

D. Alternatives Analysis

D.1 Introduction

This section provides a discussion of alternatives to the proposed Project and also discusses the comparative merits of those alternatives carried forward for full analysis in this EIR. This section is organized as follows:

- Section D.2 describes the CEQA requirements for the assessment of alternatives, the methodology used for screening the alternatives, and the screening results;
- Section D.3 presents a detailed description of each alternative selected for full EIR analysis;
- Section D.4 provides the environmental analysis of the alternatives selected for full EIR analysis; and
- Section D.5 presents a comparison of the alternatives analyzed to the proposed Project, including identification of the environmentally superior alternative as required by CEQA (CEQA Guidelines Section 15126.6 [e][2]).

D.2 Project Alternatives Overview and Screening

One of the requirements in the preparation of an EIR is the identification and assessment of a reasonable range of alternatives that have the potential for avoiding or minimizing one or more significant impacts of a proposed project while meeting most of the project's objectives. In considering the reasonable range of alternatives, a screening process is applied whereby alternatives that have been identified that do not meet the requirements set forth by CEQA (see Section D.2.1) are eliminated, and those alternatives which do meet the requirements are carried forward for full analysis in the EIR.

The range of potential alternatives to the proposed Project was identified through the CEQA scoping process, and through supplemental studies and consultation conducted during the course of this analysis. The range of alternatives considered in the screening analysis encompasses:

- Alternatives identified by SCE;
- Alternatives identified by the Tehachapi Collaborative Study Group (TCSG), which was formed by the CPUC to provide guidance to the Commission on how to proceed with transmission planning in the Tehachapi region;
- Alternatives identified by the EIR team as a result of an independent review of the Project route and the alternatives presented in the PEA; and
- Alternatives identified by the general public during the scoping period (May-June 2006) conducted in accordance with CEQA requirements.

In total, 10 potential alternatives have been identified. These alternatives range from minor routing adjustments to SCE's proposed Project route, to entirely different transmission line routes, to alternate system designs.

D.2.1 CEQA Requirements for Alternatives Assessment

CEQA requires that an EIR describe a range of reasonable alternatives to the project, or to the location of the project, which could feasibly avoid or lessen any significant environmental impacts while substantially attaining the basic objectives of the project. An EIR should also evaluate the comparative merits of the alternatives. The key provisions of the CEQA Guidelines (Section 15126.6) pertaining to the analysis of alternatives are summarized below:

- The discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

- The “no project” alternative shall be evaluated along with its impact. The “no project” analysis shall discuss the existing conditions at the time the notice of preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a “rule of reason”; therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

Alternatives usually take the form of reduced project size, different project design, suitable alternative project sites, or no project. The range of alternatives discussed in an EIR is governed by a “rule of reason” that requires the identification of only those alternatives necessary to permit a reasoned choice between the alternatives and the proposed project.

The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in CEQA Guidelines §15126.6(f)(1)) are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to the alternative site. An EIR need not consider an alternative whose effects could not be reasonably identified, whose implementation is remote or speculative, and that would not achieve the basic project objectives.

In order to comply with CEQA’s requirements, each alternative that has been suggested or developed for this Project has been evaluated in the three following ways:

- Does the alternative accomplish all or most of the basic project objectives?
- Is the alternative feasible (from economic, environmental, legal, social, technological standpoints)?
- Does the alternative avoid or substantially lessen any significant effects of the proposed Project (including consideration of whether the alternative itself could create significant effects greater than those of the proposed Project)?

D.2.2 Alternatives Screening Methodology

The evaluation of the alternatives was completed using a screening process that consisted of three steps:

Step 1: Clarify the description of each alternative to allow comparative evaluation.

Step 2: Evaluate each alternative using CEQA criteria.

Step 3: Based on the results of Step 2, determine the suitability of the each alternative for full analysis in the EIR. If the alternative is unsuitable, eliminate it from further consideration.

In the final phase of the screening analysis, the advantages and disadvantages of the remaining alternatives were carefully weighed with respect to CEQA criteria for consideration of alternatives. These criteria are discussed in the following section.

D.2.2.1 Potential to Eliminate Significant Environmental Effects

CEQA requires that alternatives selected for analysis in an EIR must have the potential to “avoid or substantially lessen any of the significant effects of the project” (CEQA Guidelines Section 15126.6(a)). At the screening stage, it is not possible to evaluate all of the impacts of the alternatives in comparison to the proposed Project with absolute certainty, nor is it possible to quantify impacts. However, it is possible to identify elements of an alternative that are likely to be the sources of impact and to relate them, to the extent possible, to general conditions in the subject area.

Table D.2-1 presents a summary of the potential significant effects of the proposed Project. This impact summary was prepared prior to completion of the EIR analysis, so it may not be complete in comparison to the detailed analysis included in Section C of this EIR. The impacts stated below are based on a preliminary assessment of potential Project impacts and were used to determine whether an alternative met the CEQA requirement to reduce or avoid significant effects of the proposed Project.

Issue Area	Impact
Air Quality	Construction dust and equipment emissions violating South Coast Air Quality Management District's and/or Kern County Air Pollution Control District's ambient air quality standards
Biological Resources	Impacts on avian species Temporary disturbance of habitat during construction Permanent loss of habitat for tower pads and access roads Degradation of plant species that provide habitat for biological resources Wildlife disturbance Construction noise and air quality disturbances to wildlife Potential to spread noxious weeds
Cultural Resources	Potential construction disturbance to recorded and/or unknown cultural and historic resources
Geology, Soils, and Paleontology	Slope instability due to project grading and structure pads Transmission line could be damaged by surface fault ruptures at crossings of active faults Buried tower foundations could be damaged by corrosive soils Impacts to towers from landslides, liquefaction, settlement, lateral spreading, expansive soils, and/or surface cracking resulting from ground shaking
Hazards and Hazardous Materials	Possible existing contamination in urban areas Worker and public exposure to contaminated soil or groundwater during excavation
Hydrology and Water Quality	Construction-related erosion or degradation of water quality through sedimentation Construction related groundwater depletion
Land Use	Conflicts with the land use policies of local General Plans and Area Plans Physical land use disturbances and conflicts with existing uses
Agricultural	Conflicts with agricultural uses, including Williamson Act lands
Noise	Noise levels in violation of applicable standards Short-term noise from construction activity on sensitive land uses Continuous operational noise from transformers and/or transmission line corona noise
Transportation and Traffic	Short-term closures of highways and roads during construction Short-term construction disturbance to pedestrian/bicycle/vehicular traffic, public transit, property access, and/or emergency response vehicles
Visual Resources	Substantial adverse effect on a scenic vista on State, County, City, or private lands Existing visual character and quality of the site and its surroundings would be substantially degraded New light or glare at substations would adversely affect day or nighttime views Inconsistent with applicable County or City regulations, plans, policies, goals, or standards applicable to the protection of visual resources
Population and Housing	Potential to displace existing housing or planned home development projects

D.2.2.2 Feasibility

The CEQA Guidelines (Section 15364) define feasibility as:

. . . capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

The alternatives screening analysis is largely governed by what CEQA terms the “rule of reason,” meaning that the analysis should remain focused, not on every possible eventuality, but rather on the alternatives necessary to permit a reasoned choice. Furthermore, of the alternatives identified, the EIR is expected to fully analyze those alternatives that are feasible, while still meeting most of the project objectives.

According to the CEQA Guidelines (Section 15126.6(f)(1)), the factors that may be taken into account when addressing the feasibility of alternatives to determine the range of alternatives to be evaluated in the EIR include: site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or other regulatory limitations; jurisdictional boundaries; and whether the proponent can reasonably acquire, control or otherwise have access to an alternative site. 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?
- **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?
- **Legal Feasibility.** Do legal protections on lands preclude or substantially limit the feasibility of permitting a high-voltage transmission line? Do regulatory restrictions substantially limit the feasibility or successful permitting of a high-voltage transmission line? Is the alternative consistent with regulatory and reliability standards for transmission system design, operation, and maintenance?
- **Social Feasibility.** Would the alternative cause significant damage to the socioeconomic structure of the community and be inconsistent with important community values and needs?
- **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?

For the screening analysis, the economic, environmental, legal, social, and technological feasibility of potential alternatives was assessed. The assessment was directed toward reverse reason; that is, a determination was made as to whether there was anything about the alternative that would be infeasible on economic, environmental, legal, social, and technological grounds.

D.2.2.3 Consistency with Project Objectives

The CEQA Guidelines require the consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may “impede to some degree the attainment of project objectives” (Section 15126.6(b)). Therefore, it is not required that each alternative meet all of the project objectives.

As discussed in Section A.2, in order to proceed with the proposed Project, SCE must obtain authorizations and approvals from the CPUC as well as other agencies. Per CPUC Decision 04-06-010, Ordering Paragraph No. 8, SCE is required to “...file an application seeking a certificate authorizing construction of” the proposed Project. SCE submitted its amended application for a CPCN on September 30, 2005. The CPUC must approve this application in order for SCE to be authorized to construct and operate the proposed transmission facilities. SCE’s objectives for the proposed Project are as follows:

- 1) Provide transmission capacity from the Tehachapi Wind Resource Area to the Antelope Substation in order to interconnect and integrate wind power generation facilities into the electric system.
 - A transmission connection is needed to allow for the transmission of renewable wind power generated in the Tehachapi area.
 - Wind power is being developed in the Tehachapi area to increase the amount of energy delivered in California from renewable resources.
 - The amount of wind power generated by renewable resources is being increased in response to the California Renewables Portfolio Standard Program (SB 1078), which requires utilities to increase the amount of power generated from renewable sources.
- 2) Prevent overloading of the existing Antelope-Mesa transmission line.
 - Increased capacity is needed to prevent overloading that would occur due to the transmission of wind power generated in the Tehachapi area.
- 3) Increase reliability of the SCE transmission grid by increasing capacity to serve demand from planned development in the Antelope Valley.
 - Transmission system upgrades, including the proposed Project, would increase overall reliability of the grid and ensure compliance with the reliability planning criteria mentioned above.

D.2.3 Alternatives Considered

In total, 10 potential alternatives have been identified. These alternatives range from minor routing adjustments to SCE's proposed Project route, to entirely different transmission line routes, to alternate system designs. Each category is presented below. Section D.2.4 presents the screening results.

D.2.3.1 Design Variations to the Proposed Project

The following alternatives, which may be considered as mitigation measures to the proposed Project, are design variations to the proposed Project.

- **Substation 2B to Substation One (Segment 3B).** This alternative was included in SCE's Amended PEA as Alternative C (Substation One to Substation Two). This alternative starts at alternative Substation 2B, which is located one mile north of Substation Two. The transmission line would head south and east approximately 6.3 miles along Cameron Canyon Road tying into the proposed Project route at Mile S3-5.2. The overall alignment increases by 1.1 miles compared to the proposed Project.
- **Substation 2C to Substation One via Cameron Canyon Road (Segment 3B).** This alternative was included in SCE's Amended PEA as Alternative C (Substation One to Substation Two), except instead the connection would be to alternative Substation 2C instead of Substation 2B. This alternative starts at alternative Substation 2C, located immediately north of Substation Two, and heads south and east 5.3 miles along Cameron Canyon Road rejoining the proposed Project at Mile S3-5.3 (proposed Project Mile S3-5.2). The overall alignment increases by 0.1 miles compared to the proposed Project.
- **Substation 1B to Antelope (Segments 3A/3B).** This alternative was included in SCE's Amended PEA as Alternative B (Antelope to Substation One). This alternative would utilize alternative Substation 1B, located immediately east of Substation One. This alternative includes a 26.6-mile re-route generally along 110th Street, which would increase the overall alignment by approximately 0.9 miles.
- **Substation 1B to Antelope via 100th Street (Segment 3B/3A).** This alternative generally follows the proposed Segment 3 route from SCE's December 2004 CPCN filing, which is included in SCE's Amended PEA as Alternative A (Antelope to Substation One); however this alternative would utilize alternative Substation 1B and would be re-routed south of Truman Road to avoid homes. This alternative deviates from the proposed Project between approximately Mile S3-9.5 and S3-22.1 and again between Mile S3-25.3 and S3-30.6. Segment 3B would

increase by 0.5 miles to connect to Substation 1B, located immediately east of Substation One. Segment 3A would increase by 1.5 miles. The overall alignment increases by approximately 2.0 miles.

- **Substation One to Antelope (Segment 3A).** This alternative was the proposed Segment 3 route in SCE's December 2004 CPCN filing, and is included in SCE's Amended PEA as Alternative A (Antelope to Substation One). This alternative includes a 20.8-mile re-route generally along 100th Street, which would increase Segment 3A by approximately 0.3 miles.
- **Antelope-Vincent Re-route 1 (Segment 2).** This alternative is a combination of Options A and B of the proposed Project, except the transmission line would remain east of the existing transmission corridor. This alternative deviates between Mile S2-5.7 and Mile S2-14.8, traversing the Ritter Ranch community development area in an existing transmission corridor. The re-route extends for 5.5 miles, and decreases Segment 2 by approximately 3.6 miles.

D.2.3.2 Alternate Corridors

The following alternatives provide alternate corridors for Segment 2 of the proposed Project:

- **Antelope-Vincent Re-route 2 (Segment 2).** This alternative provides a 6.8-mile re-route between the Antelope and Vincent Substations, avoiding the northern portion of the Ritter Ranch community development area. This re-route leaves the proposed Project route at Mile S2-3.4 and heads south and west for approximately 4.8 miles, before turning east paralleling the Midway-Vincent No. 1 corridor for the remaining 2.0 miles to rejoining the proposed Project at Mile S2-10.2 (proposed Project Mile S2-10.7). This re-route would reduce Segment 2 by approximately 0.5 miles.
- **Lancaster-Palmdale Underground (Segment 2).** This alternative provides for a partial underground alignment between the Antelope and Vincent Substations, thereby reducing visual impacts to residences in these areas. The route would proceed underground from Antelope Substation through Lancaster and Palmdale for approximately 16.5 miles to a new transition station located on Tierra Subida Avenue just south of Avenue Q-10. After transitioning above ground, the transmission line would continue south through the Palmdale 1000 development area before entering the existing Antelope-Vincent corridor. This re-route is 20.3 miles in length and increases Segment 2 by 2.7 miles.

D.2.3.3 Other Transmission Alternatives

The following alternatives would potentially provide for the transmission of electricity from future generation projects, including wind energy projects planned north of Antelope Substation, without requiring upgrades or a new corridor between the Antelope and Vincent Substations (Segment 2).

- **Antelope-Mesa Replacement Alternative.** This alternative was considered by SCE as a result of the "PPM Energy Company Interconnection Study, Fairmont Wind Project System Impact Study" prepared by SCE in August 2003. The Antelope-Mesa 220-kV transmission line begins at the Antelope Substation and extends in a southerly direction for approximately 60 miles to the Mesa Substation. This alternative would entail upgrading conductor and transmission towers on the entire Antelope-Mesa 220-kV line between the Antelope and Mesa Substations. The alternative would cross portions of both the Santa Clara/Mojave Rivers and Los Angeles River Ranger Districts of the Angeles National Forest.
- **Big Creek-Fresno Phase-Shifted Tie.** As presented in Appendix B of the "Report of the Tehachapi Collaborative Study Group", this alternative would establish a new interconnection point between the Pacific Gas & Electric (PG&E) and SCE systems. The proposal calls for connecting PG&E's Gregg-Helms Pump Storage Plant transmission system with SCE's Big Creek-Rector 220-kV lines at a new switching station. The switching station would include phase shifting devices in order to "push" power from the SCE system into the PG&E system. This would allow for the import of up to 300 MW of wind generation to the PG&E Fresno area.

D.2.4 Screening Results

Alternatives identified by the Applicant (SCE), agencies, EIR preparers, and the public are listed below according to the determination made based on the screening methodology described in Section D.2.2. A brief discussion of the screening determination is also provided.

D.2.4.1 Alternatives Eliminated from Further Consideration

Alternatives were assessed for their ability to reasonably achieve the project objectives and reduce the significant environmental impacts of the proposed Project. Also, their economic, environmental, legal, social, and technological feasibility was evaluated. Based on these screening criteria, the alternatives eliminated from EIR consideration are listed below. The rationale for elimination of each alternative is also summarized below.

D.2.4.1.1 Substation 2B to Substation One (Segment 3B)

Alternative Description

This alternative was included in SCE's Amended PEA as Alternative C (Substation One to Substation Two). This alternative starts at alternative Substation 2B, which is located one mile north of proposed Substation Two, just north of Tehachapi Boulevard. The proposed site is desert terrain with a 1.5 to 2 percent slope north to south. The need for substantial grading is not apparent, yet uneven surface, subsurface conditions, or natural drainage patterns may dictate a raised earth pad or earthen berms (SCE, 2005). The approximate location of the substation facilities would be along the eastern site boundary, about midway between the northern and southern boundaries. This position would avoid several streambeds that cross the site as well as a railroad spur that serves a private facility to the north (SCE, 2005).

As shown in Figure D.2-1, this alternative begins at alternative Substation 2B and continues south and east to Substation One paralleling the existing Cal Cement-Goldtown-Monolith-Windlands 66-kV line, which runs through the hills within an existing wind farm and then along Cameron Canyon Road. This alternative heads south from Substation 2B (Mile S3-0.0) for approximately 1.2 miles, then east-southeast for 1.5 miles, and then turns generally south for the next 3.7 miles, rejoining the proposed Project route at Mile S3-6.3 (proposed Project Mile S3-5.2). This re-route is approximately 6.3 miles in length and increases the Segment 3B alignment by 1.1 miles (10.7 miles total). From Substation One to Vincent Substation (southern termination point), this alternative is identical to the proposed Project.

Consideration of CEQA Criteria

Project Objectives. This alternative would provide infrastructure to prevent overloading of existing facilities and, as approved by the CAISO, would provide the capacity for transferring future renewable energy generated in the Tehachapi Wind Resource Area to load in southern California through the installation of 220/500-kV transmission lines and associated substations. All Project objectives would be met.

Feasibility. No feasibility concerns have been identified. This alternative would be feasible to construct and operate.

Environmental Advantages. There do not appear to be any environmental advantages to beginning the transmission line route at alternative Substation 2B. This substation is located farther north than the proposed Substation Two, increasing the Segment 3B alignment by 1.1 miles.

Environmental Disadvantages. This alternative would not only re-route the transmission line farther north to alternative Substation 2B instead of Substation Two, but would also place the transmission line in the Cameron Canyon Road area. As a result of increasing the transmission line route by approximately 1.1 miles to reach alternative Substation 2B, air quality, biological and visual resources impacts would be greater. Furthermore, because the Cameron Canyon area has a greater amount of existing home sites than to the west along the proposed Project route, land use and visual resources impacts would also be greater than the proposed Project.

Rationale for Elimination

While this alternative would meet the project objectives and would be feasible, there do not appear to be any environmental advantages compared to the proposed Project. In fact, by placing the transmission line in the Cameron Canyon area, land use and visual resources impacts would increase as this area has a greater amount of existing home sites. Furthermore, air quality, biological and visual resources impacts would be greater as a result of placing the transmission line along an additional 1.1 miles. As such, this alternative would not avoid or substantially lessen any of the significant effects of the proposed Project and is therefore eliminated from further consideration in this EIR.

D.2.4.1.2 Substation 1B to Antelope (Segments 3A/3B)

Alternative Description

This alternative was included in SCE's Amended PEA as Alternative B (Antelope to Substation One), except instead the connection would be at the Alternative Substation 1B site. This alternative is identical to the proposed Project except between Mile S3-9.5 and Mile S3-33.4. As shown in Figure D.2-2, this alternative deviates from the proposed Project at Mile S3-9.5 (Segment 3B) by continuing east 0.5 miles and then turning south 0.1 miles to connect to Substation 1B, an alternative site to the proposed Substation One. Alternative Substation 1B is located just east of the proposed Substation One. The alternative site is desert terrain with a 3 to 4 percent slope from the northwest to the southeast that is diagonal to the proposed substation layout (SCE, 2005). In order to bring the grade into a slope that is parallel with the substation flow and to reduce the slope to a workable 1.5 to 2 percent, it would be necessary to alter the existing topography through grading (SCE, 2005).

Leaving Substation 1B (Segment 3A), the transmission line would continue south along 80th Street for approximately 0.9 miles before turning southwest for approximately 4.1 miles, crossing the private Sagebrush 220-kV transmission line at approximately Mile S3-12.4 and an existing 66-kV line at Mile S3-13.8 (100th Street). At Mile S3-15.1, the transmission line would turn south onto 110th Street and run parallel to an existing 66-kV line for approximately 18.3 miles (adjacent ROW), crossing the LADWP Sylmar-Celilo 1000-kV DC transmission and the Owens Gorge-Rinaldi 220-kV transmission line corridor at Mile S3-24.3 and the Sagebrush 220-kV transmission at Mile S3-25.3. At Mile S3-33.4, the transmission line would turn southeast following the 66-kV line, and parallel to the Sagebrush 220-kV transmission line for 0.9 miles (adjacent ROW), rejoining the proposed Project route at Mile S3-34.3 (proposed Project Mile S3-33.4). This re-route is 26.6 miles in length and increases Segment 3B by 0.5 miles and Segment 3A by 0.4 miles (0.9-mile total increase for Segment 3). In other regards, this alternative is identical to the proposed Project.

Figure Links

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Figure D.2-1 **Substation 2B to Substation One**

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Figure D.2-2 **Substation 1B to Antelope**

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Consideration of CEQA Criteria

Project Objectives. This alternative would provide infrastructure to prevent overloading of existing facilities and, as approved by the CAISO, would provide the capacity for transferring future renewable energy generated in the Tehachapi Wind Resource Area to load in southern California through the installation of 220/500-kV transmission lines and associated substations. All Project objectives would be met.

Feasibility. No feasibility concerns have been identified. This alternative would be feasible to construct and operate.

Environmental Advantages. There do not appear to be any notable environmental advantages to using alternative Substation 1B and re-routing the alignment along 110th Street.

Environmental Disadvantages. As a result of increasing the transmission line route by approximately 0.9 miles to reach alternative Substation 1B and route Segment 3A along 110th Street, air quality, biological and visual resources impacts would be greater. Furthermore, 110th Street has a greater amount of existing home sites than to the east along the proposed Project route resulting in greater land use and visual resources impacts than the proposed Project.

Rationale for Elimination

While this alternative would meet the project objectives and would be feasible, there do not appear to be any notable environmental advantages compared to the proposed Project. In fact, by placing the transmission line along 110th Street between Mile S3-15.1 and S3-33.4, land use and visual resources impacts would increase as this area has a greater amount of existing home sites. Furthermore, air quality, biological and visual resources impacts would be greater as a result of placing the transmission line along an additional 0.9 miles. As such, this alternative would not avoid or substantially lessen any of the significant effects of the proposed Project and is therefore eliminated from further consideration in this EIR.

D.2.4.1.3 Substation One to Antelope (Segment 3A)

Alternative Description

This alternative follows the proposed Segment 3 route in SCE's December 2004 CPCN filing, and is included in SCE's Amended PEA as Alternative A (Antelope to Substation One). This alternative is identical to the proposed Project except between Mile S3-10.1 and Mile S3-30.6. As shown in Figure D.2-3, this alternative deviates from the proposed project at Mile S3-10.1 by continuing in a southerly direction along 85th Street for an additional mile before turning southwest for approximately 2.1 miles, crossing the private Sagebrush 220-kV transmission line at approximately Mile S3-11.7. At Mile S3-13.2, the transmission line would turn south paralleling 100th Street for approximately 17.1 miles. Between Mile S3-13.2 and Mile S3-16.3 the transmission line would be placed adjacent to an existing 66-kV line (3.1 miles adjacent ROW). At Mile S3-21.7, the transmission line would cross the LADWP Sylmar-Celilo 1000-kV DC transmission line and the Owens Gorge-Rinaldi 220-kV transmission line corridor and the Sagebrush 220-kV transmission line. Between Mile S3-21.7 and S3-24.3, the transmission line would be placed adjacent to the Sagebrush 220-kV transmission line (2.6 miles adjacent ROW). At Mile S3-30.3, the transmission line would turn east along West Avenue F, rejoining the proposed Project route at Mile S3-30.9 (proposed Project Mile S3-30.6). This re-route is 20.8 miles in length and increases Segment 3A by approximately 0.3 miles. In other regards, this alternative is identical to the proposed Project.

Consideration of CEQA Criteria

Project Objectives. This alternative would provide infrastructure to prevent overloading of existing facilities and, as approved by the CAISO, would provide the capacity for transferring future renewable energy generated in the Tehachapi Wind Resource Area to load southern California through the installation of 220/500-kV transmission lines and associated substations. All Project objectives would be met.

Feasibility. No feasibility concerns have been identified. This alternative would be feasible to construct and operate.

Environmental Advantages. There do not appear to be any notable environmental advantages to re-routing the alignment along 100th Street.

Environmental Disadvantages. As a result of increasing the transmission line route by approximately 0.3 miles and routing Segment 3A along 100th Street, impacts to air quality, biological and visual resources would be greater than the proposed Project. Furthermore, 100th Street has a greater amount of existing home sites than to the west along the proposed Project route resulting in greater land use and visual resources impacts than the proposed Project.

Rationale for Elimination

While this alternative would meet the project objectives and would be feasible, there do not appear to be any notable environmental advantages compared to the proposed Project. In fact, by placing the transmission line along 100th Street between Mile S3-13.2 and S3-30.3, land use and visual resources impacts would increase as this area has a greater amount of existing home sites. Furthermore, air quality, biological and visual resources impacts would be greater as a result of placing the transmission line along an additional 0.3 miles. As such, this alternative would not avoid or substantially lessen any of the significant effects of the proposed Project and is therefore eliminated from further consideration in this EIR.

D.2.4.1.4 Lancaster-Palmdale Underground (Segment 2)

Alternative Description

This alternative is identical to the proposed Project except between Mile S2-0.0 (Antelope Substation) and Mile S2-21.0. This alternative would require that a portion of the line be constructed underground within public streets in order to avoid the development projects currently under construction (Ritter Ranch, City Ranch, and Joshua Ranch). The technology that would be used for the underground portions of this alternative is called Solid Dielectric, or XLPE. A 2- to 3-acre transition station would be required at each end of each underground segment in order to support the underground cable terminations and to connect the underground cable to the overhead facilities. At the Antelope Substation, this transition station would take the place of the substation deadend structure required for overhead line terminations.

As shown in Figure D.2-4, an underground 500-kV line would proceed east from Antelope Substation in Avenue J, which is a two-lane paved road, for approximately 2.6 miles; and then turn south along 70th Street West, which is a two-lane paved road, for approximately 4.1 miles to Avenue N. The transmission line would continue east in Avenue N, which varies between a two-lane paved roadway (70th Street West to 60th Street West, and 45th Street West to 20th Street West) and a four- to five-lane paved road (60th Street West to 45th Street West), for approximately five miles; turn south on to 20th Street West, which is a two-lane paved road between Avenue N

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Figure D.2-3

Substation One to Antelope

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and Quick Street and unfinished/unimproved between Quick Street and Elizabeth Lake Road, for approximately three miles; turn east on Elizabeth Lake Road, which is a five-lane paved road, for approximately one mile; and then turn south on Tierra Subida Avenue, which is a two-lane paved road, for approximately 0.8 miles (total underground construction of approximately 16.5 miles). The line would then connect to a transition station situated on a currently undeveloped property located on the west side of Tierra Subida Avenue, south of Avenue Q-10. After transitioning above ground, the transmission line would continue southwest 1.5 miles and then south for another approximately 2.3 miles through the Palmdale 1000 development area, rejoining the proposed Project route at Mile S2-20.3 (proposed Project Mile S2-17.6). This re-route is 20.3 miles in length and increases the Segment 2 alignment by 2.7 miles. In other regards, this alternative is identical to the proposed Project.

Consideration of CEQA Criteria

Project Objectives. This alternative would provide infrastructure to prevent overloading of existing facilities and, as approved by the CAISO, provide the capacity for transferring future renewable energy generated in the Tehachapi Wind Resource Area to load southern California through the installation of 220/500-kV transmission lines and associated substations. However, this alternative, which requires substantial underground construction, would result in extensive schedule delays (at least an additional 6 months for procurement), which would not meet the recommendations of the California Energy Commission's 2005 IEPR, which "recommends that all phases [of the Tehachapi Transmission Project, which includes the proposed Project] move forward expeditiously". As such, this alternative would only partially meet the project objectives.

Feasibility. Although not commonly implemented to date, underground placement of a 500-kV line for short distances is technically feasible; however, serious reliability concerns associated with undergrounding near an active fault zone (San Andreas Fault) puts into question the feasibility of this alternative.

Environmental Advantages. This re-route is 20.3 miles in length, of which approximately 16.5 miles would be placed underground. Land uses along Avenue J are primarily open space and rural residential. Land uses along 70th Street West are predominantly open space and rural residential north of Avenue L, and residential south of Avenue L. A substantial amount of new residential development is currently under construction east of 70th Street West. The underground segment of this option would also traverse urban areas, including residential and commercial land uses along Avenue N, 20th Street West, Elizabeth Lake Road, and Tierra Subida Avenue. Placing the transmission lines underground in these streets would completely avoid the visual impacts that would occur from an overhead line. In addition to the above, the below-ground segment of this alternative would be within or immediately adjacent to existing roads; placement of the line within these previously disturbed areas would not, therefore, be expected to result in any significant impacts to cultural, biological or water resources.

Environmental Disadvantages. This alternative is similar in length to the proposed Project Segment 2 (24.2 vs. 21.5 miles); however, the underground segment would require substantially greater construction-related activity than above-ground placement of towers. Underground construction would require trenching, placement of the lines, and trench filling/road reconstruction within or adjacent to Avenue J, 70th Street West, Avenue N, 20th Street West, Elizabeth Lake Road, and Tierra Subida Avenue. These activities would result in temporary lane closures and traffic delays, as well as temporary increased air and noise-related impacts to adjacent land uses. Furthermore, placement of an underground transmission line in existing streets may result in impacts to

existing underground utilities (e.g., water, gas, etc.) resulting in collocation of utilities or require relocation of utilities, resulting in additional air quality, traffic, and noise impacts.

This alternative would create a new overhead transmission line corridor south of the Elizabeth Lake Road. While a number of existing transmission lines are located south and west of the Antelope Substation, installation of additional overhead transmission lines would further degrade the visual quality of the area. Multiple areas of residential development are either planned or currently in construction in these areas. Placement of new overhead transmission corridors would create temporary construction-related impacts such as noise and traffic, as well as permanent visual impacts due to tower placement above ground. Furthermore, this alternative would introduce a new EMF source to the area, thereby creating localized public health and safety concerns.

Rationale for Elimination

Not only would this alternative only partially meet the project objectives, as a result of the extended construction required for procurement of underground construction materials, the feasibility of constructing an underground 500-kV line for a substantial distance (16.5 miles) and near an active fault zone (San Andreas Fault) puts into question the feasibility of this alternative. Therefore, this alternative has been eliminated from further consideration in this EIR.

D.2.4.1.5 Antelope-Mesa Replacement Alternative

Alternative Description

This alternative originally involved upgrading conductor and transmission towers to 500-kV on the existing Antelope-Mesa 220-kV line over approximately 37 miles between the Antelope and Mesa Substations, including portions of the Santa Clara/Mojave Rivers and Los Angeles River Ranger Districts of the Angeles National Forest. The original concept was abandoned when additional future wind generation projects in the Project area requested interconnection through the CAISO Interconnection process. Therefore, this alternative would involve complete removal of the existing Antelope-Mesa and Antelope-Vincent 220-kV transmission lines and construction of new 500-kV line from Antelope to Mesa via Vincent. The replacement would involve the entire 60 mile length of the existing corridor.

Consideration of CEQA Criteria

Project Objectives. This alternative would provide initial operation at 220 kV to accommodate the local and regional potential for power generation, and final operation at 500 kV to accommodate the future distribution of renewable energy and prevent overloading of existing transmission facilities. This alternative would also provide infrastructure to prevent overloading of existing facilities and, as approved by the CAISO, provide the capacity for transferring future renewable energy generated in the Tehachapi Wind Resource Area to customers of the SCE transmission grid, through the installation of 500-kV lines. However, this alternative would not meet the requirements set forth by the CPUC in Decision 04-06-010, Ordering Paragraph No. 8, which requires SCE to “file an application seeking a certificate authorizing construction of the first phase [i.e., the proposed Project] of Tehachapi transmission upgrades consistent with its 2002 [2003] conceptual study and the [Tehachapi Collaborative] study group’s recommendation...” The Final Report produced by the TCSG in 2005 identified four possible transmission phases (including the proposed Project) for integrating potential renewable energy generation from the Tehachapi region. The “first phase” of these transmission upgrades includes the “Tehachapi-Antelope-Vincent, 500 kV, initially operated at 230 kV” (i.e., the proposed Project). As such, this alternative would only partially fulfill the project objectives.

Feasibility. Replacement of the existing Antelope-Mesa line may require approval (granting) of a wider ROW to accommodate the 500-kV capacity of the replacement line; however, the terrain traversed by the corridor would remain the same.

Figure Links

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Figure D.2-4

Lancaster-Palmdale Underground (Segment 2)

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In order to construct the Antelope-Vincent-Mesa 500-kV transmission line, the existing Antelope-Vincent 220-kV transmission line and the Antelope-Mesa 220-kV transmission line would be removed from service to allow for construction activities, as there is insufficient room within the existing ROW to maintain either of the existing lines in service during the construction of the new 500-kV line. During the prolonged outage period required for construction, the entire Antelope Valley (Palmdale/Lancaster area) would be served by the remaining two 220-kV lines connecting the Antelope Substation to the Magunden Substation located 60 miles to the north. Due to the radial connection configuration system, voltages cannot be maintained on the two remaining northbound 220-kV lines. As a result, involuntary load interruptions (estimated by SCE at over 50 percent) would be necessary to protect system-wide reliability. WECC Transmission Planning and Operating Criteria, which does not allow unplanned load interruption to occur following the loss of a single transmission line, would be violated. Violation of the reliability requirements established by WECC would deem this alternative infeasible.

Environmental Advantages. The majority of activities associated with replacing the Antelope-Mesa transmission line would occur within an existing and previously disturbed transmission corridor, which would reduce impacts to air quality, and biological and visual resources.

