	5433	259	4.8
Census Tract 438.07	5456	948	**17.4**
Census Tract 438.09	2781	397	14.3
Census Tract 438.10	4623	215	4.7
Census Tract 438.11	3810	264	6.9
Census Tract 438.13	3788	921	**24.3**
Census Tract 438.14	726	44	6.1
Census Tract 438.18	3786	111	2.9
Census Tract 438.21	2796	530	**19**
Census Tract 438.22	2337	205	8.8
Census Tract 438.23	6971	185	2.7
Census Tract 439	5950	978	**16.4**
Census Tract 441.03	5839	1002	**17.2**
Census Tract 441.04	2667	137	5.1
Census Tract 442	5267	1932	**36.7**
Census Tract 445.21	707	148	**20.9**
Census Tract 445.22	4912	977	**19.9**
Subtotal for Tracts	69,852	9432	13.5

1 - When calculating the number of persons living below the poverty line, the Census omits persons in group living situations such as group homes, institutions, jails, etc. This results in a slightly smaller total population as compared to other data dealing with total population characteristics.

2 - **Bold** indicates tracts with poverty levels higher than the countywide poverty level.

Source: U.S. Census Bureau, American Fact Finder, 2012d. 2012 ACS 5-Year Estimates, Category ID S1701 "Poverty Status in the Past 12 Months" found at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_S1701&prodType=table. Accessed March 19, 2014.

Looking at the project vicinity more broadly, Table D.8-6 provides poverty-level data for the two counties county wide, as well as for municipal jurisdictions along or near the Proposed Project alignment and for Morongo Tribal lands.

Table D.8-6. Population with Income Below Poverty Level by Jurisdiction[1,2]

Jurisdiction	Total Population	Population Below Poverty Level	Percent Below Poverty Level
San Bernardino County	1,995,666	350,982	17.6
Colton	52,114	11,759	**22.5**
Grand Terrace	11,984	780	6.5
San Bernardino	205,669	62,976	**30.6**
Redlands	66,531	7,655	11.5
Loma Linda	22,705	3,223	14.2
Yucaipa	50,784	5,926	11.7
Riverside County	2,157,713	335,557	15.6
Beaumont	36,286	4,082	11.2
Calimesa	7,926	1,148	14.5
Banning	28,944	5,606	**19.4**
Cabazon	2,098	592	**28.2**
Palm Springs	44,827	7,082	**15.8**
Desert Hot Springs	26,291	7,510	**28.6**
Cherry Valley	5,253	496	9.4
Morongo Tribal Lands	710	237	**33.4**

1 - When calculating the number of persons living below the poverty line, the Census omits persons in group living situations such as group homes, institutions, jails, etc. This results in a slightly smaller total population as compared to other data dealing with total population characteristics.
2 - **Bold** indicates jurisdictions with poverty levels higher than the countywide poverty level.
Source: U.S. Census Bureau, American Fact Finder, 2012 ACS 5-Year Estimates, Category ID S1701 "Poverty Status in the Past 12 Months" found here http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_S1701&prodType=table. Accessed March 19, 2014

Table D.8-7 lists by segment the amount of ROW in the segment and what part of the ROW is within 0.5 miles of a minority or low income census tract.

Table D.8-7. Length of ROW with Environmental Justice Census Tracts within 0.5 Miles

Location	Length of ROW Total	Length of ROW with Env Justice Tracts within 0.5 miles[1]	Length of ROW with Minority Tracts within 0.5 miles[2]	Length of ROW with Low Income Tracts within 0.5 miles[2]
Segment 1: San Bernardino	3.5 mi	2.5 mi	2.5 mi	2 mi
Segment 2: Colton and Loma Linda	5.2 mi	1.8 mi	1.8 mi	1.8 mi
Segment 3: San Timoteo Canyon	13 mi	0.8 mi	0.8 mi	0.8 mi
Segment 4: Beaumont and Banning	12.2 mi	3.5 mi.	3.5 mi	0.5 mi
Segment 5: Morongo Tribal Land and Surrounding Areas	9.5 mi	9.5 mi	9.5 mi	2.1 mi
Segment 6: Whitewater and Devers	5.1 mi	5.1 mi	0 mi	5.1 mi
Total	48.5 mi	23.2 mi	18.1 mi	12.3 mi
Percentage	100 %	47.8 %	37.3 %	25.3 %

1 - Environmental Justice census tracts are those with populations meeting the criteria for minority tracts, low-income tracts, or both. If a tract meets both minority and low-income criteria, it is counted only once when determining the length of ROW occurring within 0.5 miles of tracts where Environmental Justice concerns exist.
2 - Census Tracts with Environmental Justice populations (minority tracts and low-income tracts) are identified for reference. The sum of these two columns may be less than the length of ROW with Environmental Justice Tracts within 0.5 miles because, even if tracts meet both minority and low-income criteria, they are counted only once when determining the length of ROW falling within 0.5 miles of an Environmental Justice tract.
Source: Aspen Environmental Group: Estimated from project route maps and census tract maps.

D.8.1.3 Environmental Setting for Connected Actions

To the extent that connected actions are on federal land they will need to consider socioeconomic and environmental justice impacts, as required under NEPA, BLM guidance, and Executive Orders. Projects on state or private land are not required to consider these impacts. All of the connected action projects are in sparsely inhabited areas.

Desert Center Area. There are 4 connected actions identified in the Desert Center area. Three would be solar PV projects occupying a combined total of approximately 3,600 acres. One of these, the approved Desert Harvest Solar Project is 1,200 acres, and is estimated to need an average on-site construction workforce of 100 persons and a peak workforce of 250 persons. The 2 other solar PV projects in this area together are assumed to be approximately 2,400 acres, or twice the size of Desert Harvest, and would require a combined average daily construction workforce of 200 and a peak of 500. In addition to the 3 solar PV projects, the 500 MW Palen Solar Power Project would be approximately 10 miles east of Desert Center. This would be a solar trough project with a daily workforce of nearly 600, and a peak workforce of nearly 1,150.

If the 4 projects were built simultaneously, the potential average daily workforce in the Desert Center area would be 900. If the peak workforce needs of the projects overlapped, that would result in 1,450 workers being at the 4 sites.

The Desert Center area is within a single large, sparsely inhabited census tract (Census Tract 469). The tract extends across Riverside County, from San Bernardino County to Imperial County, and encompasses nearly all of the 100 miles between Indio and Blythe. As reported in the Desert Harvest Solar Project Final EIS, in 2010, the minority population in the tract was 55.41 percent of the total population, as compared to a minority population of 60.5 percent in Riverside County as a whole. The CEC's 2010 Decision identified that Desert Center (as a Census Designated Place within the tract) has a 58 percent minority population. While no recent data are available for the proportion of the population living below the poverty line in this tract, 2000 data indicate that 28 percent of the population in the area lived below the poverty line.

The only population center in the area is Desert Center, including Lake Tamarisk. The 2014 PMPD identified that Desert Center had a 2010 population of 204 persons. For the 140 housing units here, there was a vacancy rate (for sale and for rent) of 39 percent. The closest municipalities are Blythe, 48 miles to the east, and Indio, 49 miles to the west. In Blythe and Indio there are about 35 lodging facilities offering an average of approximately 55 rooms per facility.

The Desert Harvest EIS reported that research shows that construction workers would commute as much as two hours each direction from their communities rather than relocate. As noted for the Proposed Project, a substantial workforce resides in western Riverside County. It is assumed that most workers would commute from their homes to project sites. Any workers who would temporarily relocate to the region for construction jobs could be accommodated in temporary accommodations in Blythe to the east or to the west in the greater Palm Spring-Coachella Valley area, or even farther west in Beaumont and Banning, which are under 2 hours from Desert Center.

Blythe Area. Three connected actions in the Blythe area would be solar PV projects covering about 4,200 acres. A comparable project in terms of acreage is the 3,660-acre Blythe Mesa Solar Project. The EIR/EA for the Blythe Mesa project estimated the daily workforce to be 500 during peak construction. No daily average was provided. By comparison, the 1,200-acre Desert Harvest project is about 1/3 the size and estimated peak construction to require 250 workers, with a daily average of 100. The variation can be attributed to the phasing of construction and the particulars of facility design. Using the Desert Harvest workforce estimates and considering the 4,200 acres the 3 Blythe area projects, it is likely that the combined projects would require a daily workforce of about 350 and would have combined peak workforce of about 875.

Based on the size of the project, it is assumed that the other 2 connected action projects would have a combined need for 500 to 600 workers during peak construction periods. Together, simultaneous development of the 3 projects could require in the neighborhood of 1,000 workers during peak times. The average workforce would be less.

The nearest city is Blythe, with a 2010 population of just over 20,000. The nearest population center within 2 hours of Blythe is the Coachella Valley, with a population of over 350,000. El Centro, in Imperial County, has a population of over 40,000 and also is about 2 hours away. As noted for the Desert Center area, construction workers generally are willing to travel up to 2 hours from their homes to a project site, instead of relocating. The workforce for these projects in the Blythe area is anticipated to be from Riverside and Imperial Counties, with additional workers from La Paz County, Arizona. To the extent that workers might want to relocate temporarily, there are numerous hotels and accommodations in Blythe, and the 2010 Census identified 960 vacant residential units, or 17.5% of the total in the city.

D.8.2 Applicable Regulations, Plans, and Standards

D.8.2.1 Federal

Socioeconomics

National Environmental Policy Act (NEPA). Projects that require action by a federal agency or that receive federal funding are subject to NEPA (42 United States Code [USC] 4321 et seq.). The Proposed Project includes a new 220 kV transmission line for approximately 3 miles within the Morongo Band of mission Indians lands, which are held in trust by the Secretary of the Interior, and a portion of the Proposed Project also is located on lands managed by BLM. Therefore, the Proposed Project is subject to NEPA review because those agencies and other federal agencies must take action to approve various right-of-way grants, easements and permits associated with the Proposed Project. NEPA Section 102(2)(A) requires that federal agencies use "the natural and social sciences...in planning and decision making." Under NEPA, an EIS must discuss social and economic effects if they are related to the natural or physical effects. Consequently, an EIS must include an analysis of the proposed Project's economic, social, and demographic impacts as they relate to effects on the natural or physical environment in the affected area. These economic, social, and demographic effects are not to be analyzed in isolation from the physical environment.

Federal Land Policy and Management Act (FLPMA) of 1976. FLPMA (43 USC 1701 et seq.) is BLM's organic act that establishes the agency's multiple-use mandate to serve present and future generations. Regulations implementing FLPMA require BLM to collect and analyze social, economic, and institutional information (43 CFR 1610.4-3 and 1610.4-6).

BLM Land Use Planning Handbook H-1601-1, Appendix D. Handbook H-1601-1 Appendix D (Social Science Considerations in Land Use Planning) provides guidance on integrating social science information into the planning process.

Environmental Justice

Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations. Executive Order 12898 was signed by President William Clinton on February 11, 1994. Since then, environmental justice is a mandatory element to be considered in all Bureau of Land Management (BLM) land use planning and National Environmental Policy Act (NEPA) documents.

As defined in BLM's Land Use Planning Handbook H-1601-1, Appendix D, environmental justice is the "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socio-economic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, local, and Tribal programs and policies." (p.11, BLM, 2005)

The purpose of the Executive Order and BLM guidance is to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities. The Executive Order directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The order also directs each agency to develop a strategy for implementing environmental justice.

Specific guidance is provided in BLM Handbook H-1601-1, Appendix D: Social Science Considerations in Land Use Planning Decisions, Section IV Environmental Justice Requirements.

D.8.2.2 State

D.8.2.2.1 Socioeconomics

California Environmental Quality Act. CEQA Guidelines Appendix G: Environmental Checklist Form is widely used by California agencies and jurisdictions to identify potentially significant impacts. As appropriate to the project under review, agencies and jurisdictions add and delete topics to be considered. One topic identified as having the potential to be affected is population and housing. With regard to population and housing, the questions posited in Appendix G focus on whether a proposed project's environmental effects could induce population growth, displace existing housing, or displace people, which, in turn, would require new or replacement housing be constructed. The effects on the environment of population increases or of developing new housing would be considered in the CEQA analysis.

CEQA Guidelines Section 15131 (Economic and Social Effects) notes that "economic or social information may be included in an EIR"; however, "economic or social effects of a project shall not be treated as significant effects on the environment." The focus of the analysis in the EIR is to be on physical changes, and the Public Resources Code Section 21060.5 defines "environment" as "the physical conditions that exist with the area which will be affected by a proposed project..."

CEQA Guidelines Section 15131, states the following:

Economic or social information may be included in an EIR or may be presented in whatever form the agency desires.

a) Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.

b) Economic or social effects of a project may be used to determine the significance of physical changes caused by the project. For example, if the construction of a new freeway or rail line divides an existing community, the construction would be the physical change, but the social effect on the community would be the basis for determining that the effect would be significant. As an additional example, if the construction of a road and the resulting increase in noise in an area disturbed existing religious practices in the area, the disturbance of the religious practices could be used to determine that the construction and use of the road and the resulting noise would be significant effects on the environment. The religious practices would need to be analyzed only to the extent to show that the increase in traffic and noise would conflict with the religious practices. Where an EIR uses economic or social effects to determine that a physical change is significant, the EIR shall explain the reason for determining that the effect is significant.

c) Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the EIR. If information on these factors is not contained in the EIR, the information must be added to the record in some other manner to allow the agency to consider the factors in reaching a decision on the project.

Consistent with the requirements set forth in Section 15131, social and economic effects, per se, are not treated as significant effects on the environment.

D.8.2.2.2 Environmental Justice

There are no requirements applicable to all State agencies requiring an analysis of environmental justice. The analysis conducted using the federal guidance will satisfy applicable State requirements, to the extent they may apply to the Proposed Project.

Public Resources Code Section 71110-71116. One state agency, the California Environmental Protection Agency (CalEPA), is required to conduct its programs, policies, and activities that substantially affect human health or the environment in a manner that ensures the fair treatment of people of all races, cultures, and income levels, including minority populations and low-income populations of the state.

D.8.2.3 Local

D.8.2.3.1 Socioeconomics

There are no local regulations, plans, or standards known to apply to the Proposed Project with respect to socioeconomics. Local plans are considered by the CPUC and the BLM in determining the proposed Project's consistency with local plans, goals, and policies. As the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities on non-federal lands in the state, no local discretionary permits (e.g., conditional use permits) or local plan consistency evaluations are required for the Proposed Project. However, SCE would be required to obtain all ministerial building and encroachment permits from local jurisdictions.

Each county and local General Plan is required by the state to include seven mandatory elements: Circulation, Conservation, Housing, Land Use, Noise, Open Space, and Safety. General Plans may include non-mandatory elements, such as socioeconomics, at the discretion of the local jurisdiction.

D.8.2.3.2 Environmental Justice

There are no known local regulations, plans, or standards with respect to environmental justice applicable to the Proposed Project.

D.8.3 Environmental Impacts of the Proposed Project

D.8.3.1 Approach to Impact Assessment

D.8.3.1.1 Socioeconomics

Socioeconomics relates to any combination of social and economic factors. The socioeconomic impact assessment in this EIS considers 4 key factors: existing and projected population, rental housing vacancy rates, percent of the workforce in construction trades, and income and revenue generation due to the project. These are used to determine if project implementation would result in any of the following: a substantial increase in population due to workers moving to the region to work on the project; insufficient rental housing to accommodate any workers relocating to work on the project; insufficient numbers of construction workers to fill jobs; and changes in local economies and government revenue.

If workers move to the area, they would require housing. The vacancy rate in rental units indicates whether there is available housing for transient workers.

Transmission line, fiber optic line, and substation construction require a mix of skills. Many skills are available locally; other skills are specialized to the electrical industry. Workers with specialized skills often relocate temporarily from elsewhere to work on a project. The number of workers in the construction trades locally indicates the labor pool that may be available to work on the project. In addition to the labor pool in the immediate vicinity of the project, the larger regional labor pool can also contribute to the potential workforce, as construction workers typically work throughout the region in which they reside.

Whether a transmission line may adversely affect property values is a concern of property owners. The potential for transmission lines to affect property values has been debated and studied. Numerous studies over the past several decades have been inconclusive, reaching varying and sometimes opposite conclusions with regard to what degree and under what conditions the presence of a high-voltage transmission line may affect the value of nearby properties. A review of the literature is provided as part of the impact analysis.

Construction projects can generate positive economic effects through wages paid to workers and the purchase of materials, goods, and services needed to implement the project. The injection into the economy of this money has a multiplier effect, supporting additional new spending by the initial recipients (workers, suppliers, and business owners). Wages earned at the businesses providing goods, materials, and services to workers and to the project are used by business owners and employees for their own subsequent purchases. This direct and indirect economic activity can be a positive contribution to the local community's economic well-being. As well, taxes and fees imposed on the Proposed Project would generate government revenue.

D.8.3.1.2 Environmental Justice

Race and income are parameters used to evaluate if a project's impacts would be disproportionately visited on groups that historically have been disadvantaged in our society. Under NEPA, federal agencies are required to evaluate whether a minority population or a low-income population would receive a disproportionate share of impacts from a proposed project. This concern is addressed through an analysis of U.S. Census data that report (1) the level (percentage) of minority population in a census tract and (2) the percentage of the population in a tract with an income at or below the federal poverty level.

The occurrence of a census tract near the Proposed Project with a higher minority population level or higher rate of poverty than occurs countywide does not mean that the Proposed Project would have an environmental justice impact on these residents. The ultimate standard is whether impacts are disproportionately imposed on these populations of concern, as compared to the region more broadly. In the case of a linear project such as a transmission line, this would be the population in tracts along and near the line.

Once a population of concern is identified, factors to be considered include:

- The geographic location of potentially affected residents within the tract relative to the location of the project. (For example, large tracts may have extensive vacant areas separating residents and the project. Examination of air photos reveals housing locations in the tract relative to the project. This provides a means for understanding how close residents are to the project and, therefore, to project impacts.)
- The nature, duration, and severity of any impacts identified. (For example, are the impacts short-term or periodic and only during construction? Are they nuisance impacts or do they have greater and longer-term import?)
- Whether any impacts would be disproportionately visited on the minority or low-income population as compared to others affected by the project. (The amount of project study corridor occurring in proximity to minority or low-income populations was compared to the overall length of the project. This was done for each project segment as well as for the Proposed Project overall.)

BLM guidance on addressing Environmental Justice (BLM, 2002) states that "Minority populations are identified as either: (1) the minority population of the affected area exceeds 50 percent, or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." An affected population that meets this standard raises a concern as to whether there may be an environmental justice issue. The concern is regarding whether disproportionate adverse impacts occur to the minority population, as compared to the general regional population.

In both San Bernardino and Riverside Counties, the 50 percent minority threshold is tempered by the fact that minorities make up more than 50 percent of the countywide populations. To take this into account, the threshold used in the evaluation of a disproportionate impact on minority populations is whether the minority population percentage in a particular area or tract is greater than the countywide minority population percentage. In San Bernardino County the countywide minority population is 66.8 percent of the total population; in Riverside County it is 60.4 percent. For those tracts exceeding this threshold, more specific analysis is required in order to determine:

- if the minority population percentage difference is meaningful when compared to the countywide population and
- if impacts to the identified population would be disproportionate, as compared to other populations affected by the project.

For purposes of analysis, it was determined that if the minority population in a tract were 10 percent or greater than the countywide minority population, this would be a meaningful difference. Four tracts met the threshold of having a minority population that is 10 percent or greater than the countywide minority population: Census Tracts 71.08, 71.09, and 72 in San Bernardino County and Census Tract 442 in Riverside County. These tracts are addressed in Section D.8.3.3 (Impacts and Mitigation Measures), under Impact SE-4.

For income, the percentage of the countywide population living at or below the federal poverty level was used as the benchmark for identifying low-income census tracts. For Census tracts with a greater percentage of the population living below the poverty line than occurs countywide, a more detailed review was conducted. See Section D.8.3.3. Thirteen tracts met this threshold: Census Tracts 71.5, 71.7, 71.8, 71.9, 72, and 73.05 in San Bernardino County and Census Tracts 438.07, 438.13, 439, 441.03, 442, 445.21, and 445.22 in Riverside County.

D.8.3.1.3 Applicant Proposed Measures

SCE did not propose any Applicant Proposed Measures relevant to socioeconomics or environmental justice.

D.8.3.2 Impact Criteria

NEPA does not have specific significance criteria. However, NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). Using the following criteria for the purposes of analysis, the project or an alternative would impact socioeconomics if it would: a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

These are impacts that, if they were to occur, could themselves result in environmental impacts. The key concerns are (1) induced population growth resulting from development of buildings or infrastructure and (2) whether housing and people would be displaced, requiring construction of replacement housing. These are changes that could in themselves create environmental impacts as a result of implementing the Proposed Project. For example, construction of replacement housing for persons displaced by a project could have its own environmental impacts, which would be an outcome of approving the original project creating the displacement.

A criterion used in all three cases is whether the change would be "substantial." Substantial is a general term without specific metrics attached to it. For purposes of this analysis, substantial is taken to mean a numerically meaningful change in existing conditions, as judged by a reasonable person.

Expenditures on wages, equipment and materials, and governmental fees and taxes contribute to the local and regional economy and to government fiscal resources, and have a beneficial effect. Finally, this analysis also analyzes environmental justice and considers whether the project would disproportionate affect minority or low-income populations.

D.8.3.3 Impacts and Mitigation Measures

This section provides an overview of impacts by segment, followed by a discussion of individual impacts.

D.8.3.3.1 Impacts by Segment

Segment 1: San Bernardino. In Segment 1, the ROW corridor is 3.5 miles long. Over this distance:

- No housing or persons would be displaced.
- 2.5 miles of the 1-mile-wide study corridor intersect 3 census tracts where the minority population is higher than the percentage minority population countywide. (See Figure D.8-2)
- 2 miles of the 1-mile-wide corridor intersect 2 census tracts where the percentage of residents living below the poverty line is higher than the percentage of the countywide population living below the poverty line. (See Figure D.8-2)

Segment 2: Colton, Grand Terrace, and Loma Linda. In Segment 2, the ROW corridor is 5.2 miles long. Over this distance:

- No housing or persons would be displaced.
- 1.8 miles of the 1-mile-wide study corridor intersect 3 census tracts where the minority population is higher than the percentage minority population countywide. (See Figure D.8-2)
- 1.8 miles of the 1-mile-wide corridor intersects 2 census tracts where the percentage of residents living below the poverty line is higher than the percentage of the countywide population living below the poverty line. (See Figure D.8-2)

Segment 3: San Timoteo Canyon. In Segment 3, the ROW corridor is 10 miles long. Over this distance:

- No housing or persons would be displaced.
- 0.8 miles of the 1-mile-wide corridor includes a census tract where the minority population is higher than the percentage minority population countywide. (See Figure D.8-2)
- None of the 1-mile-wide corridor includes a census tract where the percentage of residents living below the poverty line is higher than the percentage of the countywide population living below the poverty line. (See Figure D.8-2)

Segment 4: Beaumont and Banning. In Segment 4, ROW corridor is 12.2 miles long. Over this distance:

- No housing or persons would be displaced.
- 3.5 miles of the 1-mile-wide corridor includes 2 census tracts where the minority population is higher than the percentage minority population countywide. (See Figure D.8-2)
- 0.5 miles of the 1-mile-wide corridor includes 1 census tract where the percentage of residents living below the poverty line is higher than the percentage of the countywide population living below the poverty line. (See Figure D.8-2)

Segment 5: Morongo Tribal Lands and Surrounding Areas. In Segment 5, the ROW corridor is 9.5 miles long. Over this distance:

- No housing or persons would be displaced.
- 1.3 miles of the 1-mile-wide corridor includes 1 census tract where the minority population is higher than the percentage minority population countywide. (See Figure D.8-2)
- 9.5 miles of the 1-mile-wide corridor includes 2 census tracts where the percentage of residents living below the poverty line is higher than the percentage of the countywide population living below the poverty line. (See Figure D.8-2)

Segment 6: Whitewater and Devers. In Segment 6, the ROW corridor is 8.1 miles long. Over this distance:

- No housing or persons would be displaced.
- None of the 1-mile-wide corridor includes census tracts where the minority population is higher than the percentage minority population countywide. (See Figure D.8-2)
- 5.1 miles of the 1-mile-wide corridor includes 2 census tracts where the percentage of residents living below the poverty line is higher than the percentage of the countywide population living below the poverty line. (See Figure D.8-2)

Impact SE-1: Construction would result in a substantial increase in population growth.

A project would be considered growth-inducing if it fostered growth in population above what is assumed in local and regional land use plans or in projections made by regional planning authorities. Growth impacts also could occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those identified by local or regional plans and policies.

The Proposed Project would construct new transmission line infrastructure between the existing substations in San Bernardino and Riverside Counties, California, replacing existing lines, and install new or upgraded equipment at existing substations. It does not include the construction of any housing or commercial buildings. There would be no change in staffing levels to maintain the upgraded transmission lines or upgraded substations. Therefore, no direct population growth would occur as a result of the Proposed Project being implemented.

The primary purposes of the Proposed Project are to accommodate delivery of renewable power into the region, prevent overloading of existing transmission facilities, and comply with reliability criteria for transmission planning. The Proposed Project would be constructed over approximately four years. During this period, work activity would occur at different locations at different times along the project corridor. SCE estimates that on any given day typical construction personnel distribution would be approximately 300 workers on transmission and subtransmission lines, 15-20 workers performing substation modifications, and 20 workers on distribution lines. The estimated deployment and number of crew members would vary depending on factors such as material and resource availability, construction scheduling, and local jurisdiction requirements.

Many crafts and skills required by the project could be filled by the existing regional work force. As shown by the data in Table D.8-1, the local labor force in the communities on and near the alignment includes over 16,000 people employed in construction trades. More broadly, San Bernardino and Riverside Counties have a combined construction-trades workforce of over 130,000. It is common for workers in the construction trades to commute to job sites throughout the region, which means that some in the construction trades in parts of Los Angeles and Orange Counties potentially are available. Given the size of the existing construction trades workforce in the project vicinity and in the broader region, it is expected that many of the jobs created during construction of the project could be filled locally. This would mean that there would be no substantial increase in population growth as a result of an in-migration of people to work on the project.

Some specialty craftspeople – those with specific skills and knowledge required for certain aspects of transmission line and substation construction – likely would temporarily relocate to the region from elsewhere in the state or country. Specialty workers often move from project to project, relocating temporarily for the duration of the project or their portion of the project, after which they return to their home locations. This relocation might create short-term growth, but it would abate when the workers departed. Even if a substantial number of workers on the project were to temporarily relocate to the region, their numbers would be small compared to existing local and regional population numbers. In both San Bernardino (population 2.75 million) and Riverside County (population 2.59 million), substantial centers of population are in the western parts of the counties, within commuting distance of the entire project. Even if they brought their families, the temporary relocation of workers to these areas would be insubstantial compared to the existing regional population.

Therefore, construction and operation of the Proposed Project would not result in a substantial increase in population. No mitigation would be required.

Impact SE-2: Construction would displace a substantial amount of existing housing.

While some linear projects such as new highways may displace housing units, high-voltage transmission lines typically do not displace substantial numbers of housing units. To the degree they have flexibility in siting, transmission lines are routed around buildings. Nearly the entire Proposed Project would be in an existing ROW, designated for use by existing transmission lines and such compatible uses as parks or parking lots. The one section of new ROW, on Morongo Tribal land, would be in an area where there is no housing. The Proposed Project would displace no housing and no need for new replacement housing would result from project implementation. No mitigation would be required.

Impact SE-3: Construction would displace substantial numbers of people.

Construction could displace people directly (by removing residential structures) or indirectly (as a result of in-migrant project workers displacing existing residents). With regard to displacing residences, the Proposed Project would be implemented on land unoccupied by buildings and no housing or buildings would be removed. Even omitting the resort-oriented communities of Desert Hot Springs and Palm Springs, there are over 13,000 vacant housing units in the communities on and near the project alignment, as shown in Table D.8-2. Overall, the rental vacancy rate in San Bernardino County is 6.9 percent and in Riverside County is 7.6 percent, not including vacant homes for sale. In addition, other accommodations, such as long-stay hotels or trailer parks, are available to accommodate housing needs for workers that might temporarily relocate to the area.

The Proposed Project itself would not displace any housing and, therefore, would not displace any people. There is sufficient vacant rental housing to absorb any temporarily relocating workers and their families without displacing others. Therefore, neither the project nor its workforce would displace people. No mitigation would be required.

Impact SE-4: The project would disproportionately affect minority or low-income populations.

The effect of a project on minority or low-income populations is evaluated under NEPA. An analysis of impacts by discipline for the Proposed Project and alternatives is presented in the other parts of Section D, Environmental Analysis. Where needed, mitigation measures are identified that would reduce specific impacts associated with construction and operation of the Proposed Project. Implementation of such measures benefits all populations along the project corridor.

Impacts affecting human populations during construction would be associated primarily with activities of workers and equipment at specific construction sites, and worker generated traffic and trucks delivering materials, equipment, and parts. Primary impacts would be to air quality (dust and emissions) and noise (from traffic and equipment). After construction, the presence of the upgraded transmission lines would have a visual impact. In some locations the transmission structures and lines would be taller than the structures and lines being replaced, and many of the new transmission structures would be in different locations in the ROW from where structures are located presently.

Census tracts through which the project would pass are shown on Figure D.8-1.

In San Bernardino County, a total of 14 census tracts intersect some portion of the study corridor. Collectively, these tracts have a 61.8 percent minority population compared to 66.8 percent countywide. For these same tracts, 14.7 percent of the population lives below the poverty level compared to 17.6 percent countywide.