Environmental Disadvantages. Removal of the existing Antelope-Mesa transmission line would require the use of cranes and other heavy equipment for tower and line dismantling and removal. Consequently, removal of the existing line and construction of a new line would substantially increase the duration of tear-down and construction-related noise, air quality, and traffic-related impacts in comparison to the proposed Project. By SCE standards, the existing 220-kV Antelope-Mesa transmission line requires a 100-foot ROW, whereas a 500-kV line would require a ROW width of 180 to 200 feet. As such, a wider ROW may be needed to accommodate the 500-kV capacity of the replacement line, which would cause permanent impacts to land uses located adjacent to the existing transmission corridor.

Due to the replacement line's increased capacity (from 220 kV to 500 kV), taller, wider and bulkier towers would be needed. However, the net effect the increased bulk of this alternative would not be expected to create a substantially greater visual impact than the existing transmission line, which is already an established feature of the landscape.

Rationale for Elimination

This alternative may substantially reduce or completely avoid some resource/issue-specific impacts during line removal and construction in comparison to the proposed Project because an existing and previously disturbed ROW would be used. Increased temporary impacts due to tear-down and construction may be mitigated to a level that is not significant. However, violation of the reliability requirements established by WECC would deem this alternative infeasible. Furthermore, this alternative would not meet the requirements set forth by the CPUC in Decision 04-06-010, Ordering Paragraph No. 8, which requires a Tehachapi-Antelope-Vincent 500-kV transmission line. Therefore, this alternative has been eliminated from further consideration in this EIR.

D.2.4.1.6 Big Creek-Fresno Phase-Shifted Tie

Alternative Description

As presented in Appendix B of the "Report of the Tehachapi Collaborative Study Group", this alternative would establish a new interconnection point between the PG&E and SCE systems. The proposal calls for connecting PG&E's Gregg-Helms Pump Storage Plant transmission system with SCE's Big Creek-Rector 220-

kV lines at a new switching station. The switching station would include phase shifting devices in order to “push” power from the SCE system into the PG&E system. Studies indicate that operation of a phase-shift transformer is extremely complex and difficult to manage. Since power flow through the phase-shift transformer is dependent on the angle differences between the SCE and PG&E systems, installing a 200-MW phase-shift system tie will necessitate designing the SCE system to enable up to 850 MW of power transfers. Detailed studies covering each hour of the year were performed, where historical data was used to replicate network performance with and without the phase-shifted system tie. Based on the results of these studies the following upgrades would be necessary:

- Currently planned 20-mile San Joaquin Valley Rector Loop 220-kV Project
- New 60-mile Antelope-Magunden 220-kV Transmission Line Project
- New 135-mile Magunden-Vestal-Rector-Fresno Tie-Big Creek Transmission Line Project
- Big Creek3, Magunden, Rector and Vestal Substation expansions
- Installation of several reactive support facilities (i.e., capacitor banks and SVCs) throughout the San Joaquin Valley in order to maintain adequate voltages
- Installation of Complex Protection Schemes potentially requiring upgrades to existing telecommunication facilities.

Not only would this alternative require network upgrades, but it would also require contractual arrangements between PG&E and SCE on issues such as inadvertent flow; agreement between PG&E, SCE, and CAISO governing the dispatch and operation of the existing generators; and resolution of any physical limitations of Gregg-Helms Pump Storage Plant and other operating issues.

Consideration of CEQA Criteria

Project Objectives. This alternative would provide the transmission capacity needed to provide initial operation at 220 kV to accommodate the local and regional potential for power generation, and prevent overloading of existing transmission facilities. However, while providing for the initial transfer of renewable energy generation, the ability to transfer significant amounts of additional wind generation would require additional system improvements and larger phase shifting devices. In addition, this alternative would not meet the requirements set forth by the CPUC in Decision 04-06-010, Ordering Paragraph No. 8, which requires a Tehachapi-Antelope-Vincent 500-kV transmission line. As such, this alternative would only partially fulfill the project objectives.

Feasibility. The alternative is technically feasible, although additional system study work would be required to identify the type and characteristics of the phase shifting device. In addition, SCE studies indicate that in order to transfer 200 MW from the SCE area into the PG&E area through a tie in the Fresno area several new transmission lines would be required. For example, SCE’s Magunden-Vestal No.1 & 2 lines and Vestal-Rector No.1 & 2 lines overload and must be rebuilt. To rebuild the transmission lines, additional ROW would be needed, as there is not enough room in the existing ROW to accommodate building a double-circuit line while keeping the other lines in service. Additionally, a few schools have been sited adjacent to the existing ROW limiting the ability to expand the ROW width. SCE study work also indicates the potential need for approximately 100 MW of reactive support in the area resulting from the transfer. Furthermore, physical limitations at the Gregg-Helms Pump Storage Plant would need to be resolved.

Environmental Advantages. There do not appear to be any environmental advantages compared to the proposed Project.

Environmental Disadvantages. This alternative would require network upgrades to support the import, including three transmission line projects totaling 215 miles of new transmission lines, substation expansions, and installation of several reactive support facilities. As a result, impacts associated with construction would be greater than the proposed Project (215 miles of construction versus 56.7 miles) and cause greater impacts on biological resources than the proposed Project.

Rationale for Elimination

Although this alternative would meet most of the Project objectives, it may not be feasible due to ROW width limitations, and the greater amount of new line and substation construction would increase construction impacts and the potential for biological resources impacts. Furthermore, this alternative would not meet the requirements set forth by the CPUC in Decision 04-06-010, Ordering Paragraph No. 8, which requires a Tehachapi-Antelope-Vincent 500-kV transmission line. Therefore, this alternative has been eliminated from further consideration in this EIR.

D.2.4.2 Alternatives Carried Forward for Analysis

Based on the screening methodology discussed above, the following alternatives were determined to reasonably achieve the project objectives, would be feasible, and would potentially result in fewer environmental effects than the proposed Project.

- Alternative 1: Substation 2C to Substation One via Cameron Canyon Road (Segment 3B)
- Alternative 2: Substation 1B to Antelope via 100th Street (Segments 3A/3B)
- Alternative 3: Antelope-Vincent Re-route 1 (Segment 2)
- Alternative 4: Antelope-Vincent Re-route 2 (Segment 2)

More complete descriptions of these alternatives are provided in the following section (Section D.3). The environmental impacts associated with each of these alternatives are analyzed in Section D.4, below.

D.3 Descriptions of Alternatives Analyzed

D.3.1 Alternative 1: Substation 2C to Substation One via Cameron Canyon Road (Segment 3B)

Alternative Description

This alternative was included in SCE's Amended PEA as Alternative C (Substation One to Substation Two), except instead of starting at alternative Substation 2B north of Tehachapi Boulevard, this alternative would start at alternative Substation 2C located immediately north of Substation Two.

As shown in Figure D.3-1, this alternative begins at Alternative Substation 2C and continues south and east to Substation One paralleling the existing Cal Cement-Goldtown-Monolith-Windlands 66-kV line, which runs through the hills within an existing wind farm and then along Cameron Canyon Road. Alternative 1 heads south from Substation 2C (Mile 0.0) for approximately 0.2 miles, then east-southeast for 1.5 miles, and then turns generally south for the next 3.7 miles, rejoining the proposed Project route at Mile S3-5.3 (proposed Project Mile S3-5.2). This re-route is 5.3 miles in length and increases Segment 3B by 0.1 miles (9.7 miles total), resulting in one additional 500-kV single-circuit transmission tower. From Substation One to Vincent Substation (southern termination point), Alternative 1 is identical to the proposed Project. Details of Alternative 1 are provided in the Table D.3-1.

Transmission Line	Linear distance of transmission line Segment 2 (500 kV + 0.6 miles 220 kV) Segment 3A (500 kV) Segment 3B (220 kV)	56.9 miles TOTAL (all overhead) 21.6 miles 25.6 miles 9.7 miles
	66-kV line at Antelope Substation	Relocate/new construction of 4.4 miles of double-circuit wood poles onto 96 new lightweight TSPs.
Towers	Segment 2 Segment 3A Segment 3B	2 dc 500-kV TSPs, 106 sc 500-kV LSTs, and 6 sc 220-kV LSTs 79 sc 500-kV TSPs and 44 500-kV LSTs 58 sc 220-kV LSTs
ROW	Linear distance of new ROW adjacent to existing transmission corridor(s) Segment 2 Segment 3A Segment 3B	29.5 miles TOTAL 19.1 miles 2.4 miles 8.0 miles
	Linear distance of entirely new ROW Segment 2 Segment 3A Segment 3B	27.4 miles TOTAL 2.5 miles 23.2 miles 1.7 miles
Substations	Antelope Substation	Segment 2: 220-kV Position No. 11 would be fully equipped for the Vincent No. 2 500-kV T/L. Segment 3: 220-kV Antelope switchrack Position No. 6 upgraded to a 3000-ampere rating.
	Vincent Substation	220-kV Position No. 3 would be fully equipped for the termination of the new Antelope No. 2 220-kV T/L.
	Substation One	New 500/220/66-kV substation located on 53.7 acres. Additional 8.3 acres of grading for side slopes would be required to blend the existing terrain with the new pad.
	Substation 2C – North of Substation Two	New 220/66-kV substation located on 20.2 acres. Additional 8.1 acres of grading for side slopes, transmission line passage, vehicular access, and roads.
Information Technology	Telecommunication Systems	Two paths: (1) Primary path using existing SCE infrastructure; (2) Secondary path provided by optical ground wire installed on all of the new transmission lines.
	Microwave Facilities – Installation of microwave antennas on new towers	Antelope Substation: 80-ft tower replaced with 120-ft tower Oak Peak Communication Site: 50-ft tower replaced with 120-ft tower Substation One: New 100-ft tower Substation Two: New 100-ft tower
Construction	Schedule (total duration)	16 months
Operations & Maintenance	Frequency/Type	Periodic inspections (once per year) on as as-needed bases. Preventative maintenance every six months.

Note: **Bold** text indicates changes from the proposed Project.

D.3.2 Alternative 2: Substation 1B to Antelope via 100th Street (Segments 3A/3B)

Alternative Description

This alternative generally follows the proposed Segment 3 route from SCE’s December 2004 CPCN filing, which is included in SCE’s Amended PEA as Alternative A (Antelope to Substation One); however this alternative would utilize alternative Substation 1B and would be re-routed south of Truman Road to avoid homes. Alternative 2 is identical to the proposed Project, except between Mile S3-9.5 and S3-22.1 and between Mile S3-25.3 and S3-30.6. As shown in Figure D.3-2, Alternative 2 deviates from the proposed

project at Mile S3-9.5 by continuing east 0.5 miles and then south 0.1 miles to connect to alternative Substation 1B. Segment 3B increases by 0.5 miles.

From alternative Substation 1B (Mile S3-10.1) the transmission line would continue south approximately 0.9 miles and then southwest for approximately 2.8 miles, crossing the private Sagebrush 220-kV transmission line at approximately Mile S3-12.4. At Mile S3-13.8, Alternative 2 would turn south paralleling 100th Street West for approximately 8.5 miles (Mile S3-22.3). Between Mile S3-13.8 and Mile S3-16.9 the transmission line would be placed adjacent to an existing 66-kV line (3.1 miles adjacent ROW). Between Mile S3-22.1 and S3-22.3 (near Truman Road), Alternative 2 would turn southwest and run parallel and east of the LADWP Easement for 0.5 miles before rejoining the proposed Project at Mile S3-22.8 (proposed Project Mile S3-22.1). Alternative 2 would follow the proposed Project alignment within the LADWP Easement for an additional 1.1 miles (Total of 1.6 miles adjacent ROW). At Mile S3-23.9, Alternative 2 (and the proposed Project) would leave the LADWP Easement and turn south along 107th Street West for approximately 2.1 miles, again crossing the private Sagebrush 220-kV transmission line at approximately Mile S3-25.1.

At Mile S3-26.0 (proposed Project Mile S3-25.3), the transmission line would again deviate from the proposed Project. Alternative 2 would turn east, following Hawk Avenue for approximately 0.7 miles, before turning south and once again realigning itself with 100th Street West. The transmission line would then travel south along 100th Street for 5.3 miles (Mile S3-32.0), before turning west along West Avenue F for 0.6 miles, rejoining the proposed Project route at Mile S3-32.6 (proposed Project Mile 30.6). Segment 3A would increase by 1.5 miles. This re-route, including the portion that follows the proposed Project route, is 23.1 miles in length and would increase the overall Segment 3 (3A+3B) alignment by approximately 2.0 miles (37.2 miles total). In other regards, Alternative 2 is identical to the proposed Project. Details of Alternative 2 are provided in Table D.3-2.

Transmission Line	Linear distance of transmission line	58.8 miles TOTAL (all overhead)
	Segment 2 (500 kV + 0.6 miles 220 kV)	21.6 miles
	Segment 3A (500 kV)	27.1 miles
	Segment 3B (220 kV)	10.1 miles
	66-kV line at Antelope Substation	Relocate/new construction of 4.4 miles of double-circuit wood poles onto 96 new lightweight TSPs.
Towers	Segment 2	2 dc 500-kV TSPs, 106 sc 500-kV LSTs, and 6 sc 220-kV LSTs
	Segment 3A	84 sc 500-kV TSPs and 48 500-kV LSTs
	Segment 3B	61 sc 220-kV LSTs
ROW	Linear distance of new ROW adjacent to existing transmission corridor(s)	33.1 miles TOTAL
	Segment 2	19.1 miles
	Segment 3A	6.1 miles
	Segment 3B	7.9 miles
	Linear distance of entirely new ROW	25.7 miles TOTAL
	Segment 2	2.5 miles
	Segment 3A	21.0 miles
	Segment 3B	2.2 miles

Substations	Antelope Substation	Segment 2: 220-kV Position No. 11 would be fully equipped for the Vincent No. 2 500-kV T/L. Segment 3: 220-kV Antelope switchrack Position No. 6 upgraded to a 3000-ampere rating.
	Vincent Substation	220-kV Position No. 3 would be fully equipped for the termination of the new Antelope No. 2 220-kV T/L.
	Substation 1B – East of Substation One	New 500/220/66-kV substation located on 53.7 acres. Additional 8.3 acres of grading for side slopes would be required to blend the existing terrain with the new pad.
	Substation Two	New 220/66-kV substation located on 20.2 acres. Additional 8.1 acres of grading for side slopes, transmission line passage, vehicular access, and roads.
Information Technology	Telecommunication Systems	Two paths: (1) Primary path using existing SCE infrastructure; (2) Secondary path provided by optical ground wire installed on all of the new transmission lines.
	Microwave Facilities – Installation of microwave antennas on new towers	Antelope Substation: 80-ft tower replaced with 120-ft tower Oak Peak Communication Site: 50-ft tower replaced with 120-ft tower Substation One: New 100-ft tower Substation Two: New 100-ft tower
Construction	Schedule (total duration)	16 months
Operations & Maintenance	Frequency/Type	Periodic inspections (once per year) on as as-needed bases. Preventative maintenance every six months.

Note: **Bold** text indicates changes from the proposed Project.

D.3.3 Alternative 3: Antelope-Vincent Re-route 1 (Segment 2)

Alternative Description

~~This alternative is a combination of Options A and B of the proposed Project, except the transmission line would remain east of the existing Antelope-Vincent transmission corridor.~~ Alternative 3 is identical to the proposed Project, except between Mile S2-5.7 and Mile S2-14.8. As shown Figure D.3-3, Alternative 3 deviates from the proposed Project at Mile S2-5.7 by proceeding east for approximately 0.15 miles, crossing the existing transmission line corridor, including two 66-kV lines, the Antelope-Mesa 220-kV line, the Antelope-Vincent 220-kV line, and Midway-Vincent No. 3 500-kV line, before turning southeast, paralleling the proposed Project route for approximately 2.3 miles. Alternative 3 would continue to remain east and parallel to the existing Antelope-Vincent corridor through the Ritter Ranch and Avaverde Ranch community development areas, rejoining the proposed Project route at Mile S2-11.2 (proposed Project Mile S2-14.8). This re-route is 5.5 miles in length and decreases the Segment 2 alignment by approximately 3.6 miles (18.0 miles total). In other regards, Alternative 3 is identical to the proposed Project. Details of Alternative 3 are provided in Table D.3-3.

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|--------------|--|-------------|
| D.3-1 | Alternative 1: Substation 2C to Substation One via Cameron Canyon Road (Segment 3B) | D-25 |
| D.3-2 | Alternative 2: Substation 1B to Antelope via 100th Street (Segments 3A/3B) | D-26 |
| D.3-3 | Alternative 3: Antelope-Vincent Re-route 1 (Segment 2) | D-27 |

Transmission Line	Linear distance of transmission line Segment 2 (500 kV + 0.6 miles 220 kV) Segment 3A (500 kV) Segment 3B (220 kV)	53.2 miles TOTAL (all overhead) 18.0 miles 25.6 miles 9.6 miles
	66-kV line at Antelope Substation	Relocate/new construction of 4.4 miles of double-circuit wood poles onto 96 new lightweight TSPs.
Towers	Segment 2 Segment 3A Segment 3B	2 dc 500-kV TSPs, 88 sc 500-kV LSTs, and 6 sc 220-kV LSTs 79 sc 500-kV TSPs and 44 500-kV LSTs 57 sc 220-kV LSTs
ROW	Linear distance of new ROW adjacent to existing transmission corridor(s) Segment 2 Segment 3A Segment 3B	28.3 miles TOTAL 18.0 miles 2.4 miles 7.9 miles
	Linear distance of entirely new ROW Segment 2 Segment 3A Segment 3B	24.9 miles TOTAL 0.0 miles 23.2 miles 1.7 miles
Substations	Antelope Substation	Segment 2: 220-kV Position No. 11 would be fully equipped for the Vincent No. 2 500-kV T/L. Segment 3: 220-kV Antelope switchrack Position No. 6 upgraded to a 3000-ampere rating.
	Vincent Substation	220-kV Position No. 3 would be fully equipped for the termination of the new Antelope No. 2 220-kV T/L.
	Substation One	New 500/220/66-kV substation located on 53.7 acres. Additional 8.3 acres of grading for side slopes would be required to blend the existing terrain with the new pad.
	Substation Two	New 220/66-kV substation located on 20.2 acres. Additional 8.1 acres of grading for side slopes, transmission line passage, vehicular access, and roads.
Information Technology	Telecommunication Systems	Two paths: (1) Primary path using existing SCE infrastructure; (2) Secondary path provided by optical ground wire installed on all of the new transmission lines.
	Microwave Facilities – Installation of microwave antennas on new towers	Antelope Substation: 80-ft tower replaced with 120-ft tower Oak Peak Communication Site: 50-ft tower replaced with 120-ft tower Substation One: New 100-ft tower Substation Two: New 100-ft tower
Construction	Schedule (total duration)	16 months
Operations & Maintenance	Frequency/Type	Periodic inspections (once per year) on as as-needed bases. Preventative maintenance every six months.

Note: **Bold** text indicates changes from the proposed Project.

D.3.4 Alternative 4: Antelope-Vincent Re-route 2 (Segment 2)

Alternative Description

This alternative re-routes the transmission line between the Antelope and Vincent Substations to avoid both the northern portion of the Ritter Ranch community development area, where a proposed school site is located, and homes along the proposed Project route. As shown in Figure D.3-4, Alternative 4 deviates from the proposed project at Mile S2-3.4 and heads south for approximately 1.9 miles, crossing the California Aqueduct and the Portal Ridge mountain range, and then continues southwest 0.6 miles, crossing Elizabeth Lake Road in Leona Valley. This alternative would continue south 0.5 miles, remaining west of Bouquet Canyon Road and east of 86th Street West, then southwest for 0.6 miles, and south again for 1.2 miles, crossing Bouquet Canyon

Road. At this point, the transmission line would turn east paralleling the Midway-Vincent No. 1 corridor for 2.0 miles (2.0 miles adjacent ROW) to rejoining the proposed Project at Mile S2-10.2 (proposed Project Mile S2-10.7). This re-route is 6.8 miles in length and decreases the Segment 2 alignment by approximately 0.5 miles (21.1 miles total). In other regards, Alternative 4 is identical to the proposed Project. Details of Alternative 4 are provided in Table D.3-4.

Transmission Line	Linear distance of transmission line Segment 2 (500 kV + 0.6 miles 220 kV) Segment 3A (500 kV) Segment 3B (220 kV)	56.3 miles TOTAL (all overhead) 21.1 miles 25.6 miles 9.6 miles
	66-kV line at Antelope Substation	Relocate/new construction of 4.4 miles of double-circuit wood poles onto 96 new lightweight TSPs.
Towers	Segment 2 Segment 3A Segment 3B	2 dc 500-kV TSPs, 105 sc 500-kV LSTs, and 6 sc 220-kV LSTs 79 sc 500-kV TSPs and 44 500-kV LSTs 57 sc 220-kV LSTs
ROW	Linear distance of new ROW adjacent to existing transmission corridor(s) Segment 2 Segment 3A Segment 3B	26.6 miles TOTAL 16.3 miles 2.4 miles 7.9 miles
	Linear distance of entirely new ROW Segment 2 Segment 3A Segment 3B	29.7 miles TOTAL 4.8 miles 23.2 miles 1.7 miles
Substations	Antelope Substation	Segment 2: 220-kV Position No. 11 would be fully equipped for the Vincent No. 2 500-kV T/L. Segment 3: 220-kV Antelope switchrack Position No. 6 upgraded to a 3000-ampere rating.
	Vincent Substation	220-kV Position No. 3 would be fully equipped for the termination of the new Antelope No. 2 220-kV T/L.
	Substation One	New 500/220/66-kV substation located on 53.7 acres. Additional 8.3 acres of grading for side slopes would be required to blend the existing terrain with the new pad.
	Substation Two	New 220/66-kV substation located on 20.2 acres. Additional 8.1 acres of grading for side slopes, transmission line passage, vehicular access, and roads.
Information Technology	Telecommunication Systems	Two paths: (1) Primary path using existing SCE infrastructure; (2) Secondary path provided by optical ground wire installed on all of the new transmission lines.
	Microwave Facilities – Installation of microwave antennas on new towers	Antelope Substation: 80-ft tower replaced with 120-ft tower Oak Peak Communication Site: 50-ft tower replaced with 120-ft tower Substation One: New 100-ft tower Substation Two: New 100-ft tower
Construction	Schedule (total duration)	16 months
Operations & Maintenance	Frequency/Type	Periodic inspections (once per year) on as as-needed bases. Preventative maintenance every six months.

Note: **Bold** text indicates changes from the proposed Project.

Figure Links

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Figure D.3-4

Alternative 4: Antelope-Vincent Re-route 2 (Segment 2)

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D.3.5 No Project Alternative

CEQA requires an evaluation of the No Project Alternative to allow decision makers can compare the impacts of approving the Project with the impacts of not approving the Project (CEQA Guidelines §15126.6(e)(1)). According to the CEQA Guidelines §15126.6(e)(2), “The ‘no project’ analysis shall discuss the existing conditions at the time the Notice of Preparation is published [(i.e., baseline environmental conditions)], or if no Notice of Preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.” As required by CEQA, existing conditions that formulate the basis for the No Project Alternative analysis are described in Section C for each environmental issue area under “Environmental Setting.”

Alternative Description

Selection of the No Project Alternative would mean that Segments 2 and 3 of the Antelope Transmission Project, as proposed, would not be implemented. As such, none of the associated Project activities would occur and the environmental impacts of the Project, as described in Section C, would not occur. SCE’s and CPUC’s objectives for the Project would remain unfulfilled under the No Project Alternative. For example, the improved system reliability associated with the Project would not occur, as the Antelope-Mesa 220-kV transmission line would continue to be susceptible to thermal overload if current power loads are increased.

As discussed in Section A.2 (Project Objectives), in the absence of the Project, SCE still would be required to interconnect and integrate power generation facilities into its electric system, as required under Sections 210 and 212 of the Federal Power Act (16 U.S.C. § 824 [i] and [k]) and Sections 3.2 and 5.7 of the CAISO’s Tariff. According to SCE, several wind energy projects either have applications pending before Kern County or are in the advanced planning stages and expected to submit applications in the near future. Due to their locations, these upcoming wind energy projects will need to interconnect to the SCE transmission system via Antelope Substation or some other new substation located in the vicinity to allow power to be delivered to load in the Los Angeles metropolitan area. However, these wind energy projects cannot be interconnected to the SCE transmission system without additional transmission infrastructure north of Antelope Substation and an increase in transmission capacity south of Antelope Substation. Transmission of wind power from the Tehachapi and Antelope Valley areas is currently constrained by the existing Antelope-Mesa 220-kV transmission line, which would be overloaded by the addition of new wind generation. Therefore, without upgrades of the existing system, as new generation facilities are added to meet the power needs of southern California, SCE’s system would experience system-wide power flow and reliability problems due to overloading of the existing system, such as curtailed generation, thermal overload, and blackouts. It should be noted that connection to the transmission systems of other power utilities (such as PG&E or LADWP) is possible but would not meet SCE’s objectives for the Project and would not fulfill the goals of the TCSG (see Section A.2.5).

Under the No Project Alternative, the following events or actions (scenarios) related to the electricity generation and transmission are reasonably expected to occur in the foreseeable future:

- Initial wind projects in the Antelope Valley and Tehachapi areas would be postponed or cancelled, as additional transmission infrastructure and capacity would not be available, or these proposed wind projects would have to find alternate means to connect to SCE’s transmission system without compromising system reliability.
- The requirement of the Renewables Portfolio Standard (RPS), which requires retail sellers of electricity such as SCE and PG&E to increase their sale of electricity produced by renewable energy sources to 20 percent by 2010

(updated from 2017 to 2010 per the Energy Action Plan), may not be achieved as access to renewable energy from the Antelope Valley-Tehachapi region would either not be provided or would be delayed.

- Other renewable energy resources would need to be identified and transmission studies would need to be conducted to connect these newly identified sources to the transmission grid, which would likely further limit achievement of the RPS goal by the 2010 deadline.
- The conceptual plan recommended by the TCSG would not be fully implemented. This plan is intended to collect power from Tehachapi area wind projects, interconnect facilities into the state's backbone grid, and upgrade the network to reliably deliver that power to load centers. The conceptual plan, which would allow for the transmission of over 4,000 MW of wind power, would not be fully achieved because the transmission infrastructure provided by the proposed Project would not be available to interconnect future wind projects.

SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment or developers of wind generation facilities would need to build their own transmission facilities to connect to the transmission grid.

D.4 Analysis of Alternatives

This section provides the environmental analysis for the alternatives determined to reasonably achieve the Project objectives, would be feasible, and would potentially result in fewer environmental effects than the proposed Project. These alternatives are described above in Section D.4.

D.4.1 Alternative 1: Substation 2C to Substation One via Cameron Canyon Road

D.4.1.1 Air Quality

The operating emissions for all Project alternatives are similar to those of the proposed Project and would consist of annual inspection activities that would not have the potential for significant air quality impacts, and are not discussed further. The construction impacts for each of the alternatives are based on factors such as tower/pole number, transmission route length, and route remoteness and unpaved road travel distance to the tower/pole sites.

Environmental Setting

The air quality environmental setting of Alternative 1 is essentially identical to that of the proposed Project. This alternative route traverses through the same two air quality jurisdictions (Kern County Air Pollution Control District (KCAPCD) and Antelope Valley Air Quality Management District (AVAQMD)) as the proposed Project and remains wholly within the Mojave Desert Air Basin (MDAB).

Environmental Impacts

Alternative 1 would not change the Project route within the AVAQMD jurisdiction, such that impacts in that jurisdiction would be identical to those of the proposed Project. The impacts related to the AVAQMD regional emissions significance criteria would be significant after mitigation (Impact A-1 - **Class I**).

Alternative 1 has a slightly longer transmission route length and would require one more tower than the proposed Project within KCAPCD jurisdiction. However, this alternative route could cause a reduction in the average unpaved road travel distance to tower sites within the KCAPCD jurisdiction due to the revised route towers being closer to existing paved roads, so the fugitive dust (PM10 and PM2.5) emissions may actually decrease rather than increase for Alternative 1. While the emissions would be increased somewhat from those of the proposed Project, except for fugitive dust emissions, the overall impact significance level would remain

significant. The KCAPCD regional emissions significance criteria impacts would be less than significant after mitigation (Impact A-2 – **Class II**).

The Alternative 1 route may place a few towers near residences in a couple of locations, specifically near Cameron Canyon Road; however, the distance to sensitive receptors and resulting impacts would be no worse than those of the proposed Project. Therefore, the impacts to sensitive receptors would be significant, but would be reduced to less-than-significant levels after mitigation (Impact A-3 – **Class II**).

Alternative 1 would not significantly change the type or strength of odors produced during construction, or significantly increase the number of persons that would be exposed to these odors; therefore, the odor impacts are the same as the proposed Project – less than significant (Impact A-4 – **Class III**).

D.4.1.2 Biological Resources

Environmental Setting

The 5.3-mile Alternative 1 route that deviates from the proposed Project would traverse habitats identical to the proposed route, including desert scrub, montane scrub, Mojave riparian forest, and several unnamed drainages. The alternative Substation 2C site would be located on desert scrub habitat, north of, and adjacent to, Williamson Act lands.

Environmental Impacts

Ground disturbing activities associated with Alternative 1 would be the same as the proposed Project and would result in the permanent loss of approximately 14.4 acres (5.8 ha) of creosote scrub habitat, 2.7 acres (1.1 ha) of montane scrub habitat, 119.8 acres (48.5 ha) of desert scrub habitat, and 7.4 acres (3.0 ha) of saltbush scrub habitat 119 (Impact B-2). However, these habitats are locally and regionally abundant: the WMP (BLM 2005) lists 5,683,646 acres (1,900,900 ha) of creosote scrub habitat and 802,701 (268,464 ha) acres of saltbush scrub as occurring within the region. Furthermore, much of this habitat is protected from development regionally as they are under BLM, NPS, USFS, or Department of Defense (DOD) ownership. Loss of these habitats would be less than significant and no mitigation is required (Impact B-2 – **Class III**).

Access to the majority of the re-routed portion of Alternative 1 was limited. Based an analysis of aerial images, several additional drainages occur in the alternative alignment that appear to support small populations of Mojave riparian forest habitat. Loss of these riparian areas and degradation of water quality would be considered significant without mitigation. However, SCE has indicated that riparian areas would be avoided to the maximum extent possible and would implement APM BIO-3 (Obtain a Streambed Alteration Agreement) (Table C.3-6), reducing impacts to riparian areas to a less-than-significant level and no further mitigation is proposed. As with the proposed Project, Alternative 1 would significantly impact desert wash resources, but this impact would be reduced to a less-than-significant level with implementation of Mitigation Measures B-3a (Avoidance of Desert Wash Habitat) and B-3b (Preservation of Off-site Desert Wash Habitat) (Impact B-3 – **Class II**).

The re-routed portion of Alternative 1 likely traverses Mojave riparian forest habitat along with riparian habitat associated with other small drainages, which provide habitat for several special-status riparian birds including yellow-billed cuckoo, southwestern willow flycatcher, vermilion flycatcher, and least Bell's vireo. Disturbance that causes these rare and sensitive species to abandon their nests and/or results in the loss of reproductive effort comprises a significant impact to these listed species. However, implementation of Mitigation Measures B-9a (Avoid Construction During the Breeding Season) and B-9b (Pre-construction

Surveys at Amargosa Creek Crossing and Oak Creek) would reduce these impacts to less-than-significant levels (Impact B-9 – **Class II**).

Suitable habitat for Palmer’s mariposa lily exists in the southern foothills and in the northern Tehachapi foothills within the Alternative 1 alignment in mixed scrub and chaparral habitats. Alternative 1 could result in mortality and/or disturbance to populations of this species. However, impacts to this species associated with Alternative 1 is less-than-significant (Impact B-11 – **Class III**) due to the relatively small disturbance zone in the preferred habitat, the abundance of these habitats in the Antelope Valley, the relatively sparse distribution of these plants at a population level, and their demonstrated tolerance of soil disturbance.

Suitable habitat for the short-joint beavertail is present within the portion of Alternative 1 that deviates from the proposed Project. This species may be affected through ground disturbance activities associated with construction of the proposed new roads and transmission line towers, and associated staging areas within Alternative 1. Impacts to this species would be generally the same as the proposed Project and would be considered significant without mitigation. However, implementation of Mitigation Measures B-12a (Conduct Focused Surveys for Short-joint Beavertail), B-12b (Avoid Impacts to Short-joint Beavertail), and B-12c (Removal and Reintroduction of Short-joint Beavertail) would reduce impacts to this species to a less-than-significant level (Impact B-12 – **Class II**).

Suitable habitat for the golden violet and Pierson’s morning glory is present within or in the vicinity of the rerouted portion of Alternative 1. The potential does exist that these species would be affected through ground disturbance activities associated with construction of the proposed new roads and transmission line towers, and associated staging areas. Potential impacts to this species resulting from project activities would be the same as the proposed Project and are considered significant. However, implementation of Mitigation Measures B-13a (Conduct Focused Surveys for the San Gabriel Oak), B-13b (Avoid Impacts to the San Gabriel Oak), B-13c (Minimize impacts to Montane Scrub and Juniper Woodland Habitats), and B-13d (Preservation of Off-site Montane Scrub and Juniper Woodland Habitats) would reduce impacts to these species to a less-than-significant level (Impact B-13 – **Class II**).

As with the proposed Project, Alternative 1 traverses suitable habitat for the coast horned lizard and silvery legless lizard, and the species may occur within areas designated for construction activities. Impacts to these species would be the same as the proposed Project and as stated in Section C.3.8, direct mortality and/or loss of habitat for these species as a result of construction activities are expected to be less-than-significant and would have little effect on either the local or regional population dynamics of these species. Therefore, impacts to coast horned lizards and silvery legless lizards resulting from injury or mortality associated with Alternative 1 are expected to be adverse but less than significant (Impact B-15 – **Class III**).

The portion of Alternative 1 that deviates from the proposed Project traverses desert scrub habitats providing breeding and foraging habitat for loggerhead shrikes, Bendire’s thrashers, LeConte’s thrashers, and summer tanagers. While breeding and foraging habitat for these species is regionally abundant, impacts to these species associated with Alternative 1 would be considered significant without mitigation. However, as with the proposed Project, implementation of Mitigation Measure B-17 (Conduct Pre-construction Surveys and Monitoring for Breeding Birds) would ensure that impacts to these species are less than significant (Impact B-17 – **Class II**).

Several raptor species may nest in the vicinity of the portion of Alternative 1 that deviates from the proposed Project. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a “taking” by the California Department of Fish and Game, and construction activities associated with Alternative 1 such

as tree removal, site grading, etc., that disturb a nesting raptor on-site or immediately adjacent to the construction zone could constitute a significant impact. However, as with the proposed Project, implementation of Mitigation Measures B-20a (Avoid Nesting Season) and B-20b (Pre-construction Surveys for Nesting Raptors) would reduce the potential for significant impacts to less than-significant levels (Impact B-20 – **Class II**).

Transmission towers, poles, and other tall structures would be located within the Alternative 1 alignment. Raptor species may perch or nest on these structures, and impacts to state and/or federally protected bird species associated with electrocution are considered significant. However, 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). As with the proposed Project, implementation of APM BIO-9 (Design towers to be raptor-safe) (Table C.3-6) in accordance with the guidance on raptor protection would reduce potential impacts to less-than-significant levels (Impact B-21 – **Class III**). Potential impacts to raptors and sensitive birds would be the same as the proposed Project.

As stated above, structures associated with Alternative 1 would be located within the portion of the route that deviates from the proposed Project. Direct mortality to state and/or federally-protected bird species as a result of collisions with transmission lines would be reduced to a less-than-significant level with implementation of APM BIO-9 (Design towers to be raptor-safe) (Table C.3-6) (Impact B-22 – **Class III**).

The portion of Alternative 1 that deviates from the proposed Project traverses several small drainages that may support ringtail; however, as with the proposed Project, construction activities in riparian areas would be minimized as stated in the APMs (Table C.3-6). Furthermore, the home range size of the ringtail is very large relative to the area of impact at any given project improvement, so project implementation would not substantially reduce available habitat, restrict their range, or cause their regional populations to drop below self-sustaining levels. Therefore, potential impacts of Alternative 1 on ringtail are less than significant (Impact B-24 – **Class III**).

Transmission towers, poles, and other tall structures would be located within the portion of Alternative 1 that deviates from the proposed Project. These structures may contribute to mortality of pallid bat, Townsend’s big-eared bat, western mastiff bat, big free-tailed bat, and western red bat through collisions. However, the number of fatal strikes is still expected to be quite low, and insufficient to substantially reduce the number of these species. Therefore, impacts to special-status bat species resulting from electrocution and/or transmission line strikes are considered less than significant (Impact B-25 – **Class III**).

The portion of Alternative 1 that deviates from the proposed Project traverses suitable habitat for badgers. Construction activities including clearing and grading of tower sites could result in impacts to this species (Impact B-26 – **Class III**). As stated with the proposed Project, to reduce impacts to this species SCE would implement pre-construction surveys for all special-status mammal species. If present, occupied badger dens would be flagged and ground-disturbing activities within 300 feet (91.4 m) of the dens would be restricted. Secondary impacts from noise, sensitivity to humans, or dust would be reduced through the implementation of BMPs. If Alternative 1 could not avoid removal of an active den, impacts would be significant (Impact B-26 – **Class II**), but would be reduced to a less-than-significant level with implementation of Mitigation Measure B-26 (Passively Relocate American Badgers During the Non-breeding Season).

The 5.3-mile Alternative 1 route that deviates from the proposed Project would not 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 (**No Impact**).

Alternative 1 would result in identical less-than-significant impacts (**Class III**) as the proposed Project with respect to loss of non-native annual grassland habitat, and agricultural and developed areas (Impact B-1); foraging habitat for Swainson’s hawks (Impact B-8); mortality of San Emigdio Blue butterfly (Impact B-14); disturbance to wintering Mountain Plovers (Impact B-18); mortality or loss of habitat for Tehachapi pocket mouse, Southern grasshopper mouse, and Tulare grasshopper mouse (Impact B-23); degradation of water quality (indirect) (Impact B-28); and mortality of desert tortoises resulting from increased predation by Common Ravens (indirect) (Impact B-29).

Alternative 1 would result in identical less-than-significant impacts with mitigation (**Class II**) as the proposed Project with respect to Joshua Tree Woodland and Juniper Woodland habitat (Impact B-4); California red-legged frogs (Impact B-5); desert tortoises (Impact B-6); nesting Swainson’s hawks (Impact B-7); potential take and loss of habitat for Mohave ground squirrels (Impact B-10); mortality of southwestern pond turtle and two-striped garter snake (Impact B-16); loss of occupied burrowing owl habitat (Impact B-19); and disturbance to desert tortoise movement resulting from habitat modification (Impact B-27). These impacts will all be reduced to less than significant levels with implementation of the mitigation measures identified for these impacts for the proposed Project.

D.4.1.3 Cultural Resources

Environmental Setting

Alternative 1 crosses the eastern extension of the Tehachapi Mountains east of and parallel with a portion of the Segment 3B proposed Project route. The cultural background is the same as for Segment 3B of the proposed Project.

A records search was obtained from the Southern San Joaquin Valley Information Center for the area within ¼ mile of the Alternative 1 route. The records search shows that portions of the Alternative 1 route located in Cameron Canyon have been surveyed for cultural resources. No prehistoric sites were identified as a result of the surveys. Only two previously recorded cultural resources are located within one quarter mile of the Alternative 1 route. They consist of a road and trail from the historic period as shown in Table D.4-1.

Trinomial / Primary Record #	USFS Site #	Historic / Prehistoric	Site Type	Date Recorded	Recorded by
CA-KER-3538H	N/A	Historic	Cameron Canyon Road	1993	M. Macko
P15--010033	N/A	Historic	Pacific Crest Trail	2000 (update)	J. Underwood, K. Hernandez

Environmental Impacts

With Alternative 1, prehistoric archaeological sites AP3-133 and AP3-134 located along the proposed Project route would not be affected (Impacts C-4 and C-5 – **No Impact**). The two previously recorded historic period sites along the Alternative 1 route would not be affected by this alternative as the transmission line would cross them above ground. The potential to affect prehistoric or historic archaeological sites if Alternative 1 is implemented is low, based on the records search results for Alternative 1 and the field survey of the

corresponding portion of the proposed Project route. However, archaeological sites could be identified along the Alternative 1 route that could be affected by Project construction activities, including tower construction, grading of access roads, and establishment and use of stringing setup areas and splicing locations.

Field survey would be necessary to identify archaeological sites that could be affected by Alternative 1 construction activities. Additional archaeological field work (and historical research for historical archaeological sites) would be necessary to determine whether the sites are eligible for the CRHR. If the CEQA lead agency determines that a site is eligible, impacts from construction activities would constitute a significant impact. This impact is significant, but can be mitigated to a less-than-significant level (**Class II**) through the implementation of Mitigation Measures CA-1a and CA-1b.

Mitigation Measures

CA-1a Perform Archaeological Survey. A field survey of all areas where ground disturbing activities could occur as part of the Project will be performed by qualified archaeologists in order to identify archaeological sites that could be impacted by Project construction activities.

CA-1b Avoid Archaeological Sites or Evaluate Eligibility and Perform Data Recovery of. Identified archaeological sites will be avoided by all Project construction activities. Sites to be avoided will be fenced off as environmentally sensitive areas during construction.

If an archaeological site cannot be avoided, prior to initiating any construction activities in its vicinity, an archaeological test program will be completed in order to provide information necessary to evaluate the site for eligibility for the CRHR. If evaluated as eligible and the CPUC determines that the site is eligible, an archaeological data recovery program, consisting of hand excavated units, identification and cataloging of recovered material, and a report, will be completed for the portion of the site that will be impacted as a result of Project construction activities. The CPUC will ensure that the data recovery report is completed and filed with the California Historic Resources Information System (CHRIS) and the CPUC.

D.4.1.4 Geology, Soils, and Paleontology

Environmental Setting

Alternative 1 starts at the alternative Substation 2C located immediately north of Substation Two at the southern end of the Tehachapi Valley and then crosses the Tehachapi Mountains east of the comparable section of Segment 3 of the proposed Project. Geologic units crossed by Alternative 1 include young Alluvium (Qa), Older Alluvium (Qoa), Quartz monzonite (qm), and Quartz monzonite with intrusive felsic volcanics (qm w/Tf). The Older Alluvium underlying the southern portion of this alternative may contain significant fossils, resulting in a high paleontological sensitivity. No known mineral resources or active mines or quarries are located along the re-routed portion of Alternative 1.

The re-routed portion of Alternative 1 would not cross any known landslides, nor would it be located along landslide prone geologic units. The major soil units underlying the re-routed portion of Alternative 1 consist of the following soil units, Havala, Tujunga, Walong, Pajuuela-Whitewolf, Cajon, and Garlock, which are described in Table C.5-3. This alternative crosses the active Alquist-Priolo zoned Garlock fault approximately four miles southwest of Substation 2C. Estimated peak ground accelerations for this alternative are the same as for the proposed Project.

Environmental Impacts

Impacts from construction of Alternative 1 would be the same as for the comparable section of Segment 3B of the proposed Project. Construction activities consisting of excavation and/or grading along Alternative 1 could cause slope instability (Impact G-1) and/or trigger or accelerate soil loss and erosion (Impact G-2) resulting in a significant impact. Implementation of Mitigation Measures G-1 (Protect Against Slope Instability) and G-2 (Minimize Soil Erosion), respectively, would reduce impacts to less-than-significant levels (Impacts G-1 and G-2 – **Class II**). Although the Alternative 1 transmission line route crosses the active Garlock fault further east than the proposed Project, this portion of the Garlock fault is included in an Alquist-Priolo zone and would also be subject to damage due to surface fault rupture resulting in a significant impact. Implementation of Mitigation Measure G-3 (Minimize Project Structures within Active Fault Zones) would reduce impacts to a less-than-significant level (Impact G-3 – **Class II**). In the event of a moderate or larger earthquake in the Project region, Alternative 1 could be subject to seismically induced slope failures (Impact G-4) where it crosses steep slope of the Tehachapi Mountains, and strong groundshaking that could damage tower structures (Impact G-5). Impacts would be significant, but would be reduced to less-than-significant levels with implementation of Mitigation Measures G-4 (Geotechnical Investigations for Liquefaction and Seismic Slope Instability) and G-5 (Reduce Effects of Groundshaking), respectively (Impacts G-4 and G-5 – **Class II**). Same as the proposed Project, transmission line structures could be damaged by landslides, a significant impact, although these would not be expected to occur in the re-routed portion of Alternative 1. This impact would be less than significant with implementation of Mitigation Measure G-7 (Geotechnical Surveys for Landslides). Soils with moderate to high potential for corrosion along the re-routed portion of Alternative 1 could have a detrimental effect on concrete and metals resulting in a significant impact, but would be mitigated to a less-than-significant level with implementation of Mitigation Measure G-6 Geotechnical Studies for Corrosive Soils) (Impact G-6 – **Class II**). Significant fossils could also be damaged due to Alternative 1 construction where it crosses Older Alluvial deposits, a significant impact. This impact would be reduced to a less-than-significant level with implementation of Mitigation Measure G-8 Protect Paleontological Resources) (Impact G-8 – **Class II**).

D.4.1.5 Hazards and Hazardous Materials

Environmental Setting

Land uses along the re-routed portion of Alternative 1 include existing transmission corridors, open space used for grazing, and an existing wind energy farm. The alignment passes just south of the Western Wind administrative complex with offices and maintenance facilities. Proximity of the alignment to the underground oil or gas pipelines located north of Oak Creek Road, and the Cal Cement quarry and plant are the same as the proposed Project. Land use at alternative Substation 2C is identical to Substation Two. There are no known contaminated sites along the re-routed portion of the Alternative 1 alignment, and due to the rural character and open space land use the presence of unknown soil contamination is unlikely.

Environmental Impacts

Impacts from the Alternative 1 re-route are identical to those along the comparable section of Segment 3B of the proposed Project. As with Segment 3B of the proposed Project, during construction operations hazardous materials such as vehicle fuels, oils, and other vehicle maintenance fluids would be used and stored in construction staging areas (marshalling yards), resulting in soil or groundwater contamination from spills or leaks, a significant impact. Impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure HAZ-1a (Implement an Environmental Training and Monitoring Program), HAZ-1b

(Implement a Hazardous Substance Control and Emergency Response Plan), HAZ-1c (Ensure Proper Disposal of Construction Waste), and HAZ 1d (Emergency Spill Supplies and Equipment for Construction Activities) (Impact HAZ-1 – Class II). Same as the proposed Project Segment 3B, there is no potential for impact from existing contamination along the Alternative 1 re-route (**No Impact**). This alternative would also be subject to soil or groundwater contamination from accidental spill or release of hazardous materials at the substations during facility operation or along the transmission line during maintenance operations, a significant impact. This impact would be reduced to a less-than-significant level with implementation of HAZ-2a (Implement Spill Prevention, Countermeasure, and Control Plans) and HAZ-2b (Emergency Spill Supplies and Equipment for Operation and Maintenance Activities) (Impact HAZ-2 – Class II).

D.4.1.6 Hydrology and Water Quality

Environmental Setting

As described in Section D.3.1, Alternative 1 would initiate at alternative Substation 2C, which is located immediately north of proposed Substation Two. The proposed site for Substation 2C is composed of desert terrain with a 1.5 to 2 percent slope, which trends from the north to the south. With this alternative, the new transmission line would connect from Substation 2C to Substation One along an alignment that is approximately 0.1 mile longer than the proposed Project and situated east of the proposed Project route.

With regard to hydrology and water quality, the setting for Alternative 1 is slightly different than for the proposed Project. The 5.3-mile re-route between Substation 2C and Substation One for Alternative 1 would traverse Cameron Canyon Creek near Mile S3-4.0. Other surface water features of Alternative 1 are the same as the proposed Project. Groundwater resources affected by Alternative 1 are the same as for the proposed Project, with one exception. Whereas the proposed Project route only crosses through the Tehachapi Valley East Groundwater Basin and the Antelope Valley Groundwater Basin, Alternative 1 additionally crosses through the Fremont Valley Groundwater Basin. Alternative 1 would intercept the westernmost portion of the Fremont Valley Groundwater Basin between approximately Mile S3-4.0 and Mile S3-4.5 of the Alternative 1 route (see Figure C.7-3).

The Fremont Valley Groundwater Basin is located within Fremont Valley, bounded to the north, west, and east by impermeable crystalline rocks and to the south by the Antelope Valley Groundwater Basin divide (SCE, 2005). This groundwater basin has a surface area of approximately 523 square miles and an estimated storage capacity of 4,800,000 acre-feet (SCE, 2005). Recharge is received from Long Tree Canyon and Cache Creek as well as ephemeral streams and desert washes. Along the margins of the basin, Quaternary alluvium is about 1,190 feet thick, containing largely unconfined groundwater resources (DWR, 2004). Hydrographs indicate that between 1957 and 1999, groundwater depth below the surface declined by roughly nine feet in the southwestern part of the basin, where the proposed route would intercept basin boundaries. Groundwater in this part of the basin is characterized by sodium bicarbonate or calcium-sodium sulfate. Table D.4-2 presents water quality data for the Fremont Valley East Groundwater Basin.

Constituent Group ¹	Number of Wells Sampled ²	Number of Wells which Exceed the Applicable MCL/s ³ (%)
Inorganics - Primary	14	0
Radiology	11	0
Nitrates	15	0
Pesticides	13	0
VOCs and SVOCs*	12	0

Source: DWR, 2004b.

¹ A description of each member in the constituent groups and the relevance of these groups are included in the Lahontan Basin Plan.

² Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

³ This data represents the water quality at the sample location, and not the water quality delivered to the consumer. This information is intended as an indication of the types of activities that cause contamination in a given basin.

*VOC: Volatile Organic Compound, SVOC: Semivolatile Organic Compound.

As indicated in the table above, none of the wells tested in the Fremont Valley Groundwater Basin contain water in excess of applicable MCLs for primary inorganics, radiology, nitrates, pesticides, or VOCs and SVOCs. In comparison with the water quality in the Tehachapi Valley East Groundwater Basin and the Antelope Valley Groundwater Basin, as seen in Tables C.7-5 and C.7-6, respectively, the Fremont Valley Groundwater Basin appears to have generally higher quality water.

Environmental Impacts

Construction activities associated with Alternative 1 would have the potential to cause soil erosion and sedimentation which could cause a degradation of water quality in local and downstream waterways (Impact H-1). As with the proposed Project, some of the land-disturbing activities associated with construction that could result in soil erosion and sedimentation include: transmission tower installation, substation construction (Substation 2C and Substation One), substation improvements (Antelope and Vincent Substations), road construction and improvements, and other construction requirements such as pulling and splicing locations. As with the proposed Project, these activities would result in a significant impact without mitigation. However, implementation of the following mitigation measures, which are introduced in Section C.8 (Hydrology and Water Quality), would reduce impacts to a less-than-significant level: ~~H-1a (Implementation of Erosion and Sediment Best Management Practices), H-1b (Timing of Construction Activities), H-1c (Control of Sidecast Material, Right of Way Debris and Roadway Debris), and H-1d (Road Surface Treatment)~~ H-1a (Implementation of Best Management Practices for Erosion and Sediment Control), H-1b (Maximum Road Gradient), H-1c (Road Surface Treatment), H-1d (Timing of Construction Activities), and H-1e (Control of Sidecast Material, Right-of-Way Debris and Roadway Debris) (Impact H-1 – **Class II**).

During construction activities for Alternative 1, the accidental release of potentially harmful materials would cause degradation of surface water or groundwater quality (Impact H-2). This impact for Alternative 1 would be the same as for the proposed Project, described in Section C.7.4.2, and would remain significant with implementation of APM HYD-1, which requires compliance with a SWPPP. To reduce this impact to a less-than-significant level, the following mitigation measures from ~~Section C.8 (Hydrology and Water Quality)~~ would be implemented: ~~Mitigation Measures H-2a (Environmental Training and Monitoring Program), H-2b (Hazardous Substance Control and Emergency Response Plan), H-2c (Proper Disposal of Construction Waste), and H-2d (Emergency Spill Supplies and Equipment)~~ Section C.6 (Hazards and Hazardous Materials) would be implemented: Mitigation Measures HAZ-1a (Implement an Environmental Training and Monitoring Program), HAZ-1b (Implement a Hazardous Substance Control and Emergency Response Plan), HAZ-1c (Ensure Proper Disposal of Construction Waste), HAZ-1d (Emergency Spill Supplies and Equipment for Construction Activities), and HAZ-2b (Emergency Spill Supplies and Equipment for Operation and Maintenance Activities) (Impact H-2 – **Class II**).

Operational and maintenance activities for Alternative 1 could also result in the accidental release of harmful materials which could cause the degradation of surface water or groundwater quality (Impact H-3). This impact would also be the same as the proposed Project, and would be less than significant without mitigation. It should be noted that Impact HAZ-2, which is discussed with regards to Hazards and Hazardous Materials, also addresses the potential for an accidental release of hazardous materials during operational and maintenance

activities. However, whereas Impact HAZ-2 addresses the potential occurrence of an accidental release, Impact H-3 more specifically addresses the potential for degradation of water quality in the potential circumstance that an accidental release has occurred. Therefore, these two impacts are discussed separately and assigned separate significance classifications, as appropriate. Due to the less invasive nature of operations and maintenance in comparison with construction activities, no mitigation measures are recommended (Impact H-3 – **Class III**).

There is a possibility that excavation activities associated with Alternative 1 would disturb existing groundwater resources (Impact H-4). Excavation that would be required for Alternative 1 is expected to be limited to construction of the new substation facilities (Substation 2C and Substation One) and installation of the individual transmission towers. As described, Alternative 1 would intercept the Fremont Valley Groundwater Basin along its re-route of the proposed Project route. Because the proposed route for this alternative would be within the boundaries of the Fremont Valley Groundwater Basin for about one-half mile, not more than a few transmission towers would be situated over the basin. No substation facilities would be situated over this groundwater basin. As with the proposed Project, Alternative 1 would also traverse the Antelope Valley Groundwater Basin for many miles of the overall route. Therefore, the potential for excavation activities to disturb groundwater would be the same for Alternative 1 as for the proposed Project and would be significant without mitigation. Implementation of Mitigation Measure H-4 (Develop and Implement a Groundwater Remediation Plan), would reduce impacts to existing groundwater resources for Alternative 1 to a less-than-significant level (Impact H-4 – **Class II**).

New impermeable areas that would be created as part of Alternative 1, such as transmission tower pads and substation facilities, could cause an increase in surface water runoff (Impact H-5). Alternative 1 is approximately 0.1 mile longer than the proposed Project and would require one additional transmission tower (58 versus 57 for the proposed Project). This one additional tower pad would not introduce sufficient impermeable surface area, in comparison with the proposed Project, to alter the Project's impact to surface water runoff. As with the proposed Project, impacts from increased surface water runoff for Alternative 1 would be less than significant (Impact H-5 – **Class III**).

There is a potential for runoff caused by permanent Project features to affect a local stormwater drainage system (Impact H-6). The portion of the route for Alternative 1 that differs from the proposed Project is located in the same vicinity as the route for the proposed Project. The area is rural, sparsely populated, and not equipped with a stormwater drainage system. As with the proposed Project, the potential runoff generated by permanent Project features such as the transmission towers is expected to be minimal due to the inclusion of drainage features in Project design. As such, impacts to local stormwater drainage systems would be less than significant (Impact H-6 – **Class III**).

Flood hazards could be introduced through the placement of permanent aboveground structures for Alternative 1 in a flood hazard area, a floodplain, or a watercourse (Impact H-7). None of the facilities associated with Alternative 1 would be placed within a known watercourse. However, Project features would be situated within multiple FEMA-designated Flood Hazard Areas, as described in Section C.7.1. Alternative 1 would cross through the same seven Flood Hazard Areas as the proposed Project and would therefore have the same significant impact as the proposed Project. With the implementation of Mitigation Measure H-7 (Aboveground Structures Shall be Protected Against Flood and Erosion Damage), flood hazard impacts for Alternative 1 would be reduced to a less-than-significant level (Impact H-7 – **Class II**).

D.4.1.7 Land Use and Public Recreation

Environmental Setting

As Alternative 1 travels south from alternative Substation 2C to its junction with the proposed Project route at Mile S3-5.3 (proposed Project Mile S3-5.2), the transmission line would be located adjacent to an existing 66-kV subtransmission line (Cal Cement-Goldtown-Monolith-Windlands) in unincorporated Kern County. The re-routed portion of Alternative 1 traverses open space land that is currently scattered with wind farms, and would cross a cluster of residences located on Cameron Canyon Road. Alternative 1 would also cross the PCT approximately 0.3 miles south of Cameron Canyon Road. The alternative Substation 2C site would be located immediately north of proposed Substation Two, in an area that is characterized by agricultural uses. Figure C.8-1 shows the Alternative 1 route and its surrounding land uses. See Section D.4.1.8 for a discussion of impacts to agricultural resources.

Alternative 1 would be identical to the proposed Project from Mile S3-5.2 to S3-35.2, and Mile S2-0.0 to S2-21.6.

Environmental Impacts

As Alternative 1 would traverse the same jurisdictions as the proposed Project, land use plans and policies that are applicable to the proposed Project would also apply to Alternative 1. Alternative 1 would not introduce any new Project components that would conflict with the land use policies listed in Table C.8-3. Consequently, Alternative 1 would be consistent with State and local plans and policies.

During construction of Alternative 1, temporary disturbances to land uses that are traversed by or adjacent to the alternative route would be similar to the proposed Project (Impact L-1). Along the 5.3-mile alternative route, the alternative would travel across residential areas and the PCT. Alternative 1 would not traverse the parking area that is located at the PCT trailhead southwest of the intersection of Tehachapi Willow Springs Road and Cameron Road, and consequently would not temporarily preclude parking access for the PCT. However, the alternative would require temporary closure of recreational trails during construction, as well as affect adjacent residences with noise and air pollutant emissions generated from construction equipment. South of proposed Project Mile S3-5.2, impacts to recreational trails in Ritter Ranch Park and residences adjacent to the ROW would be identical to the proposed Project. As such, Alternative 1 would create significant but mitigable impacts to residences and recreationists (Impact L-1 – **Class II**). Implementation of the following mitigation measures would reduce impacts to a less-than-significant level: L-1a (Coordinate Construction Schedule and Activities with the Authorized Officers for the Recreation Areas), L-1b (Provide Access for Pacific Crest National Scenic Trail and Other Hiking Trail Users), L-1c (Identify Alternative Recreation Areas), N-3a (Provide Advance Notification of Construction), and N-3b (Implement Best Management Practices for Construction Noise).

As described for the proposed Project, Alternative 1 would require the ~~removal of residences in the City of Lancaster (Impact L-2) and in unincorporated Los Angeles County (Impact L-3), which would result in a significant impact. Implementation of Mitigation Measure L-2 (Re-locate Project ROW to Avoid Residence) would avoid the relocation of the single family residence along Avenue L, reducing the impacts from Alternative 1 to a less than significant level (Impact L-2 – **Class II**). However, the removal of three existing residences along Cherry Tree Lane, which would create significant and unavoidable impacts (Impact L-2 – **Class I**). Impact L-2~~3~~ can only be avoided with a re-route around these Los Angeles County residences, as presented in Option A and Alternative 4.~~

Impacts resulting from a transmission line crossing a school property would be identical to the proposed Project (Impact L-34). South of proposed Project Mile S3-5.2, the alternative route would extend over the same privately owned parcels as the proposed Project, and as such would ~~restrict the use of the~~ be constructed across a proposed Antelope Valley Union High School District (AVUHSD) school site property for educational facilities. However, impacts to the school site would not preclude the school's development, and impacts would be less than significant (Impact L-3 – **Class III**). ~~Although Mitigation Measure L-4 (Coordinate with Antelope Valley Union High School District and Ritter Ranch) has been recommended, SCE's coordination may not entirely avoid impacts to the AVUHSD. Therefore, potential impacts remain significant (Impact L-4 – Class I).~~

Alternative 1 would not traverse planned residential development within Ritter Ranch (Impact L-45 – **No Impact**). Unlike the proposed Project, operation of Alternative 1 would not significantly change the character of a recreational resource (Impact L-56). As the alternative route crosses the PCT and recreational trails within Ritter Ranch, it would be located adjacent to an existing transmission corridor. The portion of the PCT that would be traversed by the alternative is surrounded by industrial land uses (i.e., transmission lines, wind farms), and the siting of Alternative 1 would not affect access to the PCT trailhead. As such, Alternative 1 would result in less-than-significant impacts to the recreational value or character of the PCT and Ritter Ranch trails (Impact L-56 – **Class III**).

Unlike the proposed Project and Options A and B, Alternative 1 would potentially remove existing residences in unincorporated Kern County. Depending on the final alignment for Alternative 1, the removal of residences may be required along Cameron Canyon Road, southeast of proposed Substation Two. The removal of existing residences along Alternative 1 would be considered a significant and unavoidable impact (Impact L-6 – **Class I**).

D.4.1.8 Agriculture

Environmental Setting

Similar to the proposed Project, the 5.3-mile Alternative 1 route would traverse Grazing Land and Williamson Act land designated as Mixed Acreage Parcels. The alternative Substation 2C site would be located on Grazing Land, north of and adjacent to Williamson Act lands. See Figure C.9-1 for the location of Alternative 1 relative to agricultural lands. From Project Mile S3-5.2 to S3-35.2, and Mile S2-0.0 to S2-21.6, this alternative route would traverse the same Farmland as the proposed Project. In total, Alternative 1 would cross approximately 1.6 miles of Prime Farmland, 1.0 mile of Farmland of Statewide Importance, and 0.2 miles of Unique Farmland.

Environmental Impacts

During construction of Alternative 1, temporary conversion of Farmland to non-agricultural use would be identical to the proposed Project (Impact AG-1). Alternative 1 would be constructed over less than three miles of Farmland. However, construction activities associated with the siting of LST footings and TSP foundations across agricultural areas would create a temporary disturbance from truck damage, laydown and assembly areas, crane pads, and splicing stations. In total, an estimated 1.2 acres of Prime Farmland, 0.6 acres of Farmland of Statewide Importance, and 0.1 acres of Unique Farmland would be temporarily disturbed. As the total temporary conversion of Farmland to non-agricultural use would not exceed the threshold of significance (see Section C.9.4), impacts would be less than significant (Impact AG-1 – **Class III**).

Alternative 1 would result in a permanent conversion of Farmland to non-agricultural use that would be identical to the proposed Project (Impact AG-2). The creation of LST footing holes, TSP foundation holes, and new access and spur roads would contribute to an estimated permanent disturbance of 2.0 acres of Prime Farmland, 1.5 acres of Farmland of Statewide Importance, and 0.3 acres of Unique Farmland. As the permanent conversion of Farmland would not exceed the threshold of significance, impacts would be less than significant (Impact AG-2 – **Class III**).

As described for the proposed Project, construction activities associated with Alternative 1 would temporarily interfere with agricultural operations (Impact AG-3). The installation of 220-kV and 500-kV transmission structures, construction of new access and spur roads, and wire stringing activities would adversely impact agriculture by damaging crops or soil, temporarily impeding access to certain fields or plots of land, obstructing farm vehicles, or disrupting drainage and irrigation systems. Impacts would be significant (Impact AG-3 – **Class II**), but would be reduced to a less-than-significant level through implementation of Mitigation Measures N-3a (Provide Advance Notification of Construction) and AG-3 (Establish Agreement and Coordinate Construction Activities with Agricultural Landowners).

Alternative 1 would create permanent impacts to agricultural operations that would be identical to the proposed Project (Impact AG-4). The siting of new transmission towers and roads may divide farm properties, create irregularly shaped fields, disrupt drainage and irrigation systems, and introduce invasive weeds. Impacts would be significant (Impact AG-4 – **Class II**), but would be reduced to a less-than-significant level through implementation of Mitigation Measure AG-4 (Locate Transmission Towers and Pulling/Splicing Stations to Avoid Agricultural Operations).

Construction of Alternative 1 would create a temporary disturbance of Williamson Act lands that would be similar to the proposed Project (Impact AG-5). Alternative 1 would be located across approximately 0.5 miles of Williamson Act contracts classified as Prime Agricultural Land, and approximately 0.2 miles of Williamson Act land classified as Mixed Acreage Parcels. The construction of transmission towers and access and spur roads would temporarily disturb an estimated 0.9 acres of Prime Agricultural Land and 0.6 acres of Mixed Acreage Parcels. As the amount of temporary disturbance would not exceed the threshold of significance, impacts would be less than significant (Impact AG-5 – **Class III**).

Operation of Alternative 1 would avoid conflicts with Williamson Act contracts that may occur under the proposed Project (Impact AG-6). The siting of tower footings and roads would permanently disturb an estimated 1.0 acre of Prime Agricultural Land and 0.3 acres of Mixed Acreage Parcels. However, Alternative 1 would relocate the proposed substation (Substation 2C) to avoid Williamson Act lands. As such, the amount of permanent disturbance would not exceed the threshold of significance. Impacts would be less than significant (Impact AG-6 – **Class III**).

D.4.1.9 Noise

Environmental Setting

As Alternative 1 travels south from alternative Substation 2C to its junction with the proposed Project route at Mile S3-5.3 (proposed Project Mile S3-5.2), it would be located adjacent to an existing 66-kV subtransmission line (Cal Cement-Goldtown-Monolith-Windlands) in unincorporated Kern County. This alternative traverses mostly open space land that is currently scattered with wind farms, but would cross a cluster of residences located on Cameron Canyon Road, which would not be affected by the proposed Project. Alternative 1 would also cross the PCT approximately 0.3 miles south of Cameron Canyon Road. The alternative Substation 2C

site would be located immediately north of proposed Substation Two, in an area that is characterized by agricultural uses.

Alternative 1 is identical to the proposed Project from Mile S3-5.2 to S3-35.2 and Mile S2-0.0 to S2-21.6.

Environmental Impacts

Construction. The types of construction equipment and duration of construction would generate identical construction noise sources for Alternative 1 as compared to the proposed Project. Because Alternative 1 would continue to travel through both Los Angeles and Kern Counties, identical local noise standards would apply to Alternative 1 as compared to the proposed Project. Therefore, stationary construction equipment operations within 600 feet of single-family residences, 350 feet of multi-family residences, and approximately 200 feet of commercial uses may, depending on the equipment in use, generate noise levels in excess of the maximum levels defined by Los Angeles County. Construction activities within these distances would result in a significant impact. However, Mitigation Measure N-1 (Provide Shields for Stationary Construction Equipment) would reduce the potential noise violations in those areas of the Alternative 1 ROW that fall within Los Angeles County by requiring the use of noise shields to reduce stationary equipment noise near sensitive uses during construction and to require a variance for mobile equipment use near residential or commercial uses. Furthermore, Mitigation Measures N-3a (Provide Advanced Notification of Construction) and N-3b (Implement Best Management Practices for Construction Noise) would be required for Alternative 1 to reduce the likelihood of substantially disturbing receptors within one-quarter mile of construction activities. With these measures, impacts from construction equipment would be reduced to less-than-significant levels (Impacts N-1 and N-3 – **Class II**).

Operation. Corona noise would occur along the entire corridor of Alternative 1, which is in close proximity to sensitive receptors. From Project Mile S3-5.2 to S3-35.2 and Mile S2-0.0 to S2-21.6, the Alternative 1 route would be identical to the proposed Project, which contains sensitive receptors (as identified in Tables C.10-1 and C.10-2). The Alternative 1 route would also expose new residential receptors located on Cameron Canyon Road to corona noise. Same as the proposed Project, Alternative 1 would create ambient noise levels greater than the noise occurring under existing conditions. This would cause significant operational noise impacts to adjacent sensitive uses. As with the proposed Project, the level of worst-case wet weather and heavy load noise would likely be between 55 and 65 dBA along the corridor, meaning that introduction of new corona noise could result in a substantial (more than 5 dBA) increase to the ambient noise levels of nearby receptors. Therefore, operational corona noise levels on receptors along the Alternative 1 route within Los Angeles County would exceed County Ordinance Standards and would result in a permanent increase in noise levels adjacent to the ROW resulting in significant and unavoidable operational noise impacts (Impact N-2, N-4 – **Class I**).

Operational impacts associated with the substations for Alternative 1 would be identical to the proposed Project, which would be less than significant (Impact N-6 – **Class III**). Maintenance activities associated with Alternative 1 would also be expected to be identical to the proposed Project and would not substantially increase ambient noise levels (Impact N-5 – **Class III**).