In Riverside County, 18 census tracts intersect some portion of the study corridor. Collectively, these tracts have a 50.4 percent minority population compared to 60.4 percent countywide. For these same tracts, 13.5 percent of the population lives below the poverty level compared to 15.6 percent countywide. Taken as a whole, the population in these tracts does not meet Environmental Justice thresholds. However, individual tracts do meet these thresholds and are examined in more detail below.

Of the 32 census tracts located wholly or partially within the study corridor, 9 tracts have a greater percentage of minority residents than the percentage of minority population countywide. The minority population in 4 of these tracts is more than 10 percent above the countywide average minority percentage. Of the 32 tracts reviewed, 14 tracts have a higher percentage of residents living at or below the federal poverty level as compared to the percentage of residents at or below the poverty level countywide.

In Section D.8.1.2.3 (Environmental Justice Setting), Tables D.8-3 and D.8-5 list those tracts exceeding the respective countywide percentages for minority population and poverty population. Figure D.8-2 shows the locations of these tracts.

In San Bernardino County, within the 1-mile-wide study corridor the minority population percentage in 7 census tracts exceeds that of the countywide minority population percentage; 3 of these tracts are greater than 10 percent above the countywide minority population percentage. The poverty-level population percentage in 6 census tracts exceeds the corresponding countywide poverty level percentage.

In Riverside County, within the study corridor the minority population percentage in 2 census tracts exceeds that of the countywide total minority population percentage; 1 of these tracts is greater than 10 percent above the countywide minority population percentage. The poverty-level population percentage in 8 census tracts exceeds the corresponding countywide poverty level percentage.

The discussion below addresses only census tracts where the minority population and/or the poverty level percentage is greater than occurs countywide.

Segment 1: San Bernardino

As shown in Figure B-1 (in Section B), Segment 1 begins at San Bernardino Substation in the City of Redlands, extends south through a section of Redlands, across Interstate 10 (I-10), to San Bernardino Junction just south and east of the City of Loma Linda. Figure D.8-2 shows that the study corridor in Segment 1 includes portions of 3 tracts having minority populations and/or poverty levels greater than occur countywide in San Bernardino County. These are Census Tract 73.06, through which the ROW passes, and Census Tracts 72 and 73.05, parts of which are within the study corridor.

At its nearest, Census Tract 72 is 0.25 miles from the ROW. Warehousing and commercial/light industrial properties along Mountain View Avenue separate residential areas in this tract from the ROW.

At Redlands Boulevard, the corridor crosses into Census Tract 73.06, which extends south approximately 1 mile to Barton Road. West of this tract is Census Tract 73.05, which is immediately south of tract 72 and approximately 0.25 miles from the ROW at its nearest point. The only portion of Census Tract 73.05 within the 1-mile corridor is west of Mountain View Avenue between Redlands Boulevard and Van Leuven Street in Loma Linda. The nearest residents to the ROW are those in tract 73.06, which has a minority population of 68.1 percent, 1.3 percent higher than the countywide 66.8 percent minority. This 1.3 percent equates to about 73 persons and is not a significant difference.

Given the large number of warehouses and truck depots between the ROW and Census Tract 72 in the study corridor, it is anticipated that impacts to residents in this tract living in the vicinity of Mountain View Avenue would not be noticeably different from those occurring from typical car and truck traffic in the area. Time of day restrictions on project work and requirements for dust and emissions controls would address construction-period impacts. Distance to the ROW and the presence of intervening buildings and vegetation would lessen the visual impact of the new transmission structures and conductors once installed. The impact on residents in Census Tract 72 would not be disproportionate to impacts to other residents along the project alignment. The same would be true for Census Tract 73.05, which has an existing residential area in Census Tract 73.06 separating it from the ROW.

As noted, Census Tract 73.06 has a slightly higher minority population than occurs countywide. Approximately 1.1 miles of the corridor passes though residential communities within this tract. Another approximately 1.1 miles of the corridor passes through residential areas (in tract 73.02, south of tract 73.06) with a minority population percentage less than occurs countywide. Both tracts are in Loma Linda. About half of the ROW here is shared with a grove of citrus trees and half is developed as a landscaped park with trails. The adjacent and nearby properties would have similar noise and air quality impacts during construction, and similar visual impacts after construction. The impacts would fall proportionately on minority and non-minority populations.

Segment 2: Colton and Loma Linda

As shown in Figure B-1 (in Section B), Segment 2 begins at Vista Substation in Grand Terrace and extends to San Bernardino Junction south of Loma Linda. As shown in Figure D.8-2, Segment 2 passes through four tracts (71.07, 71.08, 71.09, and 71.10) with minority populations greater than occur countywide in San Bernardino County. Three of these (71.7, 71.8, and 71.9) also have a greater percentage of their population living below the poverty limit as compared to the percentage of the countywide population living below the poverty limit.

Census Tract 71.07 includes Vista Substation and approximately 0.5 miles of ROW. Residential areas are on Grand Terrace Road immediately across from the substation and to the north along Milano Way and the north side of RV Center Drive. From Vista Substation to where the alignment crosses I-215, the ROW is co-located with a large RV sales and storage facility.

East of I-215, the ROW enters Census Tract 71.09, where it passes between a commercial area on S. Mt. Vernon Avenue and homes on Vista Grande Way. Burton Road is the eastern limit of the tract.

As shown in in Figure D.8-1, two tracts in Colton, Census Tract 71.08 and 71.10, are partially in the study corridor. The portion of tract 71.08 in the corridor includes a section of the Santa Ana River and floodplain as well as residential and commercial areas north of E. Washington Street. A small sliver of tract 71.10 along Clear Creek Lane falls within the corridor. The residential areas in these two tracts are more than 0.25 miles from the ROW and separated by existing residential and commercial land uses. As described in Segment 1 for tracts not adjacent to or on the ROW, intervening land uses would tend to buffer noise and air quality impacts during both construction and visual impacts after. For those tracts through which the ROW passes (tracts 71.07 and 71.09), work hour restrictions and dust and emission control requirements would address construction-period impacts. Distance to the ROW and the presence of intervening buildings and vegetation would lessen the visual impact of the transmission structures and conductors. Approximately 1.2 miles of the ROW are in high minority and high poverty census tracts. The remaining approximately 3.8 miles of Segment 2 are in tracts with minority and poverty levels below the countywide levels. For about approximately 1.5 miles through these tracts the ROW is adjacent to residences; for the balance of the route residential areas are at the outer margins of the corridor. Adjacent and nearby properties to the ROW would have similar noise and air quality impacts during construction, and similar visual impacts after construction. These impacts would fall proportionately on minority/non-minority and poverty/non-poverty populations.

Segment 3: San Timoteo Canyon

As shown in Figure B-1 (in Section B), Segment 3 begins at San Bernardino Junction south of Loma Linda and extends southeast to El Casco Substation on San Timoteo Canyon Road near Calimesa. As shown in Figure D.8-2, the study corridor in Segment 3 passes through the northern most edge of 1 tract (424.01) with a minority population greater than occurs countywide in Riverside County. However, the portion of the census tract falling within the corridor is mountainous terrain, while the population in the tract occurs near Highway 60 (Moreno Valley Freeway), well south of the study corridor. Given the location of the population within this tract compared to the project corridor, there would be no disproportionate impact on a minority population. There are no tracts in Segment 3 that exceed the countywide poverty level.

Segment 4: Beaumont and Banning

As shown in Figure B-1 (in Section B), Segment 4 begins near El Casco Substation on San Timoteo Canyon Road and extends east through Calimesa, Beaumont, and Banning. As shown in Figure D.8-2, the study corridor in Segment 4 passes through 4 tracts (438.07, 439, 438.21, and 441.03) with a larger percentage of their population living below the poverty limit than occurs countywide in Riverside County. The western portion of Census Tract 438.07 is open land, with housing beginning at Beaumont Avenue and extending to Cherry Avenue in Beaumont. Tract 439 is south of the ROW, approximately 700 feet away at its closest point. Tract 438.21 is a developing area between the ROW and I-10. Here the land is open land to the north of the ROW and a subdivision is located to the south. Based on the housing types in the tract, housing near I-10 is more modest in appearance and is assumed to account for a greater portion of families below the poverty line than the tract homes closer to the ROW. In tract 441.03, residences are located at the north end of Mountain Avenue in Banning, with most of the land along the ROW being vacant. Together, the 4 tracts of concern have residences adjacent to the ROW for approximately 1.15 miles. Overall, in Segment 4 approximately 4.9 miles of ROW are adjacent to residential areas in tracts that do not meet the Environmental Justice thresholds and 1.15 miles of ROW are adjacent to residential areas in tracts that do meet these thresholds. Because impacts would be similar along the entire corridor, there is not a disproportionate impact on minority or low-income populations compared to other areas along the corridor.

Segment 5: Morongo Tribal Land and Surrounding Areas

As shown in Figure B-1 (in Section B), Segment 5 begins in Banning and crosses lands under the jurisdictions of Banning, Riverside County, and the Morongo Tribe. As shown in Figure D.8-2 (Census Tracts meeting Environmental Justice Criteria), the segment includes 2 census tracts (442 and 438.13), both of which have a higher percentage of their population living below the poverty limit as compare to the county at large. In addition, tract 442 also has a greater percentage of minority population than occurs countywide. The ROW is at the northern edge of this tract, with residences approximately 0.3 miles of the ROW before it enters an area of extensive ongoing quarrying. East of the main quarry operation, at North Hathaway Street, the corridor enters Morongo Tribal lands and Census Tract 438.13. Approximately 3 miles of the existing ROW south of residences on the reservation would be abandoned. The new section of ROW would be closer to I-10, and further from the residential area. Near Malki Road, the route would rejoin the existing ROW and continue east past a commercial center and casino on the north side of the I-10. At Rushmore Road, just off tribal land, the segment ends adjacent to a small residential area.

In Segment 5, approximately 0.6 miles of ROW is near low-density residential areas. The balance of the nearly 9-mile segment is through open land with a small section near commercial properties. Because of the low population density in the Segment 5, Census Tract 438.13 is quite large and includes most of the segment, which roughly divides the tract in half. Most of the tribal land north of I-10 is in the tract, and an area of unincorporated Riverside County land south of I-10 nearly equal in size makes up the southern portion of the tract.

On reservation land, the new ROW would be farther from residences as compared to existing conditions. The few residences adjacent to or near the ROW would experience similar noise and air quality impacts during construction, and similar visual impacts after construction, as occur along the entire project corridor. Therefore, the impacts would not fall disproportionately on minority or low income populations.

Segment 6: Whitewater and Devers

As shown in Figure B-1 (in Section B), Segment 6 begins in unincorporated Riverside County at the eastern edge of Morongo Tribal lands and extends to Devers Substation just north of Palm Springs. As shown in Figure D.8-2, the segment includes 2 census tracts (445.21 and 445.22), both of which have a higher percentage of their population living below the poverty limit compare to the county at large. As with Segment 5, Segment 6 is through largely unoccupied land. However, small low-density residential areas are located near the ROW in the vicinity of Rushmore Avenue, Haugen-Lehmann Way, Twentynine Palms Highway, and Diablo Road.

Segment 6 is just over 8 miles long. Low-density rural residential areas are near approximately 2.5 miles of the ROW, with the balance of the route in open landscape, some of which is occupied by wind farms. Residences adjacent to or near the ROW would experience similar noise and air quality impacts during construction, and similar visual impacts after construction, as occur along the entire project corridor. Therefore, the impacts would not fall disproportionately on the low income populations along this segment.

Impact SE-5: Construction of the project could adversely affect property values.

The effect of a project on property values is evaluated as an economic impact under NEPA. The presence of a high-voltage overhead transmission line can raise concerns among property owners about the potential effect the line might have on the value of their property. This may be of particular concern if new lines are being introduced in an area where there have not been lines previously. It also can be a concern when an existing line is upgraded to a higher voltage and the position of the line and of individual structures within the ROW changes existing conditions, resulting in structures being more or less proximate to individual properties. Transmission structure and conductor sizes also would increase to support higher throughput on the lines.

Studies of the impact of power lines on property values have produced mixed findings. A recent publication, *Towers Turbines and Transmission Lines Impact on Property Value* edited by Sandy Bond, Sally Sims, and Peter Dent (Bond, et al., 2013) provides a comprehensive review of decades of studies of high-voltage transmission lines, cell towers, and wind farms in various countries. In particular, Chapter 6 of the book reviews high-voltage overhead transmission line studies in North America (*Chapter 6: A Review of HVOTL Studies in North America*, contributed by David Wyman and Elaine Worzala of Clemson University). The discussion below draws heavily from the book by Bond et al. Page numbers provided in parentheses refer to this volume. Although concerns may arise with regard to effects on the value of businesses or vacant land, the emphasis here is on residences.

A number of factors are perceived to have the potential to diminish property values. These include concerns over whether there is a potential health and safety risk posed by lines (see the discussion of electric and magnetic fields in Section D.21), the visibility of the line from the property in question, and the potential for increased traffic, noise, and dust to occur during construction and affect the property.

"When considering the impact of general locational factors on the value of any real estate development, there are certain overarching criteria which will influence the level of value impact of specific factors. These will range from the nature of the market at any one point in time, geographic location, physical structures, the prevailing sentiment towards these factors and, to some degree, the methodologies used to evaluate the impact of these factors." (*Ibid.*, p. 2)

The effect on property values may relate to such factors as:

- Type of physical structures
- Proximity of the structures to the property
- Visibility/audibility
- Prevailing market sentiment
- Media attention
- Current state of the real estate market.

Table D.8-8 lists 15 studies of the relationship of power lines and property values, and includes the authors of the studies, study locations and dates, the number of properties evaluated, conclusions regard effects on price, and the size of the power line.
An early landmark study of property values and high-voltage lines by W. N. Kinnard in 1967 concluded that there was a negligible effect of power lines on neighboring properties. Numerous studies have followed and reached a range of conclusions. In a 2009 review of 16 different studies, J. A. Chalmers and F. A. Voorvart found that "half the studies showed negative property impacts, while the other studies showed no impact on value caused by abutting power lines." (*Ibid.*, p. 101) Chalmers and Voorvart indicated that where impacts were found they were usually less than 10 percent and normally ranged from 3 to 6 percent. A review of studies by Pitts and Jackson in 2007 concluded that both "market interviews and academic literature show that the impacts of power lines on residential properties are varied and difficult to measure. The impacts from the power lines, as well as other negative externalities, depend on many factors, including market condition, location, and personal preference." (*Ibid.*, p. 101)

A 2002 Texas study found that property values in one neighborhood *benefited* from power lines by 4.9 to 8 percent. In this case, the power lines were built in a greenbelt view shed and the author cited this as a condition that overwhelmed any disamenity presented by the power lines. Others have pointed out that most construction is prohibited in ROW corridors in the U.S., resulting in adjacent property owners having the benefit and enjoyment of this extra land.

A 2003 Electric Power Research Institute (EPRI) study stated that differences in location and time of data collection, as well as research design, make direct comparisons of results from the various studies very difficult.

Table D.8-8. North American Studies of the Price Impacts of Power Lines

Study	Location	Sample Dates	Sample Size	Percentage Decrease in Price	Power Line Type
Chalmers and Voorvart (2009)	New England	1998-2007	1286	1. No evidence of systematic effects of either proximity or visibility 2. Properties encumbered with an easement are affected	345 kV
Colwell (1990)	Decatur, IL	1968-1978	200	1. 6.6% at 15m (50ft) 2. 2% at 61m (200ft) 3. Price impacts decrease over time	138 kV
Colwell and Foley (1979)	Decatur, IL	1968-1978	200	1. –8.8% at 15m (50ft) 2. –3.6% at 61m (200ft)	138 kV
Cowger et al. (1996)	Oregon/Washington	1990-1991	296	Small negative (–1.05%) to small positive (1.46%), but not statistically significant	115-500 kV
Delaney and Timmons (1992)	47 States & Puerto Rico	1990	219	Mean decline of 10% related to power line proximity	N/A
Des Rosiers (2002)	Greater Montreal	1991-1996	507	1. –10% for direct view 2. –14% where setback is 15m (50ft) 3. –15 to –20% for higher price properties	315 kV
Hamilton and Schwann (1995)	Vancouver	1985-1991	12,907	1. –6.3% for properties adjacent to a HVTL at 100m 2. –1.1% at 200m	60-500 kV
Ignelzi and Priestley (1991)	North of Berkeley, CA	1976-1989	1816	1. –1% effect on sales prices of most properties at 91m (300ft) 2. Adverse effects can range up to –12%	115-230 kV
Jackson (2010)	Rural Wisconsin	N/A	385	1. –1.1% to –2.4% discount for parcels (not statistically significant) 2. Easement area: –16.0% to –35.3%	115-345 kV
Kinnard (1967)	Hartford, CT	1954-1964	791	1. Limited impact of –3% at 61m (200ft) 2. Tends to decrease substantially over time	Varied
Kinnard et al. (1997)	Suburban St Louis, MO	1990-1996	1377	–0.2% to –4.0% at 61m (200ft)	Unknown
Kinnard et al. (1989)	Orange County, NY	1983-1987	376	1. No measurable price impact for adjacent vacant lots 2. –6.20% at 61m	345 kV
Kung and Seagle (1992)	Suburban Memphis, TN	1989-1990	47	53% considered power line an eyesore, none aware of any health risk	N/A
Mitchell and Kinnard (1996)	Orange County, NY	1983-1987	376	No measurable price impact for adjacent vacant lots	345 kV
Wolverton and Bottemiller (2003)	Oregon/Washington	1989-1992	712	1. No price sensitivity for abutting an HVTL right-of-way. 2. No evident difference in appreciation rates	115-500 kV

Source: Bond et al., 2013.

Factors potentially affecting value are reduced with increased distance from the power line. These include the visibility of the line itself and any humming noise coming from the high-voltage lines. Visibility is lessened the farther a property is from the line and disappears or becomes intermittent when vegetation or structures block views. Transmission line hum, or corona noise (see Section D.13, Noise), occurs when high-voltage lines are carrying a load. The noise from corona discharge and similar electrical phenomena associated with high-voltage power transmission is heard near an energized line as a crackling or hissing sound. The noise is generally inaudible 100 feet from the ROW, and is perceptible only in very low ambient noise environments. In addition to visibility and noise, a third property owner concern is with regard to potential health risk associated with exposure to electromagnetic fields (EMF). In 1992, the Swedish National Institute of Occupational Health published two research studies suggesting that EMF exposure increased certain health risks. Despite numerous studies since, there is no consensus in the scientific community that exposure causes health issues. Individual buyers will perceive risk differently and for some a lack of certainty on this topic may diminish their perception of the value of a property located near a transmission line.

Various methodologies have been used in property value studies. Examples include:

- **Paired Sales Analysis.** This methodology involves finding sales of properties within the impact area of a transmission line and comparing these with sales of similar, competitive properties in a control area. Any price differentials are noted, and any pattern of such differences is identified and statistical testing procedures are applied to the results. There are two possible shortcomings of this market-based procedure. First, identifying what constitutes a pair of virtually identical properties often is a matter of subjective judgment on the part of the analyst or appraiser. Different analysts studying the same market frequently produce different pairs. Second, the relative paucity of appropriate pairs can render the entire procedure (and its results) questionable in terms of its representing the market.
- **Survey Research/Opinion.** Survey Research/Opinion method is used to supplement or substitute for analysis of market sales. It relies on responses to hypothetical situations by interviewees who are not necessarily prospective buyers.
- **Market Impact Studies Using Multiple Regression Analysis (MRA) in the Hedonic Pricing Model Format.** MRA in the Hedonic Pricing Model Format involves gathering data on many market sales transactions within the impact area and within one or more similar control areas over a specified period. This occurs before public awareness of a project. The extended time period is used to identify and measure any price/value impact that occurs once awareness of the project occurs. This type of "before and after" analysis supplements the comparison of other market data for both the impact and control areas.

Three possible effects have been claimed, singly or in combination, as potential contributors to reduced market value:

- **Diminished Price.** Diminished price is identified by comparing prices of units that are proximate to power lines with prices of similar and competitive properties more distant from transmission lines.
- **Increased Marketing Time.** Even when proximate properties sell at or near the same prices as more distant properties, claimants argue that properties nearer the transmission line take longer to sell. Such increased marketing time can constitute a "loss" to the seller because of the deferred availability and use of sale proceeds.
- **Decreased Sales Volume.** A more subtle indicator of diminished property value is if some potential buyers decide not to buy in the area of a transmission line. This would reduce the numbers of people looking into purchase of the property. A measurable decrease in sales volume in the vicinity of the line as compared with sales volume in a control area can represent evidence of decreased market value from proximity to the high-voltage transmission lines.

Regardless of the methodology, researchers acknowledge the difficulty of segregating the various variables affecting decisions. They recognize that the purchase of a residential property is a personal decision to which buyers bring their own mix of expectations, preferences, and biases, including how to weigh other factors in reaching a decision to purchase a property and at what price. Studies such as those discussed above indicate that other property-specific factors such as neighborhood amenities, schools, proximity to work, square footage of house, lot size, current market conditions, housing stock availability, et cetera are substantially more likely than the presence of overhead transmission lines to be major determinants of the sales price of property.

In addition, studies have generally concluded that over time, potential adverse effects on property value tend to diminish to a point of being negligible within five years; the studies determined that this decreasing effect is most likely due to increased screening of transmission lines over time, as trees and shrubbery increase in size, as well as diminished public sensitivity to the transmission line proximity. Some studies have suggested that where direct access to the ROW is provided, and trails and landscaping are installed, presence of transmission lines can be perceived as a favorable condition. Presumably this is because of the park-like views and open space access to the ROW for recreation.

In order to assess whether particular environmental and physical changes associated with implementation of the Proposed Project could affect property values, a market study of current and future properties within a specified distance from the transmission line would be required to evaluate property values with and without the Proposed Project. However, the data that would be required to conduct such an analysis for the Proposed Project are not realistically available and any conclusions regarding effects on property values in the case of the West of Devers Upgrade Project would be speculative.

As demonstrated by the studies discussed, factors that have the potential to affect property value are numerous and varied. As a result, it is not possible to identify exactly how or if the Proposed Project would potentially affect private property values. In the case of the West of Devers Upgrade, this situation is further complicated by the fact that transmission lines already exist in the ROW and that many residences adjacent to the ROW were built with the existing lines already in place.

An additional factor to consider is prior experience with transmission lines. In contrast to a new transmission line being built in a new ROW, the West of Devers Upgrade Project would be within an existing ROW occupied by existing lines. The project ROW and the existing transmission lines in the ROW have been part of the local landscape for some time, in both developed and undeveloped areas. Subsequent to the original development of the transmission corridor, additional residential and commercial development has occurred along the ROW.

The upgrades proposed would not introduce transmission lines into an area where previously there have been none. However, the project would change the size of the lines and the locations and heights of transmission structures. The Proposed Project would remove numerous existing transmission structures and lines, replacing them with new structures and lines of more robust construction. Some new structures would be larger and taller than those removed, but there would be fewer structures than now exist in the ROW and the ROW would have a more consistent look because the Proposed Project would require installation of two similar structures. The locations of individual structures within the ROW would change as compared to current conditions. This would result in some residences having transmission structures and conductors nearer to them than is the case with the structures and conductors that would be removed. In other cases, the new structures and conductors would be farther from residences than the existing ones.

Given that the Proposed Project would occur in an already developed transmission corridor and that various structures and lines would be removed and new transmission structures and lines would be installed, it is likely that there would be no perceptible change in property values overall, even if it could be demonstrated that the value of some individual properties would be affected.

Simply stated, there are no definitive answers about whether and to what degree the presence of a transmission line may affect property value; some studies claim to identify an adverse effect on value under certain circumstances, while others find no discernable effect or even a positive effect.

Impact SE-6: Construction of the project could increase wages and public revenue.

The effect of a project on wages and tax revenues is evaluated as an economic impact under NEPA. It is estimated that construction of the Proposed Project would directly generate nearly $790 million in wages and $244 million in non-labor purchases. This nearly $1 billion in expenditures would have a multiplier effect in the economy, creating additional jobs elsewhere in the economy. While some expenditures would occur for materials acquired in distant markets, substantial expenditures would be local. SCE estimates that for every $1 million spent, four jobs would be created in the California economy during construction. Although the completion of construction would see the end of this revenue stream into the economy, financial benefits from the presence of the new assets would continue. Public revenues in the form of property taxes, sales (or use) taxes, and franchise fees are paid to the various cities and counties within the project area. It is estimated that with the West of Devers Upgrade in place, property taxes on the assets would increase from approximately $172,000 (in 2013) to approximately $13 million. San Bernardino County's annual property tax revenues would increase by $3.6 million and Riverside County's annual property tax revenues would increase by $9.4 million.

During construction, expenditures on labor and materials would add to the regional economy, providing both personal wages and additional public revenue through taxes on wages and material purchases. After construction is complete, local governments would continue to benefit from annual taxes and fees paid on the new assets put in place by the Proposed Project. Because the project's assets would require little or no public services, the revenues realized from taxes and fees related to the Proposed Project would be an ongoing positive benefit to the region.

Mitigation Measures

None of the impacts associated with socioeconomics or environmental justice require mitigation.

D.8.3.4 Impacts of Connected Actions

Impact SE-1: Construction would result in a substantial increase in population growth.

Building the solar projects defined as connected actions would require a large workforce at each site during the construction phase. Subsequent operation and maintenance of the facilities would require a much smaller workforce. It is expected that most of the construction workforce would be drawn from areas within a 2-hour commute of the individual projects. The operational workforce with be drawn from an area within a 1-hour commute. Based on the labor pool identified in Table D.8-1 (in Section D.8.1.2.1), a more than adequate workforce would be available to work on simultaneously constructed projects. In addition to the labor pool identified in Table D.8-1, projects in the Desert Center and Blythe areas would draw from Imperial County and nearby counties in Arizona.

Desert Center Area. There are 4 connected projects anticipated to be developed in the Desert Center area. Simultaneous construction of the 4 projects would require an average daily workforce of 600 and a peak workforce of 1,200. There is a very small population in Desert Center; the closest substantial population centers are nearly 50 miles away in each direction — in the Coachella Valley to the west and in Blythe to the east. Few if any accommodations exist in Desert Center. It is anticipated that workers would commute from western Riverside County and Blythe to jobs in the Desert Center area. Some workers also would commute from San Bernardino and Imperial Counties. Because construction jobs are relatively short-term and because there is no local accommodation for workers in the area, they would commute from their residences. Table D.8-1 (Population and employment) identifies the total employment in construction trades for San Bernardino and Riverside Counties, as well as for individual cities in the vicinity of the West of Devers transmission corridor. This workforce, as well as workers in Blythe and Imperial County, would be within the 2-hour (approximately 130 mile) commuting radius of Desert Center and would be adequate for meeting the needs of the projects and the projects would not result in a substantial increase in population locally or in the broader region.

Blythe Area. The 3 projects in the Blythe area would be solar PV projects covering a combined 4,200 acres. If constructed at the same time, the combined projects could require a daily average of 350 workers, with a daily peak of 875. The nearest population center is Blythe, which had an estimated 5,680 people employed in 2013. Of these, just over 200 were in construction. The number of unemployed construction workers is unknown. The Blythe Mesa EIR/EA anticipated that most workers would be drawn from the Blythe/Palo Verde Valley region and the Desert Center region, with a smaller portion drawn from the Imperial Valley or eastern Riverside County region. Based on a 2-hour commute, cities in the Coachella Valley as well as the City of El Centro would be within commute distance to the projects in the Blythe area. These more distant cities have substantially larger numbers of construction workers. Because construction jobs are relatively short-term, it is unlikely that many would relocate to Blythe. The workforce within the 2-hour commuting radius would be adequate to the needs of the projects here and there would not be a substantial increase in population locally or in the broader region. Blythe is approximately 50 miles east of Desert Center, so would likely draw workers from Imperial County and nearby areas of Arizona, as well as from the labor pool in San Bernardino and Riverside Counties.

Impact SE-2: Construction would displace a substantial amount of existing housing

All of the connected actions in the Desert Center areas would likely be on vacant land. One large solar project near Blythe has 3 residences on the property that are associated with existing agricultural use on part of the site, and these residences would be purchased by the solar developer. The other projects are expected to use vacant land. Consequently, construction of the projects would not displace a substantial amount of existing housing.

Impact SE-3: Construction would displace substantial numbers of people

The connected solar projects would be primarily located on vacant land; therefore, direct displacement of a substantial number people thorough the construction of the connected action projects would not occur. Indirect displacement could occur if a large number of workers migrated to the area and displaced current residents (for example, by out-bidding local residents for rental properties). However, based on an anticipated 2-hour commute threshold, there is a sufficient workforce extant in the region to undertake the various projects. It is anticipated that few workers would relocate to be closer to project sites. If workers from more distant locations were to move to the area, vacancy rates in the cities and communities within this 2-hour distance are sufficient to absorb any workers who may want to move closer to the projects.

Impact SE-4: The project would disproportionately affect minority or low-income populations

The effect of a project on minority or low-income populations is a factor considered under NEPA.

Desert Center Area. The census tract that includes Desert Center area covers a large, sparsely populated area. In 2010, the total population of the tract was less than 2,000 and was 55.4 percent minority. This is below the countywide 60.5 percent minority population. The Desert Harvest Solar Project FEIS identified that 4.3 percent of the population in the area of the project was below the poverty level. Given the low population density and the composition of the population, the connected actions would not disproportionately affect minority or low-income populations. This is true as well when considering the Proposed Project in conjunction with the connected actions.