D.4.1.10 Traffic and Transportation

Environmental Setting

From a traffic and transportation perspective, Alternative 1 is nearly identical to the proposed Project. This proposed re-route would result in the same number of road crossings as the proposed Project; however, instead of crossing Tehachapi-Willow Springs Road the route of Alternative 1 would cross Cameron Canyon Road.

Environmental Impacts

With regard to traffic and transportation impacts, Alternative 1 would be identical to the proposed Project. Alternative 1 would result in significant impacts that would be reduced to less-than-significant levels with mitigation (**Class II**) with respect to the following: closure of roads to through traffic or reduction of travel lanes resulting in substantial congestion (Impact T-1); construction traffic resulting in congestion on area roadways (Impact T-2); construction activities temporarily interfering with emergency response (Impact T-3); construction activities temporarily disrupting transit bus routes (Impact T-4); construction activities temporarily disrupting rail traffic (Impact T-5); conflicting with planned improvements to SR-14 (Impact T-7); construction vehicles and equipment damaging road ROWs (Impact T-8); and construction activities being inconsistent with transportation plans (Impact T-10).

Alternative 1 would also result in identical less-than-significant impacts (**Class III**) as the proposed Project with respect to construction activities temporarily impeding pedestrian movements and bike paths (Impact T-6), and transmission structures presenting an aviation hazard (Impact T-9).

D.4.1.11 Visual Resources

Environmental Setting

Because Alternative 1 would use the same general corridor as the proposed Project, extending from the Tehachapi Wind Resource Area near Highway 58 to the Vincent Substation near Highway 14, the environmental setting for Alternative 1 is the same as that described for the proposed Project. The only additional vantage point from which Alternative 1 would be seen is Cameron Canyon Road, described below at KOP-15.

KOP-15 – Cameron Canyon Road

KOP-15 was established on Cameron Canyon Road near several existing rural-residences (see Figure D.4-1A – Existing Visual Condition as seen from KOP-15). From approximately Alternative 1 Mile S3-3.0 to S3-5.3, Alternative 1 would be visible from Cameron Canyon Road and these residences. Alternative 1 would be constructed on the west side of the existing 66-kV subtransmission lines and depending on the final alignment may require the removal of three existing single-family residences (ranchettes with horse stables) in this vicinity. Existing transmission line structures are double wooden poles on H-frames carrying smaller, 66-kV conductors. Landforms are gently rolling hills covered with grass and scattered, small, windblown evergreen trees. Wooden and metal fences in the foreground create a pastoral landscape character. Wind turbine generators line the horizon and draw viewer's attention to the skyline. Existing turbines create moderate skyline blockage.

Visual Quality: Moderate-to-High. The primary focal points in this landscape are the wind turbine generators and the rolling hills and interesting vegetative patterns on the skyline. Additional focal points are the rural ranchette outbuildings, fences, and windbreaks that make up this pastoral landscape character scene.

Without the transmission and distribution lines in the foreground, this rural, pastoral landscape would exhibit high visual quality, but the introduction of these wind turbine generators, H-frame poles, and overhead distribution lines has lowered the visual quality to a moderate-to-high level of visual quality.

Viewer Concern: high. Viewer sensitivity and concern are expected to be high, once local residents discover that the alignment of Alternative 1 would potentially involve taking of three occupied single-family residences. Based on comments from other affected residents at scoping meetings, viewer concern is determined to be high.

Viewer Exposure: high. Based on the initial alignment, Alternative 1 would be highly visible from these residential properties because it would cross directly over three houses and near several others. As seen from Cameron Canyon Road, Alternative 1 would be highly visible at foreground viewing distances from approximately Mile S3-3.0 to Mile S3-5.3 in general, and specifically as seen from KOP-15. The duration of view would be extended from these residential neighborhoods, and the number of potential viewers would be moderate. Therefore the overall viewing exposure would be high.

Overall Visual Sensitivity: High. For residents of Cameron Canyon Road in general and KOP-15 specifically, the moderate-to-high visual quality, high viewer concern, and high viewer exposure lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

Environmental Impacts

Alternative 1 would relocate Substation Two northward, approximately 800 feet closer to Highway 58 and Jameson Street, to the alternative Substation 2C site. The new 220-kV transmission line would begin at Substation 2C and travel south and east, then south, parallel to the existing Cal Cement-Goldtown-Monolith-Windlands 66-kV line along Cameron Canyon Road, to a point where it would re-connect with the proposed Project route at Mile S3-5.3 (proposed Project Mile S3-5.2). The re-routed portion of Alternative 1 traverses open space land that is currently occupied with wind farms, and would cross a cluster of rural-residences located along Cameron Canyon Road. Alternative 1 would avoid crossing the PCT and Trailhead at proposed Project Mile S3-4.5, but would cross the PCT at a different (more easterly) location, approximately 0.3 miles south of Cameron Canyon Road.

Alternative 1 would result in different visual impacts as seen from KOP-1 – Highway 58 and Jameson Street, and from KOP-2 – Pacific Crest Trail and Trailhead. Alternative 1 would result in new visual impacts to travelers and residents along Cameron Canyon Road.

Alternative 1 would be identical to the proposed Project from proposed Project Mile S3-5.2 to S3-35.2 and from Mile S2-0.0 to S2-21.6 and, therefore, would result in significant impacts without mitigation. After implementation of Visual Resource mitigation measures, visual impacts would be identical to those described for Impacts V-7 and V-10 (**Class I**), Impacts V-3, V-9, V-11, V-12, V-14, and V-16 (**Class II**), and Impacts V-4 through V-6, V-8, V-13, and V-15 (**Class III**).

Alternative Substation 2C would be seen in the foreground from Highway 58 and Jameson Road and would appear slightly closer to the viewer (approximately 800 feet closer) than the substation simulated in Figure C.11-2B. Therefore, more details of alternative Substation 2C would be seen from KOP-1, and visual impacts would be slightly greater. Instead of proceeding southward as in the proposed Project, the new 220-kV transmission line would proceed eastward, then south up a canyon, and over the skyline pictured in Figures C.11-2A and C.11-2B. The transmission line in Alternative 1 would encounter more evergreen vegetation and fewer grassy hillsides than the proposed Project. Therefore, ROW clearing for the line would be more evident

under Alternative 1, and this could lead to greater attention to the transmission line structures and conductors, as compared to the proposed Project. As such, visual impacts from KOP-1 would be significant without mitigation.

For Alternative 1, from Mile S3-0.0 to Mile S3-9.7 (Segment 3B), implementation of Mitigation Measures V-1a (Use Tubular Steel Poles), V-1b (Construct, Operate, and Maintain with Existing Access Roads), V-1c (Dispose of Cleared Vegetation), V-1d (Slope-Round and Dispose of Excavated Materials), and V-1e (Treat Surfaces with Appropriate Colors, Textures, and Finishes) would improve the visual environment of the new 220-kV transmission line. Implementation of Mitigation Measure V-1f (Establish Evergreen Vegetative Screen) would improve the visual environment of alternative Substation 2C. This would result in an improved visual environment, and would reduce impacts from KOP-1 to a less-than-significant level (Impact V-1 – **Class II**).

Construction and operation of Alternative 1 would result in no change in landscape character and scenic vistas as seen from KOP-2 – Pacific Crest Trail and Trailhead (Impact V-2 – **No Impact**).

KOP-15 was established on Cameron Canyon Road near several existing rural-residences that are situated on both sides of the road. Figure D.4-1A presents Existing Conditions at KOP-15 and Figure D.4-1B presents a visual simulation that depicts the new 220-kV transmission line for the Alternative 1 re-route. From approximately Alternative 1 Mile S3-3.0 to S3-5.3, Alternative 1 would be visible from Cameron Canyon Road and these residences. Alternative 1 would be constructed on the west side of the existing 66-kV subtransmission lines and would potentially involve the removal of three existing single-family residences (ranchettes with horse stables) in this vicinity. Alternative 1 would introduce approximately 82-foot-tall lattice steel towers supporting a 220-kV transmission line through this landscape. The lattice towers would repeat the geometric forms of wind turbine towers on the skyline, but would decrease visual quality by introducing these geometric, industrial character forms into the foreground, as well as the middleground, of this pastoral scene. From a strictly visual resource perspective and as seen from Cameron Canyon Road, construction of new 220-kV lattice steel towers and conductors would create moderate visual contrast, because the existing wooden H-frame transmission lines have already created visual contrasts and clutter in the landscape. However, because three existing inhabited residences would potentially be “taken,” the visual impact is high for all accounts. The view from these sensitive receptor locations would be permanently disrupted and the viewer platforms would be removed. Alternative 1 would add visual clutter and industrial character to this pastoral landscape, but more importantly, the Alternative 1 alignment would potentially eliminate three existing houses from three different ranchettes, creating high visual contrast, dominance, and view blockage, as well as land use impacts. The overall visual change seen from Cameron Canyon Road would be high and in the context of the existing landscape’s high visual sensitivity, the resulting visual impact would be significant, unavoidable (**Class I**) visual impacts. From Alternative 1 Mile S3-0.0 to S3-5.6, implementation of standard visual resource mitigation measures would do nothing to remedy the disruption of the pastoral landscape and living conditions in these three “take houses.” Only a relocation of Alternative 1 would mitigate these significant visual impacts. The proposed Project with implementation of mitigation measures for visual resources has less visual impact than Alternative 1.

D.4.1.12 Population and Housing

Environmental Setting

As Alternative 1 travels south from alternative Substation 2C to its junction with the proposed Project route at Mile S3-5.3 (proposed Project Mile S3-5.2), Alternative 1 would be located adjacent to an existing 66-kV

subtransmission line (Cal Cement-Goldtown-Monolith-Windlands) in unincorporated Kern County. This alternative traverses mostly open space land that is currently scattered with wind farms, but would cross a cluster of residences located on Cameron Canyon Road. Alternative 1 would also cross the PCT approximately 0.3 miles south of Cameron Canyon Road. The alternative Substation 2C site would be located immediately north of proposed Substation Two, in an area that is characterized by agricultural uses.

Alternative 1 is identical to the proposed Project from S3-5.2 to S3-35.2 and Mile S2-0.0 to S2-21.6.

Environmental Impacts

Population. Construction of Alternative 1 does not include the construction of any habitable housing structures and would not construct any businesses. The type of construction and duration of construction would generate identical construction employment requirements for Alternative 1 as compared to the proposed Project. Because Alternative 1 would continue to travel through both Los Angeles and Kern Counties, the construction workforce required for Alternative 1 would come from within the same labor pool as the proposed Project. As indicated in Table C.13-3, Employment Characteristics, Los Angeles County and Kern County both contain a large

Figure Links

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D.4-1A	Existing Visual Condition as seen from KOP-15	D-51
D.4-1B	Visual Simulation of the Proposed Project as seen from KOP-15	D-52

construction workforce. Because such a large construction workforce is available within the area, it is unlikely any construction workers would relocate from outside the area as a result of constructing Alternative 1. Therefore, no workers are expected to relocate to the area permanently for construction and no new workers are required for operation of Alternative 1. As such, no population increase to Los Angeles or Kern County would occur as a direct result of Alternative 1 construction or operation.

Housing. In addition to the residential structures identified within the proposed Project ROW along Segment 2 that would need to be removed (see Section C.13.4.2.2 - Project Impacts and Mitigation Measures, Impact P-1), Alternative 1 would require the following additional existing residential housing be removed:

- Single-family residences; ranchettes with horse stables (2 located west of ROW and 1 located east of ROW), on Cameron Canyon Road in unincorporated Kern County

~~Mitigation Measure L-2 (Re-locate Project ROW to Avoid Residence) has been recommended to avoid impacts to the City of Lancaster residence located at Project Mile S2-2.2. See Section C.8.4 for the full text of this mitigation measure. However, impacts would continue to occur to residences on Cameron Canyon Road and along Cherry Tree Lane. Consequently, the removal of housing as a result of Alternative 1 is considered a significant and unavoidable impact (Impact P-1 – Class I).~~

D.4.2 Alternative 2: Substation 1B to Antelope via 100th Street

D.4.2.1 Air Quality

Environmental Setting

The air quality environmental setting of Alternative 2 is essentially identical to that of the proposed Project. This alternative project route traverses through the same two air quality jurisdictions (KCAPCD and AVAQMD) as the proposed Project and remains wholly within the MDAB.

Environmental Impacts

Alternative 2 has a longer transmission route length and would require a few more towers/poles than the proposed Project within AVAQMD jurisdiction. This portion of the route would also likely increase the average unpaved road travel distance to tower sites within the AVAQMD jurisdiction, so fugitive dust emission potential would be increased further. While the emissions would be increased from those of the proposed Project, the overall impact level would remain significant. The AVAQMD regional emissions significance criteria impacts would continue to be significant after mitigation (Impact A-1 – **Class I**).

Conversely, Alternative 2 has a longer transmission route length and would require a few more towers/poles than the proposed Project within KCAPCD jurisdiction; however, the tower sites along the Alternative 2 route within the KCAPCD jurisdiction would on average be closer to paved roads for access (notably closer to Tehachapi Willow Springs Road). This portion of the route would likely cause a reduction in the average unpaved road travel distance to tower sites within the KCAPCD jurisdiction, so the fugitive dust emissions would likely decrease rather than increase for this alternative compared to the proposed Project. While the emissions would be increased somewhat from those of the proposed Project, except for fugitive dust emissions, the overall impact level would be the same, significant. The KCAPCD regional emissions significance criteria impacts would be reduced to less than significant after mitigation (Impact A-2 – **Class II**).

The Alternative 2 route may increase but would not substantially increase the number of towers located near residences nor substantially lower the minimum distance from construction sites to sensitive receptors.

Therefore, the impacts from Alternative 2 would be no worse than those of the proposed Project and would be significant. The impacts to sensitive receptors would be less than significant after mitigation (Impact A-3 – **Class II**).

This alternative would not significantly change the type or strength of odors produced during construction, or significantly increase the number of persons that would be exposed to these odors; therefore, the odor impacts are the same as the proposed Project, less than significant (Impact A-4 – **Class III**).

D.4.2.2 Biological Resources

Environmental Setting

The portions of Alternative 2 that are re-routed from the proposed Project would traverse habitats identical to the proposed route, including desert scrub, Joshua tree woodland, desert wash, creosote, saltbrush scrub, non-native annual grassland, and agricultural and developed areas.

Environmental Impacts

Impacts from construction of Alternative 2 would be largely the same as for the proposed Project. Portions of Alternative 2 that are re-routed from the proposed Project would result in the loss of non-native annual grassland, desert scrub, and agricultural and developed areas. Although a slightly larger area may be impacted than with the proposed Project, these habitats are locally and regionally abundant and/or are protected from development regionally. Loss of these habitats would be less than significant and no mitigation is required (Impacts B-1 and B-2 – **Class III**).

Alternative 2 would result in the loss of desert wash habitat, a limited resource in the Antelope Valley. Activities associated with the construction and on-going maintenance and operation of the Alternative 2 alignment will substantially degrade and remove desert wash habitat within the project boundaries, constituting a significant impact. However, implementation of Mitigation Measures B-3a (Avoidance of Desert Wash Habitat) and B-3b (Preservation of Off-site Desert Wash Habitat) would reduce impacts to desert wash resources to less-than-significant levels (Impact B-3 – **Class II**).

The portion of Alternative 2 that deviates from the proposed Project traverses several small patches of Joshua tree woodland. Due to the unique floristic composition of this community and due to historic and on-going losses, any direct loss of this habitat is considered significant. However, as with the proposed Project, implementation of Mitigation Measures B-4a (Avoidance of Joshua Tree and Juniper Woodland Habitat) and B-4b (Preservation of Off-site Joshua Tree Woodland and Juniper Woodland Habitat) would reduce impacts to less-than-significant levels (Impact B-4 – **Class II**).

Desert tortoises could be present in some Joshua tree woodland-creosote bush scrub habitats within the re-routed portion of the Alternative 2 alignment. Construction activities associated with Alternative 2 may result in “take” (*i.e.*, mortality or injury) of individual desert tortoises during ground disturbance or other activities. A take of this state and federally endangered species would constitute a significant impact and would be authorized only through the context of a Biological Opinion issued from the USFWS. However, implementation of APMs BIO-1 (Pre-construction biological clearance surveys), BIO-2 (Minimize vegetation removal and permanent loss at construction sites), BIO-5 (Assign biological monitors during construction), and BIO-6 (Prepare and implement a Worker Environmental Awareness Program) (Table C.3-6), and Mitigation Measures B-6a (Obtain Technical Assistance from the USFWS for Desert Tortoise) and B-6b (Conduct Focused Clearance Surveys in Designated Areas) would avoid a take if present, thereby reducing potential

impacts to a less-than-significant level (Impact B-6 – **Class II**). Furthermore, Alternative 2 would also increase the number of transmission towers and other structures that provide potential nest sites for common ravens, which are known predators of juvenile desert tortoises. However, increasing the number of towers in this area is not expected to result in an increase in the local breeding population of common ravens. Currently, there are many unoccupied towers, and nesting substrates do not appear to be a limiting factor in the Common Raven's population growth. Therefore, increased predation on the desert tortoise is not expected to result from additional towers, and impacts are expected to be less-than-significant (Impact B-29 – **Class III**).

The portion of Alternative 2 that deviates from the proposed Project traverses suitable nesting and foraging habitat for Swainson's hawks. Construction activities could lead to nest disturbance that causes Swainson's hawks to abandon their nest and result in the loss of reproductive effort, comprising a significant impact. However, implementation of Mitigation Measures B-7a (Pre-construction Surveys for Swainson's Hawks) and B-7b (Removal of Nest Trees) would reduce the potential impact from nest disturbance to a less-than-significant level (Impact B-7 – **Class II**). While prime foraging habitat (alfalfa) exists within the Alternative 2 alignment, minor losses of this habitat would not substantially reduce habitat available for these nesting pairs, restrict the range of the species, or cause their regional populations to drop below self-sustaining levels. Therefore, loss of the relatively small amount of suitable foraging habitat is considered a less-than-significant impact (Impact B-8 – **Class III**).

Alternative 2 would likely traverse riparian habitat in the vicinity of Oak Creek along with riparian habitat associated with other small drainages, which provide habitat for several special-status riparian birds including yellow-billed cuckoo, southwestern willow flycatcher, vermilion flycatcher, and least Bell's vireo. Disturbance that causes these rare and sensitive species to abandon their nests and/or results in the loss of reproductive effort comprises a significant impact to these listed species. However, as with the proposed Project and Alternative 1, implementation of Mitigation Measures B-9a (Avoid Construction During the Breeding Season) and B-9b (Pre-construction Surveys at Amargosa Creek Crossing and Oak Creek) would reduce impacts to less-than-significant levels (Impact B-9 – **Class II**).

The Mohave ground squirrel occupies open creosote bush scrub, alkali desert scrub, and Joshua tree woodland along the portion of the Alternative 2 alignment that deviates from the proposed Project. Two individual Mohave ground squirrels were observed during reconnaissance-level surveys in creosote/Joshua tree woodland and creosote desert scrub habitat in the vicinity of Alternative 2. The portion of Alternative 2 that deviates from the proposed Project traverses suitable habitat for the Mohave ground squirrel. A take of this state listed species or loss of habitat would constitute a significant impact. However, implementation of Mitigation Measures B-10a (Implement Construction Monitoring and Worker Environmental Awareness Program), B-10b (Conduct Focused Surveys for Mohave Ground Squirrels), and B-10c (Preservation of Off-site Habitat for Mohave Ground Squirrel) would reduce impacts to less-than-significant levels (Impact B-10 – **Class II**).

As with the proposed Project, suitable habitat for several mariposa lily species exists within the portion of the Alternative 2 alignment that deviates from the proposed Project. Implementation of Alternative 2 would result in mortality and/or disturbance to populations of these species. However, these impacts are considered less-than-significant (Impact B-11 – **Class III**) as described for the proposed Project and Alternative 1.

As with the proposed Project and Alternative 1, suitable habitat for the short-joint beavertail is present within that portion of Alternative 2 that deviates from the proposed Project. Any impacts to this species resulting from project activities are considered significant. However, implementation of Mitigation Measures B-12a (Conduct Focused Surveys for Short-joint Beavertail), B-12b (Avoid Impacts to Short-joint Beavertail), and B-

12c (Removal and Reintroduction of Short-joint Beavertail) would reduce impacts to this species to a less-than-significant level (Impact B-12 – **Class II**).

Suitable habitat for the golden violet and Pierson's morning glory is present within or in the vicinity of Alternative 2. As with the proposed Project and Alternative 1, these species would be affected through ground disturbance activities associated with construction of the proposed new roads and transmission line towers, and associated staging areas. Potential impacts to these species resulting from project activities are considered significant. However, implementation of Mitigation Measures B-13a (Conduct Focused Surveys for the San Gabriel Oak), B-13b (Avoid Impacts to the San Gabriel Oak), B-13c (Minimize impacts to Montane Scrub and Juniper Woodland Habitats), and B-13d (Preservation of Off-site Montane Scrub and Juniper Woodland Habitats) would reduce impacts to these species to a less-than-significant level (Impact B-13 – **Class II**).

As with the proposed Project and Alternative 1, Alternative 2 traverses suitable habitat for the coast horned lizard and silvery legless lizard, and the species may occur within areas designated for construction activities. However, as stated in Section C.3.8 and above, direct mortality and/or loss habitat for these species locally as a result of construction activities are expected to be less-than-significant and would have little effect on either the local or regional population dynamics of these species (Impact B-15 – **Class III**). Therefore, impacts to coast horned lizards and silvery legless lizards resulting from injury or mortality associated with Alternative 2 are expected to be adverse but less than significant.

The portion of Alternative 2 that deviates from the proposed Project traverses desert scrub habitats providing breeding and foraging habitat for loggerhead shrikes, Bendire's thrashers, LeConte's thrashers, and summer tanagers. While breeding and foraging habitat for these species is regionally abundant, impacts to these species associated with Alternative 2 would be considered significant without mitigation. However, potential impacts would be the same as the proposed project and Alternative 1 and implementation of Mitigation Measure B-17 (Conduct Pre-construction Surveys and Monitoring for Breeding Birds) would ensure that impacts to these species are less than significant (Impact B-17 – **Class II**).

The portion of Alternative 2 that deviates from the proposed Project traverses non-native grassland areas that provide foraging habitat for wintering flocks of mountain plover. However, foraging habitat is regionally abundant, and construction activities will not substantially reduce habitat available for these species, restrict their range, or cause their regional populations to drop below self-sustaining levels. Therefore, temporary disturbance to wintering mountain plovers associated with Alternative 2 is considered less than significant (Impact B-18 – **Class III**).

The portion of Alternative 2 that deviates from the proposed Project traverses non-native grassland areas that provide suitable nesting and foraging habitat for burrowing owls. Therefore, construction activities may cause disturbance to the species, could destroy occupied burrows, or cause owls to abandon burrows constituting a significant impact to the species. However, as with the proposed Project, implementation of Mitigation Measures B-19a (Implement CDFG Protocol) and B-19b (Compensation for Loss of Burrowing Owl Habitat) would reduce impacts to less-than-significant levels (Impact B-19 – **Class II**).

Several raptor species, including burrowing owls, may nest in the vicinity of the portion of Alternative 2 that deviates from the proposed Project. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG, and construction activities that disturb a nesting raptor on-site or immediately adjacent to the construction zone would constitute a significant impact. However, as with the proposed Project and Alternative 2, implementation of Mitigation Measures B-20a (Avoid Nesting Season) and

B-20b (Pre-construction Surveys for Nesting Raptors) would reduce the potential for significant impacts to less-than-significant levels (Impact B-20 – **Class II**).

As with the proposed Project and Alternative 1, transmission towers, poles, and other tall structures would be located within the Alternative 2 alignment. Raptor species may perch or nest on these structures, and impacts to state and/or federally protected bird species associated with electrocution or direct mortality as a result of collisions with transmission lines would be considered a significant impact. However, as with the proposed Project, implementation of APM BIO-9 (Design Towers to be Raptor-safe) (Table C.3-6) in accordance with the guidance on raptor protection would reduce potential impacts to less-than-significant levels (Impacts B-21 and B-22 – **Class III**).

Alternative 2 traverses non-native grassland habitats suitable for the Tehachapi pocket mouse, southern grasshopper mouse, and Tulare grasshopper mouse. However, as with the proposed Project, the area of suitable habitat for these species impacted by Alternative 2 would be small relative to the overall population size and range of these species. Impacts would not substantially reduce available habitat, restrict their range, or cause their regional populations to drop below self-sustaining levels. Therefore, impacts to these species are less than significant (Impact B-23 – **Class III**).

The portion of Alternative 2 that deviates from the proposed Project traverses several small drainages that may support ringtail. However, as with the proposed Project and Alternative 1, construction activities in riparian areas would be minimized as stated in the APMs (Table C.3-6). Furthermore, the home range size of the ringtail is very large relative to the area of impact at any given project improvement, so project implementation would not substantially reduce available habitat, restrict their range, or cause their regional populations to drop below self-sustaining levels. Therefore, potential impacts of Alternative 2 on ringtail are less than significant (Impact B-24 – **Class III**).

Transmission towers, poles, and other tall structures would be located along the Alternative 2 alignment. As with the proposed Project and Alternative 1, these structures may contribute to mortality of pallid bat, Townsend's big-eared bat, western mastiff bat, big free-tailed bat, and western red bat through collisions. However, the number of fatal strikes is still expected to be quite low, and insufficient to substantially reduce the number of these species. Therefore, impacts to special-status bat species resulting from electrocution and/or transmission line strikes are considered less than significant (Impact B-25 – **Class III**).

The portion of Alternative 2 that deviates from the proposed Project traverses suitable habitat for badgers. Construction activities including clearing and grading of tower sites could result in impacts to this species. As stated with the proposed Project and Alternative 1, SCE would implement pre-construction surveys for all special-status mammal species such that impacts to this species would be less than significant (Impact B-26 – **Class III**). If present, occupied badger dens would be flagged and ground-disturbing activities within 300 feet (91.4 m) of the dens would be restricted. Secondary impacts from noise, sensitivity to humans, or dust would be reduced through the implementation of BMPs. If Alternative 2 could not avoid removal of an active den, impacts would be significant (**Class II**), but would be reduced to a less-than-significant level with implementation of Mitigation Measure B-26 (Passively Relocate American Badgers During the Non-breeding Season).

Desert tortoise movement could be impeded through habitat modification associated with Alternative 2 such as road grading and the creation of berms. Landscaping or re-seeding with exotic weeds, which can compete with native flora consumed by desert tortoises, would result in significant indirect impacts to tortoises if present. Implementation of Mitigation Measures B-27a (Avoid Creating Barriers to Movements) and B-27b

(Invasive Weed Prevention), outlined in part in the APMs and the WMP would reduce these impacts to less-than-significant levels (Impact B-27 – **Class II**).

Alternative 2 traverses through the same general areas as the proposed Project, and would therefore result in identical less-than-significant impacts (**Class III**) as the proposed Project with respect to the mortality of San Emigdio blue butterfly (Impact B-14); degradation of water quality (indirect) (Impact B-28); and mortality of desert tortoises resulting from increased predation by Common Ravens (indirect) (Impact B-29).

Alternative 2 traverses through the same general areas as the proposed Project, and would therefore result in identical significant impacts reduced to less-than-significant levels with mitigation (**Class II**) as the proposed Project with respect to California red-legged frogs (Impact B-5) and the mortality of southwestern pond turtle and two-striped garter snake (Impact B-16).

D.4.2.3 Cultural Resources

Environmental Setting

Alternative 2 runs parallel and east of portions of the Segment 3 (3A+3B) proposed Project route in the Antelope Valley. The cultural background is the same as for Segment 3 of the proposed Project.

A records search was obtained from the Southern San Joaquin Valley Information Center and the South Central Coastal Information Center for the area within ¼ mile of the Alternative 2 route. The records search shows that small portions of the Alternative 2 route have been surveyed for cultural resources. A prehistoric lithic scatter and two prehistoric isolates are recorded along the Alternative 2 route. Historic period resources include a trash scatter and the Los Angeles Aqueduct as shown in Table D.4-3.

Trinomial / Primary Record #	USFS Site #	Historic / Prehistoric	Site Type	Date Recorded	Recorded by
CA-LAN-76	N/A	Unknown	Quarry	1949	S. L. Peck
P-15-007340	N/A	Prehistoric	Isolate, Flake	1990	R. Schiffman
P-15-007341	N/A	Prehistoric	Isolate, Flake	1990	R. Schiffman
CA-KER-6343	N/A	Prehistoric	Lithic Scatter	2003	Hubert Switalski, Blendon Walker
CA-KER-3549H	N/A	Historic	Los Angeles Aqueduct	1992, 2000 (Update)	Costello, Marvin, Tordoff; Updated by J. Underwood
CA-KER-6341H	N/A	Historic	Refuse Deposit	2003	Hubert Switalski, Audry Williams

Environmental Impacts

If Alternative 2 is selected, prehistoric archaeological site AP3-113 located along the proposed Project route would not be impacted (Impact C-10 – **No Impact**). The two previously recorded historic period sites located along the Alternative 2 route would not be impacted by this alternative as the transmission line would cross them above ground. The potential to impact prehistoric or historic archaeological sites if Alternative 2 is selected is the same as the corresponding portions of the Segment 3 proposed Project route and is considered to be low, except for the area around Willow Springs where the potential is high. Archaeological sites could be identified along the Alternative 2 route that could be impacted by construction activities, including tower construction, grading of access roads, and establishment and use of stringing setup areas and splicing locations resulting in significant impacts.

Field survey will be necessary to identify archaeological sites that could be impacted by Alternative 2 construction activities. Additional archaeological field work (and historical research for historical

archaeological sites) would be necessary to determine whether the sites are eligible for the CRHR. If the CEQA lead agency determines that a site is eligible, impacts from Project construction activities would constitute a significant impact. This impact is significant, but can be mitigated to a less-than-significant level (**Class II**) through the implementation of Mitigation Measures CA-1a and CA-1b (see Section D.4.1.3).

D.4.2.4 Geology, Soils, and Paleontology

Environmental Setting

The re-routed portion of Alternative 2 starts just west of alternative Substation 1B and from Substation 1B traverses south across the relatively flat to gently sloping floor of Antelope Valley and is underlain entirely by young Alluvium (Qa). The major soil units underlying the re-routed portion of Alternative 2 are the same as the soils along the comparable section of Segment 3 of the proposed Project, consisting of Garlock, Cajon, Rosamond, Sunrise, Adelanto, and Greenfield, which are described in Table C.5-3. Anticipated groundshaking in the event of an earthquake is the same as the proposed Project, and ranges from 0.3 to 0.6g, with the higher accelerations at the northern and southern ends of the alignment.

No known mineralogic or paleontologic resources are located along the re-routed portion of Alternative 2.

Environmental Impacts

Impacts from construction of Alternative 2 would be the same as for the proposed Project. Construction activities consisting of excavation and/or grading along Alternative 2 could cause slope instability (Impact G-1) and/or trigger or accelerate soil loss and erosion (Impact G-2) resulting in a significant impact. Implementation of Mitigation Measures G-1 (Protect Against Slope Instability) and G-2 (Minimize Soil Erosion), respectively, would reduce impacts to less-than-significant levels (Impacts G-1 and G-2 – **Class II**). Same as the proposed Project, Alternative 2 would continue to cross the Garlock fault and the San Andreas fault, such that the transmission line would be subject to damage due to surface fault rupture resulting in a significant impact. Implementation of Mitigation Measure G-3 (Minimize Project Structures within Active Fault Zones) would reduce impacts to a less-than-significant level (Impact G-3 – **Class II**). In the event of a moderate or larger earthquake in the Project region, Alternative 2 could be subject to seismically induced slope failures (Impact G-4), and strong groundshaking could damage tower structures (Impact G-5) resulting in significant impacts. Impacts would be reduced to less than significant with implementation of Mitigation Measures G-4 (Geotechnical Investigations for Liquefaction and Seismic Slope Instability) and G-5 (Reduce Effects of Groundshaking), respectively (Impacts G-4 and G-5 – **Class II**). Same as the proposed Project, transmission line structures could be damaged by landslides resulting in significant impacts. This impact would be reduced to less than significant with implementation of Mitigation Measure G-7 (Geotechnical Surveys for Landslides). Soils with moderate to high potential for corrosion along the re-routed portion of Alternative 2 would have a detrimental effect on concrete and metals resulting in a significant impact, but would be mitigated to a less-than-significant level with implementation of Mitigation Measure G-6 Geotechnical Studies for Corrosive Soils) (Impact G-6 – **Class II**). Significant fossils would also be damaged due to Alternative 2 construction where it crosses Older Alluvial deposits resulting in significant impacts. This impact would be reduced to less than significant with implementation of Mitigation Measure G-8 Protect Paleontological Resources) (Impact G-8 – **Class II**).

D.4.2.5 Hazards and Hazardous Materials

Environmental Setting

Land uses along the re-routed portion of Alternative 2 include an existing transmission corridor and open space desert with localized irrigated agricultural activity (Mile S3-19.8 and at Mile S3-24.2). Alternative 2 is closer to the irrigated field crops of hay at Mile S3-19.8 than the comparable section of proposed Project Segment 3A. Open space desert at alternative Substation 1B is identical from a hazardous materials perspective to proposed Substation One. There are no known contaminated sites along the re-routed portion of the Alternative 2 alignment, and due to the rural character and open space land use the presence of unknown soil contamination is unlikely. Pesticides and herbicides are not applied to hay crops and residual soil contamination in the project area is unlikely.

Environmental Impacts

Impacts from the Alternative 2 re-route are identical to those along the comparable section of Segment 3A of the proposed Project. As with Segment 3A of the proposed Project, during construction operations hazardous materials such as vehicle fuels, oils, and other vehicle maintenance fluids would be used and stored in construction staging areas (marshalling yards), resulting in soil or groundwater contamination from spills or leaks, a significant impact. Impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure HAZ-1a (Implement an Environmental Training and Monitoring Program), HAZ-1b (Implement a Hazardous Substance Control and Emergency Response Plan), HAZ-1c (Ensure Proper Disposal of Construction Waste), and HAZ 1d (Emergency Spill Supplies and Equipment for Construction Activities) (Impact HAZ-1 – **Class II**). Same as the proposed Project Segment 3A, there is no potential for impact from existing contamination along the Alternative 2 re-route (**No Impact**). Alternative 2 would also be subject to potential impacts related to soil or groundwater contamination from accidental spill or release of hazardous materials at the substations during facility operation or along the transmission line during maintenance operations, a significant impact. This impact would be reduced to a less-than-significant level with implementation of HAZ-2a (Implement Spill Prevention, Countermeasure, and Control Plans) and HAZ-2b (Emergency Spill Supplies and Equipment for Operation and Maintenance Activities) (Impact HAZ-2 – **Class II**).