Blythe Area. In 2010 the population of Blythe was 20,817. Ripley, located approximately 6 miles southwest of Blythe, had a population of 692. Small areas of residential development occur near I-10 west of Blythe. There are few residences outside of these communities and the surrounding agricultural areas. Three of the connected actions, covering 4,200 acres, are expected to locate in the desert west of Blythe and interconnect with the Colorado River Substation The fourth project, the Blythe Mesa Solar Project, would be located on vacant and agricultural land at the western edge of Blythe and would interconnect to the same substation. These projects would be 6 or more miles from the center of Blythe.

Data in the Blythe Mesa Solar Project EIR/EA show the percentage minority population in Blythe (41 percent) is less that the percentage minority population countywide (60.4 percent). Some tracts in the Blythe area have a higher percentage of persons living below the poverty level than is the case countywide. However, the data for the desert tracts cover large areas and the population is not in locations expected to have projects nearby or within a distance that would create significant impacts on residents. When viewed in the context of the Proposed Project, the connect actions also would not disproportionately affect minorities or those living below the poverty line as compared to the general population in the project area.

Impact SE-5: Construction of the project could adversely affect property values

The effect of a project on property values is a factor that is considered under NEPA, but not under CEQA.

A review of the effects of transmission projects on property values is provided in Section 8.3.3.1. As discussed in the Desert Harvest EIS, numerous studies of locally undesirable land uses conclude that the potential for environmental concerns associated with large-scale energy projects to have an effect on property value is usually smaller than anticipated. As well, it is essentially impossible to quantify due to the individuality of properties and their respective neighborhoods, as well as differences in the personal preferences of individual buyers and the weight of other factors that contribute to a person's decision to purchase a property. Some aspects of project construction and/or operation and maintenance could potentially affect private property values. However, as cited in the Desert Harvest EIS, "the effects of industrial facilities on property value are generally smaller in comparison to other relevant factors and generally diminish within five years to be negligible. (BLM, 2012: page 4.15-5)

Impact SE-6: Construction of the project could increase wages and public revenue

The effect of a project on wages and public revenue is a factor that is considered under NEPA. During the 2 to 4 years over which individual connected action projects would be constructed, a substantial number of workers would receive wages. Jobs would also be created in the industries providing materials, goods, and services to the projects and to workers. Sales tax revenues would increase from the sale of taxable goods and services. This would be true in all 3 of the areas where connected actions would be built as well as other locations where connected economic activity would occur from project or worker spending. Property taxes would not substantially increase because certain property tax exclusions or reduction apply to new systems constructed prior to January 1, 2017.

D.8.4 Environmental Impacts of Project Alternatives

Three alternatives are considered in this section; all of these alternatives would be located within the existing WOD ROW. The No Action Alternative is evaluated in Section D.8.5. Alternatives are described in detail in Appendix 5 (Alternatives Screening Report) and are summarized in Section C.

The socioeconomic and environmental justice environmental setting within the ROW is described in Section D.8.1.2 above; the description of the environmental setting would apply equally to the alternatives.

D.8.4.1 Tower Relocation Alternative

The Tower Relocation Alternative would locate certain transmission structures in Segments 4, 5, and 6 farther from existing homes than would be the case under the Proposed Project.

Six impacts related to socioeconomics and environmental justice are defined for the Proposed Project. These impacts also would apply to the Tower Relocation Alternative, which overall would be the same as the Proposed Project except for the relocated of certain transmission towers that are described above and in Appendix 5. None of the impacts associated with socioeconomics or environmental justice require mitigation.

Impact SE-1: Construction would result in a substantial increase in population growth

A project would be considered growth-inducing if it fostered growth in population above what is assumed in local and regional land use plans or in projections made by regional planning authorities. Growth impacts also could occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those identified by local or regional plans and policies.

The Tower Relocation Alternative would not result in a greater number of workers than the number required for the Proposed Project, nor would it require additional specialty tradespersons who would move to the region, adding to the local population. The same workers constructing the Proposed Project's towers would construct the relocated towers. The relocation of selected towers from their positions under the Proposed Project to locations approximately 50 feet farther from the southern edge of the ROW would not affect population growth. No mitigation would be required.

Impact SE-2: Construction would displace a substantial amount of existing housing

While some linear projects such as new highways may displace housing units, high-voltage transmission lines typically do not displace substantial numbers of housing units. To the degree they have flexibility in siting, transmission lines are routed around buildings. Nearly the entire project alignment would be in an existing ROW, designated for use by existing transmission.

Relocation of selected towers farther from some residences to nearby locations within the ROW would not displace any housing. As with the Proposed Project, because there would be no displacement of housing there would be no need for new replacement housing. No mitigation would be required.

Impact SE-3: Construction would displace substantial numbers of people

Construction could displace people directly (by removing residential structures) or indirectly (as a result of in-migrant project workers displacing existing residents). With regard to displacing residences, the Project would be implemented on land unoccupied by buildings and no housing or buildings would be removed. Overall, the rental vacancy rate in San Bernardino County is 6.9 percent and in Riverside County is 7.6 percent, not including vacant homes for sale. In addition, other accommodations, such as long-stay hotels or trailer parks, are available to accommodate housing needs for workers that might temporarily relocate to the area.

The Tower Relocation Alternative would not displace any housing and, therefore, would not displace any people. The workforce required to construct the alternative would be the same as required for the Proposed Project. There is sufficient vacant rental and temporary housing to accommodate any temporarily relocating workers and their families without displacing others. Therefore, neither the alternative itself nor the project workforce would displace substantial numbers of people. No mitigation would be required.

Impact SE-4: The project would disproportionately affect minority or low-income populations

The effect of a project on minority or low-income populations is evaluated under NEPA. This alternative affects only portions of Segments 4, 5, and 6 by shifting the location of certain proposed towers within the existing ROW.

Environmental justice criteria identify census tracts of concern with regard to their receiving disproportionate impacts. Tracts of concern are those having a higher percentage of minority population or a higher percentage of persons living in poverty than the county as a whole.

In Segment 4, the residential areas visible near tower relocation sites on Figures Ap.5-3a through Ap.5-3d are outside of census tracts meeting environmental justice criteria. The residences shown on Figures Ap.5-3e through Ap.5-3g are in census tracts with a higher level of poverty than the countywide level. Moving selected towers farther from residences under the Tower Relocation Alternative would not change conditions such as to create a disproportionate effect on minority or low-income populations. For the Proposed Project, it was determined that there would not be a disproportionate impact on residences in these tracts as compared to all tracts in Segment 4 and for the project as a whole. The same is true with this alternative.

In Segment 5, a pair of towers would be shifted approximately 50 feet north of their proposed location, placing them farther from a single family residence at the end of North Murray Street in Banning. This is shown in Figure Ap.5-3i. Moving these towers farther from a residence would not change conditions such as to create a disproportionate effect on minority or low-income populations.

In Segment 6, the ROW passes through the rural community of Whitewater. See Figure Ap.5-3h in Appendix 5. Four towers would be relocated to be farther from residences. This portion of Segment 6 is in census tract 446.21. The percentage of persons in this tract living below the poverty level is greater than occurs countywide. Some residences would experience somewhat reduced impacts as a result of the relocations, but this would not change the proportionality of impacts under the environmental justice criteria. For the Proposed Project, it was determined that there would not be a disproportionate impact on residences in this tract as compared to the project as a whole.

Impact SE-5: Construction of the project could adversely affect property values

The effect of a project on property values is evaluated as an economic impact under NEPA. The presence of a high-voltage overhead transmission line can raise concerns among property owners about the potential effect the line might have on the value of their property. This may be of particular concern if new lines are being introduced in an area where there have not been lines previously. It also can be a concern when an existing line is upgraded to a higher voltage and the position of the line and of individual structures within the ROW changes existing conditions, resulting in structures being more or less close to individual properties. Transmission structures and conductor sizes also would increase in order to support higher throughput on the lines.

As discussed for Impact SE-5 in Section D.8.3.3, the proximity of transmission lines raises concerns among property owners regarding potential adverse effects on value. As shown in the studies discussed in Section D.8.3.3, factors that have the potential to affect property value are numerous and varied. As a result, it is not possible to identify exactly how or if relocating selected towers 50 feet from their proposed location would affect private property values as compared to the Proposed Project. In the case of the West of Devers Upgrade, this situation is further complicated by the fact that transmission lines already exist in the ROW and that many residences adjacent to the ROW were built with the existing lines already in place. While moving towers this distance from some residences may have a nominal effect on value, this is impossible to assess or measure. Given the nominal distance the towers would move, the alternative is assumed to have no discernible impact on property values as compared to the Proposed Project.

Impact SE-6: Construction of the project could increase wages and public revenue

It is estimated that construction of the Proposed Project would directly generate nearly $790 million in wages and $244 million in non-labor purchases. Although the completion of construction would see the end of this revenue stream into the economy, financial benefits from the presence of the new assets would continue. Public revenues in the form of property taxes, sales (or use) taxes, and franchise fees are paid to the various cities and counties within the project area.

During construction, expenditures on labor and materials would add to the regional economy, providing both personal wages and additional public revenue through taxes on wages and material purchases. After construction is complete, local governments would continue to benefit from annual taxes and fees paid on the new assets put in place by the Proposed Project. Because the project's assets would require little or no public services, the revenues realized from taxes and fees related to the Proposed Project would be an ongoing positive benefit to the region.

The relocation of selected towers would not affect wages or public revenues. Wages and public revenue would be essentially the same under both the Tower Relocation Alternative and the Proposed Project.

D.8.4.2 Iowa Street 66 kV Underground Alternative

The Iowa Street 66 kV Underground Alternative would place a 1,600-foot segment of subtransmission line underground, rather than overhead.

Six impacts were identified under the Proposed Project for socioeconomics and environmental justice. These impacts also would apply to the Iowa Street 66 kV Underground Alternative, which overall would be the same as the Proposed Project, with the exception of the underground portion of the subtransmission line that is described above and in Appendix 5. None of the impacts associated with socioeconomics or environmental justice require mitigation.

Impact SE-1: Construction would result in a substantial increase in population growth

A project would be considered growth-inducing if it fostered growth in population above what is assumed in local and regional land use plans or in projections made by regional planning authorities. Growth impacts also could occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those identified by local or regional plans and policies.

Undergrounding a segment of the 66 kV transmission line in Iowa Street would have no effect on population growth. This is a construction variation and would not increase the project workforce or the level of migration of workers.

Impact SE-2: Construction would displace a substantial amount of existing housing

While some linear projects such as new highways may displace housing units, high-voltage transmission lines typically do not displace substantial numbers of housing units. To the degree they have flexibility in siting, transmission lines are routed around buildings. Nearly the entire project alignment would be in an existing ROW, designated for use by existing transmission.

The undergrounding of the line at this location on Iowa Street would not displace any housing. Most of the alternative would be located within the street ROW. From time to time access to traffic lanes or to properties may be temporarily restricted to accommodate construction, but no residences would be removed.

Impact SE-3: Construction would displace substantial numbers of people

Construction could displace people directly (by removing residential structures) or indirectly (as a result of in-migrant project workers displacing existing residents). With regard to displacing residences, the Iowa Street 66 kV Underground Alternative would be implemented in the road ROW and not on land unoccupied by buildings.

The construction of an underground segment would not displace people. There may be short-term noise and traffic disruption as a result of construction, but it would not be sufficient to displace residents.

Impact SE-4: The project would disproportionately affect minority or low-income populations

The effect of a project on minority or low-income populations is evaluated under NEPA. The underground segment along Iowa Street under this alternative is not located in a census tract that meets the environmental justice criteria for minority or poverty-level populations of concern. There would be no disproportionate effect on minority or low-income populations as a result of undergrounding this segment of the subtransmission line.

Impact SE-5: Construction of the project could adversely affect property values

The effect of a project on property values is evaluated as an economic impact under NEPA.

As discussed for Impact SE-5 in Section D.8.3.3, the proximity of transmission lines raises concerns among property owners regarding potential adverse effects on value. As shown in the studies discussed in Section D.8.3.3, factors that have the potential to affect property value are numerous and varied. As a result, it is not possible to identify exactly how locating a segment of transmission line underground would affect private property values as compared to the Proposed Project, which would have them above ground at this location. Placing lines underground near some residences may have a nominal positive effect on value because it would be out of sight, but this is impossible to accurately assess or measure. While this alternative would remove a visual impact (visible poles and line), the effect this would have on property values is unknown. Therefore, the underground alternative is assumed to have no discernible impact on property values as compared to the Proposed Project.

Impact SE-6: Construction of the project could increase wages and public revenue

It is estimated that construction of the WOD Upgrade Project would directly generate nearly $790 million in wages and $244 million in non-labor purchases. During construction, expenditures on labor and materials would add to the regional economy, providing both personal wages and additional public revenue through taxes on wages and material purchases. After construction is complete, local governments would continue to benefit from annual taxes and fees paid on the new assets put in place by the Proposed Project.

The location of a segment of the 66 kV line underground would not affect wages or revenues to any discernible degree. While this segment would require different construction techniques, wages and public revenue would be essentially the same under both the alternative and the Proposed Project.

D.8.4.3 Phased Build Alternative

The Phased Build Alternative would retain existing double-circuit 220 kV transmission structures to the extent feasible, remove single-circuit structures, add new double-circuit 220 kV structures, and string all structures with higher-capacity conductors.

Six impacts related to socioeconomics and environmental justice are identified for the Proposed Project. These impacts also would apply to the Phased Build Alternative. None of the impacts associated with socioeconomics or environmental justice require mitigation.

Impact SE-1: Construction would result in a substantial increase in population growth

A project would be considered growth-inducing if it fostered growth in population above what is assumed in local and regional land use plans or in projections made by regional planning authorities. Growth impacts also could occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those identified by local or regional plans and policies. In the case of the Proposed Project and the Phase Build Alternative, population growth could be a result of in-migration of workers. Analysis of the Proposed Project identified that there are sufficient workers in the region such that only a nominal amount of growth due to in-migration might occur and this would be within the anticipate growth already identified by local jurisdictions.

The Phased Build Alternative would require construction of fewer new double-circuit towers than planned under the Proposed Project. This may result in fewer workers because less tower removal and tower construction would occur. In any event, this alternative would not result in an increase the number of workers greater than the number required for the Proposed Project, nor would it require additional specialty tradespersons who would move to the region, adding to the local population. As under the Proposed Project, the Phased Build Alternative would not affect population growth; no mitigation would be required.

Impact SE-2: Construction would displace a substantial amount of existing housing

While some linear projects such as new highways may displace housing units, high-voltage transmission lines typically do not displace substantial numbers of housing units. Nearly the entire project alignment would be in an existing ROW, designated for use by existing transmission. There are no homes or apartments in the ROW.

As with the Proposed Project, there would be no displacement of housing under this alternative. Therefore, there would be no need for new replacement housing. No mitigation would be required.

Impact SE-3: Construction would displace substantial numbers of people

Construction of a project could displace people directly (by removing residential structures) or indirectly (as a result of in-migrant project workers displacing existing residents). With regard to displacing residences, the WOD Upgrade would be implemented on land free of buildings, and no housing or buildings would be removed. While some workers may move into the project vicinity, most will commute from their homes in the greater metropolitan area. The rental vacancy rate in San and Riverside County is sufficient to accommodate any in-migration. In addition, other accommodations, such as long-stay hotels or trailer parks, are available to accommodate housing needs for workers that might temporarily relocate to the area.

The Phased Build Alternative would not displace any housing and, therefore, would not displace any people. The workforce required to construct the alternative would be similar to that required for the Proposed Project. There is sufficient vacant rental housing to absorb any temporarily relocating workers and their families without displacing others. Therefore, neither the alternative itself nor the project workforce would displace people. No mitigation would be required.

Impact SE-4: The project would disproportionately affect minority or low-income populations

The effect of a project on minority or low-income populations is evaluated under NEPA. Environmental justice criteria identify census tracts of concern with regard to their receiving disproportionate impacts. Tracts of concern are those having a higher percentage of minority population or a higher percentage of persons living in poverty than the county as a whole.

The Phased Build Alternative and the Proposed Project would affect the same census tracts and populations. For the Proposed Project, it was determined that there would not be a disproportionate impact on residences in minority or poverty tracts as compared to for the project as a whole. The same would be true for the Phased Build Alternative, since it affects the same tracts.

Impact SE-5: Construction of the project could adversely affect property values

The effect of a project on property values is evaluated as an economic impact under NEPA. The presence of a high-voltage overhead transmission line can raise concerns among property owners about the potential effect the line might have on the value of their property. This may be of particular concern if new lines are being introduced in an area where there have not been lines previously. It also can be a concern when an existing line is upgraded to a higher voltage and the position of the line and of individual structures within the ROW changes existing conditions, resulting in structures being closer to or farther from individual properties.

As discussed for Impact SE-5 in Section D.8.3.3, the proximity of transmission lines raises concerns among property owners regarding potential adverse effects on value. As shown in the studies discussed in Section D.8.3.3, factors that have the potential to affect property value are numerous and varied. As a result, it is not possible to identify exactly how or if retaining existing double-circuit towers is their existing positions as compared to installing new towers would affect private property values as compared to the Proposed Project. In the case of the West of Devers Upgrade, this situation is further complicated by the fact that transmission lines already exist in the ROW and that many residences adjacent to the ROW were built with the existing lines already in place. While retaining certain towers as opposed to constructing new ones at other location may have a nominal effect on value, this may be adverse to some properties and positive for others. Overall, this is impossible to assess or measure. The alternative is assumed to have no discernible impact on property values as compared to the Proposed Project.

Impact SE-6: Construction of the project could increase wages and public revenue

It is estimated that construction of the Proposed Project would directly generate nearly $790 million in wages and $244 million in non-labor purchases. This may decrease if towers are retained, but may be offset by costs associated with strengthening and increasing the height of some towers, and by the need for additional shoo-flies. Although the completion of construction would see the end of this revenue stream into the economy, financial benefits from the presence of the new assets would continue. Public revenues in the form of property taxes, sales (or use) taxes, and franchise fees are paid to the various cities and counties within the project area.

During construction, expenditures on labor and materials would add to the regional economy, providing both personal wages and additional public revenue through taxes on wages and material purchases. After construction is complete, local governments would continue to benefit from annual taxes and fees paid on the new assets put in place by the Proposed Project. Because the project's assets would require little or no public services, the revenues realized from taxes and fees related to the Proposed Project would be an ongoing positive benefit to the region.

Retaining the double-circuit towers would be expected to somewhat reduce overall project cost for materials and labor. This may result in fewer wages being paid. Depending on how the project is valued, public revenue from property taxes and other fees may be somewhat lower under the alternative as compared to the Proposed Project.

D.8.5 Environmental Impacts of No Action Alternative

D.8.5.1 No Action Alternative Option 1

The No Action Alternative Option 1 is described in Section C.6.3.1. It would consist of a new 500 kV circuit, primarily following the Devers-Valley transmission corridor and extending 26 miles between Devers Substation. It would also require a new 40-acre substation south of Beaumont, and 4 new 220 kV circuits extending 7 miles from the new Beaumont Substation to El Casco Substation, primarily following the existing El Casco 115 kV ROW. The remainder of the No Project Alternative, from El Casco Substation to the San Bernardino and Vista Substations, would be identical to the Proposed Project. Information on environmental resources and project impacts is derived from the Devers–Palo Verde 500 kV No. 2 Project EIR/EIS (CPUC and BLM, 2006) and the El Casco System Project Draft EIR (CPUC, 2007); which include nearly all of the No Action alignment.

No Action Alternative Transmission Lines and Beaumont Substation. The 500 kV alignment would pass through the community of Cabazon and through southern Banning, low-income areas south of I-10. Starting at the Beaumont Substation site and continuing to El Casco Substation, the area has low population density or includes remote and rural landscapes. There could be environmental justice concerns in Cabazon and Banning. Other socioeconomic effects, such as wages and public revenues, would be similar to those that would occur under the Proposed Project.

D.8.5.2 No Action Alternative Option 2

No Action Alternative Option 2 would require the construction of over 40 miles of new 500 kV transmission line, following the existing Valley-Serrano 500 kV line. The alternative is described in Section C.6.3.2, and illustrated on Figure C-6b. The new 500 kV circuit would be constructed along an existing transmission corridor and would not physically divide an established community. Most of the surrounding land is sparsely populated, with the exception of the western and eastern ends of the corridor. This alternative would not result in a substantial amount of population growth nor would it displace a substantial amount of people or housing. Due to the mostly unpopulated nature of this corridor, adverse effects are not expected to fall disproportionately on minority or low-income populations. Positive effects on wages and public revenue are expected to be similar to those described in the Proposed Project.

D.8.6 Mitigation Monitoring, Compliance, and Reporting

No mitigation measures are required for Socioeconomic and Environmental Justice impacts.

D.8.7 References

BLM (Bureau of Land Management). 2012. Desert Harvest Solar Farm Final EIS. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Harvest_Solar_Project.html. Accessed February 16, 2015.

_____. 2005. BLM Handbook H-1601-1 – Land Use Planning Handbook. March 11.

_____. 2002. Instruction Memorandum No. 2002-164 "Guidance to Address Environmental Justice (EJ) in Land Use Plans and Related National Environmental Policy Act (NEPA) Documents." May 2.

Bond, Sally, et al. 2013. *Towers Turbines and Transmission Lines Impact on Property Value* edited by Sandy Bond, Sally Sims, and Peter Dent. Wiley-Blackwell (UK) publisher, imprint of John Wiley & Sons, Ltd.

CPUC (California Public Utilities Commission). 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm. Accessed April 15, 2015.

CPUC and BLM. 2006. SCE Devers–Palo Verde 500 kV No. 2 Project EIR/EIS, Sections on West of Devers Alternative. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-deir.htm. Accessed April 15, 2015.

CPUC and USDA (United States Department of Agriculture) Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

EPRI (Electric Power Research Institute). 2003. Transmission Lines and Property Values: State of the Science. Final Report (1005546), November.

SCE (Southern California Edison). 2014. Responses to CPUC Data Request 1 through Data Request 7.

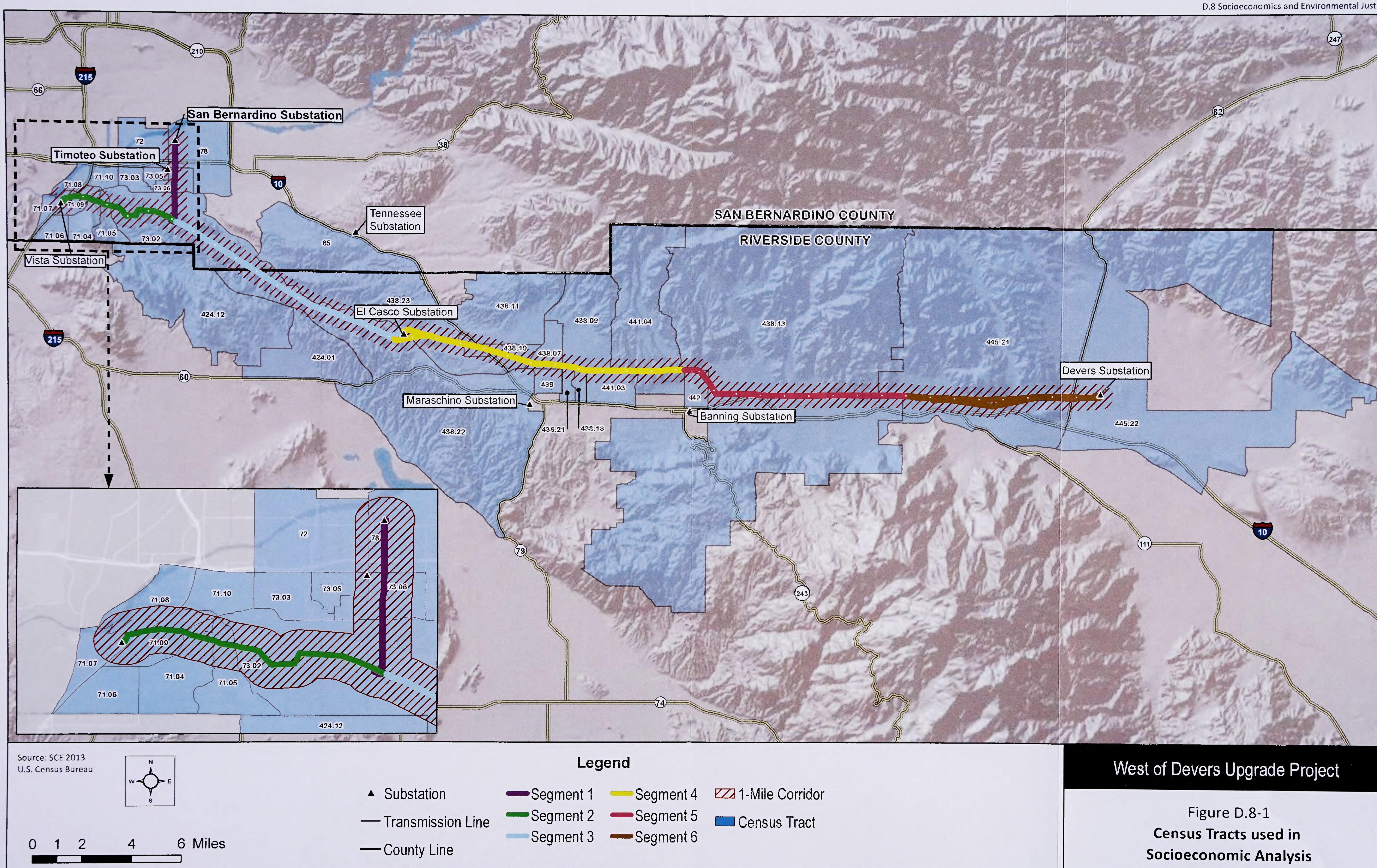
Southern California Association of Governments. 2012. Regional Transportation Plan 2012, Growth Forecast Appendix, April 2012. http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf. Accessed March 19 and April 10, 2014.

U.S. Census Bureau. 2012a. American Fact Finder, 2012 ACS 5-Year Estimates, Category ID S2403, "Industry by Sex and Median Earnings in the Past 12 Months (In 2012 Inflation-Adjusted Dollars) for the Civilian Employed Population 16 Years and Older." http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_S2403&prodType=table. Accessed April 10, 2014.

_____. 2012b. American Fact Finder, 2012 ACS 5-Year Estimates, Category ID B03002 "Not Hispanic or Latino, White Alone." http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_B03002&prodType=table. Accessed March 19, 2014.

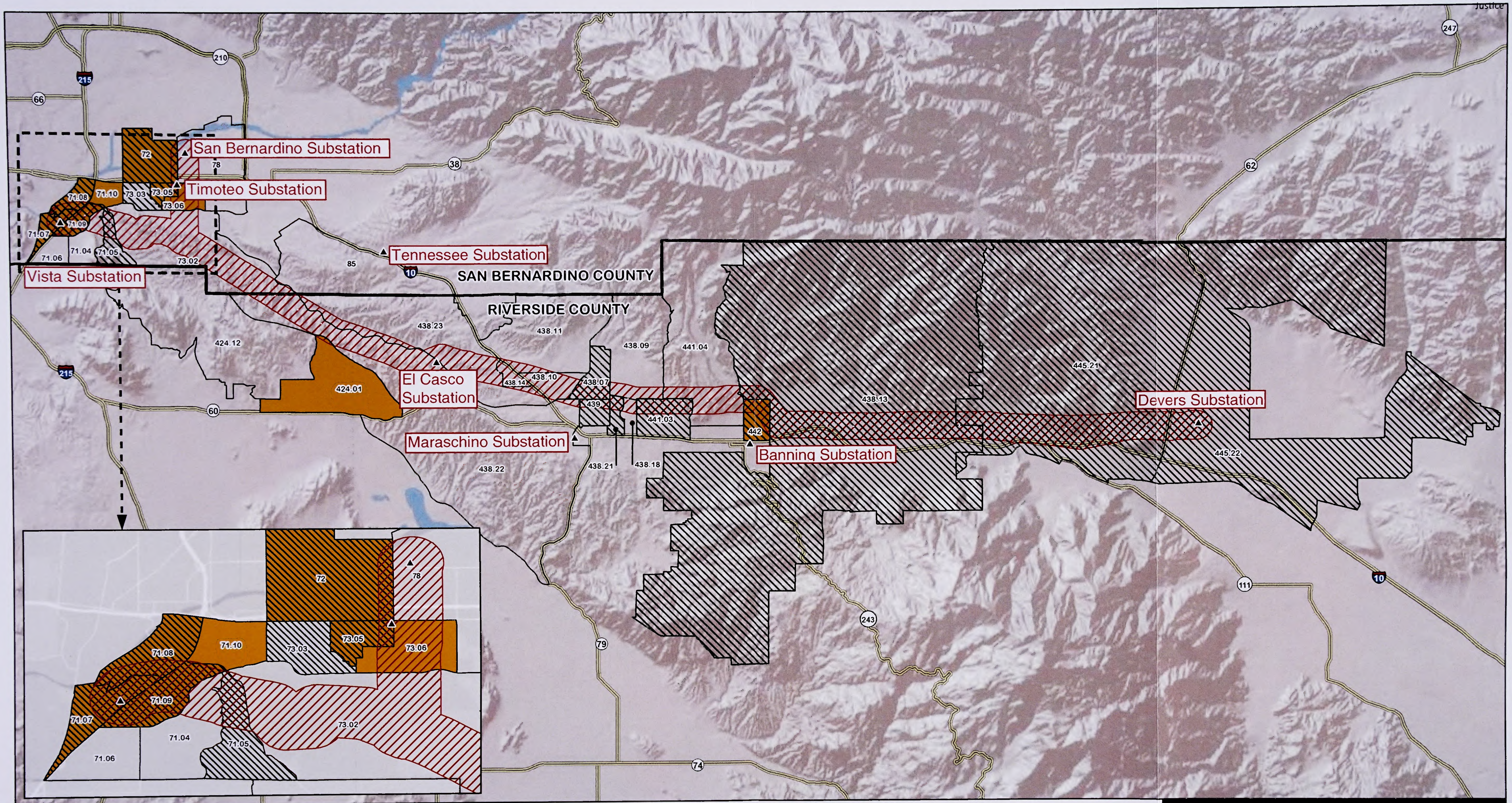
_____. 2012c. American Fact Finder, 2012 ACS 5-Year Estimates, Category ID DP04, "Selected Housing Characteristics." http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_DP04&prodType=table. Accessed April 10, 2014.