D.4.2.6 Hydrology and Water Quality

Environmental Setting

As described in Section D.3.2, Segment 3B for Alternative 2 would terminate at Substation 1B, located just east of Substation One. In addition, the proposed alignment for Alternative 2 is generally parallel to and east of the proposed route between Mile S3-9.5 and Mile S3-32.6 (proposed Project Mile 30.6). With regards to hydrology and water quality, the environmental setting for Alternative 2 is the same as for the proposed Project (Section C.7.1).

Environmental Impacts

The potential for construction activities associated with Alternative 2 to degrade water quality in local and downstream waterways through the creation of soil erosion and sedimentation (Impact H-1) would be the same as the proposed Project and would be significant without mitigation. Implementation of Mitigation Measures ~~H-1a (Implementation of Erosion and Sediment Best Management Practices), H-1b (Timing of Construction Activities), H-1c (Control of Sidecast Material, Right of Way Debris and Roadway Debris), and H-1d (Road~~

~~Surface Treatment~~ H-1a (Implementation of Best Management Practices for Erosion and Sediment Control), H-1b (Maximum Road Gradient), H-1c (Road Surface Treatment), H-1d (Timing of Construction Activities), and H-1e (Control of Sidecast Material, Right-of-Way Debris and Roadway Debris) would reduce impacts to a less-than-significant level (Impact H-1 – **Class II**).

During construction activities for Alternative 2, the accidental release of potentially harmful materials could cause degradation of surface water or groundwater quality (Impact H-2). This impact for Alternative 2 would be the same as for the proposed Project, significant without mitigation. Implementation of Mitigation Measures ~~H-2a (Environmental Training and Monitoring Program), H-2b (Hazardous Substance Control and Emergency Response Plan), H-2c (Proper Disposal of Construction Waste), and H-2d (Emergency Spill Supplies and Equipment)~~ HAZ-1a (Implement an Environmental Training and Monitoring Program), HAZ-1b (Implement a Hazardous Substance Control and Emergency Response Plan), HAZ-1c (Ensure Proper Disposal of Construction Waste), HAZ-1d (Emergency Spill Supplies and Equipment for Construction Activities), and HAZ-2b (Emergency Spill Supplies and Equipment for Operation and Maintenance Activities), would reduce impacts to a less-than-significant level (Impact H-2 – **Class II**).

Operational and maintenance activities for Alternative 2 could also result in the accidental release of harmful materials which could degrade surface water or groundwater quality (Impact H-3). As discussed above, this impact is discussed separately and assigned a separate significance classification than Impact HAZ-2 (Hazards and Hazardous Materials) because Impact H-3 specifically addresses the potential effect of a hazardous materials spill on water quality, whereas Impact HAZ-2 more broadly addresses the potential occurrence and general effect of such as spill. Impact H-3 would be the same for this alternative as for the proposed Project, which would be less than significant with no mitigation recommended (Impact H-3 – **Class III**).

There is a possibility that excavation activities associated with Alternative 2 would disturb existing groundwater resources (Impact H-4) resulting in a significant impact. This impact would be the same for Alternative 2 as for the proposed Project, which would be reduced to a less-than-significant level with implementation of Mitigation Measure H-4 (Develop and Implement a Groundwater Remediation Plan) (Impact H-4 – **Class II**).

New impermeable areas that would be created as part of Alternative 2, such as transmission tower pads and substation facilities, could cause an increase in surface water runoff (Impact H-5). As with the proposed Project, these areas would not significantly increase surface water runoff due to the drainage features associated with the Project. As such, this impact would be less than significant (Impact H-5 – **Class III**).

There is a potential for runoff caused by permanent Project features to affect a local stormwater drainage system (Impact H-6). As with the proposed Project, the potential runoff generated by permanent Project features such as the transmission towers is expected to be minimal due to the inclusion of drainage features in Project design. As such, this impact would be less than significant (Impact H-6 – **Class III**).

Flood hazards could be introduced through the placement of permanent aboveground structures for Alternative 1 in a flood hazard area, a floodplain, or a watercourse (Impact H-7). Alternative 2 would cross through the same seven Flood Hazard Areas as the proposed Project and would therefore have the same significant impact as the proposed Project. Implementation of Mitigation Measure H-7 (Aboveground Structures Shall be Protected Against Flood and Erosion Damage) would reduce impacts related to flood hazards to a less-than-significant level (Impact H-7 – **Class II**).

D.4.2.7 Land Use and Public Recreation

Environmental Setting

The re-routed portion of Alternative 2 would traverse primarily open space areas in Kern County, with scattered agricultural fields located adjacent to the route. In Los Angeles County, Alternative 2 would travel across predominately agricultural areas. See Section D.4.2.8 for a discussion of impacts to agriculture.

The re-routed portion of this alternative would be sited adjacent to approximately five residences both east and west of the route in Kern and Los Angeles Counties. These residences are located on Hamilton Road and Avenue A in Kern County; and along 100th Street West between Avenues A and B, and on Avenue D in Los Angeles County. In addition, Alternative 2 would traverse the Little Buttes Trail, a proposed Los Angeles County hiking trail that runs east-west and is located in northern unincorporated Los Angeles County between Avenues B and C. Similar to the proposed Substation One site, alternative Substation 1B would be located in an area of open space, immediately south of an existing wind farm. Figure C.8-1 shows the Alternative 2 route and its surrounding land uses.

The Alternative 2 route would be identical to the proposed Project from Mile S3-0.0 to S3-9.5, Mile S3-22.1 to S3-25.3, Mile S3-30.6 to S3-35.2, and Mile S2-0.0 to S2-21.6.

Environmental Impacts

As Alternative 2 would traverse the same jurisdictions as the proposed Project, land use plans and policies that are applicable to the proposed Project would also apply to Alternative 2. Alternative 2 would not introduce any new Project components that would conflict with the land use policies listed in Table C.8-3. Consequently, Alternative 2 would be consistent with State and local plans and policies.

Construction of Alternative 2 would create temporary disturbances to land uses that would be identical to the proposed Project (Impact L-1). North of proposed Project Mile S3-9.5 and south of proposed Project Mile S3-30.6, Alternative 2 would follow the same route as the proposed Project, and therefore would traverse the same recreational facilities (i.e., PCT trailhead and parking lot, Ritter Ranch trails, and other City of Palmdale and Los Angeles County trails) and residential areas. Noise and air quality impacts associated with construction would also affect the scattered residences located along the re-routed portions of the alignment. As described for the proposed Project, temporary construction impacts to residences located adjacent to the Alternative 2 route and to recreationists along the PCT and other hiking trails and within Ritter Ranch would be significant but mitigable (Impact L-1 – **Class II**). Implementation of the following mitigation measures would reduce impacts to a less-than-significant level: L-1a (Coordinate Construction Schedule and Activities with the Authorized Officers for the Recreation Areas), L-1b (Provide Access for Pacific Crest National Scenic Trail and Other Hiking Trail Users), L-1c (Identify Alternative Recreation Areas), N-3a (Provide Advance Notification of Construction), and N-3b (Implement Best Management Practices for Construction Noise).

As described for the proposed Project, Alternative 2 would require ~~the removal of residences in the City of Lancaster (Impact L-2) and in unincorporated Los Angeles County (Impact L-3), which would result in a significant impact. Implementation of Mitigation Measure L-2 (Re-locate Project ROW to Avoid Residence) would avoid the relocation of the single family residence along Avenue L, reducing the impacts from Alternative 2 to a less than significant level (Impact L-2 – Class II).~~ However, the removal of three existing residences along Cherry Tree Lane, which would create significant and unavoidable impacts (Impact L-23–

Class I). Impact L-~~23~~ can only be avoided with a re-route around these Los Angeles County residences, as presented in Option A and Alternative 4.

Alternative 2 would result in impacts from the crossing of school property that would be identical to the proposed Project (Impact L-~~34~~). North of proposed Project Mile S3-9.5 and south of proposed Project Mile S3-30.6, the alternative route would extend over the same privately owned parcels as the proposed Project, and as such would be constructed across a proposed Antelope Valley Union High School District (AVUHSD) school site. However, impacts to the school site would not preclude the school's development, and impacts would be less than significant (Impact L-3 – **Class III**). ~~restrict the use of the AVUHSD property for educational facilities. Although Mitigation Measure L-4 (Coordinate with Antelope Valley Union High School District and Ritter Ranch) has been recommended, SCE's coordination may not entirely avoid impacts to the AVUHSD. Therefore, these impacts remain significant (Impact L-4 – **Class I**).~~

Alternative 2 would not traverse planned residential development within Ritter Ranch (Impact L-~~45~~ – **No Impact**). However, unlike the proposed Project and Options A and B, Alternative 2 would potentially remove an existing residence in unincorporated Kern County (Impact L-~~67~~). Depending on the final alignment for Alternative 2, the removal of a residence may be required along Hamilton Road, west of 100th Street. The removal of an existing residence as a result of construction and operation of Alternative 2 would be considered a significant and unavoidable impact (Impact L-~~67~~ – **Class I**).

During operation of Alternative 2, impacts to the character or value of a recreational resource would be identical to the proposed Project (Impact L-~~56~~). As the alternative crosses the PCT trailhead and parking area, the Little Buttes Trail, and other recreational trails within Ritter Ranch, the City of Palmdale, and Los Angeles County it would be located along the proposed Project route. Any transmission structures that would be sited within the parking area for the PCT would significantly impact recreational access to the trail (Impact L-5 – **Class II**). Implementation of Mitigation Measure L-5 (Site Towers to Avoid Pacific Crest National Scenic Trail Trailhead) would reduce impacts to a less-than-significant level.

D.4.2.8 Agriculture

Environmental Setting

The portions of Alternative 2 that are re-routed from the proposed Project would traverse Prime Farmland, Grazing Land, and Williamson Act land designated as Prime Agricultural Land. Alternative 2 would traverse more Farmland than the proposed Project from Mile S3-0.0 to S3-9.5, Mile 3-22.1 to S3-25.3, Mile S3-30.6 to S3-35.2, and Mile S2-0.0 to S2-21.6. In total, Alternative 2 would cross approximately 2.4 miles of Prime Farmland, 1.2 miles of Farmland of Statewide Importance, and 0.2 miles of Unique Farmland. See Figures C.9-2 through C.9-6 for the location of Alternative 2 relative to agricultural lands

Environmental Impacts

During construction of Alternative 2, temporary conversion of Farmland to non-agricultural use would be more than the proposed Project (Impact AG-1). Alternative 2 would be constructed over approximately 3.8 miles of Farmland. As such, construction activities associated with the siting of LST footings and TSP foundations across agricultural areas would create a temporary disturbance from truck damage, laydown and assembly areas, crane pads, and splicing stations. In total, an estimated 1.8 acres of Prime Farmland, 0.6 acres of Farmland of Statewide Importance, and 0.1 acres of Unique Farmland would be temporarily disturbed. As the total temporary conversion of Farmland to non-agricultural use would not exceed the threshold of significance (see Section C.9.4), impacts would be less than significant (Impact AG-1 – **Class III**).

Permanent conversion of Farmland to non-agricultural use that would occur under Alternative 2 would be more than the proposed Project (Impact AG-2). The creation of LST footing holes, TSP foundation holes, and new access and spur roads would contribute to an estimated permanent disturbance of 2.9 acres of Prime Farmland, 1.5 acres of Farmland of Statewide Importance, and 0.2 acres of Unique Farmland. The permanent conversion of Farmland would not exceed the threshold of significance, and consequently, impacts would be less than significant (Impact AG-2 – **Class III**).

As described for the proposed Project, construction activities associated with Alternative 2 would temporarily interfere with agricultural operations (Impact AG-3). The installation of 220-kV and 500-kV transmission structures, construction of new access and spur roads, and wire stringing activities could adversely impact agriculture by damaging crops or soil, temporarily impeding access to certain fields or plots of land, obstructing farm vehicles, or disrupting drainage and irrigation systems. Impacts would be significant (Impact AG-3 – **Class II**), but would be reduced to a less-than-significant level through implementation of Mitigation Measures N-3a (Provide Advance Notification of Construction) and AG-3 (Establish Agreement and Coordinate Construction Activities with Agricultural Landowners).

Alternative 2 would create permanent impacts to agricultural operations that would be identical to the proposed Project (Impact AG-4). The siting of new transmission towers and roads may divide farm properties, create irregularly shaped fields, disrupt drainage and irrigation systems, and introduce invasive weeds. Impacts would be significant (Impact AG-4 – **Class II**), but would be reduced to a less-than-significant level through implementation of Mitigation Measure AG-4 (Locate Transmission Towers and Pulling/Splicing Stations to Avoid Agricultural Operations).

Construction of Alternative 2 would create a temporary disturbance of Williamson Act lands that would be similar to the proposed Project (Impact AG-5). Alternative 2 would be located across approximately 1.0 mile of Williamson Act contracts classified as Prime Agricultural Land, and approximately 0.1 miles of Williamson Act land classified as Mixed Acreage Parcels. The construction of transmission towers and access and spur roads would temporarily disturb an estimated 1.8 acres of Prime Agricultural Land and 0.6 acres of Mixed Acreage Parcels. As the amount of temporary disturbance would not exceed the threshold of significance, impacts would be less than significant (Impact AG-5 – **Class III**).

Operation of Alternative 2 would create a permanent disturbance to Williamson Act lands that is similar to the proposed Project (Impact AG-6). The siting of tower footings, roads, and a substation pad would permanently disturb an estimated 1.2 acres of Prime Agricultural Land and 28.6 acres of Mixed Acreage Parcels. Depending on the amount of Prime Agricultural Land that is included in the Mixed Acreage Parcels, permanent disturbance of Williamson Act lands may exceed the threshold of significance, resulting in significant and unavoidable impacts (Impact AG-6 – **Class I**).

D.4.2.9 Noise

Environmental Setting

The re-routed portion of Alternative 2 would traverse primarily open space areas in Kern County, with scattered agricultural fields located adjacent to the route. In Los Angeles County, Alternative 2 would travel across predominately agricultural areas.

The re-routed portion of this alternative would be sited adjacent to approximately five additional residences both east and west of the route in Kern and Los Angeles Counties. These residences are located on Hamilton Road and Avenue A in Kern County; and along 100th Street West between Avenues A and B, and on Avenue

D in Los Angeles County. Similar to the proposed Substation One site, alternative Substation 1B would be located in an area of open space, immediately south of an existing wind farm.

The Alternative 2 route would be identical to the proposed Project from Mile S3-0.0 to S3-9.5, Mile S3-22.1 to S3-25.3, Mile S3-30.6 to S3-35.2, and Mile S2-0.0 to S2-21.6.

Environmental Impacts

Construction. The types of construction equipment and duration of construction would generate identical construction noise sources for Alternative 2 as compared to the proposed Project. Because Alternative 2 would continue to travel through both Los Angeles and Kern Counties, identical local noise standards would apply to Alternative 2 as compared to the proposed Project. Therefore, stationary construction equipment operations within 600 feet of single-family residences, 350 feet of multi-family residences, and approximately 200 feet of commercial uses may, depending on the equipment in use, generate noise levels in excess of the maximum levels defined by Los Angeles County. Construction activities within these distances would result in a significant impact. However, Mitigation Measure N-1 (Provide Shields for Stationary Construction Equipment) would reduce the potential noise violations in those areas of the Alternative 2 ROW that fall within Los Angeles County by requiring the use of noise shields to reduce stationary equipment noise near sensitive uses during construction and to require a variance for mobile equipment use near residential or commercial uses. Furthermore, Mitigation Measures N-3a (Provide Advanced Notification of Construction) and N-3b (Implement Best Management Practices for Construction Noise) would be required for Alternative 2 to reduce the likelihood of substantially disturbing receptors within one-quarter mile of construction activities. With these measures, impacts from construction equipment would be reduced to less-than-significant levels (Impacts N-1 and N-3 – **Class II**).

Operation. Corona noise would occur along the entire corridor of Alternative 2, which is in close proximity to sensitive receptors. The Alternative 2 route would be identical to the proposed Project from Mile S3-0.0 to S3-9.5, Mile S3-22.1 to S3-25.3, Mile S3-30.6 to S3-35.2, and Mile S2-0.0 to S2-21.6. Sensitive receptors within these areas are identified in Tables C.10-1 and C.10-2. In addition, Alternative 2 would be sited adjacent to approximately five residences both east and west of the route in Kern and Los Angeles Counties. These residences are located on Hamilton Road and Avenue A in Kern County; and along 100th Street West between Avenues A and B, and on Avenue D in Los Angeles County. Identical to the proposed Project, Alternative 2 would create ambient noise levels greater than the noise occurring under existing conditions. This would cause significant operational noise impacts to adjacent sensitive uses. Identical to the proposed Project, the level of worst-case wet weather and heavy load noise would likely be between 55 and 65 dBA along the corridor, meaning that introduction of new corona noise could result in a substantial (more than 5 dBA) increase to the ambient noise levels of nearby receptors. Therefore, operational corona noise levels on receptors along the Alternative 2 route within Los Angeles County would exceed County Ordinance Standards and would result in a permanent increase in noise levels adjacent to the ROW resulting in significant and unavoidable operational noise impacts (Impact N-2, N-4 – **Class I**).

Operational impacts associated with the substations for Alternative 2 would be identical to the proposed Project, which would be less than significant (Impact N-6 – **Class III**). Maintenance activities associated with Alternative 2 would also be expected to be identical to the proposed Project and would not substantially increase ambient noise levels (Impact N-5 – **Class III**).

D.4.2.10 Traffic and Transportation

Environmental Setting

The route of Alternative 2 is similar to that of the proposed Project with the exception that two segments of the alternative route would be located approximately one half mile east of the proposed Project alignment. Alternative 2 would result in the same number of road crossings as the proposed Project, although several of the road crossings would occur approximately one half mile to the east. Since the proposed route of Alternative 2 is located directly adjacent to 100th Street, it is possible that this alternative could result in the occurrence of more construction activities, placement of more construction equipment, and/or increased duration of construction activities within a road ROW than the proposed Project.

Environmental Impacts

Since this alternative would be constructed directly adjacent to 100th Street, it is likely that road closures associated with Impact T-1 would be of longer duration than road closures related to the proposed Project resulting in significant traffic impacts; however, impacts would be reduced to less than significant with implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict Lane Closures) (**Class II**). Alternative 2 would result in identical significant impacts that would be reduced to less than significant with mitigation (**Class II**) as the proposed Project with respect to the following: construction traffic resulting in congestion on area roadways (Impact T-2); construction activities temporarily interfering with emergency response (Impact T-3); construction activities temporarily disrupting transit bus routes (Impact T-4); construction activities temporarily disrupting rail traffic (Impact T-5); conflicting with planned improvements to SR-14 (Impact T-7); construction vehicles and equipment damaging road ROWs (Impact T-8); and construction activities being inconsistent with transportation plans (Impact T-10).

Alternative 2 would also result in identical less-than-significant impacts (**Class III**) as the proposed Project with respect to construction activities temporarily impeding pedestrian movements and bike paths (Impact T-6), and transmission structures presenting an aviation hazard (Impact T-9).

D.4.2.11 Visual Resources

Environmental Setting

The re-routed portion of Alternative 2 would traverse primarily open space areas in Kern County, with scattered agricultural fields located adjacent to the route. In Los Angeles County, the re-routed portion of Alternative 2 would travel across predominately agricultural areas in the open Mojave Desert.

The re-routed portion of this alternative would be sited adjacent to approximately five residences both east and west of the route in Kern and Los Angeles Counties. These residences are located on Hamilton Road and Avenue A in Kern County; and along 100th Street West between Avenues A and B, and on Avenue D in Los Angeles County. Similar to the proposed Substation One site, alternative Substation 1B would be located in an area of open space, immediately south of an existing wind farm along Oak Creek Road, and approximately ½-mile farther east. According to the Population and Housing section of this EIR, implementation of Alternative 2 would involve removal of more than two dozen homes in the realigned portions of the Project. The adjacency of visually sensitive receptors and the removal of these homes are the only differences in the environmental setting of Alternative 2.

The Alternative 2 route would be identical to the proposed Project from Mile S3-0.0 to S3-9.5, Mile S3-22.1 to S3-25.3, Mile S3-30.6 to S3-35.2, and Mile S2-0.0 to S2-21.6.

Environmental Impacts

Alternative 2 would result in different visual impacts as seen from KOP-3 – Oak Creek Road as discussed below. Alternative 2 would result in new visual impacts to travelers and residents along Hamilton Road and Avenue A in Kern County; and along 100th Street West between Avenues A and B, and on Avenue D in Los Angeles County. Alternative 2 would be identical to the proposed Project from Mile S3-0.0 to S3-9.5, Mile S3-22.1 to S3-25.3, Mile S3-30.6 to S3-35.2, and Mile S2-0.0 to S2-21.6 and, therefore, would result in significant visual impacts without mitigation. After implementation of Visual Resource mitigation measures, visual impacts would be identical to those described for Impacts V-7 and V-10 (**Class I**), Impacts V-1, V-2, V-9, V-11, V-12, V-14, and V-16 (**Class II**), and Impacts V-4 through V-6, V-8, V-13, and V-15 (**Class III**).

Alternative 2 would relocate Substation One eastward approximately ½-mile along Oak Creek Road, and therefore approximately ½-mile closer to KOP-3 resulting in significant visual impacts without mitigation. The location of KOP-3 was selected in order to be able to see and describe both locations of Substation One and Substation 1B. The environmental effects to visual resources are identical for Substation One and 1B.

From Mile S3-3.0 to Mile S3-9.9, implementation of Mitigation Measures V-1a (Use Tubular Steel Poles), V-1b (Construct, Operate, and Maintain with Existing Access Roads), V-1c (Dispose of Cleared Vegetation), V-1d (Slope-Round and Dispose of Excavated Materials), and V-1e (Treat Surfaces with Appropriate Colors, Textures, and Finishes) would improve the visual environment of the new 220-kV transmission line. Implementation of Mitigation Measure V-1f (Establish Evergreen Vegetative Screen) would improve the visual environment of Substation 1B. This would result in an improved visual environment, and would reduce impacts to a less-than-significant level (Impact V-3 – **Class II**).

Because more than two-dozen existing inhabited residences would be “taken,” the visual impacts are high for Alternative 2. The view from these sensitive receptor locations would be permanently disrupted and the viewer platforms would be removed. Alternative 2 would add visual clutter and industrial character to the foregrounds of Hamilton Road and Avenue A in Kern County; and 100th Street West between Avenues A and B, and on Avenue D. But more importantly, the alignment of Alternative 2 would eliminate more than two-dozen existing houses along the route, creating high visual contrast, dominance, and view blockage, as well as land use impacts. The overall visual change along Alternative 2 realignment would be high and in the context of the existing landscape’s high visual sensitivity, the resulting visual impact would be significant, unavoidable (**Class I**) visual impacts. From Alternative 2 Mile S3-9.5 to S3-22.1, Mile S3-25.3 to S3-30.6, implementation of standard visual resource mitigation measures would do nothing to remedy the disruption of the agricultural landscape character and living conditions in these “take houses.” Only a relocation of Alternative 2 would mitigate these significant visual impacts. The proposed Project with implementation of Visual Resources mitigation measures has less visual impact than Alternative 2.

D.4.2.12 Population and Housing

Environmental Setting

Alternative 2 would traverse primarily open space areas in Kern County, with scattered agricultural fields adjacent to the route. In Los Angeles County, Alternative 2 would travel across predominately agricultural areas.

The re-routed portion of this alternative would be sited adjacent to approximately five residences both east and west of the route in Kern and Los Angeles Counties. These residences are located on Hamilton Road and Avenue A in Kern County; and along 100th Street West between Avenues A and B, and on Avenue D in Los

Angeles County. Similar to the proposed Substation One site, alternative Substation 1B would be located in an area of open space, immediately south of an existing wind farm.

The Alternative 2 route would be identical to the proposed Project from Mile S3-0.0 to S3-9.5, Mile S3-22.1 to S3-25.3, Mile S3-30.6 to S3-35.2, and Mile S2-0.0 to S2-21.6.

Environmental Impacts

Population. Construction of Alternative 2 does not include the construction of any habitable housing structures and would not construct any businesses. Because Alternative 2 would continue to travel through both Los Angeles and Kern Counties, the construction workforce required for Alternative 2 would come from within the same labor pool as the proposed Project. As indicated in Table C.13-3, Employment Characteristics, Los Angeles County and Kern County both contain a large construction workforce. Because such a large construction workforce is available within the area, identical to the proposed Project, it is unlikely any construction workers would relocate from outside the area as a result of constructing Alternative 2. Therefore, no workers are expected to relocate to the area permanently for construction and no new workers are required for operation of Alternative 2. No population increase to Los Angeles or Kern County would occur as a direct result of Alternative 2 construction or operation.

Housing. In addition to the residential structures identified within the proposed Project ROW along Segment 2 that would need to be removed (see Section C.13.4.2.2 - Project Impacts and Mitigation Measures, Impact P-1), Alternative 2 would require the following additional existing residential housing be removed:

- Single-family residence; 10085 Hamilton Road, in unincorporated Kern County. The ROW would be located east of the residence, but would traverse the nursery (residence may be located at nursery).
- Single-family residences; 100th Street West, in unincorporated Kern County (East Side: 2 homes north of Rosamond Boulevard, 16 homes north of Avenue A, 1 home north of Avenue B and West Side: several homes along Leslie Ave off 100th Street West, 6 homes north of Avenue A).

~~Mitigation Measure L-2 (Re-locate Project ROW to Avoid Residence) has been recommended to avoid impacts to the City of Lancaster residence located at Project Mile S2-2.2. See Section C.8.4 for the full text of this mitigation measure. However, impacts would continue to occur to residences in Kern County and along Cherry Tree Lane. Consequently, the removal of housing as a result of Alternative 2 is considered a significant and unavoidable impact (Impact P-1 – Class I).~~

D.4.3 Alternative 3: Antelope-Vincent Re-route 1

D.4.3.1 Air Quality

Environmental Setting

The air quality environmental setting of Alternative 3 is essentially identical to that of the proposed Project. This alternative project route traverses through the same two air quality jurisdictions (KCAPCD and AVAQMD) as the proposed Project and remains wholly within the MDAB.

Environmental Impacts

Alternative 3 has a shorter transmission route length and would require approximately eighteen fewer towers than the proposed Project. The Alternative 3 route would also likely reduce the average unpaved road travel distance to tower sites, due to the alternative route being less remote and closer to paved road access, so fugitive dust emission potential would be reduced. The overall emission reduction would be more or less the

same as Option B of the proposed Project (see Section C.2.4.2.2, Table C.2-14). While the emissions, particularly the fugitive dust emissions, would be reduced substantially compared to the proposed Project, the reductions would not be sufficient to reduce the emission levels below the AVAQMD regional emissions significance criteria and impacts would be significant after mitigation (Impact A-1 – **Class I**).

Alternative 3 would not alter the Project route within the KCAPCD jurisdiction, so impacts in that jurisdiction would be identical to those of the proposed Project and would be significant without mitigation. The impacts related to the KCAPCD regional emissions significance criteria would be less than significant after mitigation (Impact A-2 – **Class II**).

The Alternative 3 route may increase, but would not substantially increase, the number of towers located near residences nor substantially lower the minimum distance from construction sites to sensitive receptors. Therefore, the impacts to sensitive receptors from this alternative would be no worse than those of the proposed Project and would be significant without mitigation. Impacts to sensitive receptors would be less than significant after mitigation (Impact A-3 – **Class II**).

Alternative 3 would not significantly change the type or strength of odors produced during construction, or significantly increase the number of persons that would be exposed to these odors; therefore, the odor impacts are the same as the proposed Project, less than significant (Impact A-4 – **Class III**).

D.4.3.2 Biological Resources

Environmental Setting

The 5.5-mile Alternative 3 re-route would traverse habitats identical to those found in Option A and Option B of the proposed Project, including non-native annual grassland, desert scrub, juniper scrub, developed areas, and several named and unnamed drainages including Amargosa Creek.

Environmental Impacts

As Alternative 3 has a shorter route length this alternative may result in slightly reduced impacts to vegetation and natural communities; however, Alternative 3 would result the same less-than-significant impacts (**Class III**) as the proposed Project with respect to the following: loss of non-native annual grassland habitat, and agricultural and developed areas (Impact B-1); permanent loss of creosote scrub, montane scrub, desert scrub, and saltbush scrub habitat (Impact B-2); foraging habitat for Swainson's hawks (Impact B-8); mortality and/or disturbance to mariposa lily plant populations (Impact B-11);; mortality of and loss of habitat for coast horned lizards and silvery legless lizards (Impact B-15); disturbance to wintering mountain plovers (Impact B-18); electrocution of state and/or federally protected birds (Impact B-21); mortality of state and/or federally protected bird species from collisions with the transmission line (Impact B-22); mortality or loss of habitat for Tehachapi pocket mouse, Southern grasshopper mouse, and Tulare grasshopper mouse (Impact B-23); loss of habitat for ringtail (Impact B-24); mortality of special-status bat species due to electrocution and/or transmission line strikes (Impact B-25); loss of habitat for American badgers (Impact B-26); degradation of water quality (indirect) (Impact B-28); and mortality of desert tortoises resulting from increased predation by Common Ravens (indirect) (Impact B-29).

Alternative 3 would result in the same significant impacts that would be reduced to less-than-significant levels with mitigation (**Class II**) as the proposed Project with respect to the following: loss of riparian or sensitive desert wash resources (Impact B-3); Joshua Tree Woodland and Juniper Woodland habitat (Impact B-4); California red-legged frogs (Impact B-5); desert tortoises (Impact B-6); nesting Swainson's hawks (Impact B-

7); disturbance to nesting riparian birds (Impact B-9); Mohave ground squirrels (Impact B-10); short-joint beavertail (Impact B-12); loss of montane scrub/juniper woodland habitats as habitat for special-status plants (Impact B-13); loss of nesting and foraging habitat for loggerhead shrikes, Bendire’s thrashers, LeConte’s thrashers, and summer tanagers (Impact B-17); loss of occupied burrowing owl habitat (Impact B-19); disturbance to nesting raptors (Impact B-20); removal of an active American badger den (Impact B-26); and disturbance to desert tortoise movement resulting from habitat modification (Impact B-27).

Because Alternative 3 would be located in the immediate vicinity of, and crosses Amargosa Creek, several impacts unique to the proposed Project and this alternative may occur as a result of ground disturbance activities. These impacts are discussed below.

The portion of Alternative 3 that deviates from the proposed Project is located less than one mile (1.6 km) northeast of suitable San Emigdio blue butterfly habitat in the vicinity of Amargosa Creek. Potential habitat for these species is limited to only a few locations in close proximity to Amargosa Creek; however, any impact to the species including ground disturbance and dust generated from these activities would be considered significant without appropriate mitigation. However, as with the proposed Project, implementation of dust control measures and best management practices as outlined in the project description and the APMs (Table C.3-6) would ensure impacts to the San Emigdio blue butterfly are less than significant (Impact B-14 – **Class III**).

Alternative 3 traverses permanent aquatic habitat associated with Amargosa Creek, which contain southwest pond turtle and/or two-striped garter snake. Impacts to these species would be significant. Implementation of the APMs BIO-1 (Pre-construction biological clearance surveys), BIO-2 (Minimize vegetation removal and permanent loss at construction sites), BIO-3 (Obtain a Streambed Alteration Agreement), BIO-5 (Assign biological monitors during construction), and BIO-6 (Prepare and implement a Worker Environmental Awareness Program) (Table C.3-6) would help to avoid a take of these species; however impacts would remain significant without mitigation. Mitigation Measure B-16 (Conduct Focused Surveys for Southwestern Pond Turtle and Two-Striped Garter Snake) would be implemented to reduce potential impacts to a less-than-significant level (Impact B-16 – **Class II**).

D.4.3.3 Cultural Resources

Environmental Setting

Alternative 3 in Segment 2 runs parallel with Option B through Ritter Ranch and parallel with the proposed Project route northwest of Ritter Ranch. The cultural background is the same as for Segment 2 of the proposed Project.

A records search was obtained from the South Central Coastal Information Center for the area within ¼ mile of the Alternative 3 route. The records search shows that portions of the Alternative 3 route have been surveyed for cultural resources. Six prehistoric sites were identified as a result of the surveys and include hunting blinds, a lithic scatter, a hearth, and a bedrock milling feature as shown in Table D.4-4.

Trinomial / Primary Record #	USFS Site #	Historic / Prehistoric	Site Type	Date Recorded	Recorded by
CA-LAN-1763	N/A	Prehistoric	Hunting Blind	1989	R. S. White
CA-LAN-1762	N/A	Prehistoric	Hunting Blind	1989	R. S. White
CA-LAN-1764	N/A	Prehistoric	Hunting Blind	1989	R. S. White

Table D.4-4. Cultural Resources Recorded Within ¼ Mile of Alternative 3 APE

Trinomial / Primary Record #	USFS Site #	Historic / Prehistoric	Site Type	Date Recorded	Recorded by
19-003417	N/A	Prehistoric	Lithic Scatter	2005	Doug McIntosh, Ben Martinez
CA-LAN-1643	N/A	Historic	Prospecting Pits	1989, 2005 (Update)	C. S. Crownover, C. Parker, D. Palette, G. Broeker; Updated by Beth Padon, Amy Commendador-Dudgeon, Keith Hamm, Doug McIntosh, Elaine Yniguez
CA-LAN-1840	N/A	Prehistoric	Hearth	1990	Edwards Knell
Elaine's Site	N/A	Prehistoric	Bedrock Milling Feature	2005	Keith Hamm, Doug McIntosh, Elaine Yniguez, John Mia

Environmental Impacts

If Alternative 3 is selected, prehistoric archaeological sites AP2-102, AP2-106, and AP2-107 located along the Segment 2 proposed Project route would not be impacted (Impacts C-14 and C-15 – **No Impact**). The potential to impact prehistoric or historic archaeological sites if Alternative 3 is selected for construction is moderate, based on the records search results for Alternative 3 and the field survey of nearby Option B. Archaeological sites could be identified along the Alternative 3 route that could be impacted by Project construction activities, including tower construction, grading of access roads, and establishment and use of stringing setup areas and splicing locations.

Field survey will be necessary to identify archaeological sites that could be impacted by Alternative 3 construction activities. Additional archaeological field work (and historical research for historical archaeological sites) would be necessary to determine whether the sites are eligible for the CRHR. If the CEQA lead agency determines that a site is eligible, impacts from construction activities would constitute a significant impact. This impact is significant, but can be mitigated to a less-than-significant level (**Class II**) through the implementation of Mitigation Measures CA-1a and CA-1b (see Section D.4.1.3).

D.4.3.4 Geology, Soils, and Paleontology

Environmental Setting

The Alternative 3 re-route starts near the southern end of Portal ridge and traverses southeast just east of Segment 2, across Ritter Ridge and Leona Valley. The alignment then continues southeast along the existing transmission line corridor across the western edge of the Anaverde Valley to the point where the proposed Project rejoins the existing transmission corridor (Mile S2-14.8). The geologic units crossed by the re-routed portion of Alternative 3 include young Alluvium (Qa), Older Alluvium (Qoa), Anaverde Formation (Tas), and Pelona Schist (psp, ps). Although this alternative crosses the same geologic units as the proposed Project, it would cross substantially less landslide prone Pelona Schist and more potentially liquefiable young Alluvium. The Anaverde Formation and Older Alluvium crossed by the re-routed portion of Alternative 3 in the Leona Valley may contain significant fossils, resulting in moderate to high paleontological sensitivity. The re-routed portion of Alternative 3 also crosses two small landslides in the Pelona Schist along Ritter Ridge. No known mineral resources or active mines or quarries are located along Alternative 3.

The major soil units along the re-routed portion of Alternative 3 consist of the following soil units, Vista, Amargosa, Godde, Hanford, and Anaverde, which are described in Table C.5-3. As with Segment 2, this alternative crosses the active Alquist-Priolo zoned San Andreas fault in the Leona Valley area. Estimated peak ground accelerations for this alternative are the same as for the proposed Project Segment 2.

Environmental Impacts

Most of the impacts from construction of the Alternative 3 re-route would be the same as for the comparable section of Segment 2; however, due to the difference in routing, some of the impacts would affect shorter sections of transmission line. Construction activities consisting of excavation and/or grading along Alternative 3 could cause slope instability (Impact G-1) and/or trigger or accelerate soil loss and erosion (Impact G-2) resulting in significant impacts. Implementation of Mitigation Measures G-1 (Protect Against Slope Instability) and G-2 (Minimize Soil Erosion), respectively, would reduce impacts to less-than-significant levels (Impacts G-1 and G-2 – **Class II**). However, due to its shorter length, Alternative 3 crosses fewer existing landslides and less landslide prone Pelona Schist and less erosion prone soils, which decreases the severity of these potential impacts.

Although the Alternative 3 transmission line route crosses the active San Andreas fault farther southeast of Segment 2 of the proposed Project, this portion of the San Andreas fault is also included in an Alquist-Priolo zone and Alternative 3 would be subject to the same potential for damage due to surface fault rupture resulting in a significant impact. Implementation of Mitigation Measure G-3 (Minimize Project Structures within Active Fault Zones) would reduce impacts to a less-than-significant level (Impact G-3 – **Class II**). Similar to the proposed Project, in the event of a moderate or larger earthquake in the Project region, Alternative 3 could be subject to seismically induced ground failures including slope failures where it crosses the moderate to steep slopes of Portal and Ritter Ridges, and liquefaction where it is underlain by young alluvial sediments in Leona and Anaverde Valleys, resulting in a significant impacts. However, Alternative 3 crosses less landslide prone area and more area with liquefaction potential, decreasing the potential severity of impacts from seismically induced slope failures and increasing the severity of impacts from liquefaction. Impacts would be less than significant with implementation of Mitigation Measures G-4 (Geotechnical Investigations for Liquefaction and Seismic Slope Instability) (Impact G-4 – **Class II**). As with Segment 2 of the proposed Project, strong to severe groundshaking in the event of an earthquake could damage tower structures resulting in a significant impact. Implementation of Mitigation Measure G-5 (Reduce Effects of Groundshaking) would reduce this impact to a less-than-significant level (Impact G-5 – **Class II**). Same as the proposed Project, transmission line structures would be damaged by landslides resulting in a significant impact. This impact would be less than significant with implementation of Mitigation Measure G-7 (Geotechnical Surveys for Landslides). Impacts from soils with moderate potential for corrosion along Alternative 3 are the same as for Segment 2 of the proposed Project and would be significant; however, with implementation of Mitigation Measure G-6 (Geotechnical Studies for Corrosive Soils) impacts would be less than significant (Impact G-6 – **Class II**). Significant fossils would be damaged due to grading and excavation for Alternative 3 construction where it crosses Older Alluvial deposits and Anaverde Formation, the same as with Segment 2 of the proposed Project, resulting in a significant impact. This impact would be reduced to a less-than-significant level with implementation of Mitigation Measure G-8 (Protect Paleontological Resources) (Impact G-8 – **Class II**).

D.4.3.5 Hazards and Hazardous Materials

Environmental Setting

Land uses along the Alternative 3 re-route include open space desert with scattered rural residential use and grazing lands near the proposed Ritter Ranch and Anaverde development areas. The re-route parallels existing transmission lines. There are no known contaminated sites along this alignment, and due to the rural character and open space land uses the presence of unknown soil contamination is unlikely.

Environmental Impacts

Impacts from the Alternative 3 re-route are identical to those along the comparable section of Segment 2 of the proposed Project. As with Segment 2 of the proposed Project, during construction operations hazardous materials such as vehicle fuels, oils, and other vehicle maintenance fluids would be used and stored in construction staging areas (marshalling yards), resulting in soil or groundwater contamination from spills or leaks, a significant impact. Impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure HAZ-1a (Implement an Environmental Training and Monitoring Program), HAZ-1b (Implement a Hazardous Substance Control and Emergency Response Plan), HAZ-1c (Ensure Proper Disposal of Construction Waste), and HAZ 1d (Emergency Spill Supplies and Equipment for Construction Activities) (Impact HAZ-1 – **Class II**). Same as the proposed Project Segment 2, there is no potential for impact from existing contamination along the Alternative 3 re-route (**No Impact**). Alternative 3 would also be subject to impacts related to soil or groundwater contamination from accidental spill or release of hazardous materials at the substations during facility operation or along the transmission line during maintenance operations, a significant impact. This impact would be reduced to a less-than-significant level with implementation of HAZ-2a (Implement Spill Prevention, Countermeasure, and Control Plans) and HAZ-2b (Emergency Spill Supplies and Equipment for Operation and Maintenance Activities) (Impact HAZ-2 – **Class II**).

D.4.3.6 Hydrology and Water Quality

Environmental Setting

As discussed in Section D.3.3, Alternative 3 is a combination of Options A and B of the proposed Project. The potential impacts of these options are discussed in conjunction with the potential impacts of the proposed Project, in Section C.7.4. For Alternative 3, the Option A re-route would begin at Mile S2-5.7 and run parallel to transmission lines in the existing Antelope-Vincent corridor until joining the Option B re-route, which would traverse through the Ritter Ranch and Anaverde developments, rejoining the proposed route at approximately Mile S2-11.2 (proposed Project Mile S2-14.8). Along this re-routed portion of the Alternative 3 route, the environmental setting for hydrology and water quality would differ from the proposed Project between approximately Mile S2-8.1 and Mile S2-11.2, or the equivalent of the Option B re-route. In not circumventing the Ritter Ranch development, Alternative 3 would not traverse Ritter Canyon Creek, where the proposed Project would cross twice (proposed Project Mile S2-9.4 and Mile S2-10.8), but it would traverse Anaverde Creek at Mile S2-10.0 (versus two crossing by the proposed Project: Mile S2-11.2 and Mile S2-12.2). In addition, Alternative 3 would not traverse five of the valley washes and creeks that would be crossed by the proposed Project (between proposed Project Mile S2-8.0 and S2-15.0), but it would traverse three creeks, all of which are tributaries of Anaverde Creek (Mile S2-8.6, S2-9.2, and S2-10.4). All aspects of Alternative 3 would have the same environmental setting for hydrology and water quality as the proposed Project.

Environmental Impacts

Construction of Alternative 3 would have the potential to cause water quality degradation through the creation of soil erosion and sedimentation (Impact H-1). As discussed above, the waterways traversed by Alternative 3 would slightly differ from the proposed Project between approximately Mile S2-8.1 and Mile S2-11.2. Along this portion of the route, Alternative 3 would cross Anaverde Creek one time (versus the proposed Project crossing two times), but it would also cross several tributaries of Anaverde Creek that would not be directly affected by the proposed Project route. Any potential water quality impacts associated with soil erosion and sedimentation from Alternative 3 would be the same as the proposed Project, and would be significant without

mitigation. Impacts would be reduced to a less-than-significant level with implementation of ~~Mitigation Measures H-1a (Implementation of Erosion and Sediment Best Management Practices), H-1b (Timing of Construction Activities), H-1c (Control of Sidecast Material, Right-of-Way Debris and Roadway Debris), and H-1d (Road Surface Treatment)~~ H-1a (Implementation of Best Management Practices for Erosion and Sediment Control), , H-1b (Maximum Road Gradient), H-1c (Road Surface Treatment), H-1d (Timing of Construction Activities), and H-1e (Control of Sidecast Material, Right-of-Way Debris and Roadway Debris) (Impact H-1 – Class II).

During construction activities for Alternative 3, the accidental release of potentially harmful materials could cause degradation of surface water or groundwater quality (Impact H-2). As described above, the waterways traversed by Alternative 3 would slightly differ from the proposed Project between approximately Mile S2-8.1 and Mile S2-11.2. In addition, Alternative 3 would be approximately 3.6 miles shorter than the proposed Project by not circumventing the Ritter Ranch area. Rather than crossing through rolling hills (which could require some hillside construction) around Ritter Ranch, Alternative 3 would follow existing transmission lines in a relatively flat area. Therefore, construction activities and the associated use of hazardous materials would be less for this portion of Alternative 3 than for the same portion of the proposed Project route. However, other aspects of hazardous materials usage during construction would be the same as the proposed Project and the same construction practices, techniques, and safety measures would be followed. Although the potential for an accidental release of hazardous materials during construction of Alternative 3 would be slightly less than the proposed Project (due to shorter length and less hillside construction), this difference would not be substantial and the impact significance would be the same – significant without mitigation. With implementation of ~~Mitigation Measures H-2a (Environmental Training and Monitoring Program), H-2b (Hazardous Substance Control and Emergency Response Plan), H-2c (Proper Disposal of Construction Waste), and H-2d (Emergency Spill Supplies and Equipment)~~ HAZ-1a (Implement an Environmental Training and Monitoring Program), HAZ-1b (Implement a Hazardous Substance Control and Emergency Response Plan), HAZ-1c (Ensure Proper Disposal of Construction Waste), HAZ-1d (Emergency Spill Supplies and Equipment for Construction Activities), and HAZ-2b (Emergency Spill Supplies and Equipment for Operation and Maintenance Activities), impacts to surface water or groundwater quality for Alternative 3 would be reduced to a less-than-significant level (Impact H-2 – **Class II**).

Operational and maintenance activities for Alternative 3 could also result in the accidental release of harmful materials which could degrade surface water or groundwater quality (Impact H-3). Similar to Impact H-2, described above, Alternative 3 would have a slightly lower potential than the proposed Project for the occurrence of Impact H-3. This is because the Alternative 3 route through Ritter Ranch and Anaverde is 3.6 miles shorter and may avoid some hillside construction associated with the equivalent portion of the proposed Project. As discussed above, this impact is discussed separately and assigned a separate significance classification than Impact HAZ-2 (Hazards and Hazardous Materials) because Impact H-3 specifically addresses the potential effect of a hazardous materials spill on water quality, whereas Impact HAZ-2 more broadly addresses the potential occurrence and general effect of such as spill. Impact H-3 for this alternative would be less than significant with no mitigation recommended (Impact H-3 – **Class III**).

There is a possibility that excavation activities associated with Alternative 3 would disturb existing groundwater resources (Impact H-4). The proposed route for Alternative 3 is located within the boundaries of the same groundwater basins as the proposed Project. In addition, the same construction-related excavation activities would be associated with Alternative 3. Therefore, this impact would be the same for Alternative 3 as for the proposed Project, which would be significant without mitigation. Impacts to existing groundwater

resources would be reduced to a less-than-significant level with implementation of Mitigation Measure H-4 (Develop and Implement a Groundwater Remediation Plan) (Impact H-4 – **Class II**).

New impermeable areas that would be created as part of Alternative 3, such as transmission tower pads and substation facilities, could cause an increase in surface water runoff (Impact H-5). As with the proposed Project, these areas would not significantly increase surface water runoff due to the drainage features associated with the Project. As such, this impact would be less than significant (Impact H-5 – **Class III**). There is a potential for runoff caused by permanent Project features to affect a local stormwater drainage system (Impact H-6). As with the proposed Project, the potential runoff generated by permanent Project features such as the transmission towers is expected to be minimal due to the inclusion of drainage features in Project design. As such, this impact would be less than significant (Impact H-6 – **Class III**).

Flood hazards could be introduced through the placement of permanent aboveground structures for Alternative 1 in a flood hazard area, a floodplain, or a watercourse (Impact H-7). This impact would be the same for Alternative 3 as for the proposed Project, which would be significant without mitigation. Flood hazard impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure H-7 (Aboveground Structures shall be Protected against Flood and Erosion Damage) (Impact H-7 – **Class II**).

D.4.3.7 Land Use and Public Recreation

Environmental Setting

The re-routed portion of Alternative 3 would be located across open space areas and existing and planned residential development areas in the City of Palmdale and unincorporated Los Angeles County. Existing residences would be located near the alternative route along Godde Hill Road, Hacienda Ranch Road, and Cherry Tree Lane in unincorporated Los Angeles County; and within the Anaverde development in the City of Palmdale. Alternative 3 would also traverse the planned residential communities of Ritter Ranch and Anaverde Ranch, which are currently under construction, and two hiking trails within the City of Palmdale and Los Angeles County in five different locations. Figure C.8-1 shows the Alternative 3 route and its surrounding land uses.

Alternative 3 would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-5.7, and Mile S2-14.8 to S2-21.6.

Environmental Impacts

As Alternative 3 would traverse the same jurisdictions as the proposed Project, land use plans and policies that are applicable to the proposed Project would also apply to Alternative 3. Alternative 3 would not introduce any new Project components that would conflict with the land use policies listed in Table C.8-3. Consequently, Alternative 3 would be consistent with State and local plans and policies.

Construction of Alternative 3 would create temporary disturbances to land uses that would be identical to Option A and Option B of the proposed Project (Impact L-1). The alternative would be sited less than 0.2 miles (approximately 1,000 feet) from existing residences, and across planned residential communities that have already been graded for housing development. As such, residences would be exposed to the construction noise and dust associated with the Project. While the 5.5-mile re-route would avoid recreational resources in Ritter Ranch Park, it would traverse a planned park within the Anaverde Ranch development and two proposed City of Palmdale and Los Angeles County trails (North Side Trail and Northside Connector Trail), which would result in temporary disturbances identical to the proposed Project. Alternative 3 would be

identical to the proposed Project route north of proposed Project Mile S2-5.7, and would require temporary closure of the PCT and other hiking trails during construction. Consequently, Alternative 3 would create significant but mitigable construction impacts to residential and recreational uses (Impact L-1 – **Class II**). Implementation of Mitigation Measures L-1a (Coordinate Construction Schedule and Activities with the Authorized Officers for the Recreation Areas), L-1b (Provide Access for Pacific Crest National Scenic Trail and Other Hiking Trail Users), L-1c (Identify Alternative Recreation Areas), N-3a (Provide Advance Notification of Construction), and N-3b (Implement Best Management Practices for Construction Noise) would reduce impacts to a less-than-significant level.

~~As described for the proposed Project, Alternative 3 would require the removal of residences in the City of Lancaster (Impact L-2), which would result in a significant impact. Implementation of Mitigation Measure L-2 (Relocate Project ROW to Avoid Residence) would avoid the relocation of the single family residence along Avenue L, reducing the impacts from Alternative 1 to a less than significant level (Impact L-2 – **Class II**).~~

Alternative 3 would be routed east of the proposed Project from Project Mile S2-5.7 to Mile S2-14.8, and would not traverse the existing residences along Cherry Tree Lane (Impact L-~~23~~). As Alternative 3 would avoid the condemnation of these residences, no impact would occur under this alternative route (Impact L-~~23~~ – **No Impact**).

Alternative 3 would be constructed across the eastern portion of the Ritter Ranch development, and as such would avoid the AVUHSD property (Impact L-~~34~~). ~~This alternative would not restrict the future construction of educational facilities at that site, nor would it affect the screening process required by CDE for the selection of new school sites.~~ As such, impacts to the AVUHSD would not occur. However, Alternative 3 would restrict the use of other proposed school sites in both Ritter Ranch and Anaverde Ranch, and would therefore affect the screening process required by CDE for the selection of new school sites. Mitigation Measure L-3 (Coordinate with Ritter Ranch and Anaverde Ranch) has been recommended. However, SCE's coordination with Ritter Ranch and Anaverde Ranch may not avoid impacts to the school properties within these development areas. As such, impacts to the development of school properties would remain significant (Impact L-~~34~~ – **Class I**).

Alternative 3 would traverse planned residential development areas within Ritter Ranch and Anaverde Ranch (Impact L-~~45~~) similar to Option B; however, the new transmission towers would be placed to the east of the existing Antelope-Vincent corridor within the Ritter Ranch development, whereas Option B would place the towers to the west. The construction and operation of this alternative would preclude the use of land parcels within the 180-foot alternative ROW that have been approved as future residential sites. Mitigation Measure L-~~34~~ (Coordinate with ~~Antelope Valley Union High School District and Ritter Ranch and Anaverde Ranch~~) has been recommended to minimize the effects of Alternative 3 to Ritter Ranch and Anaverde Ranch. However, SCE's coordination with Ritter Ranch and Anaverde Ranch may not serve to avoid impacts to planned residential land uses, and consequently, impacts would be significant and unavoidable (Impact L-~~45~~ – **Class I**).

During operation of Alternative 3, impacts to the character or value of a recreational resource would be identical to Option B of the proposed Project (Impact L-~~56~~) in that the alternative would avoid traversing recreational facilities in Ritter Ranch Park, although it should be noted that Alternative 3 would also traverse a planned park within the Anaverde Ranch development and two proposed City of Palmdale and Los Angeles County trails (North Side Trail and Northside Connector Trail) would be traversed within the Anaverde Ranch development. This would result in identical impacts to the proposed Project. North of proposed Project Mile S2-5.7, the alternative would be identical to the proposed Project, and as such would continue to cross the

PCT trailhead and parking area and other hiking trails. Any transmission structures that would be sited within the parking area for the PCT would significantly impact recreational access to the trail (Impact L-56— **Class II**). Implementation of Mitigation Measure L-5 (Site Towers to Avoid Pacific Crest National Scenic Trail Trailhead) would reduce impacts to a less-than-significant level.

Alternative 3 would not traverse existing residences in unincorporated Kern County. As such, the removal of residential uses in Kern County would not be required for this alternative route (Impact L-6 – **No Impact**).

D.4.3.8 Agriculture

Environmental Setting

The 5.5-mile Alternative 3 route would traverse a portion of Grazing Land in unincorporated Los Angeles County. See Figures C.9-8 and C.9-9 for the location of this alternative relative to agricultural lands. The Alternative 3 route would traverse the same Farmland as the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-5.7, and Mile S2-14.8 to S2-21.6. In total, Alternative 3 would cross approximately 1.6 miles of Prime Farmland, 1.0 mile of Farmland of Statewide Importance, and 0.2 miles of Unique Farmland.

Environmental Impacts

Construction of Alternative 3 would result in the temporary conversion of Farmland to non-agricultural use that would be identical to the proposed Project (Impact AG-1). Alternative 3 would be constructed over less than three miles of Farmland. However, construction activities associated with the siting of LST footings and TSP foundations across agricultural areas would create a temporary disturbance from truck damage, laydown and assembly areas, crane pads, and splicing stations. In total, an estimated 1.2 acres of Prime Farmland, 0.6 acres of Farmland of Statewide Importance, and 0.1 acres of Unique Farmland would be temporarily disturbed. As the total temporary conversion of Farmland to non-agricultural use would not exceed the threshold of significance (see Section C.9.4), impacts would be less than significant (Impact AG-1 – **Class III**).

Permanent conversion of Farmland to non-agricultural use that would occur under Alternative 3 would be identical to the proposed Project (Impact AG-2). The creation of LST footing holes, TSP foundation holes, and new access and spur roads would contribute to an estimated permanent disturbance of 2.0 acres of Prime Farmland, 1.5 acres of Farmland of Statewide Importance, and 0.3 acres of Unique Farmland. As the permanent conversion of Farmland would not exceed the threshold of significance, impacts would be less than significant (Impact AG-2 – **Class III**).

As described for the proposed Project, construction activities associated with Alternative 3 would temporarily interfere with agricultural operations (Impact AG-3). The installation of 220-kV and 500-kV transmission structures, construction of new access and spur roads, and wire stringing activities could adversely impact agriculture by damaging crops or soil, temporarily impeding access to certain fields or plots of land, obstructing farm vehicles, or disrupting drainage and irrigation systems. Impacts would be significant (Impact AG-3 – **Class II**), but would be reduced to a less-than-significant level through implementation of Mitigation Measures N-3a (Provide Advance Notification of Construction) and AG-3 (Establish Agreement and Coordinate Construction Activities with Agricultural Landowners).

Alternative 3 would create permanent impacts to agricultural operations that would be identical to the proposed Project (Impact AG-4). The siting of new transmission towers and roads may divide farm properties, create irregularly shaped fields, disrupt drainage and irrigation systems, and introduce invasive weeds. Impacts would

be significant (Impact AG-4 – **Class II**), but would be reduced to a less-than-significant level through implementation of Mitigation Measure AG-4 (Locate Transmission Towers and Pulling/Splicing Stations to Avoid Agricultural Operations).

Construction of Alternative 3 would create a temporary disturbance of Williamson Act lands that would be identical to the proposed Project (Impact AG-5). As described for the proposed Project, this alternative would be located across approximately 0.5 miles of Williamson Act contracts classified as Prime Agricultural Land, and approximately 0.1 miles of Williamson Act land classified as Mixed Acreage Parcels. The construction of transmission towers and access and spur roads would temporarily disturb an estimated 0.9 acres of Prime Agricultural Land and 0.6 acres of Mixed Acreage Parcels. As the amount of temporary disturbance would not exceed the threshold of significance, impacts would be less than significant (Impact AG-5 – **Class III**).

Operation of Alternative 3 would create a permanent disturbance to Williamson Act lands that is identical to the proposed Project (Impact AG-6). The siting of tower footings, roads, and a substation pad would permanently disturb an estimated 1.0 acre of Prime Agricultural Land and 28.6 acres of Mixed Acreage Parcels. Depending on the amount of Prime Agricultural Land that is included in the Mixed Acreage Parcels, permanent disturbance of Williamson Act lands may exceed the threshold of significance, resulting in significant and unavoidable impacts (Impact AG-6 – **Class I**).

D.4.3.9 Noise

Environmental Setting

The re-routed portion of Alternative 3 would be located across open space areas and existing and planned residential areas in the City of Palmdale and unincorporated Los Angeles County. Existing residences would be located near the alternative route along Godde Hill Road, Hacienda Ranch Road, and Cherry Tree Lane in unincorporated Los Angeles County; and within the Anaverde development in the City of Palmdale. Alternative 3 would also traverse the planned residential community of Ritter Ranch, which is currently under construction.

Alternative 3 would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-5.7, and Mile S2-14.8 to S2-21.6.

Environmental Impacts

Construction. The types of construction equipment and duration of construction would generate identical construction noise sources for Alternative 3 as compared to the proposed Project. Because Alternative 3 would continue to travel through both Los Angeles and Kern Counties, identical local noise standards would apply to Alternative 3 as compared to the proposed Project. Therefore, stationary construction equipment operations within 600 feet of single-family residences, 350 feet of multi-family residences, and approximately 200 feet of commercial uses may, depending on the equipment in use, generate noise levels in excess of the maximum levels defined by Los Angeles County. Construction activities within these distances would result in a significant impact. However, proposed Project Mitigation Measure N-1 (Provide Shields for Stationary Construction Equipment) would reduce the potential noise violations in those areas of the Alternative 3 ROW that fall within Los Angeles County by requiring the use of noise shields to reduce stationary equipment noise near sensitive uses during construction and to require a variance for mobile equipment use near residential or commercial uses. This measure would be required for Alternative 3. Furthermore, Mitigation Measures N-3a (Provide Advanced Notification of Construction) and N-3b (Implement Best Management Practices for Construction Noise) would be required for Alternative 3 to reduce the likelihood of substantially disturbing

receptors within one-quarter mile of construction. With these measures, impacts from construction equipment would be reduced to less-than-significant levels (Impacts N-1 and N-3 – **Class II**).

Operation. Corona noise would occur along the entire corridor of Alternative 3, which is in close proximity to sensitive receptors. The Alternative 3 route would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-5.7, and Mile S2-14.8 to S2-21.6. Sensitive receptors within these areas are identified in Tables C.10-1 and C.10-2. In addition, existing residences would be located near the Alternative 3 re-route along Godde Hill Road, Hacienda Ranch Road, and Cherry Tree Lane in unincorporated Los Angeles County; and within the Anaverde development in the City of Palmdale. The Alternative 3 re-route would also traverse the planned residential community of Ritter Ranch, which is currently under construction. Identical to the proposed Project, Alternative 3 would create ambient noise levels greater than the noise occurring under existing conditions. This would cause significant operational noise impacts to adjacent sensitive uses. Identical to the proposed Project, the level of worst-case wet weather and heavy load noise would likely be between 55 and 65 dBA along the corridor, meaning that introduction of new corona noise could result in a substantial (more than 5 dBA) increase to the ambient noise levels of nearby receptors. Therefore, operational corona noise levels on receptors along the Alternative 3 route within Los Angeles County would exceed County Ordinance Standards and would result in a permanent increase in noise levels adjacent to the ROW resulting in significant and unavoidable operational noise impacts (Impact N-2, N-4 – **Class I**).

Operational impacts associated with the substations for Alternative 3 would be identical to the proposed Project, which would be less than significant (Impact N-6 – **Class III**). Maintenance activities associated with Alternative 3 would also be expected to be identical to the proposed Project and would not substantially increase ambient noise levels (Impact N-5 – **Class III**).

D.4.3.10 Traffic and Transportation

Environmental Setting

The route of Alternative 3 follows the same route as the proposed Project except between Mile S2-5.7 and S2-14.8, where it would cross through the eastern portion of the planned Ritter Ranch housing development located along Elizabeth Lake Road in Palmdale. This housing development is under construction and is expected to provide approximately 7,200 new homes. The proposed Project route is generally aligned such that it would avoid placing structures in the immediate vicinity of houses. However, the re-route of Alternative 3 would cross through an area of Ritter Ranch where several homes are currently planned to be constructed.

Environmental Impacts

Alternative 3 would result in identical significant impacts as the proposed Project that would be reduced to less-than-significant levels with mitigation (**Class II**) with respect to the following: closure of roads to through traffic or reduction of travel lanes resulting in substantial congestion (Impact T-1); construction traffic resulting in congestion on area roadways (Impact T-2); construction activities temporarily interfering with emergency response (Impact T-3); construction activities temporarily disrupting transit bus routes (Impact T-4); construction activities temporarily disrupting rail traffic (Impact T-5); conflicting with planned improvements to SR-14 (Impact T-7); construction vehicles and equipment damaging road ROWs (Impact T-8); and construction activities being inconsistent with transportation plans (Impact T-10).

Alternative 3 would also result in identical less-than-significant impacts (**Class III**) as the proposed Project with respect to construction activities temporarily impeding pedestrian movements and bike paths (Impact T-6), and transmission structures presenting an aviation hazard (Impact T-9).

However, if the houses planned to be constructed in the area traversed by Alternative 3 in the Ritter Ranch development are occupied during construction activities of the proposed transmission route, this alternative would have the additional impact of impeding pedestrian movements and bike paths (Criterion TRA8) resulting in a significant impact. The effects of this impact could likely be reduced to less-than-significant levels by modifying Mitigation Measure T-1a (Prepare Traffic Control Plans) to allow continuous and/or alternate pedestrian and bike route access (**Class II**).

D.4.3.11 Visual Resources

Environmental Setting

Alternative 3 is a combination of proposed Project's Options A and B, except the transmission line would remain east of the existing Antelope-Vincent transmission corridor, thereby reducing the number of cut-ins and lines crossing-over/under existing transmission lines to one, instead of three. The re-routed portion of Alternative 3 would be located across open space areas and existing and planned residential areas in the City of Palmdale and unincorporated Los Angeles County. Alternative 3 would be located near existing residences along Godde Hill Road, Hacienda Ranch Road, Cherry Tree Lane, and Elizabeth Lake Road in unincorporated Los Angeles County. The re-routed portion of Alternative 3 would be aligned approximately 100 feet east of the proposed Project alignment in these areas, thereby eliminating the need to take one existing uninhabited and three existing inhabited houses along Elizabeth Lake Road. Alternative 3 would be located within the Anaverde development in the City of Palmdale and would traverse the planned residential community of Ritter Ranch, which is currently under construction. Alternative 3 would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-5.7, and Mile S2-14.8 to S2-21.6.

Environmental Impacts

Alternative 3 would traverse the same landscapes as the proposed Project with implementation of Options A and B; however, towers would be placed east of the existing transmission lines in the Antelope-Vincent corridor through both the Ritter Ranch and Anaverde development areas, unlike the northern portion of Option B which remains to the west in the Ritter Ranch development. As such, the visual effects of Alternative 3 would be more or less the same as described for the proposed Project with Options A and B, and implementation of Visual Resource mitigation measures would reduce visual impacts to levels described for the proposed Project with Options A and B.

D.4.3.12 Population and Housing

Environmental Setting

The re-routed portion of Alternative 3 would be located across open space areas and existing and planned residential areas in the City of Palmdale and unincorporated Los Angeles County. Existing residences would be located near the alternative re-route along Godde Hill Road, Hacienda Ranch Road, and Cherry Tree Lane in unincorporated Los Angeles County; and within the Anaverde development in the City of Palmdale. The re-routed portion of Alternative 3 would also traverse the planned residential community of Ritter Ranch, which is currently under construction.

The Alternative 3 route would be identical to the proposed Project from Project Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-5.7, and Mile S2-14.8 to S2-21.6.

Environmental Impacts

Population. Construction of Alternative 3 does not include the construction of any habitable housing structures and would not construct any businesses. Because Alternative 3 would continue to travel through both Los Angeles and Kern Counties, the construction workforce required for Alternative 3 would come from within the same labor pool as the proposed Project. As indicated in Table C.13-3, Employment Characteristics, Los Angeles County and Kern County both contain a large construction workforce. Because such a large construction workforce is available within the area, identical to the proposed Project, it is unlikely any construction workers would relocate from outside the area as a result of constructing Alternative 3. Therefore, no workers are expected to relocate to the area permanently for construction and no new workers are required for operation of Alternative 3. No population increase to Los Angeles or Kern County would occur as a result of Alternative 3 construction or operation.

Housing. Alternative 3 would avoid residential displacement impacts along Cherry Tree Lane as compared to the proposed Project. ~~In addition, Mitigation Measure L-2 (Re-locate Project ROW to Avoid Residence) has been recommended to avoid impacts to the City of Lancaster residence located at Project Mile S2-2.2, which without mitigation would result in a significant impact. See Section C.8.4 for the full text of this mitigation measure.~~ However, Alternative 3 would require a new 180-foot ROW adjacent to ~~and east of~~ the existing Antelope-Vincent corridor ~~feet within~~ through the Ritter Ranch development area, which would preclude construction of approximately 30 residential parcels, as well as through the Anaverde Ranch development area, precluding construction of planned homes in this area. Removal of existing and planned housing as a result of the Alternative 3 is considered a significant and unavoidable impact (Impact P-1 – Class I).

D.4.4 Alternative 4: Antelope-Vincent Re-route 2

D.4.4.1 Air Quality

Environmental Setting

The air quality environmental setting of Alternative 4 is essentially identical to that of the proposed Project. This alternative project route traverses through the same two air quality jurisdictions (KCAPCD and AVAQMD) as the proposed Project and remains wholly within the MDAB.

Environmental Impacts

Alternative 4 has a shorter transmission route length and would require approximately one less tower than the proposed Project. However, this alternative route would not be likely to cause a substantial decrease in the average unpaved road travel distance to tower sites, as the re-routed portion would be located in a generally remote undisturbed area, similar to the proposed Project, where existing paved road access would be limited. As such, fugitive dust emission potential would not be significantly changed from the proposed Project. Overall, Alternative 4 would likely cause a minor reduction in the construction emissions that occur within the AVAQMD jurisdiction; however, the small emission reduction would not be sufficient to reduce the impact level for the AVAQMD regional emissions significance criteria from that of the proposed Project and it would remain significant after mitigation (Impact A-1 – Class I).

Alternative 4 would not impact the Project route within the KCAPCD jurisdiction, so impacts in that jurisdiction would be identical to those of the proposed Project and would be significant. The impacts related to the KCAPCD regional emissions significance criteria would be less than significant after mitigation (Impact A-2 - **Class II**)

The Alternative 4 route may place a few towers near residences, particularly within the Leona Valley; however, the distance to sensitive receptors and resulting impacts would be no worse than those of the proposed Project. Therefore, the impacts to sensitive receptors would be significant, but would be reduced to a less-than-significant level after mitigation (Impact A-3 – **Class II**).

Alternative 4 would not significantly change the type or strength of odors produced during construction or significantly increase the number of persons that would be exposed to these odors; therefore, the odor impacts are the same as the proposed Project, less than significant (Impact A-4 – **Class III**).

D.4.4.2 Biological Resources

Environmental Setting

The re-routed portion of Alternative 4 would traverse habitats identical to the proposed Project, including desert scrub, juniper scrub, montane scrub, non-native annual grassland, developed areas, and several named and unnamed drainages including Amargosa Creek.