_____. 2012d. American Fact Finder, 2012 ACS 5-Year Estimates, Category ID S1701 "Poverty Status in the Past 12 Months." http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_S1701&prodType=table. Accessed March 19, 2014.



West of Devers Upgrade Project

Figure D.8-1
Census Tracts used in Socioeconomic Analysis



Source: SCE 2013
U.S. Census Bureau 2012b & 2012d

0 1 2 4 6 Miles

Legend

- ▲ Substation
- — Transmission Line
- — County Line
- 1-Mile Wide Corridor
- Census Tract Exceeding County-wide Minority Population
- Census Tract Exceeding County-wide Poverty Population

West of Devers Upgrade Project

Figure D.8-2
Census Tracts meeting Environmental Justice Criteria

D.9 Geology and Soils

This section describes the affected environment for Geology and Soils and analyzes environmental impacts to these resources that are expected to result from the implementation of the Proposed Project. The following discussions address existing environmental conditions in the affected area, identify and analyze environmental impacts, and recommend measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to geologic and seismic hazards are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the project. Section D.9.1 presents the affected environment for Geology and Soils. Relevant regulations and standards are summarized in Section D.9.2. Sections D.9.3 through D.9.5 describe the impacts of the Proposed Project and the alternatives. Section D.9.6 presents the mitigation measures and mitigation monitoring requirements, and D.9.7 lists references cited.

D.9.1 Environmental Setting / Affected Environment

D.9.1.1 Regional Setting and Approach to Data Collection

Baseline geologic, seismic, and soils information was collected from published and unpublished literature, GIS data, and online sources for the project and the surrounding area. Data sources included the following: previous reports and studies related to the Lake Gregory Dam provided by the County of San Bernardino, geologic literature, maps, and GIS data from the U.S. Geological Survey and California Geological Survey, soils data from the U.S. Department of Agriculture, and other online reference materials. The literature review was supplemented by a field reconnaissance of the proposed and alternative routes. The literature review and field reconnaissance focused on the identification of specific geologic hazards and soil conditions.

The study area was defined as the locations of Project components and the areas immediately adjacent to the project components for most geologic and soils issue areas with the following exception: the study area related to seismically induced ground shaking includes significant regional active and potentially active faults within 50 miles of the project.

Physiography

The West of Devers Upgrade Project route is near the junction of three major physiographic provinces in California: the northern edge of the Peninsular Ranges, the southern edge of the Transverse Ranges, and the northwestern edge of the Colorado Desert. The route skirts the edges of fault-bounded mountain ranges, and crosses desert features such as badlands (i.e., barren dissected and eroded hills and gullies that are formed in semiarid regions with sparse vegetation and that experience high rates of erosion, usually formed in areas underlain by soft or weakly cemented fine grained geologic units), alluvial fans, and pediments. The Peninsula Ranges are a northwest trending set of fault-bounded mountains and valleys, south of the Transverse Ranges, and in the project area include the northern end of the San Jacinto Mountains and the hills known as the San Timoteo Badlands. The Colorado Desert region lies mostly at a low elevation and consists of desert basins with interspersed northwest-trending mountain ranges.

The northern end of the Proposed Project starts at the San Bernardino Substation which is located in the southern San Bernardino Valley. At the southern end of the north-south section, near the San Bernardino Junction, it crosses a low set of hills that are part of the San Timoteo Badlands and San Timoteo Creek. The east-west section of the route starts at Vista Substation and crosses I-215 before entering the San Timoteo

Badlands. The route crosses several stands of the San Jacinto Fault before exiting the hills. The route traverses the Badlands hills parallel to San Timoteo creek until the eastern end of the hills where it exits into Cherry Valley.

The route continues east skirting the southern foothills of the San Bernardino Mountains, making excursions into the valley occupied by the cities of Banning and Beaumont. This valley between the San Bernardino Mountains on the north, and the San Jacinto Mountains of the Peninsular Ranges geomorphic province on the south, is known as the San Gorgonio Pass. The proposed West of Devers route exits the San Gorgonio Pass east of Whitewater Canyon. The project ends at Devers Substation, which is located near the western edge of the Colorado Desert region at the northeastern edge of the Coachella Valley.

Geology

The West of Devers portion of the proposed route is underlain primarily by sedimentary units ranging in age from Holocene to Pliocene, with lesser amounts of Cretaceous granitic rocks near the western end. It generally traverses alluvial plains, alluvial fans and pediments, badlands, and hills. General descriptions of the geologic materials, listed chronologically, crossed by the proposed West of Devers segments are summarized in Table D.9-1. The regional geology of the Proposed Project area is presented in Figure D.9-1, Geologic Map.

Table D.9-1. Summary of Geologic Units along the West of Devers Segment

Formation	Age	Description/Comment	Excavation Characteristics[1]
Qw – Wash Deposits	Holocene	Alluvial deposits occurring in modern washes of rivers and streams.	Easy
Qyf – Younger Fan Deposits	Holocene	Alluvial fan deposits of sand and gravel.	Easy
Qya – Younger Alluvium	Holocene	Slightly dissected alluvial deposits of sand and gravel.	Easy
Qal – Recent Alluvium	Holocene	Unconsolidated alluvial fan, river channel, and stream deposits consisting of silt, sand, clay, and gravel.	Easy
Qow – Older Wash Deposits	Holocene	Alluvial deposits of abandoned washes or intermittently active alluvium of older washes.	Easy
Qof – Older Fan Deposits	Holocene to Pleistocene	Moderately dissected fan deposits of sand and gravel.	Easy
Qc – Nonmarine Sedimentary Deposits	Pleistocene	Older alluvium and fanglomerate, dissected with well-developed desert pavement and desert varnish in some areas. Consists of clay, siltstone, sand, and gravel. Locally consists of Burnt Canyon Breccia, Heights Fanglomerate, in the San Gorgonio Pass.	Easy
Qco – Nonmarine Sedimentary Deposits	Pleistocene	Older folded or uplifted fan deposits, very dissected. Locally extensively folded and faulted. Consists of conglomerate, sandstone, and clay; boulder conglomerate in some areas along the margins of the Coachella Valley. Locally consists of Cabazon Fanglomerate in the Whitewater River area and of Ocotillo Conglomerate near the margins of Coachella Valley.	Easy
Pc/QTst – San Timoteo Formation	Plio-Pleistocene	Nonmarine sandstone, siltstone, conglomerate, and shale, forms extensive badlands in the Redlands area.	Easy to Moderate
Kgr – Granitic Rocks	Cretaceous	Granitic rock of several types, primarily quartz monzonite and granodiorite.	Difficult

Source: CGS, 1966 & 1986.

1 Excavation characteristics are very generally defined as "easy," "moderate," or "difficult" based on increasing hardness of the rock unit. Excavation characteristic descriptions are general in nature and the actual ease of excavation may vary widely depending on site-specific subsurface conditions.

Slope Stability

Important factors that affect the slope stability of an area include the steepness of the slope, the relative strength of the underlying rock material, and the thickness and cohesion of the overlying colluvium. The steeper the slope and/or the less strong the rock, the more likely the area is susceptible to landslides. The steeper the slope and the thicker the colluvium, the more likely the area is susceptible to debris flows. Another indication of unstable slopes is the presence of old or recent landslides or debris flows.

Much of the proposed WOD route crosses gently sloping to flat terrain with some gently sloping hills and does not cross any large areas identified as existing landslide or landslide hazard. However, the project route crosses the gentle to moderately sloping hills of the San Timoteo Badlands (Segments 1, 2 and 3) where landslides are common throughout the area and several large landslide deposits occur on the east side of the San Jacinto Fault near the north end of the badlands (Morton & Miller, 2006).

San Bernardino County maps the San Timoteo Badlands area as having moderate to high landslide susceptibility (SBC, 2010) and the Riverside County General Plan maps the area as having numerous existing landslides and as having a high susceptibility to landslides and/or rockfalls (RCPD, 2003). The City of Grand Terrace noted that there are areas of unstable slopes in Grand Terrace and Colton. These unstable areas were observed in site visits as well. Additional unmapped landslides and areas of localized slope instability may be encountered in any of the hills traversed by the Proposed Project alignment.

While several of the existing towers along the slopes north of Vista Grande Way would be retained and only slightly modified, two towers would be replaced at slightly different locations by proposed structures 2N29 and 2N32. Unstable slopes may be encountered during construction at these two locations, and geotechnical studies would be required to ensure that new structures are safely installed.

Soils

The soils along the route reflect the underlying rock type, the extent of weathering of the rock, the degree of slope, and the degree of human modification. Potential hazards/impacts from soils include erosion, shrink-swell (expansive soils), and corrosion. Soil mapping by the USDA Natural Resources Conservation Service (NRCS) for the State of California (NRCS, 2006) and review of soil data accessed through the NRCS Web Soil Survey website (NRCS, 2014) have provided information for surface and near-surface subsurface soil materials. A summary of the significant characteristics of the major soil associations traversed by the West of Devers segments, listed in numerical not geographic order, and the segments they occur on is presented in Table D.9-2. Figure D.9-2 shows the distribution of these soil associations within the project area.

Table D.9-2. Major Soils along the Proposed West of Devers Upgrade Project Route

Unit ID	Soil Association	Segment	Description	Shrink/ Swell Potential	Risk of Corrosion	
					Concrete	Uncoated Steel
s991	Myoma-Carsitas-Carrizo	Segment 5 and Segment 6	Formed in alluvial fans and sand blown from alluvial deposits. May include some areas of desert pavement and desert varnish.[1] Soil types include gravelly and gravelly coarse sand, very gravelly sand, stony sand, and fine to very fine sand.	Low	Low	High

Table D.9-2. Major Soils along the Proposed West of Devers Upgrade Project Route

Unit ID	Soil Association	Segment	Description	Shrink/ Swell Potential	Risk of Corrosion	
					Concrete	Uncoated Steel
s995	Rock Outcrop–Rillito-Beeline-Badland	Segment 6	These soils are formed in alluvium and vary from shallow gravelly sandy and sandy loam[2] to deep gravelly sandy loam and gravelly loam.	Low	Low to Moderate	Moderate to High
s999	Ramona-Placentia-Greenfield-Linne	Segment 1, Segment 3, Segment 4, and Segment 5	Formed in alluvium weathered from Granitic rocks and in material weathered from sandstone and shale. Soil types include fine sandy to sandy loam, sandy clay loam, and sandy clay to clay loam.	Low to High	Low to Moderate	Low to High
s1004	Ramona-Greenfield-Hanford-Gorgonio	Segment 1, Segment 2, and Segment 4	Formed in alluvium on fans and terraces from granitic rocks. Consists of fine sandy loam, sandy loam, and gravelly loamy fine sand.	Low to Moderate	Low to Moderate	Low to High
s1010	Sesame–Rock Outcrop–Cieneba	Segment 2	Includes outcrops of bare rock. Shallow to moderately deep soils formed in material weathered from Granitic rocks. Soil types include fine gravelly loam, gravelly loam, and sandy to sandy clay loam.	Low to Moderate	Low to Moderate	Low to High
s1027	Urban Land–Tujunga–Soboba-Hanford	Segment 2 and Segment 6	Formed in alluvium derived primarily from granitics and includes fine sandy loam, sand, loamy sand, and gravely to stony loamy sand.	Low to Moderate	Low to Moderate	Low to High
s1036	Xerorthents-Saugus–San Timoteo-Badland	Segment 1, Segment 2, Segment 3, Segment 5, and Segment 6	Formed in material primarily weathered from sedimentary rock such as shale and sandstone. Soil types include loam, sandy loam, and silt loam.	Low to Moderate	Low to Moderate	Moderate to High

Source: NRCS STATSGO California GIS data, 2006; NRCS website, 2014.

1 - A desert pavement is a desert surface that is covered with closely packed, interlocking angular or rounded rock fragments of pebble and cobble size. Desert varnish is the thin red to black coating found on exposed rock surfaces in arid regions. Varnish is composed of clay minerals, oxides and hydroxides of manganese and/or iron. Both desert pavement and desert varnish take thousands of years to form.

2 - Loam soil composed of sand, silt, clay, and organic matter in evenly mixed particles of various sizes.

Potential soil erosion hazards vary depending on the use, conditions, and textures of the soils. The properties of soil which influence erosion by rainfall and runoff affect the infiltration capacity of a soil, as well as the resistance of a soil to detachment and being carried away by falling or flowing water. Soils on steeper slopes would be more susceptible to erosion due to the effects of increased surface flow (runoff) on slopes where there is little time for water to infiltrate before runoff occurs. Soils containing high percentages of fine sands and silt and that are low in density, are generally the most erodible. As the clay and organic matter content of soils increases, the potential for erosion decreases. Clays act as a binder to soil particles, thus reducing the potential for erosion.

Expansive soils are characterized by their ability to undergo significant volume change (shrink and swell) due to variation in soil moisture content. Changes in soil moisture could result from a number of factors, including rainfall, landscape irrigation, utility leakage, and/or perched groundwater. Expansive soils are typically very fine grained with a high to very high percentage of clay. Soils with moderate to high shrink-swell potential would be classified as expansive soils.

Corrosivity of soils is generally related to the following key parameters: soil resistivity; presence of chlorides and sulfates; oxygen content; and pH. Typically, the most corrosive soils are those with the lowest pH and highest concentration of chlorides and sulfates. High sulfate soils are corrosive to concrete and may prevent complete curing reducing its strength considerably. Low pH and/or low resistivity soils could corrode buried or partially buried metal structures.

Faults and Seismicity

The seismicity of southern California is dominated by the intersection of the north-northwest trending San Andreas Fault system and the east-west trending Transverse Ranges fault system. Both systems are responding to strain produced by the relative motions of the Pacific and North American Tectonic Plates. This strain is relieved by right-lateral strike-slip faulting on the San Andreas and related faults, left-lateral strike slip on the Garlock fault, and vertical, reverse-slip or left-lateral strike-slip displacement on faults in the Transverse Ranges. The effects of this deformation include mountain building, basin development, deformation of Quaternary marine terraces, widespread regional uplift, and generation of earthquakes. The Transverse Ranges, which includes the San Bernardino Mountains, are characterized by numerous geologically young faults. These faults can be classified as historically active, active, potentially active, or inactive, based on the following criteria (CGS, 1999):

- Faults that have generated earthquakes accompanied by surface rupture during historic time (approximately the last 200 years) and faults that exhibit aseismic fault creep are defined as Historically Active.
- Faults that show geologic evidence of movement within Holocene time (approximately the last 11,000 years) are defined as Active.
- Faults that show geologic evidence of movement during the Quaternary time (approximately the last 1.6 million years) are defined as Potentially Active.
- Faults that show direct geologic evidence of inactivity during all of Quaternary time or longer are classified as Inactive.

Although it is difficult to quantify the probability that an earthquake will occur on a specific fault, this classification is based on the assumption that if a fault has moved during the Holocene epoch, it is likely to produce earthquakes in the future. Blind thrust faults do not intersect the ground surface, and thus they are not classified as active or potentially active in the same manner as faults that are present at the earth's surface. Blind thrust faults are seismogenic structures with no surface expression and thus the activity classification of these faults is predominantly based on geologic data from deep oil wells, geophysical profiles, historic earthquakes, and microseismic activity along the fault.

The project area will be subject to ground shaking associated with earthquakes on faults of the San Andreas and Transverse Ranges fault systems. Active faults of the San Andreas system are predominantly strike-slip faults accommodating translational movement. The Transverse Ranges fault system consists primarily of blind, reverse, and thrust faults accommodating tectonic compressional stresses in the region. This combination of translational and compressional stresses gives rise to diffuse seismicity across the region.

The most significant faults in the project area are faults of the San Andreas Fault Zone. The San Andreas Fault Zone is a 680-mile active right-lateral strike-slip complex of faults that has been responsible for many of the damaging earthquakes in Southern California in historical times. The San Andreas Fault Zone is the longest active fault in California and represents the boundary between the Pacific and North American plates. Historically, the San Andreas Fault has produced "great" earthquakes that have caused significant surface rupture in southern California, such as the January 9, 1857, Magnitude (M) 8 Fort Tejon earthquake. Surface rupture associated with this earthquake was extensive, from northwest of Parkfield in Monterey County extending southeastward for over 225 miles along the San Andreas Fault to the Cajon Pass northwest of San Bernardino (SCEDC, 2014a).

Since periodic earthquakes accompanied by surface displacement can be expected to continue in the study area through the lifetime of the Proposed Project, the effects of strong groundshaking and fault rupture are of primary concern to safe operation of the West of Devers Upgrade Project. Active faults that represent a significant seismic threat to the Proposed Project are listed in Table D.9-3. Data presented in this table include estimated earthquake magnitudes, type of fault, and slip rates. Figure D.9-3 shows locations of significant active faults and historic earthquakes in the project area and surrounding region.

Table D.9-3. Significant Active Faults in the West of Devers Upgrade Project Vicinity

Fault	Closest Distance to Project (miles)	Closest Project Component	Maximum Estimated Earthquake Magnitude	Type of Fault and Dip Direction
San Andreas: San Bernardino section	0	Segment 6	7.3	right lateral strike slip, 90°
San Andreas: San Gorgonio Pass section	0	Segments 4 & 5	7.1	Reverse/Thrust, 60°
San Jacinto: San Bernardino Valley section	0	Segments 2 & 3	7.1	right lateral strike slip, 90°
San Jacinto: San Jacinto Valley section	1.2	Segment 3	7.0	right lateral strike slip, 90°
Pinto Mountain	6.5	Segment 6	7.3	left lateral strike slip, 90°
San Jacinto: Anza section	12	Devers-Valley to Banning Telecom	7.3	right lateral strike slip, 90°
Sierra Madre	12.5	Segment 2	7.2	reverse, 45°N
North Frontal Fault Zone – West	17.5	Segment 1	7.2	reverse, 45°S
Johnson Valley	18	Segment 6	6.9	right lateral strike slip, 90°
Elsinore: Glen Ivy section	19	Segment 2	6.9	right lateral strike slip, 90°
Elsinore: Temecula section	20	Segment 2	7.1	right lateral strike slip, 90°
San Andreas: Mojave section	21	Segment 1	7.3	right lateral strike slip, 90°
San Andreas: Coachella segment	21	Segment 6	7.0	right lateral strike slip, 90°
Whittier	22	Segment 2	7.0	right lateral reverse oblique, 75°N
Camp Rock–Emerson–Cooper Mountain	27.5	Segment 6	7.1	right lateral strike slip, 90°
Helendale–South Lockhart	28.5	Segment 5	7.4	right lateral strike slip, 90°
Lenwood-Lockhart-Old Woman Springs	29	Segment 6	7.5	right lateral strike slip, 90°

Notes:
(a) Fault distances measured from USGS GIS Quaternary fault data (USGS and CGS, 2010).
(b) Maximum Earthquake Magnitude – the maximum earthquake that appears capable of occurring under the presently known tectonic framework, magnitude listed is "Ellsworth-B" magnitude from USGS OF08-1128 (Documentation for the 2008 Update of the United States National Seismic Hazard Maps) unless otherwise noted.
(c) Range of Magnitudes represents varying potential rupture scenarios with single or multiple segments of the fault rupturing in various combinations.
(d) Fault parameters from USGS OF08-1128 (Documentation for the 2008 Update of the United States National Seismic Hazard Maps) unless otherwise noted

Fault Rupture

Fault rupture is the surface displacement that occurs when movement on a fault deep within the earth breaks through to the surface. Fault rupture and displacement almost always follows preexisting faults, which are zones of weakness; however, not all earthquakes result in surface rupture (i.e., earthquakes that occur on blind thrusts do not result in surface fault rupture). Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. In addition to damage caused by ground shaking from an earthquake, fault rupture is damaging to buildings and other structures due to the differential displacement and deformation of the ground surface that occurs from the fault offset leading to damage or collapse of structures across this zone.

A major factor to be considered in the seismic design of electric transmission lines crossing active faults is the amount and type of potential ground surface displacement along faults. The West of Devers route segments cross faults of the San Jacinto fault zone (SJFZ) and San Andreas fault zone (SAFZ) capable of significant surface rupture (Figure D.9-3, Active Faults and Historic Earthquakes), including from west to east, the Claremont and Yorba Linda faults of the SJFZ, and the San Gorgonio Pass, Garnet Hill, and South Branch faults of the SAFZ.

In the southern San Bernardino Mountains and San Gorgonio Pass areas the San Andreas fault zone is comprised of an extremely complex zone of right-lateral strike-slip, reverse-oblique, and thrust faults. The Holocene to late Quaternary Garnet Hill Fault is approximately 16 miles in length and passes near the communities of Whitewater, Palm Springs, and North Palm Springs. The San Gorgonio Pass fault zone is an approximately 22-mile thrust fault located near the communities of Banning, Cabazon, and Beaumont and is Holocene to late Quaternary in age. The South Branch fault (also referred to as the Banning Fault) generally parallels I-10 north of the San Gorgonio Fault Zone for approximately 25 miles. The fault passes close to the communities of Banning, Cabazon, and Whitewater. The South Branch fault's most recent rupture was during Holocene time.

Near the communities of Loma Linda and Grand Terrace, the proposed route crosses active segments of the San Jacinto Fault Zone. The San Jacinto Fault is one of the major faults of Southern California, approximately 130 miles in length and generally parallel and west of the San Andreas fault. It is an active right-lateral strike-slip complex of faults that has been responsible for many of the damaging earthquakes in Southern California. Future earthquakes could occur anywhere along the various strands and associated faults (including currently unknown faults) of this zone.

The West of Devers Upgrade Project route also crosses several potentially active faults, the Rialto-Colton fault of the SJFZ, the Live Oak Canyon fault of the Crafton Hills fault zone, and the Beaumont Plain fault zone. The Crafton Hills fault zone consists of a series of normal faults, each approximately 6 miles long or less, that have been formed by the regional extension created near the intersection of the San Andreas and San Jacinto fault zones. The faults trend northeast in the vicinity of the Crafton Hills, but adopt more easterly trends near the San Bernardino strand of the San Andreas fault and south of Redlands. The Beaumont Plain fault zone is a set of northwest-trending en-echelon normal dip-slip faults that traverse late Quaternary alluvial deposits in the vicinity of Beaumont that are likely also a result of the regional extension between the SAFZ and SJFZ (USGS, 2014a). Faults of the Beaumont Plain fault zone are not well defined at the surface due to development of the area. Fault strands of the Beaumont Plain fault zone have County of Riverside mapped County Fault Zones which are similar to Alquist-Priolo zones for faults with potential for damaging fault rupture (RCPD, 2003).

Strong Groundshaking

An earthquake is classified by the amount of energy released, which traditionally has been quantified using the Richter scale. Recently, seismologists have begun using a Moment Magnitude (M) scale because it provides a more accurate measurement of the size of major and great earthquakes. For earthquakes of less than M 7.0, the Moment and Richter Magnitude scales are nearly identical. For earthquake magnitudes greater than M 7.0, readings on the Moment Magnitude scale are slightly greater than a corresponding Richter Magnitude. Review of earthquake data for the project area indicates that approximately 15 earthquakes of greater than magnitude 6.0 have occurred within 50 miles of the Proposed Project, including the M 7.3 Landers Earthquake and several of its aftershocks which include the 6.5 Big Bear Earthquake (SCEDC, 2014). These earthquakes are shown on Figure D.9-3. A summary of significant M 6.0 or greater earthquake events is presented in Table D.9-4.

Table D.9-4. Significant Historic Earthquakes Affecting the West of Devers Project Vicinity

Date	Earthquake Name or General Location	Fault Involved, if Known	Magnitude	Approximate Closest Distance to Project Alignment
October 16, 1999	Hector Mine Earthquake	Lavic Lake and Bullion	7.15	48 miles northeast
June 28, 1992	Landers Earthquake	Johnson Valley, Landers, Homestead Valley, Emerson, Camp Rock, and others	7.3	20 miles northeast
June 28, 1992	Big Bear Earthquake – aftershock of the Landers Earthquake	Unnamed fault	6.5	15 miles north
April 23, 1992	Joshua Tree – likely an aftershock of the Landers Earthquake	Eureka Peak	6.2	15 miles northeast
July 8, 1986	North Palms Springs Earthquake	Banning or Garnet Hill	5.9	4.5 miles northwest
December 4, 1948	Desert Hot Springs Earthquake	Banning or So San Andreas	6.0	11 miles east
March 11, 1933	Long Beach Earthquake	Newport-Inglewood	6.4	46 miles southwest
July 22, 1923	North San Jacinto Fault Earthquake	San Jacinto	6.3	2 miles south
April 21, 1918	San Jacinto Earthquake	San Jacinto	6.8	14 miles south
May 15, 1910	Elsinore Earthquake	Elsinore	6.0	25 miles southwest
December 25, 1899	San Jacinto Fault Earthquake, located southeast of San Jacinto	San Jacinto	6.5	11 miles south
July 22, 1899	Cajon Pass Earthquake	Uncertain	6.4	21 miles northwest
February 2, 1890	San Jacinto or Elsinore Fault region	Uncertain	Estimated 6.5 to 6.8	40 miles southeast
December 8, 1812	Wrightwood Earthquake	San Andreas	7.5	29 miles northwest

Source: SCEDC Website, 2014b.
Notes: Magnitude is moment magnitude (MW) for earthquakes after 1911. For earthquakes before 1911, magnitudes are estimated from observed shaking intensity. Earthquake magnitudes and locations before 1932 are estimated based on reports of damage and felt effects.

The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the project area and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the project area. Earthquakes occurring on faults closest to the project area would most likely generate the largest ground motion. The intensity of earthquake-induced ground motions can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g). GIS data for the USGS National Seismic Hazards (NSH) Maps were used to estimate approximate peak ground accelerations (PGAs) in the Proposed Project area (USGS, 2014b). The NSH Maps depict peak ground accelerations with a 2 percent probability of exceedance in 50 years which corresponds to a return interval of 2,475 years for a maximum considered earthquake. The intensity of earthquake-induced ground motions can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g). The estimated peak ground accelerations for the West of Devers Upgrade Project range from 0.8 to 1.2 g for the entire route which represents a potential for strong to severe groundshaking along the project route.

Liquefaction

Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong groundshaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects (Youd and Perkins, 1978). In addition, densification of the soil resulting in vertical settlement of the ground can also occur.

In order to determine liquefaction susceptibility of a region, three major factors must be analyzed. These include: (a) the density and textural characteristics of the alluvial sediments; (b) the intensity and duration of groundshaking; and (c) the depth to groundwater. Much of the project route is mapped as potentially liquefiable by the San Bernardino and Riverside Counties (SBC, 2010 and RCPD, 2003). In the San Bernardino Valley, water tables are high and liquefaction is a known geologic hazard. In the San Gorgonio Pass areas underlying the project alignment mapped as recent alluvium are mapped by Riverside County as having moderate liquefaction susceptibility (RCPD, 2003). Portions of the project route where it crosses drainages and valleys underlain by young alluvial deposits may be susceptible to liquefaction. However, young alluvial deposits underlying portions of Segments 4, 5, and 6 are not generally expected to be liquefiable due to deep groundwater levels in these areas, greater than 300 feet. Older consolidated sedimentary deposits, fine or coarse grained deposits, and/or well-drained sedimentary materials are not susceptible to liquefaction.

Seismic Slope Instability/Ground Cracking

Other forms of seismically induced ground failures which may affect the project area include ground cracking and seismically induced landslides. Landslides triggered by earthquakes have been a considerable cause of earthquake damage; in southern California large earthquakes such as the 1971 San Fernando and 1994 Northridge earthquakes triggered landslides that were responsible for destroying or damaging numerous structures, blocking major transportation corridors, and damaging life-line infrastructure. Areas that are most susceptible to earthquake-induced landslides are steep slopes in poorly cemented or highly fractured rocks, areas underlain by loose, weak soils, and areas on or adjacent to existing landslide deposits. Areas that are underlain by landslide-prone units, such as Grand Terrace and Colton, north of Vista Grande Way, and the San Timoteo Formation (located along Segments 2, 3, and 4), with moderate to steep slopes, and previously existing landslides, both mapped and unmapped, are particularly susceptible to this type of ground failure.

D.9.1.2 Environmental Setting by Segment

D.9.1.2.1 Segment 1: San Bernardino

Geology

This segment of the Proposed Project exits San Timoteo Canyon at the San Bernardino Junction and goes due north across the San Bernardino Valley to the San Bernardino Substation. This segment crosses several Quaternary sedimentary units: wash deposits (Qw), younger fan deposits (Qyf), younger alluvium (Qya), and San Timoteo Formation (QTst). Descriptions of these units are listed in Table D.9-1. The Segment 1 portion of the new 220 kV Transmission Line crosses San Timoteo Formation (QTst) from towers 1W01 and 1E3/1W3, younger fan deposits (Qyf) from towers 1E4/1W4 to 1E7/1W7, wash deposits (Qw) at towers 1E18/1W18 and 1E8/1W8 to 1E9/1W9, and younger alluvium (Qya) from towers 1E19/1W19 to 1E26/1W26 and 1E17/1W17 to 1E10/1W10. The two new 66 kV subtransmission lines in Segment 1 are primarily located within younger alluvium (Qya) including of all the project components of the San Bernardino–Timoteo-Redlands line and all project components except poles 89 to 95 along the San Bernardino–Redlands-Tennessee line, poles 89 to 95 are located in wash deposits (Qw).

Slope Stability

The moderately sloping hills near the San Bernardino Junction, which includes proposed Towers 1W01 and 1E3/1W3, are underlain by landslide-prone San Timoteo Formation.

Soils

The Segment 1 route traverses hills and the San Bernardino Valley floor between the San Bernardino Substation and the San Bernardino Junction. The soils at the southern end of Segment 1 are classified as soil association s1036, Xerorthents-Saugus–San Timoteo–Badland; and those in the valley are classified primarily as s1004, the Ramona-Greenfield-Hanford-Gorgonio association. The southern end of the San Bernardino–Redlands-Tennessee subtransmission line (from approximately Citrus Ave.) is mapped as s999, the Ramona-Placentia-Greenfield-Linne association. General characteristics of these soils are described in Table D.9-2. General location of these soil associations along the project route are shown on Figure D.9-2.

Seismicity

Fault Rupture. This segment crosses the northwestern end of the potentially active Live Oak Canyon fault (a segment of the Crafton Hills fault zone) near the San Bernardino Junction location, as shown on Figure D.9-4a. This fault is not designated as an Alquist-Priolo Earthquake Fault Zone and has been obscured by development in some areas. No planned tower locations are near the mapped trace of this fault.

Groundshaking. This segment of the proposed route is located near and adjacent to several known active faults and thus will be subject to strong to severe groundshaking in the event of a local earthquake. Estimated PGA values for this segment are between 0.8 to 1.2g.

Liquefaction. Liquefaction is possible in the San Bernardino Valley near the Santa Ana River due to the high water table and the occurrence of granular, unconsolidated materials in the subsurface (Matti and Carson, 1991). However, only the northern ends (north of Victoria Ave.) of Segment 1 and the associated subtransmission lines lie in an area identified as having moderate susceptibility to liquefaction (SBC, 2010).

Earthquake-Induced Landslides. Landslides and ground cracking are likely to occur in the landslide-prone San Timoteo Formation underlying the hills at the southern end of Segment 1 near the San Bernardino Junction in the event of a large local or regional earthquake.

D.9.1.2.2 Segment 2: Colton and Loma Linda

Geology

This section of the proposed route between Vista Substation and San Bernardino Junction, from east to west, crosses the northern end of the San Timoteo Badlands, Reche Canyon, the northern end of the Box Spring Mountains, and an elevated stream terrace and alluvial fan. The route segment crosses San Timoteo Formation (QTst) from the San Bernardino Junction (tower 2N01) to approximately tower 2N18 and younger alluvial fan deposits from Reche Canyon from towers 2N19 to 2N22 and at tower 2N29. The terraces and low hills on the northern end of the Box Spring Mountains are underlain by granitic rocks (Kgr) from about tower 2N23 to tower 2N26. The western end of the segment, towers 2N32 to 2N35 are underlain by older wash deposits (Qow) and Vista Substation and towers 2N36 to 2N38 are underlain by older fan deposits (Qof). Descriptions of these units are listed in Table D.9-1.

Slope Stability

The hill slopes along Segment 2 from tower 2N01 to 2N18 are underlain by landslide-prone San Timoteo Formation. In addition, two of the several proposed structures (2N29 and 2N32) north of Vista Grande Way would replace structures located on steep slopes with potential for slope instability; other towers in the vicinity would be retained but their crossarms would be modified.

Soils

The Segment 2 route traverses hills and stream and river drainages and is underlain by four soil associations. The four associations, from east to west are Xerorthents-Saugus–San Timoteo-Badland (s1036), Ramona-Greenfield-Hanford-Gorgonio (1004), Sesame–Rock Outcrop–Cieneba (s1010), and Urban Land–Tujunga–Soboba-Hanford (s1027). General characteristics and a brief description of these soils are presented in Table D.9-2 and distribution of these soil units along Segment 2 is shown in Figure D.9-2.

Seismicity

Fault Rupture. This segment crosses several strands of the SJFZ, the potentially active Loma Linda and Rialto-Colton faults, and the active Claremont fault, as shown on Figure D.9-4b. The Loma Linda Fault consists of several small northwest oriented strands in the vicinity of towers 2N06 to 2N01. These strands are generally subparallel to the alignment; however, one strand does cross the alignment at or immediately adjacent to tower 2N04. The active, Alquist-Priolo zoned Claremont fault crosses Segment 2 about 300 feet northeast of tower 2N14. The Rialto-Colton fault crosses the alignment approximately 500 feet east of tower 2N22.

Groundshaking. This segment of the proposed route crosses and is located near to several known active faults and thus will be subject to strong to severe groundshaking in the event of a local earthquake. Estimated PGA values for this segment are between 0.8 to 1.2g.

Liquefaction. This segment is located primarily on semi-consolidated sedimentary units not expected to be liquefiable. Segment 2 does cross several river/stream drainages underlain by potentially liquefiable alluvial fan deposits; however, these areas are mapped as having low liquefaction susceptibility (SBC, 2010).

Earthquake-Induced Landslides. Much of the Segment 2 alignment is located along the hills of the San Timoteo Badlands which are underlain by the landslide-prone San Timoteo Formation; therefore it is likely that this area would experience earthquake-induced landslides and ground cracking in the event of a large local or regional earthquake.

D.9.1.2.3 Segment 3: San Timoteo Canyon

Geology

Segment 3 follows San Timoteo Canyon from El Casco Substation to San Bernardino Junction along the northeastern flank of the San Timoteo Badlands. These hills form the high point of the gap between the San Jacinto Mountains on the south and the San Bernardino Mountains on the north. The San Timoteo Canyon segment of the route is primarily underlain by San Timoteo Formation (Pc/QTst), except where the segment crosses San Timoteo Canyon and in small side drainages that are underlain by Recent/ Younger Alluvium (Qal/Qya) in the San Timoteo Canyon. Numerous small to medium-sized landslides are mapped in the San Timoteo Badlands where slopes are over-steepened or unfavorable bedding angles are exposed. Descriptions of these units are listed in Table D.9-1.

Slope Stability

The entirety of Segment 3 is located on gently to moderately sloping hills underlain by the landslide-prone San Timoteo Formation. Landslides are common in the San Timoteo Formation mapped along the Segment 3 alignment.

Soils

Two soil associations are mapped along Segment 3. The main soil association is the Xerorthents-Saugus–San Timoteo-Badland association (s1036), located along most of the Segment 3 alignment. Minor amounts of the Ramona-Placentia-Greenfield-Linne association (s999) soils are located at the east end underlying tower 3N03 and the El Casco Substation. Descriptions of these soil associations are presented in Table D.9-2. General characteristics and a brief description of these soils are presented in Table D.9-2 and distribution of these soil units along Segment 3 is shown in Figure D.9-2.

Seismicity

Fault Rupture. This segment crosses the trend of the potentially active Loma Linda Fault, a splay of the San Jacinto Fault Zone, at an oblique angle near the San Bernardino Junction, as shown in Figure D.9-4c. A small strand of the fault is located adjacent to and subparallel to the alignment, trending towards towers 3S62/3N62. This fault does not have a mapped Alquist-Priolo Zone associated with it.

Groundshaking. Much of this segment of the proposed route runs sub-parallel to the San Jacinto Fault Zone and is less than a mile northeast of the westernmost trace. The San Jacinto Fault is a major active fault that may generate up to a M 7.3 earthquake. Strong to severe groundshaking caused by a large local or regional earthquake should be expected to occur along this segment. Estimated PGA values for this segment are between 0.8 to 1.2g.

Liquefaction. Potential for liquefaction in this area is low due to anticipated groundwater depths of greater than 50 feet and the lack of noncohesive granular material in the uppermost 50 feet of the subsurface. Minor areas of liquefaction potential may be present in the alluvial sediments in San Timoteo Canyon near the creek; however, no towers are planned for this area.

Earthquake-Induced Landslides. Landslides are common in the San Timoteo Formation mapped along Segment 3 alignment. The alignment is located along the gently to moderately sloping hills of the San Timoteo Badlands which are underlain by a landslide-prone formation. Existing and new landslides could result in the event of a large local or regional earthquake.

D.9.1.2.4 Segment 4: Beaumont and Banning

Geology

This segment of the Proposed Project starts at the eastern end of San Timoteo Canyon and traverses east through San Gorgonio Pass along the southern flank of the San Bernardino Mountains to the southern outlet of Banning Canyon. Segment 4 of the 220 kV transmission route is primarily underlain by nonmarine sedimentary deposits (Qc), minor amounts of Recent alluvium (Qal) and San Timoteo Formation (Pc). The alignment crosses pockets of Recent alluvium at the following tower locations: 4N01/4S01 to 4N02/4S02, 4N35/4S35, 4N37/4S37, 4N58 to 4N59, 4S60, and 4N64. San Timoteo Formation is located where the alignment crosses the hills at the edge of the San Bernardino Mountains and is located underlying towers 4N3/4S3, 4N10/4S10 to 4N13/4S13, and 4N60/4S60 to 4N62/4S3. Descriptions of these units are listed in Table D.9-1.

Slope Stability

Most of Segment 4 is located on flat to gently sloping valley floor and alluvial fan surfaces and is not susceptible to landslide hazards. However, the Segment 4 alignment crosses moderately sloping hills and drainages along the southern edge of the San Bernardino Mountains between towers 4N19/4S19 and 4N02/4S02. This moderately sloping area is partially underlain by landslide-prone San Timoteo formation and could be susceptible slope failures.

Soils

Two soil associations are mapped along Segment 4, with the alignment underlain almost in its entirety by the Ramona-Placentia-Greenfield-Linne soil association (s999). Minor amounts of the Ramona-Greenfield-Hanford-Gorgonio soil association (s1004) are located at the east end of the segment underlying towers 4N01/4S01. General characteristics and a brief description of these soils are presented in Table D.9-2 and distribution of these soil units along Segment 4 is shown in Figure D.9-2.

Seismicity

Fault Rupture. This segment crosses several strands of the potentially active Beaumont Plain fault in Beaumont between Highway 10 and Beaumont Avenue, and a potentially active strand of the San Gorgonio Pass fault just north of Banning near Mountain Avenue, as shown in Figure D.9-4d. The Beaumont Plain fault zone is a set of relatively short northwest-trending en-echelon normal dip-slip faults with mapped County of Riverside County Fault Zones. Strands of the Beaumont Plain fault zone cross Segment 4 near towers 4N31/4S31 to 4N34/4S34, 4N36/4S36, and 4N39/4S39. Segment 4 crosses a potentially active strand of the San Gorgonio Pass fault at or immediately adjacent to towers 4N14/4S14.

Groundshaking. Much of this segment of the proposed route runs sub-parallel to the San Gorgonio and San Andreas Fault Zones and is less than 2 miles south of both zones. The San Jacinto Fault is approximately 5 miles south of Segment 4. A large local or regional earthquake on any of these nearby faults could produce strong to severe groundshaking along this segment. Estimated PGA values for this segment are between 0.8 to 1.2g.

Liquefaction. Potential for liquefaction in areas of this segment underlain by nonmarine sedimentary deposits and the San Timoteo Formation is low to very low due to the semiconsolidated nature of these units. Areas underlain by recent alluvium near San Timoteo Creek and in San Gorgonio Pass are mapped by the County as having a moderate potential for liquefaction. However, groundwater depths in the San Gorgonio Pass are anticipated to be greater than 300 feet, resulting in a very low potential for liquefaction. During storms or a wet season, temporary shallow perched groundwater may be present and sections of the proposed route that lie near the San Gorgonio River Wash may be moderately susceptible to liquefaction if a strong earthquake occurs while the valley floor sediments are saturated.

Earthquake-Induced Landslides. The Segment 4 alignment crosses moderately sloping hills and drainages along the southern edge of the San Bernardino Mountains between towers 4N19/4S19 and 4N02/4S02 that are partially underlain by the landslide-prone San Timoteo formation; these areas could be susceptible to earthquake-induced slope failures. The remainder of Segment 4 is located on flat to gently sloping valley floor and alluvial fan surfaces and would not be susceptible to earthquake-induced landslide hazards.

D.9.1.2.5 Segment 5: Morongo Tribal Lands and Surrounding Areas

Geology

This section of the Proposed Project continues to traverse east through San Gorgonio Pass along the southern flank of the San Bernardino Mountains, across the San Gorgonio River, and ending at Rushmore Avenue south of Stubbe Canyon. The Segment 5 route alignment is underlain by Recent alluvium (Qal), nonmarine sedimentary deposits (Qco), and minor amounts of San Timoteo Formation (Pc). Recent alluvium underlies most of this segment at towers 5N1/5S1 to 5N7/5S7, 5N11/5S11 to 5N12/5S12, 5N16/5S16 to 5N49/5S49, 5N54/5S54. Nonmarine sedimentary deposits (Qco) are located at towers 5N8/5S8 to 5N10/5S10 and 5N14/5S14 to 5N15/5S15, and San Timoteo Formation (Pc) underlies towers 5N52/5S52. Descriptions of these units are listed in Table D.9-1.

Slope Stability

Most of Segment 5 is located on flat to gently sloping valley floor, alluvial fan surfaces, and gently rolling hills and is not susceptible to landslide hazards. No landslides are mapped within the portion of the Segment 5 alignment that crosses the hills along the northern edge of the San Gorgonio Pass.

Soils

Three soil associations are mapped along Segment 5, with the most of the alignment underlain by the Ramona-Placentia-Greenfield-Linne soil association (s999). The eastern third, approximately, of the Segment 5 alignment is underlain by the Xerorthents-Saugus–San Timoteo-Badland (s1036) and the Myoma-Carsitas-Carrizo (s991) soil associations. General characteristics and a brief description of these soils are presented in Table D.9-2 and distribution of these soil units along Segment 5 is shown in Figure D.9-2.

Seismicity

Fault Rupture. This segment roughly parallels the complex Gorgonio Pass fault, which is an active fault with a designated Alquist-Priolo Zone, and crosses it six times, as shown in Figure D.9-4e. The likely type of faulting to occur in this area is primarily thrust faulting with a component of right lateral slip, and an up-on-the-north sense of displacement and shortening in the north-south direction. The amount of fault offset will likely be a few feet, some of which may be vertical.

Groundshaking. Strong groundshaking could be caused by an earthquake on any of the faults in the vicinity of this segment. This Segment crosses and runs sub-parallel to the San Gorgonio fault zone. Estimated PGA values for this segment are between 0.8 to 1.2g, although, in the vicinity of the San Gorgonio Pass fault zone, the directionality of peak ground acceleration may be more vertical than horizontal as the San Gorgonio Fault Zone is likely to generate a thrust earth-quake with primarily vertical movement. Groundshaking can become focused along favorably aligned ridgelines and hilltops causing higher than normal accelerations and ground movements.

Liquefaction. Potential for liquefaction in areas of this segment underlain by nonmarine sedimentary deposits and San Timoteo Formation is low to very low due to the semiconsolidated nature of these units. Areas underlain by Recent alluvium in San Gorgonio Pass are mapped by the County as having a moderate potential for liquefaction. However, groundwater depths in the San Gorgonio Pass are anticipated to be greater than 300 feet, resulting in a very low potential for liquefaction. During storms or a wet season, the water table may rise and sections of the proposed route segment that lie near the San Gorgonio River Wash may be moderately susceptible to liquefaction if a strong earthquake occurs while the valley floor sediments are saturated.

Earthquake-Induced Landslides. The Segment 5 alignment crosses gently sloping hills along the southern edge of the San Bernardino Mountains between towers 5N7/5S7 and 5N11/5S11 that are cut by the San Gorgonio Pass fault zone which could produce an earthquake with significant shaking and vertical motion. Groundshaking or fault rupture from an earthquake on this fault could destabilize slopes that would otherwise not be prone to landslides in static conditions. The remainder of Segment 5 is located on flat to gently sloping valley floor and alluvial fan surfaces and would not be susceptible to earthquake-induced landslide hazards.

D.9.1.2.6 Segment 6: Whitewater and Devers

Geology

Segment 6 continues to traverse east through San Gorgonio Pass along the southern flank of the San Bernardino Mountains, across the Whitewater River, along Garnet Wash and ending within the western edge of the Coachella Valley at Devers Substation. The Segment 6 alignment and all the associated Segment 6 components are underlain by Recent alluvium (Qal) and nonmarine sedimentary deposits (Qco). Recent alluvium underlies this segment at towers 6N10/6S10 to 6N12/6S12, 6N15/6S15 to 6N24/6S24, and 6N39/6S39 to 6N48/6S48. Nonmarine sedimentary deposits (Qco) are located at towers 6N13/6S13 to 6N14/6S14, 6N25/6S25 to 6N27/6S27, and 6N28/6S28 to 6N38/6S38. Descriptions of these units are listed in Table D.9-1.

Slope Stability

Most of Segment 6 is located on flat to gently sloping valley floor, alluvial fan surfaces, and gently rolling hills and is not susceptible to landslide hazards.

Soils

Four soil associations are mapped along Segment 6, with the most of the alignment underlain by the Myoma-Carsitas-Carrizo (s991) and the Xerorthents-Saugus–San Timoteo-Badland (s1036) soil associations. The remaining two Soils associations underlie the Segment 6 route in the vicinity of Whitewater Canyon, the Urban Land–Tujunga-Soboba-Hanford (s1027) and the Ramona-Placentia-Greenfield-Linne (s995) soil associations. General characteristics and a brief description of these soils are presented in Table D.9-2 and distribution of these soil units along Segment 6 is shown in Figure D.9-2.

Seismicity

Fault Rupture. This segment is crossed by several Alquist-Priolo zoned strands of the San Andreas fault zone, as shown in Figure D.9-4f. This segment crosses the active trace of the San Andreas South Branch fault (also known as the Banning fault) just west of Devers Substation at an oblique angle at and near towers 6N10/6S10. Potential fault offset along the Garnet Hill fault could be as much as 15 feet of right-lateral displacement. The alignment crosses the northern end of the Garnet Hill fault at an oblique angle between towers 6S29 and 6S38 and between towers 6N30 and 6N34; in this area the Garnet Hill fault has been affected by the San Gorgonio Pass fault zone and is split into several short anastomosing fault strands. These strands of the Garnet Hill fault are all included in state designated Alquist-Priolo Zones. Two strands cross the northern Segment 6 alignment at or near to proposed tower locations, 6N31 and 6N32. Segment 6 crosses, at an oblique angle, a portion of an Alquist-Priolo Zone for a third strand of the Garnet Hill fault near tower 6S36; however, it does not cross the fault associated with this Alquist-Priolo Zone.

Groundshaking. Strong groundshaking could be caused by an earthquake on any of the faults in the vicinity of Segment 6. This Segment crosses and runs sub-parallel to two strands of the SAFZ, the Garnet Hill fault and South Branch San Andreas fault (Banning fault). Estimated PGA values for this segment are between 0.8 to 1.2g, corresponding to strong to severe groundshaking for this area.

Liquefaction. Potential for liquefaction in areas of this segment underlain by nonmarine sedimentary deposits is low to very low due to the semiconsolidated nature of these units. Areas underlain by Recent alluvium in San Gorgonio Pass, crossing Whitewater Canyon, and along the western edge of the Coachella Valley are mapped by the County as having a moderate potential for liquefaction. However, groundwater depths in these areas are anticipated to be greater than 50 feet, resulting in a low potential for liquefaction.

Earthquake-Induced Landslides. The Segment 6 alignment crosses hills of the southern edge of the San Bernardino Mountains between towers 6N28 to 6N37, and 6S28 and 6S28A. These hills are cut crossed and adjacent to strands of the SAFZ and strong to severe groundshaking from an earthquake on one of these faults could destabilize slopes that would otherwise not be prone to landslides in static conditions. The remainder of Segment 6 is located on flat to gently sloping valley floor and alluvial fan surfaces and would not be susceptible to earthquake-induced landslide hazards.

D.9.1.3 Environmental Setting for Connected Actions

Desert Center Area. The solar projects in the Desert Center area are located in areas with BLM administered and private lands. The area includes the Mojave Desert geomorphic province, which is a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed drainage, with playas (dry lake basins) being common. Fault trends largely control Mojave Desert topography. Mountain ranges in the Mojave Desert are composed of complexly faulted and folded basement rocks that range in age from pre-Cambrian (more than 570 million years before present (mybp) to Mesozoic (66 to 240 mybp). Volcanic and sedimentary rocks deposited in the Cenozoic (less than 66 mybp to present) are common as well. Younger faulting in the eastern half of the Mojave Desert geomorphic is characterized by generally north- to northwest-trending normal faults associated with regional extension in the Basin and Range province. Chuckwalla Valley is bounded on the west by the Eagle Mountains, on the east by the Palen Mountains, and on the north by the Coxcomb Mountains. The Chuckwalla Valley contains a thick sequence of Quaternary sedimentary deposits, including Pleistocene fan deposits, Holocene alluvium, and dune sand. The bordering mountains expose primarily Precambrian metamorphic and Mesozoic granitic rocks. The Blue Cut and Pinto Mountain Fault Zones are the nearest active faults.

As reported in the Desert Harvest EIS (BLM, 2012), soils in the area are generally uniform and dominated by sandy texture. Sand dune deposits, younger alluvium, and older alluvium occur in the area, and exhibit low to very severe resistivity and are classified as having a very low expansion potential. The area contains desert pavement, which is rock fragments of pebble to cobble size that cover an underlying layer of sand, silt, or clay. Areas of desert pavement typically have little or no vegetation cover. The extent to which desert pavement reduces wind erosion and resulting fugitive dust depends on the density of the rock fragments covering the underlying soil. Desert pavements seem to form from two different processes. On rocky alluvial fans, fine dust settling out of the air accumulates between and below the surface layer of rocks, eventually forming a thin silt and clay layer that separates the surface rocks from the main part of the alluvial fan. Desert pavement also can form on sandy soils that contain significant amounts of gravel and rock fragments. In such situations, wind and water erosion can remove most of the sand and fine sediments from the surface, leaving the remaining rock fragments as the predominant surface layer.

Blythe Area. The Blythe area is on the eastern edge of the Colorado Desert Geomorphic Province in Riverside County. Within California, this geomorphic province encompasses an area that extends from the Colorado River on the east, the eastern Transverse Ranges on the north, the Mexican border on the south, and the Peninsular Ranges on the west. The Colorado Desert province is generally characterized by broad alluvial valleys separated by steep, discontinuous, sub-parallel mountain ranges that generally trend northwest-southeast. The Blythe area is in a seismically active region of Southern California within the Sonoran zone, which is a relatively more stable tectonic region than areas farther west. The California Geological Survey defines an active fault as one that has had surface displacement during the Holocene age (roughly the last 11,000 years). Potentially active faults are those that show evidence of surface displacement during the Quaternary age (roughly the last 1.6 million years) but for which evidence of Holocene movement has not been established. An inactive fault is one that has not shown evidence of surface displacement during the Quaternary age. The nearest faults to the Blythe Area are located in the McCoy Mountains and are inactive.

The area located west of Blythe and northeast of the Colorado River Substation, is generally underlain by Quaternary age alluvium consisting of unconsolidated to weakly consolidated sand, silt, and gravel. Surficial deposits of aeolian (windblown) sand, gravels, and minor fill also exist. Topsoil and alluvium (surficial soils) are also present.

D.9.2 Applicable Regulations, Plans, and Standards

Geologic resources and geotechnical hazards are governed primarily by state and local jurisdictions. State regulations and guidelines require compliance with building and safety codes related to seismic and other geologic hazards. The conservation elements and seismic safety elements of city and county general plans contain policies for the protection of geologic features and avoidance of hazards, but do not specifically address transmission line construction projects. Appendix 9 (Policy Screening Report) identifies various applicable requirements in local plans, including those related to geologic hazards. Relevant, and potentially relevant, statutes, regulations and policies are discussed below.

D.9.2.1 Federal

Clean Water Act. The Clean Water Act establishes the basic structure for regulating discharges of pollutants into the waters of the United States. The Act authorized the Environmental Protection Agency to prepare comprehensive programs for eliminating or reducing the pollution of interstate waters and tributaries and improving the sanitary condition of surface and underground waters with the goal of improvements to and conservation of waters for public water supplies, propagation of fish and aquatic life, recreational purposes, and agricultural and industrial uses. Ground disturbance can lead to soil erosion and surface water runoff from a site, impairing nearby waterbodies. The Proposed Project construction would disturb a surface area greater than 1 acre; therefore, SCE would be required to obtain under Clean Water Act regulations a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity. Compliance with the NPDES would require that the applicant submit a Storm Water Pollution Prevention Plan (SWPPP).

International Building Code. The International Building Code (IBC) is published by the International Code Council (ICC), the scope of this code covers major aspects of construction and design of structures and buildings, except for three-story one- and two-family dwellings and town homes. The International Building Code has replaced the Uniform Building Code as the basis for the California Building Code and contains provisions for structural engineering design. The 2015 IBC addresses the design and installation of structures and building systems through requirements that emphasize performance. The IBC includes codes governing structural as well as fire- and life-safety provisions covering seismic, wind, accessibility, egress, occupancy, and roofs.

D.9.2.2 State

California Building Code (CBC). The California Building Code, Title 24, Part 2 provides building codes and standards for design and construction of structures in California. The 2013 CBC is based on the 2012 International Building Code with the addition of more extensive structural seismic provisions. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

CPUC General Orders 95 and 128. California Public Utilities General Order 95 (GO95) and General Order 128 (GO128) contain State of California rules formulated to provide uniform requirements for overhead electrical line construction and underground electrical supply and communication systems, respectively, to insure adequate service and secure safety to persons engaged in the construction, maintenance, operation or use of overhead electrical lines and underground electrical supply and communication systems and to the public. GO95 and GO 128 are not intended as complete construction specifications, but to embody requirements which are most important from the standpoint of safety and service. Construction shall be according to accepted good practice for the given local conditions in all particulars not specified in the rules.

GO95 applies to all overhead electrical supply and communication facilities which come within the jurisdiction of the California Public Utilities Commission, located outside of buildings, including facilities that belong to non-electric utilities, as follows: Construction and Reconstruction of Lines, Maintenance of Lines, Lines Constructed Prior to This Order, Reconstruction or Alteration, Emergency Installation, and Third Party Nonconformance.

GO128 applies to (a) all underground electrical supply systems used in connection with public utility service; when located in buildings, the vaults, conduit, pull boxes or other enclosures for such systems shall also meet the requirements of any statutes, regulations or local ordinances applicable to such enclosures in buildings; and (b) all underground communication systems used in connection with public utility service located outside of buildings. GO128 applies to the following activities related to underground electrical supply and communication systems: Construction and Reconstruction of Lines, Maintenance, Systems Constructed Prior to These Rules, Reconstruction or Alteration, and Third Party Nonconformance.

Alquist-Priolo. The Alquist-Priolo Earthquake Fault Zoning Act of 1972, Public Resources Code (PRC), sections 2621–2630 (formerly the Special Studies Zoning Act) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. While this act does not specifically regulate transmission and telecommunication lines; it does help define areas where fault rupture is most likely to occur. This Act groups faults into categories of active, potentially active, and inactive. Historic and Holocene age faults are considered active, Late Quaternary and Quaternary age faults are considered potentially active, and pre-Quaternary age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations in order to determine whether building setbacks should be established.

Seismic Hazard Mapping Act. The Seismic Hazards Mapping Act (the Act) of 1990 (Public Resources Code, Chapter7.8, Division 2, sections 2690–2699.) directs the California Department of Conservation, Division of Mines and Geology [now called California Geological Survey (CGS)] to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.

D.9.2.3 Local

The California Public Utilities Commission (CPUC) has jurisdiction over the siting and design of the Proposed Project because the CPUC regulates and authorizes the construction of investor-owned utility (IOU) facilities. Although such projects are exempt from local land use and zoning regulations and permitting, General Order (GO) No. 131-D, Section III.C requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain any nondiscretionary local permits."

San Bernardino County. Construction and operation of the Proposed Project may be subject to policies and regulations contained within the San Bernardino County Development Code, and the San Bernardino General Plan which include policies and regulations for the avoidance of geologic hazards and/or the protection of unique geologic features. The Safety Element section of the San Bernardino County General Plan (County of San Bernardino, 2007) provides for mitigation of geologic hazards through a combination of engineering, construction, land use and development standards. The Plan addresses the geologic hazards present within the county, including fault rupture, ground shaking, liquefaction, seismically generated subsidence, seiche and dam inundation, landslides/mudslides, non-seismic subsidence, erosion and volcanic activity. The county has prepared Hazard Overlay Maps to address fault rupture, liquefaction hazards and landslide hazards. Special consideration, including possible engineering/geologic evaluation, is required for development of sites designated on the maps. Additionally, the County Building and Safety Department enforces Building Standards adopted by the State of California and the County of San Bernardino including the California Building Code contained in Title 24 of the California Code of Regulations.