Environmental Impacts

Alternative 4 would result in the same less-than-significant impacts (**Class III**) as the proposed Project with respect to the following: loss of non-native annual grassland habitat, and agricultural and developed areas (Impact B-1); permanent loss of creosote scrub, montane scrub, desert scrub, and saltbush scrub habitat (Impact B-2); foraging habitat for Swainson’s hawks (Impact B-8); mortality and/or disturbance to mariposa lily plant populations (Impact B-11); mortality of San Emigdio Blue butterfly (Impact B-14); mortality of and loss of habitat for coast horned lizards and silvery legless lizards (Impact B-15); disturbance to wintering mountain plovers (Impact B-18); electrocution of state and/or federally protected birds (Impact B-21); mortality of state and/or federally protected bird species from collisions with the transmission line (Impact B-22); mortality or loss of habitat for Tehachapi pocket mouse, Southern grasshopper mouse, and Tulare grasshopper mouse (Impact B-23); loss of habitat for ringtail (Impact B-24); mortality of special-status bat species due to electrocution and/or transmission line strikes (Impact B-25); loss of habitat for American badgers (Impact B-26); degradation of water quality (indirect) (Impact B-28); and mortality of desert tortoises resulting from increased predation by Common Ravens (indirect) (Impact B-29).

Alternative 4 would result in the same significant impacts as the proposed Project, which would be reduced to less-than-significant levels with mitigation (**Class II**) with respect to the following: loss of riparian or sensitive desert wash resources (Impact B-3); Joshua Tree Woodland and Juniper Woodland habitat (Impact B-4); California red-legged frogs (Impact B-5); desert tortoises (Impact B-6); nesting Swainson’s hawks (Impact B-7); disturbance to nesting riparian birds (Impact B-9); Mohave ground squirrels (Impact B-10); short-joint beavertail (Impact B-12); loss of montane scrub/juniper woodland habitats as habitat for special-status plants (Impact B-13); mortality of southwestern pond turtle and two-striped garter snake (Impact B-16); loss of nesting and foraging habitat for loggerhead shrikes, Bendire’s thrashers, LeConte’s thrashers, and summer tanagers (Impact B-17); loss of occupied burrowing owl habitat (Impact B-19); disturbance to nesting raptors (Impact B-20); removal of an active American badger den (Impact B-26); and disturbance to desert tortoise movement resulting from habitat modification (Impact B-27).

D.4.4.3 Cultural Resources

Environmental Setting

Alternative 4 crosses the Sierra Pelona west of the Segment 2 proposed Project route. The cultural background is the same as for Segment 2 of the proposed Project.

A records search was obtained from the South Central Coastal Information Center for the area within ¼ mile of the Alternative 4 route. The records search shows that small portions of the Alternative 4 route have been surveyed for cultural resources. Only one previously recorded cultural resource is located within one quarter mile of the Alternative 4 route. It consists of a cairn possibly marking a mining claim as shown in Table D.4-5.

Trinomial / Primary Record #	USFS Site #	Historic / Prehistoric	Site Type	Date Recorded	Recorded by
19-100361	N/A	Unknown	Isolate, Cairn (Possible Mining Claim)	1990	C. Lipo, L. Barrett

Environmental Impacts

If Alternative 4 is selected, prehistoric archaeological sites AP2-106 and AP2-107 located along the proposed Project route would not be impacted (Impacts C-14 and C-15 – **No Impact**). The potential to impact prehistoric or historic archaeological sites if Alternative 4 is selected for construction is low, based on the records search results for Alternative 4 and the field survey of the corresponding portion of the proposed Project route. However, archaeological sites could be identified along the Alternative 4 route (not just the re-routed portion) that could be impacted by Project construction activities, including tower construction, grading of access roads, and establishment and use of stringing setup areas and splicing locations.

Field survey will be necessary to identify archaeological sites that could be impacted by Alternative 4 construction activities. Additional archaeological field work (and historical research for historical archaeological sites) would be necessary to determine whether the sites are eligible for the CRHR. If the CEQA lead agency determines that a site is eligible, impacts from Project construction activities would constitute a significant impact. This impact is significant, but can be mitigated to a less-than-significant level (**Class II**) through the implementation of Mitigation Measures CA-1a and CA-1b (see Section D.4.1.3).

D.4.4.4 Geology, Soils, and Paleontology

Environmental Setting

The Alternative 4 re-route starts north of Portal Ridge in the Antelope Valley, traverses south across Portal ridge and Leona Valley, and then into the Sierra Pelona before turning east near Maple Canyon to rejoin the proposed Project at proposed Project Mile S2-10.7. The geologic units crossed by Alternative 4 include young Alluvium (Qa), Older Alluvium (Qoa), Anaverde Formation (Tas), Quartz diorite (qd), and Pelona Schist (psp, ps). Although the Alternative 4 re-route would cross most of the same geologic units as the comparable section of Segment 2 of the proposed Project, it would cross substantially more mapped landslides (CGS, 2003) and a longer section of landslide prone Pelona Schist, and more potentially liquefiable young Alluvium in the Leona Valley. As with Segment 2 of the proposed Project, the Anaverde Formation and Older Alluvium crossed by Alternative 4 in the Leona Valley may contain significant fossils, resulting in moderate to high

paleontological sensitivity. No known mineral resources or active mines or quarries are located along Alternative 4.

The major soil units along the Alternative 4 re-route consist of the following soil units: Hanford, Vista, and Anaverde, which are described in Table C.5-3. The Alternative 4 re-route would cross the active Alquist-Priolo zoned San Andreas fault in the Leona Valley area several miles north of where the proposed Project crosses the fault. Estimated peak ground accelerations for the Alternative 4 re-route are the same as for the proposed Project, ranging from 0.6 to 0.8 g.

Environmental Impacts

Most of the impacts from construction of the Alternative 4 re-route would be the same as for the comparable section of Segment 2 of the proposed Project; however, due to the difference in routing some of the impacts would affect longer sections of transmission line. Same as the proposed Project, construction activities consisting of excavation and/or grading along the Alternative 4 re-route could cause slope instability (Impact G-1) and/or trigger or accelerate soil loss and erosion (Impact G-2) resulting in significant impacts. Alternative 4 would cross more existing landslides and landslide prone Pelona Schist and more erosion prone soils than the proposed Project, which increases the severity of these impacts, which would remain significant without mitigation. Implementation of Mitigation Measures G-1 (Protect Against Slope Instability) and G-2 (Minimize Soil Erosion), respectively, would reduce impacts to less-than-significant levels (Impacts G-1 and G-2 – **Class II**). Although the Alternative 4 transmission line re-route crosses the active San Andreas fault several miles farther north than Segment 2 of the proposed Project, this portion of the San Andreas fault is also included in an Alquist-Priolo zone and Alternative 4 would be subject to the same potential for damage due to surface fault rupture resulting in a significant impact. Implementation of Mitigation Measure G-3 (Minimize Project Structures within Active Fault Zones) would reduce impacts to a less-than-significant level (Impact G-3 – **Class II**). Similar to the proposed Project, in the event of a moderate or larger earthquake in the Project region the Alternative 4 re-route could be subject to seismically induced ground failures including slope failures where it crosses the moderate to steep slopes of Portal and Ritter Ridges and the Sierra Pelona, and liquefaction where it is underlain by young alluvial sediments in Leona Valley, resulting in significant impacts. However, Alternative 4 crosses more landslide prone area and more area with liquefaction potential, increasing the potential severity compared to the proposed Project of impacts from seismically induced slope failures and from liquefaction, which would result in significant impacts without mitigation. Impacts would be less than significant with implementation of Mitigation Measures G-4 (Geotechnical Investigations for Liquefaction and Seismic Slope Instability) (Impact G-4 – **Class II**). As with Segment 2 of the proposed Project, strong to severe groundshaking in the event of an earthquake could damage tower structures resulting in a significant impact. Implementation of Mitigation Measure G-5 (Reduce Effects of Groundshaking) would reduce this impact to a less-than-significant level (Impact G-5 – **Class II**). Same as the proposed Project, transmission line structures could be damaged by landslides resulting in a significant impact. This impact would be less than significant with implementation of Mitigation Measure G-7 (Geotechnical Surveys for Landslides).

Impacts from soils with moderate potential for corrosion along the Alternative 4 re-route are the same as the proposed Project and would be significant without mitigation. These impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure G-6 Geotechnical Studies for Corrosive Soils) (Impact G-6 – **Class II**). Significant fossils could also be damaged due to grading and excavation for Alternative 4 construction where it crosses Older Alluvial deposits and Anaverde Formation, the same as with Segment 2 of the proposed Project, resulting in a significant impact. This impact would be reduced to a less-

than-significant level with implementation of Mitigation Measure G-8 (Protect Paleontological Resources) (Impact G-8 – Class II).

D.4.4.5 Hazards and Hazardous Materials

Environmental Setting

The Alternative 4 re-route traverses existing transmission corridor, open space desert and mountain areas with scattered residences, and low density rural residential area in Leona Valley. The nearest commercial area, including a gasoline station, is located about 0.75 miles west of the Alternative 4 re-route in Leona Valley. The online database review revealed one known leaking underground fuel tank in Leona Valley (0.75-miles west, Rancher's market, 9001 Elizabeth Lake Road); however, due to its distance from the alignment it would not impact Alternative 4. There are no known contaminated sites along the re-routed portion of this alignment, and due to the rural character and open space land use along the Alternative 4 re-route the presence of unknown soil contamination is unlikely.

Environmental Impacts

Impacts from the Alternative 4 re-route are identical to those along the comparable section of Segment 2 of the proposed Project. As with Segment 2 of the proposed Project, during construction operations hazardous materials such as vehicle fuels, oils, and other vehicle maintenance fluids would be used and stored in construction staging areas (marshalling yards), resulting in soil or groundwater contamination from spills or leaks, a significant impact. Impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure HAZ-1a (Implement an Environmental Training and Monitoring Program), HAZ-1b (Implement a Hazardous Substance Control and Emergency Response Plan), HAZ-1c (Ensure Proper Disposal of Construction Waste), and HAZ 1d (Emergency Spill Supplies and Equipment for Construction Activities) (Impact HAZ-1 – Class II). Same as the proposed Project Segment 2, there is no potential for impact from existing contamination along the Alternative 4 re-route (**No Impact**). Alternative 4 would also be subject to impacts related to soil or groundwater contamination from accidental spill or release of hazardous materials at the substations during facility operation or along the transmission line during maintenance operations, which would result in a significant impact. This impact would be reduced to a less-than-significant level with implementation of HAZ-2a (Implement Spill Prevention, Countermeasure, and Control Plans) and HAZ-2b (Emergency Spill Supplies and Equipment for Operation and Maintenance Activities) (Impact HAZ-2 – Class II).

D.4.4.6 Hydrology and Water Quality

Environmental Setting

The environmental setting for hydrology and water quality associated with Alternative 4 would generally be the same as the proposed Project, with the exception of a 6.8-mile re-route around the northern area of the Ritter Ranch community development, between Mile S2-3.4 and Mile S2-10.2 of the Alternative 4 route. Table D.4-6 shows the waterways that would be traversed by Alternative 4. Those waterways that would be encountered along the portions of the route which are the same as the proposed Project are shaded in gray.

In addition to the waterways listed above, the proposed route would cross an unnamed valley wash at approximately Mile S2-7.5, in addition to other possible ephemeral streams. A comparison with Table C.7-3 (Waterways Traversed by the Proposed Project) shows that the differences between the proposed Project and

Alternative 4 are that this alternative would not cross Railroad Creek, a small valley wash, but it would cross Rogers Creek and Pine Creek, described above.

This proposed re-route is situated within the same watershed areas as those listed for the proposed Project in Table C.7-2 (Watershed Levels for the Proposed Project) and it crosses through the same groundwater basins as the proposed Project. Although the waterways encountered by Alternative 4 are slightly different than the proposed Project, the overall environmental setting for hydrology and water quality is the same.

Mile	Name	Description
S3-11.6	Oak Creek	Antelope Valley Watershed; receives surface water runoff from the Tehachapi Mountains
S3-15.0	Los Angeles Aqueduct	Owned and operated by LADWP. Total length of 223 miles to transport water in pipes from Owens Valley to southern California.
S3-32.6	Myrick Canyon Creek	A large wash which drains the north-facing slopes of Portal Ridge onto the floor of the Antelope Valley Watershed.
S2-3.9	California Aqueduct	Primary aspect of the CA State Water Project (SWP). Operated and maintained by the CA Department of Water Resources. Total length of 444 miles to transport water for the SWP as well as the federal Central Valley Project.
S2-5.8	Amargosa Creek	Large ephemeral stream. Collects runoff from the Sierra Pelona Mountain Range. Flows eastward and drain northerly through Palmdale and Lancaster. Eventually terminates at Rosamond Dry Lake.
S2-8.8	Rogers Creek	Drains north-facing slopes of the Sierra Pelona Mountains onto the floor of the Antelope Valley Watershed. Pools in a small lake in the northwestern portion of the Ritter Ranch development area.
S2-9.3	Rogers Creek (tributary of)	Same as above.
S2-9.5	Pine Creek	Drains north-facing slopes of the Sierra Pelona Mountains onto the floor of the Antelope Valley Watershed.
S2-9.9	Pine Creek (tributary of)	Same as above.
S2-10.3	Ritter Canyon Creek	Located in the foothills of the Sierra Pelona Mountains. Tributary of Amargosa Creek. Traverses western portion of the Ritter Ranch development.
S2-10.7	Anaverde Creek	Collects runoff from the Sierra Pelona Mountains. Drains easterly through Anaverde Valley. Flows into a retention basin in western Palmdale, then to Amargosa Creek.
S2-11.7	Anaverde Creek	Same as above.
S2-20.5	Santa Clara River (upper)	Headwaters of the Santa Clara River system. Upper SCR is largely intermittent, with some ephemeral reaches and other portions that flow for several days after a rain event. Crossed by the proposed Project in Soledad Canyon.

Environmental Impacts

There is a potential for construction activities associated with Alternative 4 to cause water quality degradation through the creation of soil erosion and sedimentation (Impact H-1). This alternative would employ the same construction methods, equipment, and infrastructure as the proposed Project. As discussed in Section D.3.4, Alternative 4 is approximately 0.5 miles shorter than the proposed Project. The potential for Impact H-1 to occur with Alternative 4 would be the same as the proposed Project, which would be significant, but would be reduced to less than significant with implementation of Mitigation Measures ~~H-1a (Implementation of Erosion and Sediment Best Management Practices)~~, ~~H-1b (Timing of Construction Activities)~~, ~~H-1c (Control of Sidecast Material, Right of Way Debris and Roadway Debris)~~, and ~~H-1d (Road Surface Treatment)~~ H-1a (Implementation of Best Management Practices for Erosion and Sediment Control), H-1b (Maximum Road Gradient), H-1c (Road Surface Treatment), H-1d (Timing of Construction Activities), and H-1e (Control of Sidecast Material, Right-of-Way Debris and Roadway Debris) (Impact H-1 – Class II).

During construction activities for Alternative 4, the accidental release of potentially harmful materials could cause degradation of surface water or groundwater quality (Impact H-2). This impact for Alternative 4 would be the same as for the proposed Project, which would be significant, but reduced to less than significant with

the implementation of Mitigation Measures ~~H-2a (Environmental Training and Monitoring Program), H-2b (Hazardous Substance Control and Emergency Response Plan), H-2c (Proper Disposal of Construction Waste), and H-2d (Emergency Spill Supplies and Equipment)~~ HAZ-1a (Implement an Environmental Training and Monitoring Program), HAZ-1b (Implement a Hazardous Substance Control and Emergency Response Plan), HAZ-1c (Ensure Proper Disposal of Construction Waste), HAZ-1d (Emergency Spill Supplies and Equipment for Construction Activities), and HAZ-2b (Emergency Spill Supplies and Equipment for Operation and Maintenance Activities) (Impact H-2 – **Class II**).

Operational and maintenance activities for Alternative 4 could also result in the accidental release of harmful materials which could degrade surface water or groundwater quality (Impact H-3). As discussed above, this impact is discussed separately and assigned a separate significance classification than Impact HAZ-2 (Hazards and Hazardous Materials) because Impact H-3 specifically addresses the potential effect of a hazardous materials spill on water quality, whereas Impact HAZ-2 more broadly addresses the potential occurrence and general effect of such as spill. Impact H-3 would be the same for this alternative as for the proposed Project, which would be less than significant (Impact H-3 – **Class III**).

There is a possibility that excavation activities associated with Alternative 4 would disturb existing groundwater resources (Impact H-4). This impact would be the same for Alternative 4 as for the proposed Project, which would be significant; however, with the implementation of Mitigation Measure H-4 (Develop and Implement a Groundwater Remediation Plan) impacts to existing groundwater resources would be less than significant (Impact H-4 – **Class II**).

New impermeable areas that would be created as part of Alternative 4, such as transmission tower pads and substation facilities, could cause an increase in surface water runoff (Impact H-5). As with the proposed Project, these areas would not significantly increase surface water runoff due to the drainage features associated with the Project. As such, this impact would be less than significant (Impact H-5 – **Class III**).

There is a potential for runoff caused by permanent Project features to affect a local stormwater drainage system (Impact H-6). As with the proposed Project, the potential runoff generated by permanent Project features such as the transmission towers is expected to be minimal due to the inclusion of drainage features in Project design. As such, this impact would be less than significant (Impact H-6 – **Class III**).

Flood hazards could be introduced through the placement of permanent aboveground structures for Alternative 4 in a flood hazard area, a floodplain, or a watercourse (Impact H-7). This impact would be the same for Alternative 4 as for the proposed Project, which would be significant without mitigation. Flood hazard impacts would be reduced to a less-than-significant level with the implementation of Mitigation Measure H-7 (Aboveground Structures Shall be Protected Against Flood and Erosion Damage) (Impact H-7 – **Class II**).

D.4.4.7 Land Use and Public Recreation

Environmental Setting

The re-routed portion of Alternative 4 would traverse open space, agriculture, and scattered residential areas in unincorporated Los Angeles County. Existing residences are located along Elizabeth Lake Road, Calva Street, 86th Street West, and Bouquet Canyon Road. In addition, Alternative 4 would traverse three proposed Los Angeles County hiking trails (North Side Trail, Leona Valley Loop Trail, and Bouquet Canyon Trail). Figure C.8-1 shows the Alternative 4 route and its surrounding land uses. See Section D.4.4.8 for a discussion of impacts to agriculture.

Alternative 4 would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-3.4, and S2-10.7 to S2-21.6.

Environmental Impacts

As Alternative 4 would traverse the same jurisdictions as the proposed Project, land use plans and policies that are applicable to the proposed Project would also apply to Alternative 4. Alternative 4 would not introduce any new Project components that would conflict with the land use policies listed in Table C.8-3. Consequently, Alternative 4 would be consistent with State and local plans and policies.

Construction of Alternative 4 would create temporary disturbances to land uses located along the alignment (Impact L-1). North of proposed Project Mile S3-3.4 and southeast of proposed Project Mile S3-10.7, Alternative 4 would follow the same route as the proposed Project, and therefore would traverse the same recreational facilities (i.e., PCT trailhead and parking lot, Ritter Ranch trails, and other hiking trails). This alternative would avoid residences along Hacienda Ranch Road and Cherry Tree Lane, but would traverse residential communities along Elizabeth Lake Road and Bouquet Canyon Road. As such, noise and air quality impacts associated with construction would affect the scattered residences located along the 6.8-mile re-route. In addition, Alternative 4 would avoid traversing the North Side Trail in two locations, but would traverse three additional Los Angeles County trails thereby resulting in identical impacts as the proposed Project. As described for the proposed Project, temporary construction impacts to residences located adjacent to the Alternative 4 route and to recreationists along the PCT and within Ritter Ranch and other areas of City of Palmdale and Los Angeles County would be significant but mitigable (Impact L-1 – **Class II**). Implementation of the following mitigation measures would reduce impacts to a less-than-significant level: L-1a (Coordinate Construction Schedule and Activities with the Authorized Officers for the Recreation Areas), L-1b (Provide Access for Pacific Crest National Scenic Trail and Other Hiking Trail Users), L-1c (Identify Alternative Recreation Areas), N-3a (Provide Advance Notification of Construction), and N-3b (Implement Best Management Practices for Construction Noise).

~~As described for the proposed Project, Alternative 4 would require the removal of a residence in the City of Lancaster (Impact L-2), which would result in a significant impact. Implementation of Mitigation Measure L-2 (Re-locate Project ROW to Avoid Residence) would avoid the relocation of the single family residence along Avenue L, reducing the impacts from Alternative 1 to a less than significant level (Impact L-2 – **Class II**).~~

Unlike the proposed Project, Alternative 4 would avoid the condemnation of residences in Los Angeles County (Impact L-~~23~~). The alternative route would not traverse the existing residences along Cherry Tree Lane, and as such, would not require their relocation. No impacts to these residences would occur under Alternative 4 (Impact L-~~23~~ – **No Impact**).

Alternative 4 would avoid the AVUHSD property as well as proposed school sites in Ritter Ranch and Anaverde Ranch (Impact L-~~34~~), and planned residential development within Ritter Ranch and Anaverde Ranch (Impact L-~~45~~). As this alternative would not restrict the future construction of educational facilities, nor would it preclude planned residential sites, no impacts to these land uses would occur (Impacts L-3 and L-4 – **No Impact**). In addition, Alternative 4 would not traverse existing residences in unincorporated Kern County, and consequently, would not require the removal of residences within the county (Impact L-6 – **No Impact**).

During operation of Alternative 4, impacts to the character or value of a recreational resource would be identical to the proposed Project (Impact L-~~56~~). Alternative 4 would traverse three Los Angeles County trails (North Side Trail, Leona Valley Loop Trail, and Bouquet Canyon Trail), which would alter the area traversed

by these trails. The transmission structures would introduce an adverse but less than significant visual impact (Class III), as discussed in Section C.11 (Visual Resources), but would not diminish the recreational value of these trails rerouting or physical modification to the trail, change the existing land uses or recreational opportunities in the vicinity, or alter the number of recreationists that are able to access the trail. As the alternative crosses the PCT trailhead and parking area, and recreational trails within Ritter Ranch, City of Palmdale, and Los Angeles County, it would be located along the proposed Project route. Any transmission structures that would be sited within the parking area for the PCT would significantly impact recreational access to the trail (Impact L-56 – Class II). Implementation of Mitigation Measure L-56 (Site Towers to Avoid Pacific Crest National Scenic Trail Trailhead) would reduce impacts to a less-than-significant level.

D.4.4.8 Agriculture

Environmental Setting

The re-routed portion of Alternative 4 would traverse Prime Farmland and Grazing Land in unincorporated Los Angeles County. See Figures C.9-8 and C.9-9 for the location of this alternative relative to agricultural lands. From Project Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-3.4, and Mile S2-10.7 to S2-21.6, Alternative 4 would traverse the same Farmland as the proposed Project. In total, Alternative 4 would cross approximately 1.7 miles of Prime Farmland, 1.0 mile of Farmland of Statewide Importance, and 0.2 miles of Unique Farmland.

Environmental Impacts

Alternative 4 would result in the temporary conversion of an additional 0.3 acres of Prime Farmland compared to the proposed Project - 1.5 acres versus 1.2 acres. As such, construction of Alternative 4 would result in the temporary conversion of Farmland to non-agricultural use that would be similar to the proposed Project (Impact AG-1). Alternative 4 would be constructed over less than three miles of Farmland. However, construction activities associated with the siting of LST footings and TSP foundations across agricultural areas would create a temporary disturbance from truck damage, laydown and assembly areas, crane pads, and splicing stations. In total, an estimated 1.5 acres of Prime Farmland, 0.6 acres of Farmland of Statewide Importance, and 0.1 acres of Unique Farmland would be temporarily disturbed. As the total temporary conversion of Farmland to non-agricultural use would not exceed the threshold of significance (see Section C.9.4), impacts would be less than significant (Impact AG-1 – Class III).

Similar to the proposed Project, Alternative 4 would contribute to the permanent conversion of Farmland impacting an additional 0.1 acres of Prime Farmland in comparison to the proposed Project (Impact AG-2). The creation of LST footing holes, TSP foundation holes, and new access and spur roads would result in an estimated permanent disturbance of 2.1 acres of Prime Farmland (0.1 acres more than the proposed Project), 1.5 acres of Farmland of Statewide Importance (same as proposed Project), and 0.3 acres of Unique Farmland (same as proposed Project). The permanent conversion of Farmland would not exceed the threshold of significance, and consequently, impacts would be less than significant (Impact AG-2 – Class III).

As described for the proposed Project, construction activities associated with Alternative 4 would temporarily interfere with agricultural operations (Impact AG-3). The installation of 220-kV and 500-kV transmission structures, construction of new access and spur roads, and wire stringing activities could adversely impact agriculture by damaging crops or soil, temporarily impeding access to certain fields or plots of land, obstructing farm vehicles, or disrupting drainage and irrigation systems. Impacts would be significant (Impact AG-3 – Class II), but would be reduced to a less-than-significant level through implementation of Mitigation

Measures N-3a (Provide Advance Notification of Construction) and AG-3 (Establish Agreement and Coordinate Construction Activities with Agricultural Landowners).

Alternative 4 would create permanent impacts to agricultural operations that would be identical to the proposed Project (Impact AG-4). The siting of new transmission towers and roads may divide farm properties, create irregularly shaped fields, disrupt drainage and irrigation systems, and introduce invasive weeds. Impacts would be significant (Impact AG-4 – **Class II**), but would be reduced to a less-than-significant level through implementation of Mitigation Measure AG-4 (Locate Transmission Towers and Pulling/Splicing Stations to Avoid Agricultural Operations).

Construction of Alternative 4 would create a temporary disturbance of Williamson Act lands that would be identical to the proposed Project (Impact AG-5). As described for the proposed Project, this alternative would be located across approximately 0.5 miles of Williamson Act contracts classified as Prime Agricultural Land, and approximately 0.1 miles of Williamson Act land classified as Mixed Acreage Parcels. The construction of transmission towers and access and spur roads would temporarily disturb an estimated 0.9 acres of Prime Agricultural Land and 0.6 acres of Mixed Acreage Parcels. As the amount of temporary disturbance would not exceed the threshold of significance, impacts would be less than significant (Impact AG-5 – **Class III**).

Operation of Alternative 4 would create a permanent disturbance to Williamson Act lands that is identical to the proposed Project (Impact AG-6). The siting of tower footings, roads, and a substation pad would permanently disturb an estimated 1.0 acre of Prime Agricultural Land and 28.6 acres of Mixed Acreage Parcels. Depending on the amount of Prime Agricultural Land that is included in the Mixed Acreage Parcels, permanent disturbance of Williamson Act lands may exceed the threshold of significance, resulting in significant and unavoidable impacts (Impact AG-6 – **Class I**).

D.4.4.9 Noise

Environmental Setting

The re-routed portion of Alternative 4 would traverse open space, agriculture, and scattered residential areas in unincorporated Los Angeles County. Existing residences are located along Elizabeth Lake Road, Calva Street, 86th Street West, and Bouquet Canyon Road.

Alternative 4 would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-3.4, and S2-10.7 to S2-21.6.

Environmental Impacts

Construction. The types of construction equipment and duration of construction would generate identical construction noise sources for Alternative 4 as compared to the proposed Project. Because Alternative 4 would continue to travel through both Los Angeles and Kern Counties, identical local noise standards would apply to Alternative 4 as compared to the proposed Project. Therefore, stationary construction equipment operations within 600 feet of single-family residences, 350 feet of multi-family residences, and approximately 200 feet of commercial uses may, depending on the equipment in use, generate noise levels in excess of the maximum levels defined by Los Angeles County. Construction activities within these distances would result in a significant impact. However, Mitigation Measure N-1 (Provide Shields for Stationary Construction Equipment) would reduce the potential noise violations in those areas of the Alternative 4 ROW that fall within Los Angeles County by requiring the use of noise shields to reduce stationary equipment noise near sensitive uses during construction and to require a variance for mobile equipment use near residential or commercial

uses. This measure would be required for Alternative 4. Furthermore, Mitigation Measures N-3a (Provide Advanced Notification of Construction) and N-3b (Implement Best Management Practices for Construction Noise) would be required for Alternative 4 to reduce the likelihood of substantially disturbing receptors within one-quarter mile of construction. With these measures, impacts from construction equipment would be reduced to less-than-significant levels (Impacts N-1 and N-3 – **Class II**).

Operation. Corona noise would occur along the entire corridor of Alternative 3, which is in close proximity to sensitive receptors. The Alternative 4 route would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-3.4, and Mile S2-10.7 to S2-21.6. Sensitive receptors within these areas are identified in Tables C.10-1 and C.10-2. In addition, existing residences would be located near the Alternative 4 re-route along Elizabeth Lake Road, Calva Street, 86th Street West, and Bouquet Canyon Road. Identical to the proposed Project, Alternative 4 would create ambient noise levels greater than the noise occurring under existing conditions. This would cause significant operational noise impacts to adjacent sensitive uses. Identical to the proposed Project, the level of worst-case wet weather and heavy load noise would likely be between 55 and 65 dBA along the corridor, meaning that introduction of new corona noise could result in a substantial (more than 5 dBA) increase to the ambient noise levels of nearby receptors. Therefore, operational corona noise levels on receptors along the Alternative 4 route within Los Angeles County would exceed County Ordinance Standards and would result in a permanent increase in noise levels adjacent to the ROW resulting in a significant and unavoidable operational noise impacts (Impact N-2, N-4 – **Class I**).

Operational impacts associated with the substations for Alternative 4 would be identical to the proposed Project, which would be less than significant (Impact N-6 – **Class III**). Maintenance activities associated with Alternative 4 would also be expected to be identical to the proposed Project and would not substantially increase ambient noise levels (Impact N-5 – **Class III**).

D.4.4.10 Traffic and Transportation

Environmental Setting

From a traffic and transportation perspective, Alternative 4 is nearly identical to the proposed Project. This proposed re-route would result in the same number of road crossings as the proposed Project; however, instead of crossing Godde Hill Road, the route of Alternative 4 would cross Bouquet Canyon Road.

Environmental Impacts

Alternative 4 would result in identical significant impacts as the proposed Project that would be reduced to less-than-significant levels with mitigation (**Class II**) with respect to the following: closure of roads to through traffic or reduction of travel lanes resulting in substantial congestion (Impact T-1); construction traffic resulting in congestion on area roadways (Impact T-2); construction activities temporarily interfering with emergency response (Impact T-3); construction activities temporarily disrupting transit bus routes (Impact T-4); construction activities temporarily disrupting rail traffic (Impact T-5); conflicting with planned improvements to SR-14 (Impact T-7); construction vehicles and equipment damaging road ROWs (Impact T-8); and construction activities being inconsistent with transportation plans (Impact T-10).

Alternative 4 would also result in identical less-than-significant impacts (**Class III**) as the proposed Project with respect to construction activities temporarily impeding pedestrian movements and bike paths (Impact T-6), and transmission structures presenting an aviation hazard (Impact T-9).

D.4.4.11 Visual Resources

Environmental Setting

Alternative 4 would have the same alignment as the proposed Project from Mile S3-0.0 to S3-35.2 (Antelope Substation), and from S2-0.0 to S2-3.4. At that point, Alternative 4 would proceed south over the rolling hills of Portal Ridge, across Elizabeth Lake Road just east of the ~~community~~village of Leona Valley, proceed in a southerly direction on the west side of Bouquet Canyon Road (a County Scenic Highway), cross Bouquet Canyon Road, and proceed uphill on Sierra Pelona Ridge to join the existing Midway-Vincent No. 1 transmission line corridor. Alternative 4 then would turn east and rejoin the proposed Project at Mile S2-10.2 (proposed Project Mile S2-10.7). This re-route is 6.8 miles in length and decreases Segment 2 by approximately 0.5 miles (21.1 miles total). In other regards, Alternative 4 is identical to the proposed Project. Both Elizabeth Lake Road and Bouquet Canyon Road are included as Second Priority in the County Scenic Highways Element (County of Los Angeles, 1974).

The Alternative 4 re-route would create different visual effects for viewers at KOPs 7 through 11, where the proposed Project would have a different alignment. The re-route would be visible from KOP-7, and would no longer be visible from KOP-8 though KOP-11.

The only additional vantage points from which Alternative 4 would be seen are residences and travelers along Elizabeth Lake Road, Bouquet Canyon Road, 86th Street West, and the community of Leona Valley. The most critical view of the Alternative 4 re-route would be looking south on Bouquet Canyon Road from the intersection of Elizabeth Lake Road, described below at KOP-16.

KOP-16 – Bouquet Canyon Road at Elizabeth Lake Road

KOP-16 was established at the intersection of Bouquet Canyon Road at Elizabeth Lake Road looking south toward Sierra Pelona Ridge, as shown in Figure D.4-2A –Existing Conditions at KOP-16. From approximately Alternative 4 Mile S3-3.0 to S3-5.3, the new 500-kV transmission line would be visible from Elizabeth Lake Road, Bouquet Canyon Road, and nearby residences.

The re-routed portion of Alternative 4 would traverse open space, agriculture, and scattered residential areas in unincorporated Los Angeles County, and would avoid both the northern portion of Ritter Ranch development and the “take” of homes along Elizabeth Lake Road. Existing residences are located along, and would have views of Alternative 4 from Elizabeth Lake Road, Calva Street, 86th Street West, and Bouquet Canyon Road.

Alternative 4 would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-3.4, and S2-10.7 to S2-21.6.

Environmental Impacts

No existing houses would be removed by Alternative 4 ~~except one house at Avenue L near the olive grove (same as proposed Project)~~. Alternative 4 would be visible from KOP-7 on Avenue L near the olive grove (Impact V-7), where the alignment would leave the existing Antelope-Vincent transmission corridor and travel straight south over Portal Ridge (not simulated). As seen from KOP-7, the new 500-kV transmission line would have to cross over/under the existing 66-kV line, and from this location southward, the existing 66-kV line would not have to be demolished or relocated further to the right (southwest) with 75-foot-tall, light-weight, direct-buried tubular steel poles (TSPs). The new 500-kV towers and conductors of Alternative 4 would be very visible from KOP-7, and would create new visual contrasts of color, form, and line in the open fields south of KOP-7. Alternative 4 would create moderate skyline blockage as it crosses over Portal Ridge in

the middleground. As a result, significant impacts to visual resources as seen from KOP-7 would occur for Alternative 4 without mitigation (Impact V-7).