Riverside County. Construction and operation of the Proposed Project may be subject to policies and regulations contained within the Riverside County Building Code and Land Use Ordinance, and the Riverside County General Plan. The County Building and Safety Department enforces Building Standards adopted by the State of California and Riverside County including the California Building Code contained in Title 24 of the California Code of Regulations and local codes and ordinances. The Riverside County Department of Building and Safety oversees and manages grading, building inspection and code enforcement within the County. The Riverside County General Plan Safety Element (Riverside County, 2008) presents a summary of geologic and other hazards in the County and facilitates the identification and mitigation of hazards for new development which in turn strengthens existing codes, project review, and permitting processes, and presents policies directed at identifying and reducing hazards in existing development. The County has prepared a Safety Element Technical Background Report that is an assessment of natural and man-made hazards in the County, including, but not limited to: earthquakes, landslides, subsidence/settlement, floods, inundation, and wildland fire. The report serves as the foundation for the Safety Element and includes detailed Geographic Information System (GIS) hazard mapping and analyses.

General Plans for incorporated cities along the project corridor often include policies and goals related to seismicity and other geologic risks. These are discussed in Appendix 9 (Policy Screening Report).

D.9.3 Environmental Impacts of the Proposed Project

D.9.3.1 Approach to Impact Assessment

A wide range of potential impacts, including landslides, debris flows and slope creep, and seismic hazards including surface fault rupture, strong groundshaking, liquefaction, and seismically induced landslides, was considered in this analysis. Geologic conditions were evaluated with respect to the impacts the project may have on local geology and soils, as well as the impact that specific geologic hazards and soils may have upon the proposed transmission line and its related facilities.

Geologic formations, slope conditions, and soil types have been characterized by their potential to contribute to hazardous conditions. Areas prone to risk for potential adverse impacts due to existing geologic, topographic, or soils conditions were identified and their relationship to Proposed Project components analyzed. Where existing conditions suggest a potential risk or impact, mitigation measures were identified to reduce the risk or impact.

D.9.3.1.1 Applicant Proposed Measures

SCE proposed no Applicant Proposed Measures (APMs) specific to geology and soils.

D.9.3.2 Impact Criteria

NEPA does not have specific significance criteria. However, NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). Using the following criteria for the purposes of analysis, the project or an alternative would impact geology and soils if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

  i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.

  ii) Strong seismic ground shaking.

  iii) Seismic-related ground failure, including liquefaction.

  iv) Landslides.

- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

D.9.3.3 Impacts and Mitigation Measures

This section presents discussion of impacts related to geologic, soil, and seismic conditions and mitigation measures for the West of Devers Upgrade Project. Geologic conditions were evaluated with respect to the impacts the project may have on local geology and soils, as well as the impact that specific geologic hazards may have upon the proposed transmission line and other Project-related components.

Impact G-1: Project structures could be damaged by surface fault rupture at crossings of active and potentially active faults

Project facilities would be subject to hazards of surface fault rupture at crossings of active and potentially active faults. The project route crosses several active and potentially active faults including: the Live Oak Canyon fault, Claremont fault, Loma Linda fault, Rialto-Colton fault, Beaumont Plain fault zone, San Gorgonio Pass fault, Garnet Hill fault, and South Branch san Andreas fault. The locations of these fault crossings along Project segments and location of towers relative to individual fault strands are discussed in Section D.9.1.2. Hazards from fault rupture are generally not as great where the proposed route crosses traces of potentially active faults, such as the Live Oak Canyon fault, Loma Linda fault, and Beaumont Plain fault, and where towers are not located near to the fault traces. In order to avoid tower damage and/or collapse, towers should be sited so as not to straddle or be placed immediately adjacent to fault traces. Fault crossings, where multiple feet of displacement are expected along active faults, Alquist-Priolo zoned faults, and County of Riverside County Fault Zone mapped faults are best crossed as overhead lines with towers placed well outside the fault zone to allow for the flex in the conductor lines to absorb offset. Mitigation Measure G-1a (Conduct fault evaluation study and minimize project structures within active fault zones) would ensure that Project towers are not placed on or immediately adjacent to active faults and that the length of transmission line within and crossing the fault is minimized.

Mitigation Measures for Impact G-1: Project structures could be damaged by surface fault rupture at crossings of active and potentially active faults

G-1a **Conduct fault evaluation study and minimize project structures within active fault zones.** Prior to final Project design, SCE shall perform fault evaluation studies to confirm the location of mapped traces of active and potentially active faults crossed by the project route or other project structures, as described in Section D.9.1.2 for each project segment. For crossings of active faults, the project design shall not locate towers or other project structures on the traces of active faults; and additionally, all other project components shall be placed as far as feasible outside the areas of mapped fault traces.

SCE shall provide CPUC and BLM a letter signed by a California registered geotechnical engineer following the completion date of all of the foundation activities for each segment. The letter will confirm that SCE followed the geotechnical report recommendations and the common engineering practice in southern California at the time of project construction.

Impact G-2: Project structures could be damaged by seismically induced groundshaking and/or ground failures, such as landslides and liquefaction-related phenomena, exposing people or structures to hazards

Strong to severe groundshaking should be expected in the event of an earthquake on the faults near the project, with estimated PGAs ranging from 0.8 to 1.2 g along the entire route. The project would also be subject to groundshaking from a large earthquake on any of the major faults in the region. While the shaking would be less severe from an earthquake that originates farther from the route, the effects, particularly on the ridgelines and hills, could be damaging to project structures. It is likely that project components would be subjected to at least one moderate or larger earthquake occurring close enough to produce groundshaking along this segment.

Seismically induced slope failures such as landslides could occur in the event of a large earthquake along portions of the project. Portions of Segments 1 through 4 are located in the landslide-prone San Timoteo Formation along hillsides or ridgelines with moderate to steep slopes which would be particularly susceptible to this type of ground failure. Hillside areas underlain by San Timoteo Formation have a high possibility of seismic-induced ground failure in the form of landsliding or ground-cracking resulting in damage to project structures. The steep slopes north of Vista Grande Way (in Grand Terrace and Colton) have been shown to be unstable during recent construction, according to the City of Grand Terrace.

Portions of Segments 5 and 6 are located in gentle to moderate hills that are traversed by active faults in close proximity to the project alignment; groundshaking or fault rupture from an earthquake on these faults could be destabilize the hill slopes. Implementation of Mitigation Measure G-2a (Conduct geological surveys for landslides and unstable slopes) would reduce the potential for earthquake-induced slope instability to damage project structures.

Although portions of the project route are mapped as having moderate liquefaction susceptibility by Riverside County, anticipated depths to groundwater of greater than 200 to 300 feet reduces the liquefaction potential of these areas to very low. Portions of the project alignment underlain by older consolidated and semi-consolidated units such as Pleistocene nonmarine sedimentary deposits and Plio-Pleistocene San Timoteo Formation have no or very low liquefaction potential. Therefore there is no potential for project components to be damaged by liquefaction and liquefaction-related phenomena and no mitigation is needed.

Mitigation Measure for Impact G-2: Project structures could be damaged by seismically induced groundshaking and/or ground failures, such as landslides and liquefaction-related phenomena, exposing people or structures to hazards

G-2a **Conduct geotechnical surveys for landslides and unstable slopes.** SCE shall conduct design-level geotechnical surveys for the project that include slope stability surveys in areas where project components are located on hills or hill tops. These surveys will acquire data that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and along other project components crossing these hills such as access and spur roads. The investigations shall include an evaluation of subsurface conditions, identification of potential landslide hazards, and provide potential modifications to the project design to avoid areas of unstable slopes and landslide hazards, such as modification of tower locations. Where the geotechnical surveys determine that landslide hazard areas cannot be avoided, best engineering design and construction measures shall be incorporated into the project designs to prevent potential damage to project facilities.

SCE shall provide CPUC and BLM a copy of the geotechnical survey report for review, at least 60 days before construction. In addition, SCE shall submit a letter signed by a California registered geotechnical engineer following the completion date of all of the foundation activities for each segment. The letter will confirm that SCE followed the geotechnical report recommendations and the common engineering practice in southern California at the time of the project.

Impact G-3: Erosion could be triggered or accelerated due to construction activities

Excavation and grading for tower foundations, foundations for new equipment at substations, underground conduits and vaults, work areas, access roads, and spur roads could loosen soil and accelerate erosion. Current regulations would require that the project obtain under Clean Water Act regulations a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity as construction would disturb a surface area greater than 1 acre. Additionally, compliance with the NPDES would require that the applicant submit a Storm Water Pollution Prevention Plan (SWPPP). (See Section D.19, Water Resources and Hydrology, which discusses the SWPPP at length.) The SWPPP would require development and implementation of BMPs to identify and control erosion, which would reduce the potential for construction to trigger erosion.

As noted in Section B.6 (Applicant Proposed Measures), APM BIO-1 would require preparation of a revegetation plan for areas subject to temporary project impacts and APM HYDRO-3 would require development of and adherence to erosion-control and hazardous material plans during construction. However, these APMs have been superseded by more detailed mitigation measures: Mitigation Measure WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) and Mitigation Measure VEG-1d (Restore or revegetate temporary disturbance areas). These measures would ensure that erosion is sufficiently controlled.

Mitigation Measures for Impact G-3: Erosion could be triggered or accelerated due to construction activities

WR-2a **Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (Full text included in Section D.19)

VEG-1d **Restore or revegetate temporary disturbance areas.** (Full text included in Section D.4)

Impact G-4: Slope instability, such as landslides, could be triggered or accelerated due to construction activities

The landslide-prone San Timoteo Formation underlies the San Timoteo Badlands along Segments 1 through 3 and small areas of Segment 4 through the hills where it traverses along the southern edge of the San Bernardino Mountains. Excavation and grading for tower foundations and work areas, and grading for new and modified access and spur roads could result in slope instability in these areas. Slope instability could include landslides, earthflows, soil creep, or debris flows. Slope instability has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy project components. As defined in the discussion of Impact G-2 (Project structures could be damaged by seismically induced groundshaking), evidence of unstable slopes has been noted north of Vista Grande Way in Colton and Grand Terrace. Mitigation Measure G-2a (Conduct geotechnical surveys for landslides and unstable slopes) would reduce the potential impacts for construction to trigger slope instability by ensuring that SCE performs appropriate geotechnical surveys for landslides and unstable slopes.

Mitigation Measure for Impact G-4: Slope instability, such as landslides, could be triggered or accelerated due to construction activities

G-2a **Conduct geotechnical surveys for landslides and unstable slopes.** (Full text provided above under Impact G-2)

Impact G-5: Project structures could be damaged by problematic soils exposing people or structures to hazards

Expansion potential for the soils along the project alignment ranges from low to high; local soils (the Ramona-Placentia-Greenfield-Linne soil association) along Segments 1, 3, 4, 5 have a low to high potential for expansion and soils, the remainder of the soils along the project alignment have low and low to moderate potential for expansion as presented in Table D.9-2. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types identified along the project may have moderate to high clay contents and many have moderate to high shrink-swell potential. Expansive soils can cause problems to structures. Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to structures and equipment. Soils along the project segments have a potential to corrode steel ranging from low to high and a potential to corrode concrete from low to moderate. In areas where corrosive subsurface soils exist along the project route, the corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures. Application of standard design and construction practices and implementation of Mitigation Measure G-5a (Assess soil characteristics to aid in appropriate foundation design) would reduce the potential impact from unsuitable soils.

Mitigation Measure for Impact G-5: Project structures could be damaged by problematic soils exposing people or structures to hazards

G-5a **Assess soil characteristics to aid in appropriate foundation design.** The design-level geotechnical studies conducted for the project shall include soils analyses to identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates, and soils with moderate to high shrink/swell or expansion potential. If corrosive soils are identified, appropriate design measures for protection of reinforcement, concrete, and metal structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of project components exposed to potentially corrosive conditions, and use of passive and/or active catholic protection systems. If expansive soils are identified, the project design shall be modified to include appropriate design features, such as including excavation of potentially expansive or during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils.

SCE shall provide CPUC and BLM a copy of the design-level geotechnical studies for review at least 60 days before the start of construction. In addition, SCE shall submit a letter signed by a California registered geotechnical engineer following the completion date of all of the foundation activities for each segment. The letter will confirm that SCE followed the geotechnical report recommendations and the common engineering practice in southern California at the time of the project.

D.9.3.4 Impacts of Connected Actions

Impact G-1: Project structures could be damaged by surface fault rupture at crossings of active and potentially active faults

Desert Center Area. During construction of solar projects in the Desert Center area, regional seismic hazards could expose site workers to seismic hazards, including being struck by project infrastructure that may move as a result of seismic shaking or by being present in an unstable indoor area; however, seismic events are infrequent. Implementation of design characteristics that comply with the CBC and other strict regulations for standard engineering design would reduce seismic effects by ensuring that occupied buildings are constructed safely to withstand seismic shaking. For example, the Palen Solar Power Project (CEC, 2010) would implement Condition of Certification GEO-1 and Facility Design Conditions of Certification GEN-1, GEN-5 and CIVIL-1. Compliance with these requirements would ensure the project is built to current seismic standards and potential impacts would be mitigated to current standards of engineering practice. In addition, the EDF Desert Harvest Project (BLM, 2012) includes MM PHS-5 (Emergency Response Plan), which would ensure that emergency response is organized and coordinated at the solar facility site during construction, including in the event of a seismic or geologic hazard. Other solar energy projects in the area would include design criteria to comply with earthquake safety requirements and, typically, include Emergency Response Plans.

Blythe Area. The entire Southern California region is subject to secondary effects from earthquakes. The closest active fault in the area is the Brawley Seismic Zone. As such, the solar projects likely would not be within a designated Alquist-Priolo Fault Zone, and there are no known active or potentially active faults underlying the area. Therefore, the potential for surface ground rupture and lurching or cracking of the ground surface is considered low.

Impact G-2: Project structures could be damaged by seismically induced groundshaking and/or ground failures, such as landslides and liquefaction-related phenomena, exposing people or structures to hazards

Liquefaction generally occurs in saturated or near-saturated soils at depths shallower than approximately 50 feet below grade. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

Desert Center Area. The risk of liquefaction at solar facilities in this area would be low to moderate. Groundwater levels may fluctuate with precipitation, irrigation, drainage, and regional pumping from wells; however, based on levels recorded in wells found in the area, groundwater is estimated to be greater than 50 feet below ground surface. For example, the Palen Solar Power Project is located within an area with low to moderate level of liquefaction potential and, based on measured values in boreholes and wells near the this solar facility site, the estimated depth to groundwater is greater than 60 feet below existing grade. In addition, the typical medium dense to very dense nature of the coarse grain soils encountered indicates that there is no liquefaction potential at the. As a result, soil susceptibility to liquefaction during a seismic event is not considered likely in the Desert Center area.

Blythe Area. The closest active fault in the Blythe area is the Brawley Seismic Zone, more than 45 miles away. Therefore, solar projects in the Blythe area likely would not be within a designated Alquist-Priolo Fault Zone, as there are no known active or potentially active faults underlying the area. Severe ground-shaking along the Brawley Seismic Zone, Elmore Ranch, and the San Andreas faults could result in damage to site structures, including the solar panels, inverters/transformers, interior collection power lines, on-site substations, and O&M buildings, as well as any associated gen-ties lines. Groundwater at a depth greater than 50 feet has been known to occur in the area. Due to the depth of groundwater, liquefaction and seismically induced settlement are unlikely. Potential effects to the solar facilities and associated structures related to ground shaking would be reduced through compliance with State and local regulations and standards and established engineering procedures. Structures would be designed in accordance with the County of Riverside Building Codes and the most recent CBC and IBC requirements (see Section D.9.2, Applicable Regulations, Plans, and Standards). As part of the development process for the solar projects, a final design level geotechnical report likely would be prepared and recommendations outlined to ensure safety of structures.

Impact G-3: Erosion could be triggered or accelerated due to construction activities

Solar project construction would require ground-disturbing activities. Examples include site grading, solar panel installation, O&M building construction, installation of the gen-tie lines, and construction of access roads. These activities can lead to increased soil erosion, soil compaction, loss of soil productivity, and disturbance of soils crucial for supporting vegetation. Activities that expose and disturb the soil leave soil particles vulnerable to detachment by wind and water and can lead to the loss of topsoil and increased sediment loading to waterways during rain events. The magnitude, extent, and duration of those impacts depend on factors such as proximity of the construction site to waterways or water courses, soil type, and the method, duration, and time of year of soil-disturbing construction activities. Prolonged periods of precipitation, or high intensity and short duration runoff events coupled with earth disturbance activities can result in on-site erosion. In addition, high winds in areas of disturbed ground can result in wind borne dust that adversely affects air quality.

With proper implementation of control measures, soil erosion impacts can be reduced or avoided. Such measures typically are included a project's Storm Water Pollution Prevention Plan (SWPPP), as required by the NPDES. Examples include wetting roads and disturbed surfaces in active construction and laydown areas; controlling speed on unpaved surfaces; placing gravel at project site entrances; using straw bales, silt fences, and earthen berms to control runoff; restoring native plant communities through natural revegetation, seeding, and transplanting; and applying soil bonding and weighting agents. During grading work, soil can be stabilized by maintaining sufficient water content through watering to make the soil resistant to weathering and erosion by wind and water. Grading in planned phases, rather that disturbing an entire site at once, also reduces impacts. In addition, measures such as Proposed Project Mitigation Measures WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and VEG-1d (Restore or revegetate temporary disturbance areas) are examples of mitigation measures that can help reduce erosion effects.

Desert Center Area. Old or inactive dune deposits exist throughout the Desert Center area. Because of limited sand sources, the potential for wind-driven sand erosion is low. Disturbance to existing soil crusts and/or desert pavement at a solar facility site could result in a substantial increase in on-site wind- and waterborne soil erosion. However, these potential impacts would be minimized by a combination of project design features. Compliance with regulatory requirements related to fugitive dust control, and standard SWPPP BMPs (see above), ensure that erosion due to construction activities is minimized. For example, the EDF Desert Harvest Solar Project would implement Mitigation Measures MM AIR-1 (Fugitive Dust Control Plan), MM AIR-2 (Fugitive Dust Control of Unpaved Roads), and MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) (BLM, 2012). The Palen Solar Power Project also has similar requirements in compliance with air quality and water regulations. Other solar projects in the area would be subject to similar impact control measures.

Blythe Area. Solar projects in the Blythe area would be required to implement fugitive dust control measures in accordance with MDAQMD Rule 403. Compliance with this regulatory requirement and standard SWPPP BMPs would help ensure that erosion due to project construction activities is minimized.

Impact G-4: Slope instability, such as landslides, could be triggered or accelerated due to construction activities

Common to All Areas. All areas with connected solar project have extensive areas of flat to gently sloping land created alluvial fans across the valley floor. Grading for projects is not expected to create areas of slope instability or trigger or accelerate landslides. Project design parameters, compliance with mandated regulatory requirements, and implementation of standard SWPPP BMPs (such as wetting roads and disturbed surfaces in active construction and laydown areas, controlling speed on unpaved surfaces, placing gravel at project site entrances, using straw bales and other means to control runoff, restoring native plant communities, and applying soil bonding and weighting agents) would ensure that project construction does not trigger landslides.

Impact G-5: Project structures could be damaged by problematic soils exposing people or structures to hazards

Desert Center Area. The Desert Center area is generally surfaced with up to 2 feet of unconsolidated soils resulting from desiccation and/or wind deposition. The soils below the surficial materials are generally medium dense to very dense poorly graded sand with varying amounts of silt, silty sand, and clayey sand. Firm to very hard sandy clays are locally interbedded. The near surface soils are primarily granular with no to low swell potential; however, potentially expansive soils could occur. Loose dune sand also occurs. Ground shaking, compaction, expansive soils, and corrosive soils represent the main potential geologic hazards in the area.

These potential hazards could be effectively mitigated incorporating recommendations contained project-specific geotechnical evaluations, such as required for the Palen project under Condition of Certification GEO-1, which requires geologic hazards to be addressed in a design-level project geotechnical report. In addition, Conditions of Certification also mitigate these impacts. Similarly, the Desert Harvest project (BLM, 2012) would implement Condition of Certification GEO-1 (Design Plan), which requires project structures to be built in accordance with the design-basis recommendations in the project-specific geotechnical investigation report. Structure designs for these projects, as well as other solar projects in the area, must meet the requirements of all applicable federal, State, and county permits and building codes.

Application of standard design and construction practices and implementation of typical mitigation measures would help avoid damage to project structures as result of problematic soils.

Blythe Area. The Blythe area consists of extensive granular alluvial deposits (sand and gravel). Therefore, the potential for near-surface expansive soils to adversely affect proposed improvements at solar facilities in the area is considered low. Aeolian sand and active or plowed agricultural fields may conceal underlying cracks or fissures. Subsidence can occur as a result of new loads, such as new structures or other improvements, being located on some areas unless the underlying soils are appropriately prepared

Application of standard design and construction practices and implementation of typical mitigation measures such as Proposed Project Mitigation Measure G-5a (Assess soil characteristics to aid in appropriate foundation design) would reduce the potential impact from unsuitable soils.

D.9.4 Environmental Impacts of Project Alternatives

Three alternatives are considered in this section; all of these alternatives would be located within the existing WOD ROW. The No Action Alternative is evaluated in Section D.9.5. Alternatives are described in detail in Appendix 5 (Alternatives Screening Report) and are summarized in Section C.

Geology and soil resources within the ROW are described by segment in Section D.9.1.2 above; the description of the environmental setting would apply equally to the alternatives.

D.9.4.1 Tower Relocation Alternative

The Tower Relocation Alternative would locate certain transmission structures in Segments 4, 5, and 6 farther from existing homes than would be the case under the Proposed Project.

Five impacts related to geology and soils were identified for the Proposed Project. These impacts also would apply to the Tower Relocation Alternative, which overall would be the same as the Proposed Project, with the exception of the relocated transmission towers that are described above and in Appendix 5. The full text of all mitigation measures referenced in this section is presented in Section D.9.3.3, except where otherwise noted.

Impact G-1: Project structures could be damaged by surface fault rupture at crossings of active and potentially active faults

Project facilities would be subject to hazards of surface fault rupture at crossings of active and potentially active faults. The project route crosses several active and potentially active faults.

The relocated structures would be located in the same seismically active area as the Proposed Project structures and would be subject to the same risk of damage by surface fault rupture. Implementation of Mitigation Measure G-1a (Conduct fault evaluation study and minimize project structures within active fault zones) would ensure that structures would not straddle or be placed immediately adjacent to fault traces.

Impact G-2: Project structures could be damaged by seismically induced groundshaking and/or ground failures, such as landslides and liquefaction-related phenomena, exposing people or structures to hazards

Strong to severe groundshaking should be expected in the event of an earthquake on the faults near the project, with estimated PGAs ranging from 0.8 to 1.2 g along the entire route. The project would also be subject to groundshaking from a large earthquake on any of the major faults in the region. While the shaking would be less severe from an earthquake that originates farther from the route, the effects, particularly on the ridgelines and hills, could be damaging to project structures. It is likely that project components would be subjected to at least one moderate or larger earthquake occurring close enough to produce groundshaking. Portions of Segments 5 and 6 are located in gentle to moderate hills that are traversed by active faults in close proximity to the project alignment; groundshaking or fault rupture from an earthquake on these faults could be destabilize the hill slopes.

Although portions of the project route are mapped as having moderate liquefaction susceptibility by Riverside County, anticipated depths to groundwater of greater than 200 to 300 feet reduces the liquefaction potential of these areas to very low. Therefore there is no potential for project components to be damaged by liquefaction and liquefaction-related phenomena.

The strong groundshaking that would potentially affect Proposed Project structures would also affect structures under the Tower Relocation Alternative. As discussed above under Impact G-1, several potentially active faults cross the ROW near the relocated towers. Implementation of Mitigation Measure G-2a (Conduct geological surveys for landslides and unstable slopes) would reduce the potential for earthquake-induced slope instability to damage project structures

Impact G-3: Erosion could be triggered or accelerated due to construction activities

Excavation and grading for tower foundations, foundations for new equipment at substations, underground conduits and vaults, work areas, access roads, and spur roads could loosen soil and accelerate erosion. Current regulations would require that the project obtain under Clean Water Act regulations a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity as construction would disturb a surface area greater than 1 acre. Additionally, compliance with the NPDES would require that the applicant submit a Storm Water Pollution Prevention Plan (SWPPP) The SWPPP would require development and implementation of BMPs to identify and control erosion, which would reduce the potential for construction to trigger erosion.

Most of the structures that would be relocated in this alternative would be located on level ground, but several relocations would occur in the hills west of Cherry Valley Boulevard. The ground disturbance associated with the relocated structures would result in the same erosion potential as would occur with the Proposed Project towers, which would also be on slopes. Compliance existing regulations and with Mitigation Measure WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) and Mitigation Measure VEG-1d (Restore or revegetate temporary disturbance areas) would ensure that the potential adverse effects related to erosion under this alternative would be minor.

Impact G-4: Slope instability, such as landslides, could be triggered or accelerated due to construction activities

The landslide-prone San Timoteo Formation underlies the San Timoteo Badlands along Segments 1 through 3 and small areas of Segment 4 through the hills where it traverses along the southern edge of the San Bernardino Mountains. Excavation and grading for tower foundations and work areas, and grading for new and modified access and spur roads could result in slope instability in these areas.

Few of the structures that would be relocated under this alternative would be located on slopes with landslide risks. The few structures on hillslopes would have the same risk as the Proposed Project, and the risk of failure would be reduced with implementation of Mitigation Measure G-2a (Conduct geotechnical surveys for landslides and unstable slopes). With implementation of mitigation, the adverse effects related to project-induced slope instability would be minor.

Impact G-5: Project structures could be damaged by problematic soils exposing people or structures to hazards

Expansion potential for the soils along the project alignment ranges from low to high. Local soils (the Ramona-Placentia-Greenfield-Linne soil association) along Segments 1, 3, 4, 5 have a low to high potential for expansion and soils. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types identified along the project may have moderate to high clay contents and many have moderate to high shrink-swell potential. Expansive soils can cause problems to structures. Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to structures and equipment. Soils along the project segments have a potential to corrode steel ranging from low to high and a potential to corrode concrete from low to moderate. In areas where corrosive subsurface soils exist along the project route, the corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures.

The relocated towers in Segment 4 and 5 would be located on the same soil type as the Proposed Project structures that they would be replacing, which has a low to high shrink/swell potential, a low to moderate risk of corrosion for concrete, and a low to high risk of corrosion for uncoated steel. The relocated towers in Segment 6 would be located on the same soil type as the Proposed Project structures that they would be replacing, which has a low shrink/swell potential, a low risk of corrosion for concrete, and a high risk of corrosion for uncoated steel. Application of standard design and construction practices and implementation of Mitigation Measure G-5a (Assess soil characteristics to aid in appropriate foundation design) would reduce the adverse effect from unsuitable soils.

D.9.4.2 Iowa Street 66 kV Underground Alternative

The Iowa Street 66 kV Underground Alternative would place a 1,600-foot segment of subtransmission line underground, rather than overhead.

Five impacts were identified under the Proposed Project for geology and soils. These impacts also would apply to the Iowa Street 66 kV Underground Alternative, which overall would be the same as the Proposed Project, with the exception of the underground portion of the subtransmission line that is described above and in Appendix 5. The full text of all mitigation measures referenced in this section is presented in Section D.9.3.3, except where otherwise noted.

Impact G-1: Project structures could be damaged by surface fault rupture at crossings of active and potentially active faults

Project facilities would be subject to hazards of surface fault rupture at crossings of active and potentially active faults. While the project route crosses several active and potentially active faults, no active or potentially active faults are located along or near the underground subtransmission line portion of this alternative.

Impact G-2: Project structures could be damaged by seismically induced groundshaking and/or ground failures, such as landslides and liquefaction-related phenomena, exposing people or structures to hazards

The project would be subject to groundshaking from a large earthquake on any of the major faults in the region. However, no active or potentially active faults are located along or near the underground subtransmission line portion of this alternative.

Like in the Proposed Project, the lack of shallow groundwater results in a low potential for liquefaction. The underground portion of the subtransmission line would be located on mostly level ground and would not be subject to damage from seismically induced slope failures such as landslides.

Impact G-3: Erosion could be triggered or accelerated due to construction activities

Excavation and grading could loosen soil and accelerate erosion. Current regulations would require that the project obtain under Clean Water Act regulations a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity as construction would disturb a surface area greater than 1 acre. Additionally, compliance with the NPDES would require that the applicant submit a Storm Water Pollution Prevention Plan (SWPPP) The SWPPP would require development and implementation of BMPs to identify and control erosion, which would reduce the potential for construction to trigger erosion.

The underground portion of the subtransmission line under this alternative would be located on level ground, and the ground disturbance associated with the underground line would not result in substantial erosion.

Impact G-4: Slope instability, such as landslides, could be triggered or accelerated due to construction activities

As described above, the underground subtransmission line in this alternative would be located on level ground. Therefore, the ground disturbance associated with the underground line would not trigger slope instability.

Impact G-5: Project structures could be damaged by problematic soils exposing people or structures to hazards

The soil distribution within 1 mile of the project ROW is shown on Figure D.9-2, Soil Distribution. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types identified along the project may have moderate to high clay contents and many have moderate to high shrink-swell potential. Expansive soils can cause problems to structures. Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to structures and equipment. Soils along the project segments have a potential to corrode steel ranging from low to high and a potential to corrode concrete from low to moderate. In areas where corrosive subsurface soils exist along the project route, the corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures.

The underground subtransmission line would be located on the same soil type as the Proposed Project structures that it would be replacing, which has a low to high shrink/swell potential, a low to moderate risk of corrosion for concrete, and a low to high risk of corrosion for uncoated steel. Underground conduits are protected by concrete. Underground construction would require assessing the soil to identify problematic soils. Typical trenching and installation of conduits for the underground line would use backfill that would ensure that soil-related problems would not occur.

D.9.4.3 Phased Build Alternative

The Phased Build Alternative would retain existing double-circuit 220 kV transmission structures to the extent feasible, remove single-circuit structures, add new double-circuit 220 kV structures, and string all structures with higher-capacity conductors.

Five impacts related to geology and soils were identified for the Proposed Project. These impacts also would apply to the Phased Build Alternative, which would be located in the same corridor as the Proposed Project and would involve similar although less intense construction activities. The full text of all mitigation measures referenced in this section is presented in Section D.9.3.3, except where otherwise noted.

Impact G-1: Project structures could be damaged by surface fault rupture at crossings of active and potentially active faults

Project facilities would be subject to hazards of surface fault rupture at crossings of active and potentially active faults. The project route crosses several active and potentially active faults including: the Live Oak Canyon fault, Claremont fault, Loma Linda fault, Rialto-Colton fault, Beaumont Plain fault zone, San Gorgonio Pass fault, Garnet Hill fault, and South Branch san Andreas fault. The locations of these fault crossings along Project segments and location of towers relative to individual fault strands are discussed in Section D.9.1.2. Hazards from fault rupture are generally not as great where the proposed route crosses traces of potentially active faults, such as the Live Oak Canyon fault, Loma Linda fault, and Beaumont Plain fault, and where towers are not located near to the fault traces. In order to avoid tower damage and/or collapse, towers should be sited so as not to straddle or be placed immediately adjacent to fault traces. Fault crossings, where multiple feet of displacement are expected along active faults, Alquist-Priolo zoned faults, and County of Riverside County Fault Zone mapped faults are best crossed as overhead lines with towers placed well outside the fault zone to allow for the flex in the conductor lines to absorb offset.

High-capacity conductors would be installed on a combination of new and existing 220 kV structures within the existing ROW. Like the Proposed Project towers, several of the new and existing structures would be located near potentially active faults. The structures in this alternative would be located in the same seismically active area as the Proposed Project structures and would be subject to the same risk of damage by surface fault rupture. The precise location of all surface fault traces within the project ROW is unknown. In order to avoid damage to structures by surface fault rupture, the same mitigation that would be required for the Proposed Project would also be required for this alternative. Implementation of Mitigation Measure G-1a (Conduct fault evaluation study and minimize project structures within active fault zones) would ensure that structures would not straddle or be placed immediately adjacent to fault traces.

Impact G-2: Project structures could be damaged by seismically induced groundshaking and/or ground failures, such as landslides and liquefaction-related phenomena, exposing people or structures to hazards

Strong to severe groundshaking should be expected in the event of an earthquake on the faults near the project, with estimated PGAs ranging from 0.8 to 1.2 g along the entire route. The project would also be subject to groundshaking from a large earthquake on any of the major faults in the region. While the shaking would be less severe from an earthquake that originates farther from the route, the effects, particularly on the ridgelines and hills, could be damaging to project structures. It is likely that project components would be subjected to at least one moderate or larger earthquake occurring close enough to produce groundshaking.

Seismically induced slope failures such as landslides could occur in the event of a large earthquake along portions of the project. Portions of Segments 1 through 4 are located in the landslide-prone San Timoteo Formation along hillsides or ridgelines with moderate to steep slopes which would be particularly susceptible to this type of ground failure. Hillside areas underlain by San Timoteo Formation have a high possibility of seismic-induced ground failure in the form of landsliding or ground-cracking resulting in damage to project structures. The steep slopes north of Vista Grande Way (in Grand Terrace and Colton) have been shown to be unstable during recent construction, according to the City of Grand Terrace.

Portions of Segments 5 and 6 are located in gentle to moderate hills that are traversed by active faults in close proximity to the project alignment; groundshaking or fault rupture from an earthquake on these faults could be destabilize the hill slopes. Implementation of Mitigation Measure G-2a (Conduct geological surveys for landslides and unstable slopes) would reduce the potential for earthquake-induced slope instability to damage project structures.

Although portions of the project route are mapped as having moderate liquefaction susceptibility by Riverside County, anticipated depths to groundwater of greater than 200 to 300 feet reduces the liquefaction potential of these areas to very low. Portions of the project alignment underlain by older consolidated and semi-consolidated units such as Pleistocene nonmarine sedimentary deposits and Plio-Pleistocene San Timoteo Formation have no or very low liquefaction potential. Therefore there is no potential for project components to be damaged by liquefaction and liquefaction-related phenomena and no mitigation is needed.

The same strong groundshaking that would potentially affect Proposed Project structures would also affect structures under the Phased Build Alternative. Several potentially active faults cross the ROW near the new and existing structures. In the event of an earthquake along the faults near the project, peak ground acceleration would range from 0.8 to 1.2 g. The risk of damage to project structures from strong groundshaking in this alternative would be the same as in the Proposed Project. This adverse effect would be minor because transmission structures are engineered to withstand strong groundshaking. The depth to groundwater is the same in this alternative as for the Proposed Project, and is generally greater than 200 feet. Like in the Proposed Project, the lack of shallow groundwater results in a low potential for liquefaction. Therefore, the same as in the Proposed Project, structures in this alternative would not be subject to adverse effects due to liquefaction. The same as in the Proposed Project, structures associated with the Phased Build Alternative that are located on steep slopes within Grand Terrace and Colton, north of Vista Grande Way, and the San Timoteo Formation would remain susceptible to seismically induced slope failure. The severity of this adverse effect would be reduced through implementation of Mitigation Measure G-2a (Conduct geotechnical surveys for landslides and unstable slopes).

Impact G-3: Erosion could be triggered or accelerated due to construction activities

Excavation and grading for tower foundations, foundations for new equipment at substations, underground conduits and vaults, work areas, access roads, and spur roads could loosen soil and accelerate erosion.

The Phased Build Alternative would reduce the amount of ground disturbance compared to the Proposed Project, and consequently would reduce the potential to cause or accelerate erosion and siltation. The ground disturbance associated with the new 220 kV structures would not result in more substantial erosion than would occur with the Proposed Project towers. The same as for the Proposed Project, excavation and grading for new tower foundations, foundations for new equipment at substations, underground conduits and vaults, work areas, access roads, and spur roads could loosen soil and accelerate erosion.

As under the Proposed Project, erosion would be greatest for activities that take place on steep slopes. As a component of both the Proposed Project and this alternative, SCE would have to obtain a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity. This permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP), which requires development and implementation of BMPs to identify and control erosion. In addition to compliance with existing regulation, the potential for this alternative to result in accelerated erosion would be reduced through implementation of Mitigation Measure WR-2a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). The full text of this mitigation measure is presented in the analysis for Water Resources and Hydrology in Section D.19.3.3. Compliance with existing regulations and implementation of the mitigation would ensure that the potential adverse effects related to erosion under this alternative would be minor.

Impact G-4: Slope instability, such as landslides, could be triggered or accelerated due to construction activities

Thee landslide-prone San Timoteo Formation underlies the San Timoteo Badlands along Segments 1 through 3 and small areas of Segment 4 through the hills where it traverses along the southern edge of the San Bernardino Mountains. Excavation and grading for tower foundations and work areas, and grading for new and modified access and spur roads could result in slope instability in these areas. Slope instability could include landslides, earthflows, soil creep, or debris flows. Slope instability has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy project components.

The ground disturbance associated with the new 220 kV structures would not result in a greater potential to trigger slope instability than would occur with the Proposed Project towers, which would be located on similar topography. The landslide-prone areas that are crossed by both the Proposed Project and this are the same. It is unlikely that ground disturbance in this alternative would result in slope instability greater than that of the Proposed Project. Mitigation Measure G-2a (Conduct geotechnical surveys for landslides and unstable slopes) would reduce the adverse effects related to project-induced slope instability under this alternative. With implementation of mitigation, the adverse effects related to project-induced slope instability would be minor.

Impact G-5: Project structures could be damaged by problematic soils exposing people or structures to hazards

Expansion potential for the soils along the project alignment ranges from low to high; local soils (the Ramona-Placentia-Greenfield-Linne soil association) along Segments 1, 3, 4, 5 have a low to high potential for expansion and soils, the remainder of the soils along the project alignment have low and low to moderate potential for expansion as presented in Table D.9-2. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types identified along the project may have moderate to high clay contents and many have moderate to high shrink-swell potential. Expansive soils can cause problems to structures. Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to structures and equipment. Soils along the project segments have a potential to corrode steel ranging from low to high and a potential to corrode concrete from low to moderate. In areas where corrosive subsurface soils exist along the project route, the corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures.

High-capacity conductors would be installed on a combination of new and existing 220 kV structures within the existing ROW. Therefore, structures under this alternative would be exposed to the same problematic soils that would affect the Proposed Project structures, as described in Section D.9.3.3. The Phased Build Alternative would reduce the amount of construction activity and the number of new tower foundations compared to the Proposed Project, and consequently would reduce the exposure to problematic soils. Application of standard design and construction practices and implementation of Mitigation Measure G-5a (Assess soil characteristics to aid in appropriate foundation design) would reduce the adverse effect from unsuitable soils.

D.9.5 Environmental Impacts of No Action Alternative

D.9.5.1 No Action Alternative Option 1

No Action Alternative Option 1 is described in Section C.6.3.1. It would consist of a new 500 kV circuit, primarily following the Devers-Valley transmission corridor and extending 26 miles between Devers Substation. It would also require a new 40-acre substation south of Beaumont, and 4 new 220 kV circuits extending 7 miles from the new Beaumont Substation to El Casco Substation, primarily following the existing El Casco 115 kV ROW. The remainder of the No Action Alternative, from El Casco Substation to the San Bernardino and Vista Substations, would be identical to the Proposed Project. Information on environmental resources and project impacts is derived from the Devers–Palo Verde 500 kV No. 2 Project EIR/EIS (CPUC and BLM, 2006) and the El Casco System Project Draft EIR (CPUC, 2007); which include nearly all of the No Action alignment.

Devers to Beaumont Substation. Between Devers and Beaumont, the 500 kV ROW crosses recent alluvium (unconsolidated alluvial deposits), nonmarine sedimentary deposits (conglomerate, sandstone, clay, siltstone, and shale), and granitic rock. Only the granitic rock presents difficult excavation characteristics. Most of the route does not cross areas identified as existing landslide; however unmapped landslides and areas of localized slope instability may be encountered in the mountains and foothills. Active and potentially active faults intersect the route. Soils vary from those formed in alluvial fans and sand (including desert pavement and desert varnish), which can be gravelly and sandy, to soils formed in alluvium weathered from granitic rocks and material in sandstone and shale. Generally, liquefaction is not considered a potential hazard due to the generally deep water table along the ROW. A few miles of alluvial sediments in the San Jacinto Valley (MP 13-MP 15) may be susceptible. As well, during storms or a wet season, the water table may rise and section of the route near washes and in unconsolidated sediments may become moderately susceptible to liquefaction during a strong earthquake. Portions of the route on moderate to steep slopes could be damaged by landslides, rock avalanches, and rockfalls. Impacts from geologic hazards and adverse soil conditions can be address by such measures as requiring geotechnical surveys for landslides and slope stability, minimizing structures in fault zones, minimizing ground surface disturbance, and requiring runoff and erosion control. The Devers to Beaumont Substation alignment would follow the existing Devers to Valley alignment. In the analysis of the Devers to Valley alignment in the DPV2 EIR/EIS, all impacts to geological resources were less than significant with mitigation.

Beaumont Substation. The substation site is not on any known fault traces, but is south of the San Andreas fault zone and east of the San Jacinto fault zone, both of which are active. Because of its position relative to surrounding uplands, soils are primarily alluvial in origin. To minimize geology and soils impacts, measures such as those identified above for the 500 kV alignment would be required.

Beaumont to El Casco Substation. Between Beaumont and El Casco, the alignment would cross a number of potentially active faults. The geology along the 220 kV segment consists primarily of recent alluvium and the San Timoteo Formation, which is gently to moderately sloping hills and is landslide-prone. Areas of potential liquefaction may occur in the alluvial sediments along the creek. As with the 500 kV alignment, measures to minimize impacts would include geotechnical surveys to inform foundation design and structure siting, minimization of ground surface disturbance, and requiring runoff and erosion control.

D.9.5.2 No Action Alternative Option 2

No Action Alternative Option 2 would require the construction of over 40 miles of new 500 kV transmission line, following the existing Valley-Serrano 500 kV line. The alternative is described in Section C.6.3.2, and illustrated on Figure C-6b.

Geologic formations along the corridor include alluvium in the Perris Valley and the area surrounding Temescal Wash, mudstone and claystone in the foothills surrounding Steele Peak and in the Cleveland National Forest (CNF), intrusive igneous rock near Steele Peak, volcanic rock in the foothills surrounding Estelle Mountain and in portions of the CNF, and sandstone and mudstone west of MP 30. In the eastern portion of this alternative, the route passes through sandy loam, rocky loam, and clay. The clay soils present a geologic hazard due to their expansive properties. The foothills surrounding Steele Peak and Estelle Mountain contain mostly rocky loam with a severe erosion potential. Unweathered intrusive igneous rock near Steele Peak may require blasting during construction. The CNF portion of the route contains mostly fine sandy loam, which also has a severe potential for erosion. To the west of the CNF, the route passes through sandy loam, clay loam, and rocky outcrops, all of which are classified as having a severe erosion potential.

There are no active or historic faults within or near the corridor east of MP 20. At approximately MP 21.2, just west of the Temescal Wash, the route crosses two adjacent Earthquake Fault Zones of Required Investigation, the Corona South and Lake Matthews fault zones. These fault zones of required investigation are within the more broadly defined Elsinore Fault Zone. This area is also subject to liquefaction. The Serrano Substation at MP 40.4 is located just south of the Peralta Hills Fault. The corridor passes through several mapped landslide hazard zones in the Peralta Hills, northwest of MP 32. In addition, potential unmapped landslide hazards may exist along the route where it passes through steep terrain in the foothills surrounding Steele Peak and Estelle Mountain and in the CNF. Impacts from geologic hazards and adverse soil conditions can be addressed by such measures as requiring geotechnical surveys for landslides and slope stability, minimizing structures in fault zones, minimizing ground surface disturbance, and requiring runoff and erosion control.

D.9.6 Mitigation Monitoring, Compliance, and Reporting

Table D.9-5 presents the mitigation monitoring, compliance, and reporting actions for geology and soils.

Table D.9-5. Mitigation Monitoring Program – Geology and Soils

MITIGATION MEASURE	**G-1a: Conduct fault evaluation study and minimize project structures within active fault zones.** Prior to final Project design, SCE shall perform fault evaluation studies to confirm the location of mapped traces of active and potentially active faults crossed by the project route or other project structures, as described in Section D.9.1.2 for each project segment. For crossings of active faults, the project design shall not locate towers or other project structures on the traces of active faults; and additionally, all other project components shall be placed as far as feasible outside the areas of mapped fault traces. SCE shall provide CPUC and BLM a letter signed by a California registered geotechnical engineer following the completion date of all of the foundation activities for each segment. The letter will confirm that SCE followed the geotechnical report recommendations and the common engineering practice in southern California at the time of project construction.
Location	Construction in vicinity of faults.
Monitoring / Reporting Action	CPUC/BLM monitor verifies receipt of documentation regarding foundations.
Effectiveness Criteria	Structures and foundations designed based on fault study and are located off of active fault traces and as far as feasible outside of areas with fault traces.
Responsible Agency	CPUC/BLM
Timing	At completion of foundation activities, letter provided.
MITIGATION MEASURE	**G-2a: Conduct geotechnical surveys for landslides and unstable slopes.** SCE shall conduct design-level geotechnical surveys for the project that include slope stability surveys in areas where project components are located on hills or hill tops. These surveys will acquire data that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and along other project components crossing these hills such as access and spur roads. The investigations shall include an evaluation of subsurface conditions, identification of potential landslide hazards, and provide potential modifications to the project design to avoid areas of unstable slopes and landslide hazards, such as modification of tower locations. Where the geotechnical surveys determine that landslide hazard areas cannot be avoided, best engineering design and construction measures shall be incorporated into the project designs to prevent potential damage to project facilities. SCE shall provide CPUC and BLM a copy of the geotechnical survey report for review, at least 60 days before construction. In addition, SCE shall submit a letter signed by a California registered geotechnical engineer following the completion date of all of the foundation activities for each segment. The letter will confirm that SCE followed the geotechnical report recommendations and the common engineering practice in southern California at the time of the project.
Location	Construction in vicinity of potential landslides and unstable slopes.
Monitoring / Reporting Action	Receive copy of geotechnical survey report and documentation letter.
Effectiveness Criteria	Study undertaken and followed; landslide and slope issues addressed
Responsible Agency	CPUC/BLM
Timing	60 days before construction report received; confirming letter following completion of foundation activities for each segment.

Table D.9-5. Mitigation Monitoring Program – Geology and Soils

MITIGATION MEASURE	**G-5a: Assess soil characteristics to aid in appropriate foundation design.** The design-level geotechnical studies conducted for the project shall include soils analyses to identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates, and soils with moderate to high shrink/swell or expansion potential. If corrosive soils are identified, appropriate design measures for protection of reinforcement, concrete, and metal structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of project components exposed to potentially corrosive conditions, and use of passive and/or active catholic protection systems. If expansive soils are identified, the project design shall be modified to include appropriate design features, such as including excavation of potentially expansive or during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. SCE shall provide CPUC and BLM a copy of the design-level geotechnical studies for review at least 60 days before the start of construction. In addition, SCE shall submit a letter signed by a California registered geotechnical engineer following the completion date of all of the foundation activities for each segment. The letter will confirm that SCE followed the geotechnical report recommendations and the common engineering practice in southern California at the time of the project.
Location	Throughout project
Monitoring / Reporting Action	Geotechnical study report received; confirmation letter received
Effectiveness Criteria	Soils characterized and information used for appropriate foundation design.
Responsible Agency	CPUC/BLM
Timing	Geotechnical study report 60 days before the start of construction; confirming letter following completion of foundation activities for each segment.

D.9.7 References

BLM (Bureau of Land Management). 2012. Desert Harvest Solar Farm Final EIS. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Harvest_Solar_Project.html. Accessed February 16, 2015.

CEC (California Energy Commission). 2010. Palen Solar Power Project Commission Decision. CEC-800-2010-010-CMF. December.

CGS (California Geological Survey) [formerly the California Division of Mines and Geology (CDMG)]. 1999. Fault Rupture Hazard Zones in California, CGS Special Publication #42.

_____. 1986. Geologic Map of the San Bernardino Quadrangle, scale 1:250,000, Regional Geologic Map Series, Map No. 3A.

_____. 1966. Geologic Maps of California, Santa Ana and Salton Sea Sheet, scale 1:250,000.

CPUC (California Public Utilities Commission). 2007. SCE El Casco System Project Draft EIR, individual resource Sections. http://www.cpuc.ca.gov/environment/info/aspen/elcasco/toc-deir.htm. Accessed April 15, 2015.

CPUC and BLM. 2006. SCE Devers–Palo Verde 500 kV No. 2 Project EIR/EIS, Sections on West of Devers Alternative. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-deir.htm. Accessed April 15, 2015.

CPUC and USDA (United States Department of Agriculture) Forest Service. 1984. Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR. August.

Matti, J. C., and Carson, S. E. 1991. Liquefaction susceptibility in the San Bernardino Valley and vicinity, southern California — a regional evaluation: U.S. Geological Survey Bulletin 1898, 53 p., scale 1:48,000. http://pubs.er.usgs.gov/publication/b1898. Accessed September 2014.

Morton D. M. and F. K. Miller. 2006. Geologic Map of the San Bernardino and Santa Ana 30' x 60' Quadrangles, California: USGS Open File Report 2006-1217.

NRCS (National Resource Conservation Service). 2014. Official Soils Series Descriptions website. http://soils.usda.gov/technical/classification/osd/index.html. Accessed numerous times, September.

_____. 2006. Digital General Soil Map of United States, (STATSGO) tabular and vector data for California. Downloaded from http://websoilsurvey.nrcs.usda.gov.

RCPD (Riverside County Planning Department). 2003. Riverside County General Plan, Chapter 6; Safety Element. http://planning.rctlma.org/Portals/0/genplan/content/gp/chapter06.html.

SBC (San Bernardino County Planning Department). 2010. San Bernardino County Land Use Plan General Plan Geologic Hazard Overlays, Sheets EHFHC, FH30C, FH31C, and FH32C. Downloaded from http://cms.sbcounty.gov/lus/Planning/ZoningOverlayMaps/GeologicHazardMaps.aspx.

SCEDC (Southern California Earthquake Data Center). 2014a. Significant Earthquakes and Faults, For Tejon Earthquake. Downloaded from http://www.data.scec.org/significant/forttejon1857.html.

_____. 2014b. Significant Earthquakes and Faults, Chronological Earthquake Index website. http://www.data.scec.org/significant/chron-index.html. Accessed numerous times September 2014.

USGS (United States Geologic Survey). 2014a. Major Faults of Southern California Inland Empire Region, text from USGS Open-File Report 92-354, from Southern California Aerial Mapping Project (SCAMP) website. Downloaded from http://www.wr.usgs.gov/scamp/html/scg_ie_banning.html.

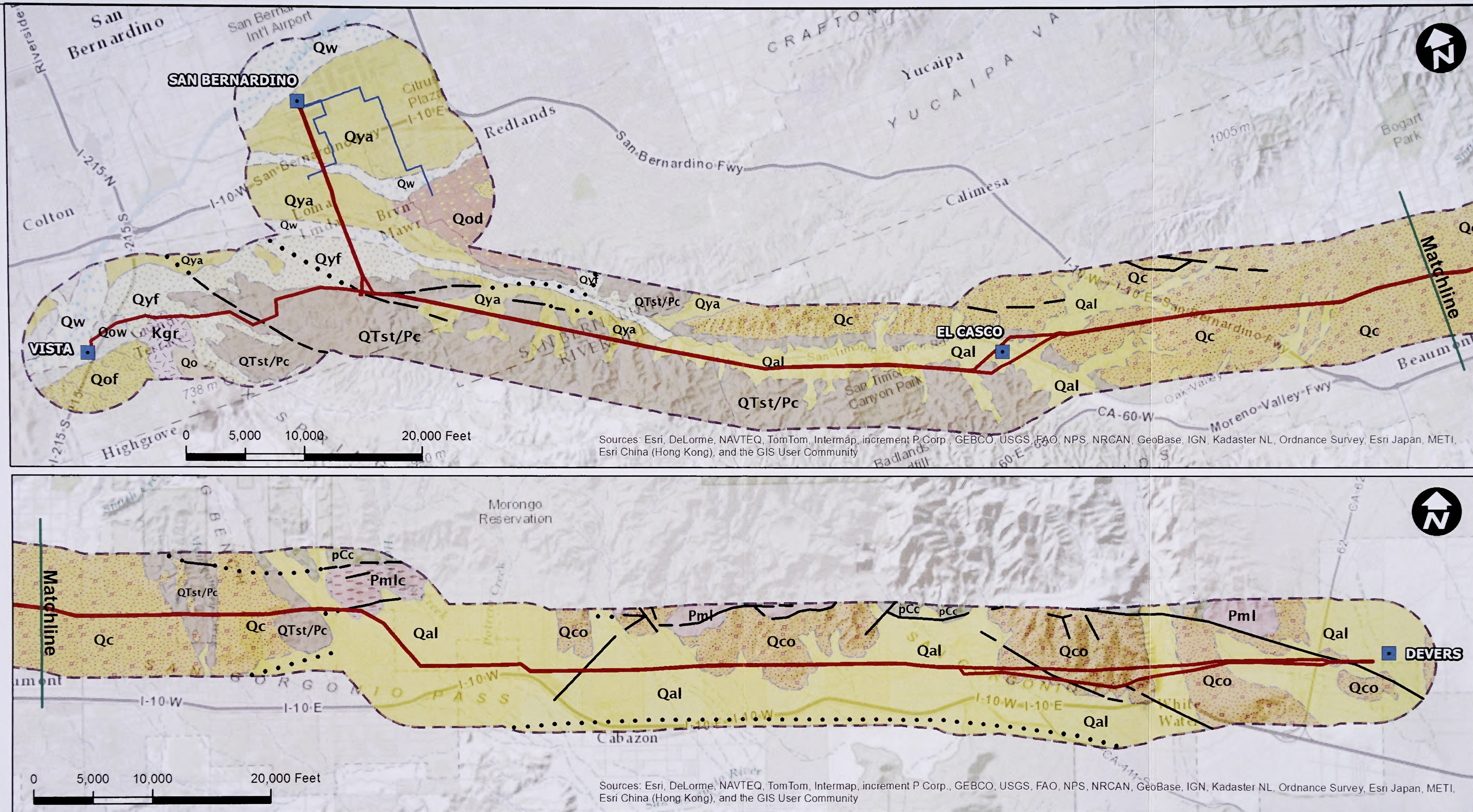
_____. 2014b. 2014 USGS National Seismic Hazards Maps website, GIS data for Peak Ground Acceleration (%g) with 2% Probability of Exceedance in 50 Years. Downloaded from http://earthquake.usgs.gov/hazards/products/conterminous/index.php#2014.

_____. 2014c. USGS Earthquake Hazards Program, ANSS – Advanced National Seismic System, Earthquake Catalog. Downloaded from http://earthquake.usgs.gov/earthquakes/search/.

_____. 2008. Documentation for the 2008 Update of the United States National Seismic Hazard Maps. OF 08-1128.

USGS and CGS (United States Geological Survey and California Geological Survey). 2010. GIS data for the Quaternary fault and fold database for the United States. Downloaded from http://earthquakes.usgs.gov/regional/qfaults/.

Youd, T.L. and D.M. Perkins. 1978. Mapping Liquefaction Induced Ground Failure Potential, in the Proceedings of the American Society of Civil Engineers, Journal of the Geotechnical Engineering Division.



Substations

Proposed 220 kV Transmission Line

Proposed 66 kV Subtransmission Lines

1-mile Buffer Zone

Geology

Qw - Wash Deposits

Qyf - Younger Fan Deposits

Qal - Recent Alluvium

Qow - Older Wash Deposits

Qya - Younger Alluvium

Qof - Older Fan Deposits

Qo - Older Alluvium

Qod - Well Dissected Alluvial Fans

Qc - Pleistocene Nonmarine Sedimentary Rocks

Qco - Plio-Pleistocene Nonmarine Sedimentary Rocks

QTst/Pc - San Timoteo Formation

Geology Source: Modified from CGS, 1966, Geologic Map of California, Santa Ana Sheet, Scale 1:250,000; and CGS, 1986, Geologic Map of the San Bernardino Quadrangle, Scale 1:250,000.

Pmlc - Hathaway Formation

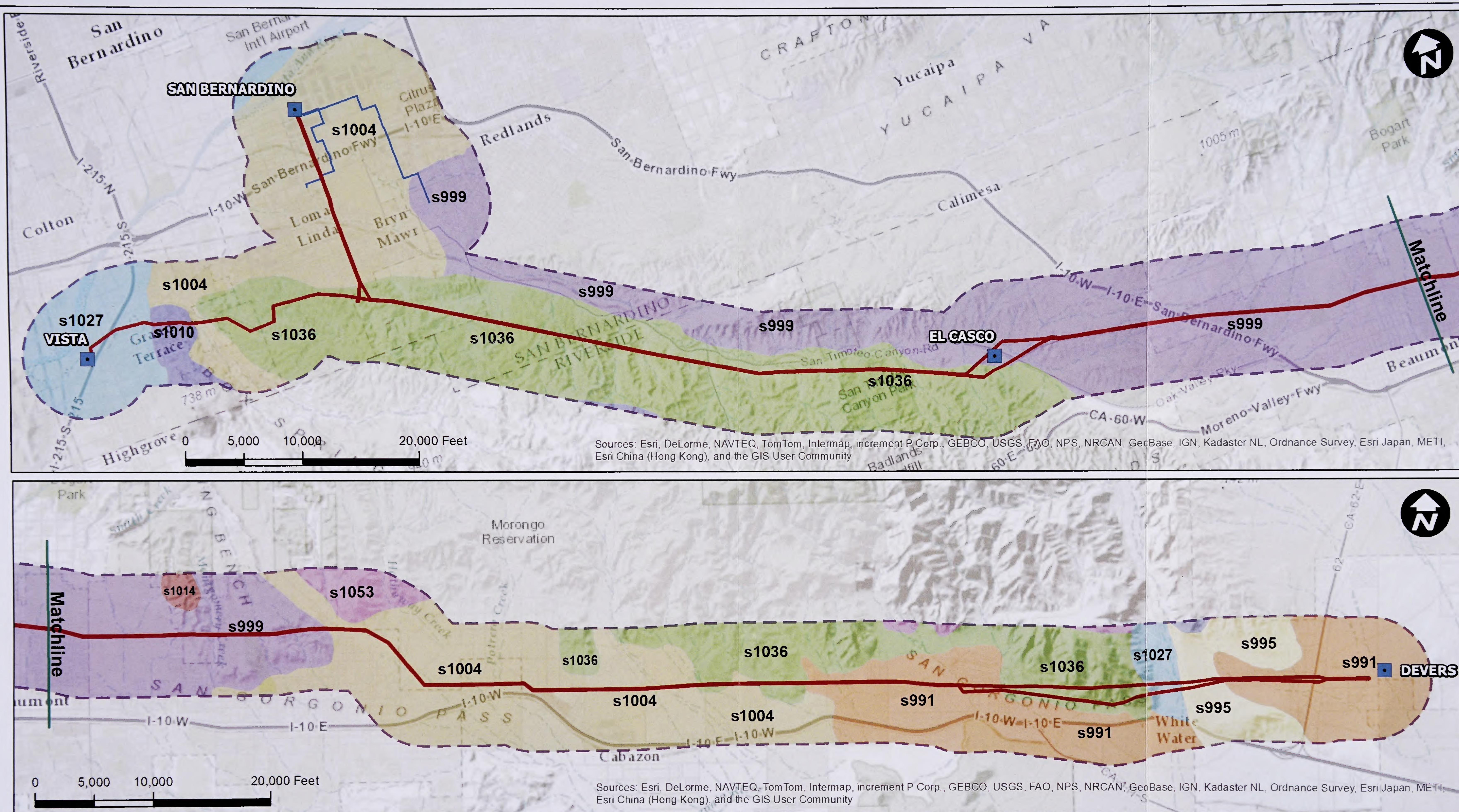
Kgr Granitic Rocks

pCc - San Gorgonio Igneous-Metamorphic Complex

Faults, dashed where approximately located, dotted where concealed.

West of Devers Upgrade Project

Figure D.9-1
Geologic Map



Substations
Proposed 220 kV Transmission Line
Proposed 66 kV Subtransmission Lines
1-mile Buffer Zone

Soil Associations

- s991 - Myoma-Carsitas-Carrizo
- s995 - Rock outcrop-Rillito-Beeline-Badland
- s999 - Ramona-Placentia-Linne-Greenfield
- s1004 - Ramona-Hanford-Greenfield-Gorgonio
- s1014 - Tollhouse-Rock outcrop-La Posta
- s1027 - Urban land-Tujunga-Soboba-Hanford
- s1036 - Xerorthents-Saugus-San Timoteo-Badland
- s1053 - Springdale-Rock outcrop-Etsel family
- s1126 - Tecopa-Rock outcrop-Lithic Torriorthents
- s1010 - Sesame-Rock outcrop-Cieneba

Soil Data Source: U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS), 2006. State Soil Survey Geographic (STATSGO) database, California data.

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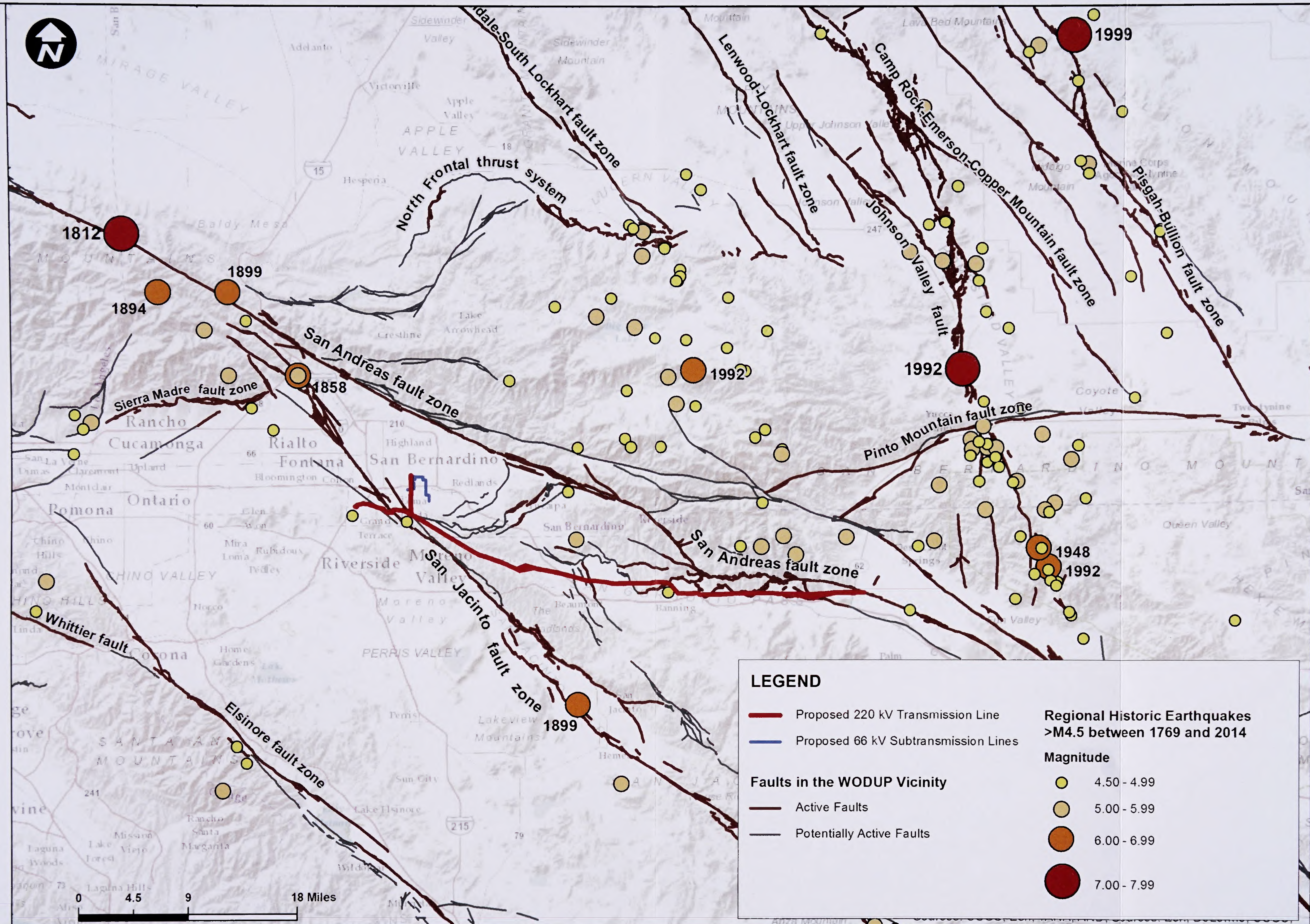
Figure D.9-2

Soil Distribution



Data Sources: Faults - U.S.G.S. and C.G.S., 2010, Quaternary fault and fold database for the United States, Earthquakes - ANSS (Advanced National Seismic System) Catalog at http://quake.geo.berkeley.edu/anss/catalog-search.html.

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Figure D.9-3
Active Faults and Historic Earthquakes

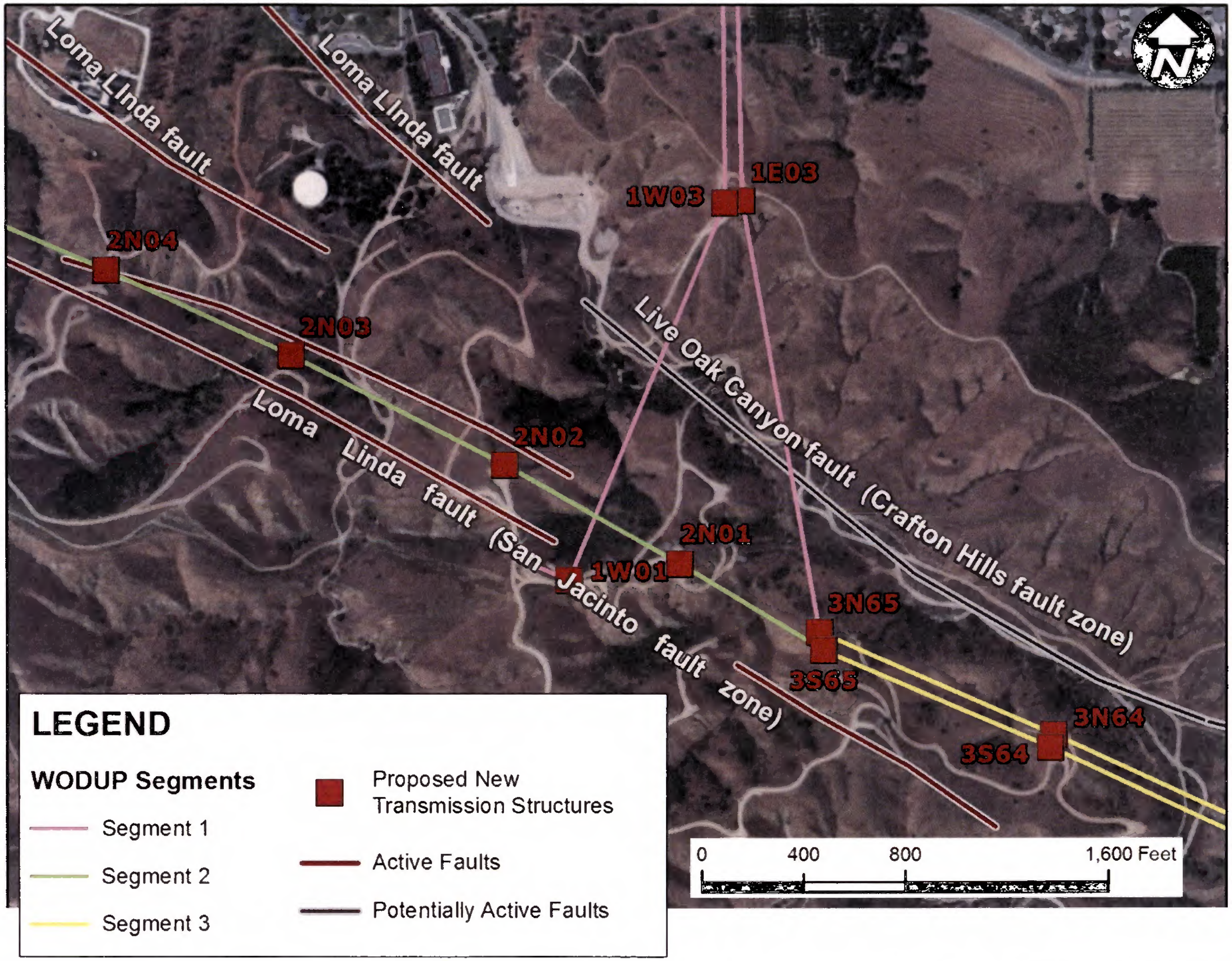

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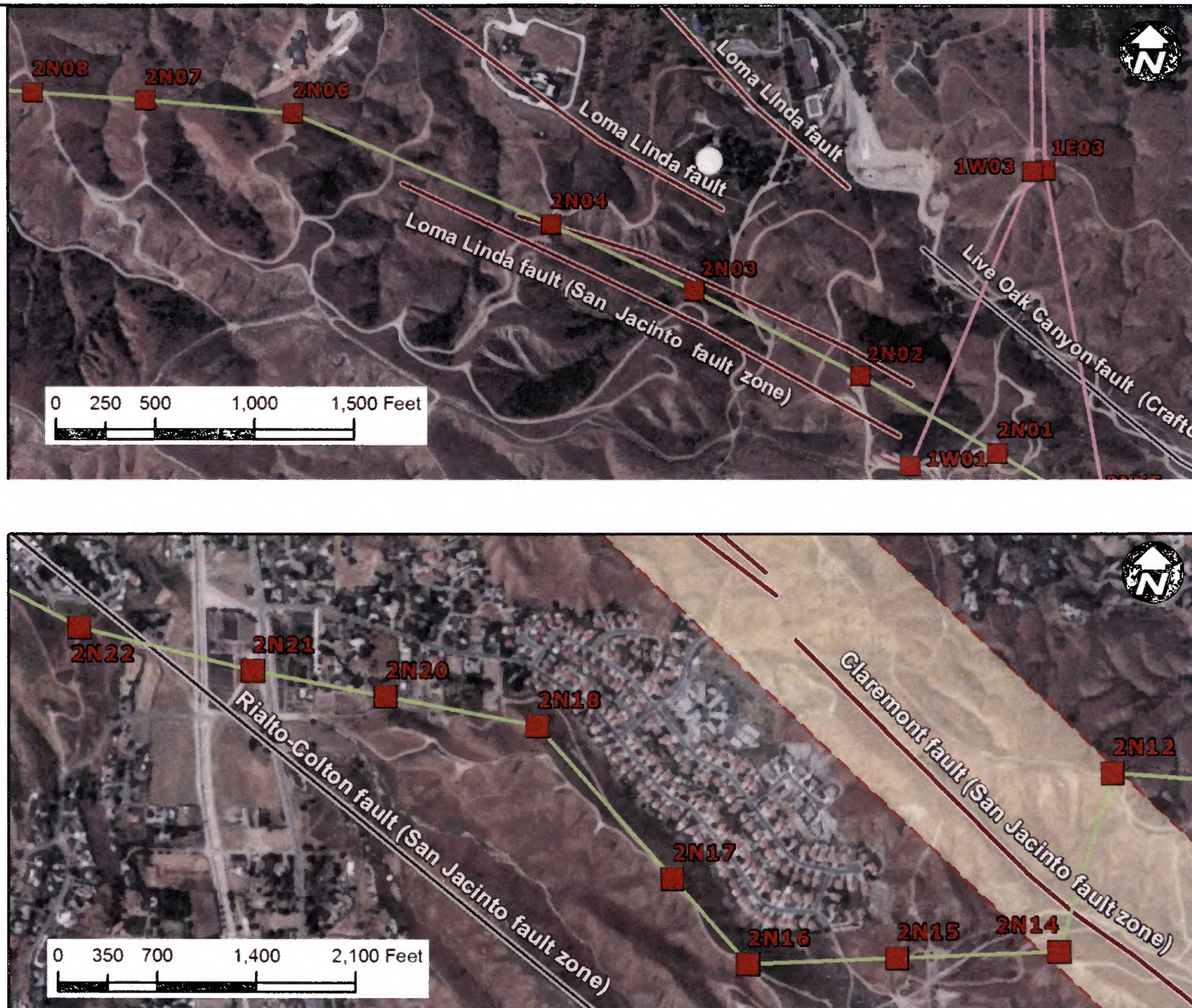
Figure D.9-4a

Segment 1 Fault Crossings



LEGEND

WODUP Segments

- Segment 1
- Segment 2

- Proposed New Transmission Structures
- Active Faults
- Potentially Active Faults
- Alquist-Priolo Earthquake Fault Zone

West of Devers Upgrade Project

Figure D.9-4b

Segment 2 Fault Crossings

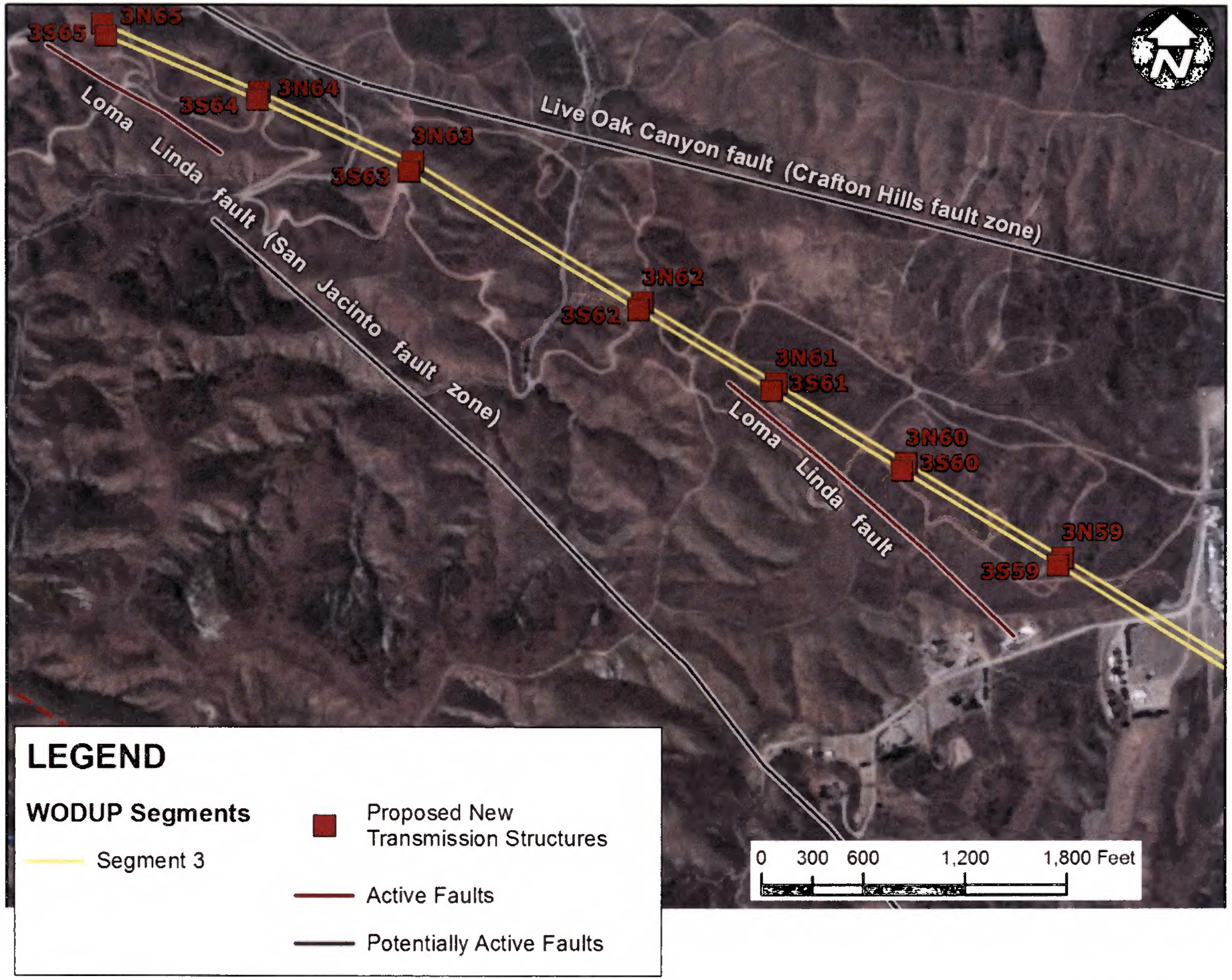


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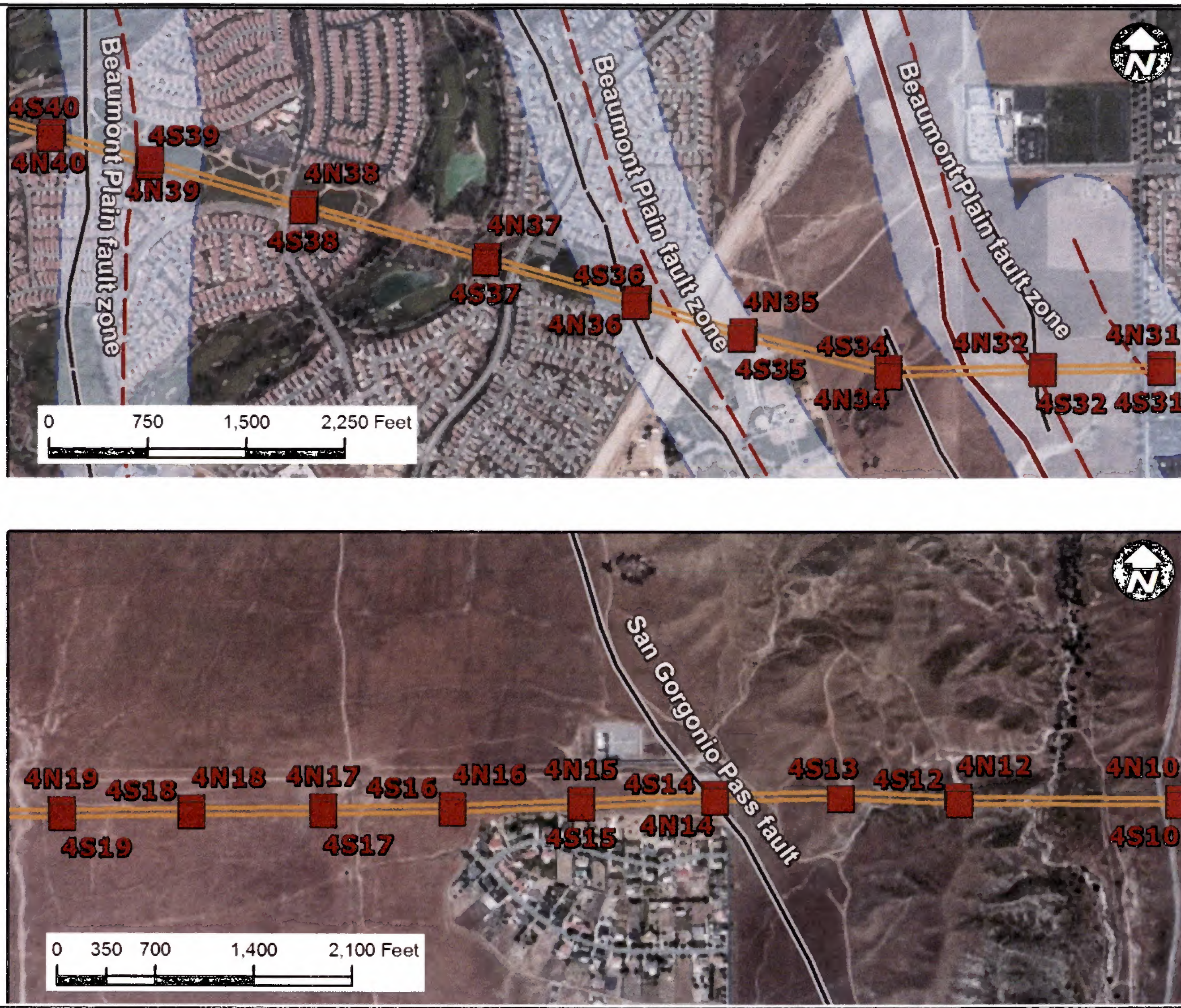
Figure D.9-4c

Segment 3 Fault Crossings



LEGEND

WODUP Segments

Segment 4

Proposed New Transmission Structures

Active Faults

Potentially Active Faults

Riverside County Mapped Fault Traces

County of Riverside Fault Zones

West of Devers Upgrade Project

Figure D.9-4d

Segment 4 Fault Crossings

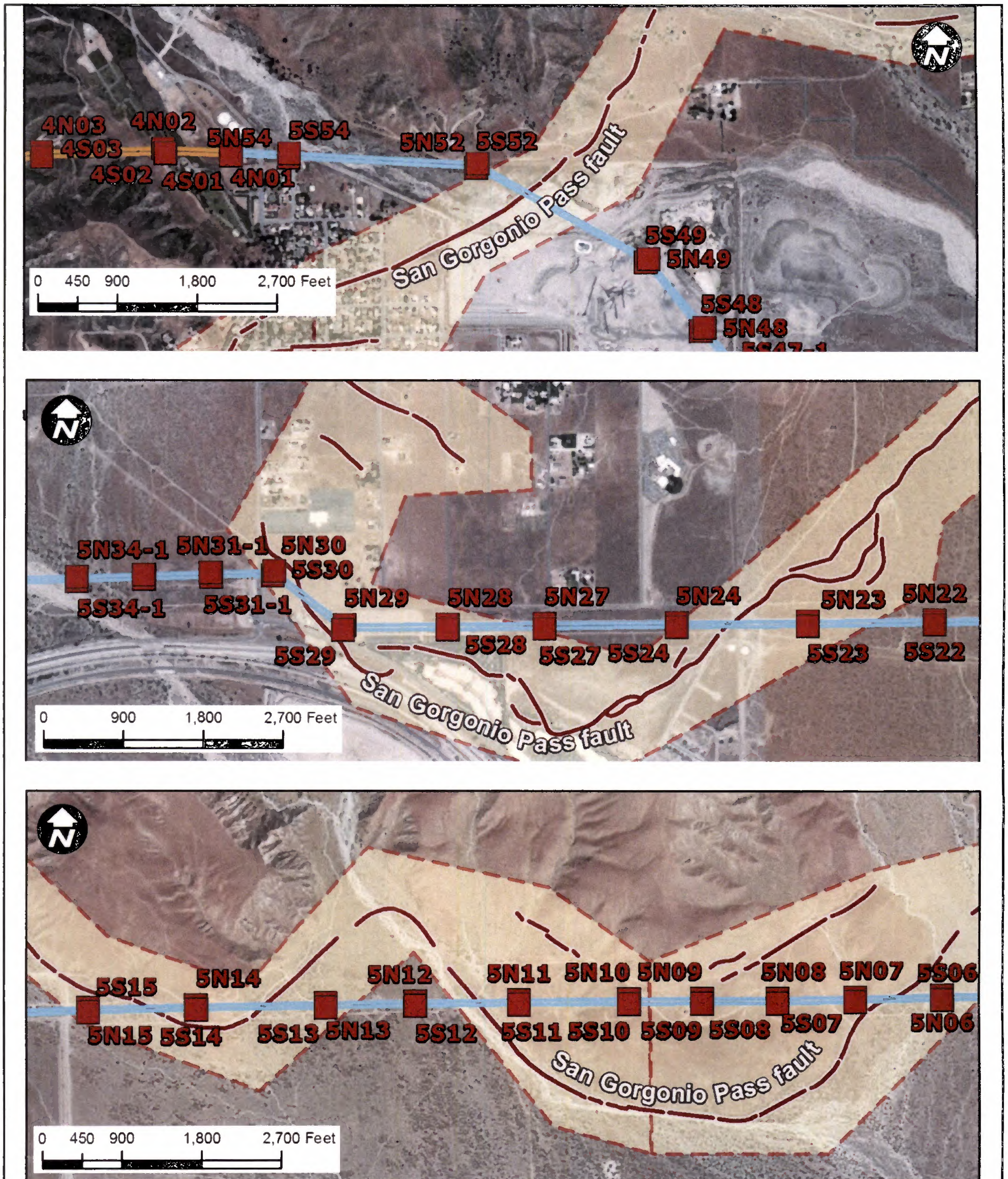
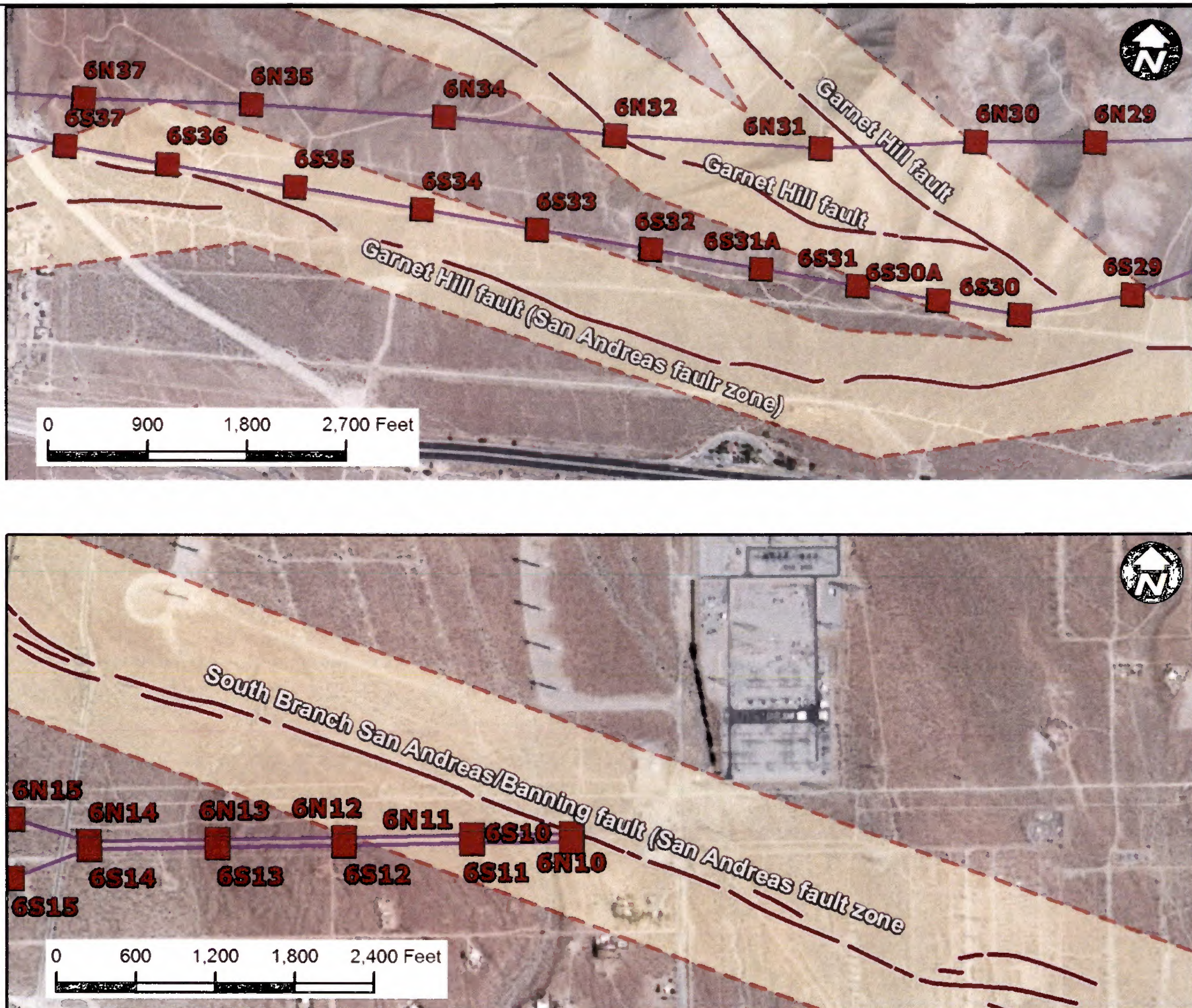


Figure D.9-4e

Segment 5 Fault Crossings



Segment 6

Proposed New Transmission Structures

Alquist-Priolo Earthquake Fault Zone

Active Faults

Potentially Active Faults

West of Devers Upgrade Project

Figure D.9-4f

Segment 6 Fault Crossings