For Alternative 4 under Impact V-7, implementation of Mitigation Measures V-1b (Construct, Operate, and Maintain with Existing Access Roads), V-1c (Dispose of Cleared Vegetation), V-1e (Treat Surfaces with

Figure Links

(Click to activate)

page

D.4-2A	Existing Visual Condition as seen from KOP-16	D-93
D.4-2B	Visual Simulation of the Proposed Project as seen from KOP-16	D-94

Appropriate Colors, Textures, and Finishes), and V-9 (Construct New Access and Spur Roads with Least Visual Disturbance) would improve the visual environment of the new 500-kV transmission line and the relocated 66-kV transmission line. This would result in an improved visual environment, as compared to Alternative 4 without mitigation, and would result in significant, but mitigable visual impacts (Impact V-7 – **Class II**).

Alternative 4 would not be visible from KOP-8, KOP-9, KOP-10, or KOP-11 and, therefore, would create no change from existing conditions from proposed Project Mile S2-3.4 to S2-10.7 (Impacts V-8 through V-11 – **No Impact**). Unlike the proposed Project, Alternative 4 would avoid the condemnation and removal of residences along Elizabeth Lake Road and would result in no change from existing conditions (Impact V-10 – **No Impact**). The re-routed portion of Alternative 4 would traverse open space, agriculture, and scattered residential areas in unincorporated Los Angeles County, and would avoid the northern portion of Ritter Ranch development and would result in no change from existing conditions (Impact V-11 – **No Impact**).

The Alternative 4 re-route would introduce industrial character structures to views from Bouquet Canyon Road. KOP-16 was established at the intersection of Bouquet Canyon Road at Elizabeth Lake Road looking south toward Sierra Pelona Ridge. Figure D.4-2A presents Existing Conditions at KOP-16 and Figure D.4-2B presents a visual simulation that depicts the new 500-kV transmission line for the Alternative 4 re-route. For Alternative 4, from approximately Mile S2-5.8 to S2-10.7, Alternative 4 would be visible from Elizabeth Lake Road, Bouquet Canyon Road, and nearby residences.

The new 500-kV transmission line would be constructed across rolling hills west of Bouquet Canyon Road (out of view of this photograph), then uphill and across the face of Sierra Pelona Ridge in the middleground. New lattice steel towers and conductors would be visible in the middleground from KOP-16. New access roads would be required from approximately Mile S2-3.4 to approximately Mile S2-8.2, which is the portion of new ROW with no existing access roads. New access roads were not simulated, and therefore, visual impacts seen from KOP-16 would be greater than displayed in Figure D.4-2B.

Color contrasts of new, dulled galvanized steel towers would attract visual attention to the proposed Project, and new access roads would lead the viewer's eye from one tower to the next, across this mountainside. Alternative 4 would enter this view from the right mid-slope location and proceed across the face of Sierra Pelona Ridge near the skyline. The new structures would cause a noticeable increase in structure prominence and industrial character and would draw attention to older, more weathered and transparent 500-kV towers in the same ROW. Some view blockage of mountains would occur in the middleground, distracting from the natural-appearing landscape character. Additional visual contrast would be caused by the highlighting of the towers and conductors by the afternoon sun as illustrated in the simulation presented in Figure D.4-2B.

Referring to Table C.11-2, General Guidance for Review of Visual Impact Significance, the overall visual change seen from KOP-16 would be moderate-to-high and in the context of the existing landscape's moderate-to-high visual sensitivity, the resulting visual impact would be adverse and significant.

From Alternative 4 Mile S2-3.4 to S2-14.8, implementation of Mitigation Measures V-1b (Construct, Operate, and Maintain with Existing Access Roads), V-1c (Dispose of Cleared Vegetation), V-1d (Slope-Round and Dispose of Excavated Materials), V-1e (Treat Surfaces with Appropriate Colors, Textures, and Finishes), and V-9 (Construct New Access and Spur Roads with Least Visual Disturbance) would improve the visual environment of the new 500-kV transmission line. This would result in an improved visual environment, and would result in significant, but mitigable visual impacts (**Class II**).

D.4.4.12 Population and Housing

Environmental Setting

The re-routed portion of Alternative 4 would traverse open space, agriculture, and scattered residential areas in unincorporated Los Angeles County. Existing residences would be located near the Alternative 4 re-route along Elizabeth Lake Road, Calva Street, 86th Street West, and Bouquet Canyon Road.

The Alternative 4 route would be identical to the proposed Project from Mile S3-0.0 to S3-35.2, Mile S2-0.0 to S2-3.4, and Mile S2-10.7 to S2-21.6.

Environmental Impacts

Population. Construction of Alternative 4 does not include the construction of any habitable housing structures and would not construct any businesses. Because Alternative 4 would travel through Los Angeles and Kern Counties, the construction workforce required for Alternative 4 would come from within the same labor pool as the proposed Project. As indicated in Table C.13-3, Employment Characteristics, Los Angeles County and Kern County both contain a large construction workforce. Because such a large construction workforce is available within the area, identical to the proposed Project, it is unlikely any construction workers would relocate from outside the area as a direct result of constructing Alternative 4. Therefore, no workers are expected to relocate to the area permanently for construction and no new workers are required for operation of Alternative 4. No population increase to Los Angeles or Kern County would occur as a direct result of Alternative 4 construction or operation.

Housing. ~~Identical to the proposed Project, Alternative 4 would require that existing residential structures within the proposed Project ROW along Segment 2 to be removed, resulting in a significant impact. Mitigation Measure L-2 (Re-locate Project ROW to Avoid Residence) has been recommended to avoid impacts to the City of Lancaster residence located at Project Mile S2-2.2. See Section C.8.4 for the full text of this mitigation measure. Furthermore, Unlike the proposed Project, impacts to residences along Cherry Tree Lane would be completely avoided by Alternative 4, as the route would not traverse through this area. Therefore, no existing or planned residential housing would be removed as a result of Alternative 4 would result in less than-significant impacts with incorporation of mitigation (Impact P-1 – **No Impact Class II**).~~

D.4.5 No Project Alternative

D.4.5.1 Air Quality

Under the No Project Alternative, the Project would not be implemented and, therefore, the impacts associated with the Project described in Sections C.2.3 and C.2.4 would not occur. As a result, the No Project Alternative would result in no new construction emissions and no additional direct operating emissions.

The No Project Alternative could restrict the potential amount of new renewable energy resources that could supply the power needs of the Los Angeles and Kern County areas. This additional renewable energy might reduce the use of generating sources powered by fossil fuels (turbine, boilers, etc.) that would otherwise be needed to supply the same energy, whether they would be located within the Los Angeles and Kern County areas, elsewhere in California, or in surrounding states. The exact amount of power displacement and corresponding amount and location of emission reductions that would result indirectly from the Project are not known, but the Project would allow for some power plant emission reductions within the South Coast Air Basin (SCAB). Reducing emissions in the SCAB is necessary to meet attainment goals in both the SCAB and

downwind in the Antelope Valley portion of the MDAB. Regional Haze would likewise be similarly affected, with a small reduction being expected to occur indirectly due to the Project. Whereas an increase in regional fossil fuel uses that might be necessary to produce power without the Project would have the opposite result.

Additionally, in the absence of the Project, other indirect actions would occur. Some wind projects would be postponed or cancelled, or alternative renewable energy sources and transmission lines would have to be developed to meet future Renewable Portfolio Standard (RPS) goals. For any alternative renewable energy sources developed, SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along different alignments. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is impossible to identify the air quality impacts that would occur from alternative energy projects under the No Project Alternative.

D.4.5.2 Biological Resources

Under the No Project Alternative, neither the proposed Project nor one of the previously described alternatives (Alternatives 1 through 4) would be implemented. As a result, none of the impacts associated with biological resources which are described above for the alternatives or in Section C.3 for the proposed Project would be expected to occur. However, based on the Project objectives discussed in Section A.2, it is reasonably foreseeable that other energy and power transmission projects would occur in the absence of the proposed Project or an alternative. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new biological resource impacts that would occur under the No Project Alternative.

D.4.5.3 Cultural Resources

If the proposed Project is not constructed, there would be no impacts on cultural resources. However, based on the Project objectives discussed in Section A.2, it is reasonably foreseeable that other energy and power transmission projects would occur in the absence of the proposed Project or an alternative. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new cultural resources impacts that would occur under the No Project Alternative.

D.4.5.4 Geology, Soils, and Paleontology

Under the No Project Alternative, the proposed Project would not be implemented and, therefore, the impacts associated with the proposed Project and alternatives described in Sections C.5 and above would not occur. However, as discussed in Section A.2, it is reasonably foreseeable that other energy and power transmission projects would occur in the absence of the proposed Project or an alternative. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new geology, soils, and paleontology impacts that would occur under the No Project Alternative.

D.4.5.5 Hazards and Hazardous Materials

Under the No Project Alternative, the proposed Project would not be implemented and, therefore, the impacts associated with the proposed Project and alternatives described in Sections C.6 and above would not occur. Impacts related other hazards would remain as they are with the existing transmission lines in the corridors. However, based on the Project objectives discussed in Section A.2, it is reasonably foreseeable that other

energy and power transmission projects would occur in the absence of the proposed Project or an alternative. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new hazards and hazardous materials impacts that would occur under the No Project Alternative.

D.4.5.6 Hydrology and Water Quality

Under the No Project Alternatives, neither the proposed Project nor one of the previously described alternatives (Alternatives 1 through 4) would be implemented. As a result, none of the impacts associated with hydrology and water quality which are described above for the alternatives or in Section C.7 for the proposed Project would be expected to occur. However, based on the Project objectives discussed in Section A.2, it is reasonably foreseeable that other energy and power transmission projects would occur in the absence of the proposed Project or an alternative. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new hydrology and water quality impacts that would occur under the No Project Alternative.

D.4.5.7 Land Use and Public Recreation

Under the No Project Alternative, the proposed Project would not be implemented and, therefore, the impacts associated with the proposed Project and alternatives described in Section C.8 and Section D.4 would not occur. As a result, construction and operational impacts would not occur to residential and recreational land uses adjacent to the Project in Kern County, Los Angeles County, or in the cities of Lancaster or Palmdale.

However, in the absence of the proposed Project, other energy-related actions would occur. Some wind projects may be postponed or cancelled, or other alternatives may be developed that would meet the RPS goal by 2010. SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment. Depending on the location of new energy projects, these projects may affect existing land uses and recreation uses. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new land use and recreational impacts that would occur under the No Project Alternative.

D.4.5.8 Agriculture

Under the No Project Alternative, the proposed Project would not be implemented, and therefore, the impacts associated with the proposed Project and alternatives described in Section C.9 and Section D.4 would not occur. As a result, construction and operational impacts would not occur to Farmland, Williamson Act land, or agricultural operations in Kern and Los Angeles Counties.

However, in the absence of the proposed Project, other energy-related actions would occur. Some wind projects may be postponed or cancelled, or other alternatives may be developed that would meet the RPS goal by 2010. SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment. Depending on the location of new energy projects, these projects may affect agricultural resources. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted, and as such, it is not possible to identify new agricultural impacts that would occur under the No Project Alternative.

D.4.5.9 Noise

The No Project Alternative would cause no construction-related or operational noise changes along the Antelope Pardee Segment 2 and 3 corridor, and none of the noise impacts associated with the Project would occur.

Development scenarios foreseeable under the No Project Alternative could result in other transmission facilities being constructed elsewhere in southern/central California depending on the economic viability. Although construction and operation of new transmission lines could occur, their locations and development schedules cannot be predicted. As such, it is not possible to identify new noise impacts that would occur under the No Project Alternative.

D.4.5.10 Traffic and Transportation

Under the No Project Alternative, the proposed transmission line would not be constructed and, therefore, the impacts associated with the proposed Project and alternatives described in Sections C.12.4 and D.5.10, above, would not occur. As a result, under the No Project Alternative, no new construction traffic would be generated and road/lane closures would not occur.

Additionally, in the absence of the Project, other indirect actions would occur. Some wind projects would be postponed or cancelled, or alternative renewable energy sources and transmission lines would have to be developed to meet future RPS goals. For any alternative renewable energy sources developed, SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along different alignments. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new traffic and transportation impacts that would occur under the No Project Alternative.

D.4.5.11 Visual Resources

Under the No Project Alternative, the proposed Project would not be implemented and, therefore, visual impacts associated with the proposed Project and alternatives described in Section C.11 and Section D.4 would not occur. As a result, permanent visual impacts of construction and operation would not occur, and there would be no changes in landscape character or scenic vistas within the Study Area.

However, in the absence of the proposed Project or any alternatives, other energy-related actions would occur. Some wind projects may be postponed or cancelled, or other alternatives may be developed that would meet the RPS goal by 2010. SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment. Depending on the location of new energy projects, these projects may affect existing visual quality, landscape character, or scenic vistas. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new visual resource impacts that would occur under the No Project Alternative.

D.4.5.12 Population and Housing

Under the No Project Alternative, the proposed transmission and substation upgrades would not be implemented and, therefore, the impacts associated with the Project would not occur. In the absence of the Project, other indirect actions would occur. Some wind projects would be postponed or cancelled, or alternative renewable energy sources and transmission lines would have to be developed to meet future RPS

goals. For any alternative renewable energy sources developed, SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along different alignments. The locations and development schedules for construction and operation of new power plants and transmission infrastructure cannot be predicted and, as such, it is not possible to identify new population and housing impacts that would occur under the No Project Alternative.

D.5 Comparison of Alternatives

This section summarizes and compares the environmental issues and impacts of the proposed Project described in Section B and the alternatives described in Section D.3. This comparison is based on the assessment of environmental impacts of the proposed Project, as identified in Section C, and each alternative, as identified in Section D.4. This section is intended to provide decision-makers with information about the merits and disadvantages of the alternatives that will assist them in their consideration of SCE’s pending application for the proposed Project, and to assist the public in understanding the differences between the alternatives. Consistent with CEQA Guidelines (Section 15126.6(e)(2)), the environmentally superior alternative identified by the Lead Agency is presented in this section.

Section D.5.1 presents comparison matrices of the proposed project and alternatives based on the impacts and environmental issues identified in Section C and D.4. Section D.5.2 identifies the environmentally superior alternative required by CEQA.

D.5.1 Alternatives Comparison Matrices

For comparison purposes, Table D.5-1 presents a summary matrix of the environmental impacts (see discussion of significance classification system below) associated with the proposed Project, including Options A and B, as described in Section C (Environmental Analysis), and the alternatives, as described in Section D.4 (Analysis of Alternatives). While the No Project Alternative would likely have impacts, the future transmission upgrades carried out under the No Project Alternative are unknown at this time; therefore, the No Project Alternative has not been included in Table D.5-1. The matrix provided in Table D.5-1 is organized by environmental issue area and impact parameter.

Table D.5-1. Impact Significance of the Proposed Project and Alternatives						
Issue Area	Impact	Impact Significance				
		Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Air Quality	A-1: Project emissions would exceed the AVAQMD regional emission thresholds.	I	I	I	I	I
	A-2: Project emissions would exceed the KCAPCD regional emission thresholds.	II	II	II	II	II
	A-3: The Project would expose sensitive receptors to substantial pollutant concentrations.	II	II	II	II	II
	A-4: The Project would create objectionable odors.	III	III	III	III	III
Biological Resources	B-1: Permanent Loss of Non-native Annual Grassland Habitat, and Agricultural and Developed Areas.	III	III	III	III	III
	B-2: Permanent Loss of Creosote Scrub, Montane Scrub, Desert Scrub, and Saltbush Scrub Habitat.	III	III	III	III	III
	B-3: Loss of Riparian or Sensitive Desert Wash Resources.	II	II	II	II	II
	B-4: Loss of Sensitive Joshua Tree Woodland and Juniper Woodland Habitat and Removal of Joshua Trees and Juniper Trees.	II	II	II	II	II
	B-5: Take of California Red-legged Frogs.	II	II	II	II	II
	B-6: Take of Desert Tortoises.	II	II	II	II	II

Issue Area	Impact	Impact Significance				
		Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
	B-7: Disturbance of Nesting Swainson's Hawks.	II	II	II	II	II
	B-8: Loss of Foraging Habitat for Swainson's Hawk.	III	III	III	III	III
	B-9 Disturbance to Nesting Special-Status Riparian Birds.	II	II	II	II	II
	B-10: Potential Take of, and Habitat Loss for, Mohave Ground Squirrels.	II	II	II	II	II
	B-11: Mortality and/or Disturbance to Mariposa Lily Plant Populations.	III	III	III	III	III
	B-12: Loss of and/or Disturbance to Short-joint Beavertail.	II	II	II	II	II
	B-13: Loss of Montane Scrub/Juniper Woodland Habitats as Habitat for Special-Status Plants.	II	II	II	II	II
	B-14: San Emigdio Blue Butterfly Mortality From Construction Disturbance.	III	III	III	III	III
	B-15: Mortality of, and Loss of Habitat for, Coast Horned Lizards and Silvery Legless Lizards.	III	III	III	III	III
	B-16: Southwestern Pond Turtle and Two-striped Garter Snake Mortality.	II	II	II	II	II
	B-17: Loss of Nesting and Foraging Habitat for Loggerhead Shrikes, Bendire's Thrashers, and LeConte's Thrashers.	II	II	II	II	II
	B-18: Disturbance to Wintering Mountain Plovers.	III	III	III	III	III
	B-19: Loss of Occupied Burrowing Owl Habitat.	II	II	II	II	II
	B-20: Disturbance of Nesting Raptors.	II	II	II	II	II
	B-21: Electrocutation of State and/or Federally Protected Birds.	III	III	III	III	III
	B-22: Mortality of State and/or Federally Protected Bird Species from Collisions with Project Improvements.	III	III	III	III	III
	B-23: Mortality of, and Loss of Habitat for, Tehachapi Pocket Mouse, Southern Grasshopper Mouse, and Tulare Grasshopper Mouse.	III	III	III	III	III
	B-24: Loss of Habitat for Ringtail.	III	III	III	III	III
	B-25: Mortality of Special-Status Bat Species Due to Electrocutation and/or Transmission Line Strikes.	III	III	III	III	III
	B-26: Loss of Habitat for American Badgers.	III ; Removal of Active Den (II)	III ; Removal of Active Den (II)	III ; Removal of Active Den (II)	III ; Removal of Active Den (II)	III ; Removal of Active Den (II)
	B-27: Disturbance to Desert Tortoise Movement as a result of Habitat Modification.	II	II	II	II	II
	B-28: Degradation of Water Quality. (Indirect)	III	III	III	III	III
	B-29: Mortality of Desert Tortoises as a Result of Increased Predation by Common Ravens. (indirect)	III	III	III	III	III
Cultural Resources ¹	C-1: Destruction of CA-KER-2434 would occur as a result of the Project	II	II	II	II	II
	C-2: Destruction of AP3-131 would occur as a result of the Project.	II	II	II	II	II
	C-3: Destruction of AP3-132 would occur as a result of the Project.	II	II	II	II	II
	C-4: Destruction of AP3-133 would occur as a result of the Project.	II	No Impact	II	II	II

¹ Specific additional cultural resources sites that would be impacted by Alternatives 1 through 4 have not been included herein due to lack of field survey of the alternative routes. As such, Table D.5-1 may make the alternatives look like they will impact fewer cultural resources than the proposed Project route, which may in fact not be the case.

Table D.5-1. Impact Significance of the Proposed Project and Alternatives

Issue Area	Impact	Impact Significance				
		Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
C-5: Destruction of AP3-134 would occur as a result of the Project.		II	No Impact	II	II	II
C-6: Destruction of AP3-110 would occur as a result of the Project.		II	II	II	II	II
C-7: Destruction of AP3-111 would occur as a result of the Project.		II	II	II	II	II
C-8: Destruction of CA-KER-2821 would occur as a result of the Project.		II	II	II	II	II
C-9: Destruction of AP3-112 would occur as a result of the Project.		II	II	II	II	II
C-10: Destruction of AP3-113 would occur as a result of the Project.		II	II	No Impact	II	II
C-11: Destruction of AP3-114 would occur as a result of the Project.		II	II	II	II	II
C-12: Destruction of AP2-101 would occur as a result of the Project.		II	II	II	II	II
C-13: Destruction of CA-LAN-806 would occur as a result of the Project.		II	II	II	II	II
C-14: Destruction of AP2-106 would occur as a result of the Project.		II	II	II	No Impact	No Impact
C-15: Destruction of AP2-107 would occur as a result of the Project.		II	II	II	No Impact	No Impact
C-16: Modification of CA-LAN-3477 would occur as a result of the Project.		II	II	II	II	II
C-17: Destruction of CA-LAN-1956 would occur as a result of the Project.		II	II	II	II	II
C-18: Destruction of AP3-116 would occur as a result of the Project.		II	II	II	II	II
C-19: Destruction of AP3-117 would occur as a result of the Project.		II	II	II	II	II
C-20: Destruction of AP3-119 would occur as a result of the Project.		II	II	II	II	II
C-21: Destruction of AP3-121 would occur as a result of the Project.		II	II	II	II	II
C-22: Destruction of AP3-118 would occur as a result of the Project.		II	II	II	II	II
C-23: Destruction of AP3-120 would occur as a result of the Project.		II	II	II	II	II
C-24: Destruction of AP3-122 would occur as a result of the Project.		II	II	II	II	II
C-25: Destruction of AP3-123 would occur as a result of the Project.		II	II	II	II	II
C-26: Destruction of AP3-124 would occur as a result of the Project.		II	II	II	II	II
C-27: Destruction of AP3-125 would occur as a result of the Project.		II	II	II	II	II
C-28: Destruction of AP3-126 would occur as a result of the Project.		II	II	II	II	II
C-29: Destruction of AP3-127 would occur as a result of the Project.		II	II	II	II	II
C-30: Destruction of AP3-128 would occur as a result of the Project.		II	II	II	II	II
C-31: Destruction of AP3-129 would occur as a result of the Project.		II	II	II	II	II

Issue Area	Impact	Impact Significance				
		Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
	C-32: Undiscovered cultural resources would be disturbed through Project activities.	II	II	II	II	II
Geology, Soils, and Paleontology	G-1: Excavation and grading during construction activities could cause slope instability.	II	II	II	II	II
	G-2: Erosion could be triggered or accelerated by construction or disturbance of landforms.	II	II	II	II	II
	G-3: Transmission line could be damaged by surface fault ruptures at crossings of active faults.	II	II	II	II	II
	G-4: Project structures could be damaged by landslides, liquefaction, settlement, lateral spreading, and/or surface cracking resulting from seismic events.	II	II	II	II	II
	G-5: Project structures could be damaged by strong groundshaking.	II	II	II	II	II
	G-6: Buried tower and substation foundations could be damaged by corrosive soils.	II	II	II	II	II
	G-7: Transmission line structures could be damaged by landslides, earth flows, or debris slides.	II	II	II	II	II
	G-8: Excavation for transmission line structures could damage unique or significant fossils.	II	II	II	II	II
Hazards and Hazardous Materials	HAZ-1: The release of hazardous materials occurs during construction activities	II	II	II	II	II
	HAZ-2: The release of hazardous materials occurs during operation and maintenance activities	II	II	II	II	II
Hydrology and Water Quality	H-1: Water quality degradation would result from soil erosion and sedimentation caused by construction activities.	II	II	II	II	II
	H-2: Degradation of water quality would result from the accidental release of hazardous materials during construction activities.	II	II	II	II	II
	H-3: Degradation of water quality would result from the accidental release of hazardous materials during operational activities.	III	III	III	III	III
	H-4: Existing groundwater resources would be disturbed through Project-related excavation activities.	II	II	II	II	II
	H-5: Increased surface water runoff would result through the introduction of new impermeable areas.	III	III	III	III	III
	H-6: Runoff introduced as a result of permanent Project features would cause the overloading of a local stormwater drainage system.	III	III	III	III	III
	H-7: Flood hazards would be created through the placement of permanent aboveground structures in a flood hazard area, a floodplain, or a watercourse.	II	II	II	II	II
Land Use and Public Recreation ²	L-1: Construction of the proposed Project would temporarily disturb land uses that are traversed by or adjacent to the Project.	II	II	II	II	II
	L-2: Operation of the proposed Project would require the removal of a residence in the City of Lancaster.	II	II	II	II	II
	L-23: Operation of the proposed Project would require the removal of residences in unincorporated Los Angeles County.	I (PP+Op B) No Impact (Op A)	I	I	II	No Impact

² Unlike the proposed Project, Alternatives 1 and 2 would potentially remove existing residences in unincorporated Kern County, which would be considered a significant and unavoidable impact (Class I). This impact is referenced as Impact L-6.

Table D.5-1. Impact Significance of the Proposed Project and Alternatives

Issue Area	Impact	Impact Significance				
		Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
	L-34: Operation of the proposed Project would preclude the development of a school property.	I (Op B) III (PP+Op A) No Impact (Op B)	III	III	I No Impact	No Impact
	L-45: Implementation of Option B would preclude planned development within Ritter Ranch and Anaverde Ranch.	I (Op B) No Impact (PP+Op A)	No Impact	No Impact	I	No Impact
	L-56: Operation of the proposed Project would change the character of a recreational resource, diminishing its recreational value.	II	III	II	II	II
Agriculture	AG-1: Construction activities would temporarily convert Farmland to non-agricultural use.	III	III	III	III	III
	AG-2: Operation would permanently convert Farmland to non-agricultural use.	III	III	III	III	III
	AG-3: Construction activities would interfere with agricultural operations.	II	II	II	II	II
	AG-4: Operation would interfere with agricultural operations.	II	II	II	II	II
	AG-5: Construction activities would conflict with a Williamson Act contract.	III	III	III	III	III
	AG-6: Operation would conflict with a Williamson Act contract.	I	III	I	I	I
Noise	N-1: Construction noise levels would violate local standards.	II	II	II	II	II
	N-2: Operational noise levels would violate local standards.	I	I	I	I	I
	N-3: Construction noise could substantially disturb sensitive receptors.	II	II	II	II	II
	N-4: Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines.	I	I	I	I	I
	N-5: Maintenance activities during transmission line operation would increase ambient noise levels.	III	III	III	III	III
	N-6: Operation of modified and new substations would result in increased ambient noise levels.	III	III	III	III	III
Traffic and Transportation	T-1: Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion.	II	II	II	II	II
	T-2: Construction traffic would result in congestion on area roadways.	II	II	II	II	II
	T-3: Construction activities would temporarily interfere with emergency response.	II	II	II	II	II
	T-4: Construction activities would temporarily disrupt transit bus routes.	II	II	II	II	II
	T-5: Construction activities would temporarily disrupt rail traffic.	II	II	II	II	II
	T-6: Construction activities would temporarily impede pedestrian movements and bike paths.	III	III	III	III	III
	T-7: Construction activities would conflict with planned improvements to SR 14.	II	II	II	II	II
	T-8: Construction vehicles and equipment would damage road ROWs.	II	II	II	II	II
	T-9: Transmission structures would present an aviation hazard.	III	III	III	III	III

Issue Area	Impact	Impact Significance				
		Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
	T-10: Construction activities would be inconsistent with transportation plans.	II	II	II	II	II
Visual Resources	V-1: Construction of the proposed Project and introduction of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-1 – Highway 58 and Jameson Street.	II	II	II	II	II
	V-2: Construction of the proposed Project and introduction of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-2 – Pacific Crest National Scenic Trail and Trailhead.	II	No Impact	II	II	II
	V-3: Construction of the proposed Project and introduction of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-3 – Oak Creek Road.	II	II	II	II	II
	V-4: Construction of the proposed Project and introduction of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-4 – Tehachapi Willow Springs Road.	III	III	III	III	III
	V-5: Construction of the proposed Project and introduction of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-5 – Avenue A at 110th Street West.	III	III	III	III	III
	V-6: Construction of the proposed Project and introduction of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-6 – Avenue G at 105th Street West.	III	III	III	III	III
	V-7: Construction of the proposed Project and increase of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-7 – Avenue L Near Olive Grove.	I	I	I	I	II
	V-8: Construction of the proposed Project and increase of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-8 – Avenue N at Agena Road.	III	III	III	III	No Impact
	V-9: Construction of the proposed Project and increase of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-9 – Godde Hill Road.	II	II	II	II	No Impact
	V-10: Construction of the proposed Project and increase of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-10 – Elizabeth Lake Road.	I (PP+Op B) No Impact (Op A)	I	I	I	No Impact
	V-11: Construction of the proposed Project and increase of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-11 – Ritter Ranch from Godde Hill Road.	II (PP+Op A) No Impact (Op B)	II	II	II	No Impact

Issue Area	Impact	Impact Significance				
		Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
	V-12: Construction of the proposed Project and increase of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-12 – Sierra Pelona Ridge from Avenue S.	II	II	II	II	II
	V-13: Construction of the proposed Project and increase of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-13 – Sierra Highway and Antelope Valley Freeway.	III	III	III	III	III
	V-14: Construction of the proposed Project and increase of industrial character structures would result in a permanent change in landscape character and scenic vistas as seen from KOP-14 – Acton/Vincent Grade Metrolink Park and Ride.	II	II	II	II	II
	V-15: The Project would conflict with applicable visual resource policies, regulations, and standards contained in state and local plans.	III	III	III	III	III
	V-16: The Project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	II	II	II	II	II
Population and Housing	P-1: The proposed Project would require the removal of residential housing structures.	I (PP+Op B) #No Impact (Op A)	I	I	I	#No Impact

As discussed in Section C.1.3 (Significance Categories), a classification system was applied to the impacts of the proposed Project and alternatives in order to provide for a comprehensive and systematic evaluation of potential environmental impacts for each issue area. The following classifications were uniformly applied to each identified impact:

- **Class I: Significant impact; cannot be mitigated to a level that is not significant.** Class I impacts are significant adverse effects that cannot be mitigated below a level of significance through the application of feasible mitigation measures. Class I impacts are significant and unavoidable.
- **Class II: Significant impact; can be mitigated to a level that is not significant.** A Class II impact is a significant adverse effect that can be reduced to a less-than-significant level through the application of feasible mitigation measures presented in this EIR.
- **Class III: Adverse, less than significant.** A Class III impact is a minor change or effect on the environment that does not meet or exceed the criteria established to gauge significance.
- **Class IV: Beneficial impact.** Class IV impacts represent beneficial effects that would result from project implementation.

In cases where there is a potential for a certain type of impact, but no such impact would occur for the proposed Project or an alternative, a “No Impact” classification was assigned.

To further allow for comparison of the proposed Project and alternatives, Table D.5-2 (at the end of this section) presents a summary matrix of the environmental issues and impacts associated with the proposed Project and the alternatives, as described in Section C (Environmental Analysis) and Section D.4 (Analysis of Alternatives).

D.5.2 Environmentally Superior Alternative

In accordance with CEQA requirements, an “environmentally superior alternative” must be identified among the alternatives analyzed in the EIR. The environmentally superior alternative is the alternative found to have an overall environmental advantage compared to the other alternatives based on the impact analysis in the EIR. As described in Section D.4.5, it is not possible to identify the environmental impacts that would occur under the No Project Alternative; therefore, the No Project Alternative was not been considered as part of the environmentally superior alternative analysis. If the environmentally superior alternative is also the No Project alternative, CEQA Guidelines Section 15126.6(e)(2) requires the EIR to identify an environmentally superior alternative from among the other alternatives.

Determining which of the alternatives is environmentally superior involves judgment and depends on many factors. As shown in Table D.5-1, different alternatives are clearly superior in certain environmental issue areas, while in other issue areas there are only slight differences among the alternatives, which ultimately do not alter the significance determinations for the impacts. In order to meet the CEQA requirements to identify an environmentally superior alternative, the EIR preparers primarily considered those issue areas that have the greatest potential to result in long-term, significant impacts, which include visual resources, biological resources, cultural resources, land use, and public recreation. Consideration was also given to community concerns, such as air quality, EMF, and noise. Impacts associated with construction (i.e., temporary or short-term) or those that are easily mitigated to less-than-significant levels were given consideration, but were considered less important than permanent impacts. Pursuant to CEQA Guidelines Section 15126.6(b), alternatives with potential for avoiding or substantially lessening the significant impacts may be considered even if they are more costly.

As shown in the comprehensive alternatives comparison matrix in Table D.5-2 (a side-by-side comparison of the proposed Project and alternatives), and as discussed in Section D.4, several of the alternatives have closely matched impacts, or would have fewer impacts for some issue areas while having greater impacts in other issues area, making a clear demonstration of the environmental superiority of one alternative difficult. In general, many environmental impacts appear to be reduced as a result of decreasing the length of the new transmission line, ability to avoid existing homes, and placement of the new transmission line next to existing transmission corridors providing for use of existing access roads and similar visual setting. For each issue area, the environmentally superior alternative has been determined as follows:

- Air Quality – *Alternative 3* is preferred as it would reduce the average unpaved road travel distance, resulting in a reduction in fugitive dust emissions, due to a greater portion of the Segment 2 alignment being adjacent to an existing transmission corridor with existing access roads.
- Biological Resources – *Alternative 3* is preferred as it would parallel an existing transmission line corridor throughout Segment 2, where the lands traversed have generally been previously degraded minimizing impacts to biological resources, and would result in the least amount of completely new ROW in native habitats.
- Cultural Resources³ – *Alternatives 1, 3, and 4* are preferred as they would all have the potential to affect 29 cultural resources sites, whereas the proposed Project and Alternative 2 would potentially affect a greater number of sites.

³ Specific additional cultural resources sites that would be impacted by Alternatives 1 through 4 were not identified due to lack of field surveys of the alternative routes. As such, it is possible that the alternative that has the potential to impact the greatest number of cultural resources sites has not been accurately identified. However, with implementation of project mitigation measures, including CA-1a and CA-1b, all impacts to cultural resources would be mitigated to a less-than-significant level (Class II).

- Geology, Soils, and Paleontology – *Alternative 3* is preferred as it would cross less landslide prone area, decreasing the potential severity of impacts from seismically induced slope failures in comparison to the proposed Project. Furthermore, the shorter transmission line route would result in crossing less erosion prone soils.
- Hazards and Hazardous Materials – ~~*No Superior Alternative-3* is preferred, as it is the shortest in length and would have the shortest construction schedule thereby minimizing~~ has been identified with respect to the potential for hazards and hazardous materials impacts since compared to the proposed Project would have the same potential for these types of impacts as all of the other analyzed project alternatives.
- Hydrology and Water Quality – *Alternative 3* is preferred as the shorter transmission line route would result in reduced impacts to water quality related to soil erosion during construction, there would be less hillside construction, and less potential for release of hazardous materials.
- Land Use – *Alternative 4* is preferred as it avoids impacts to the AVUHSD, and avoids relocation of residences along Segment 2 and the preclusion of residential development in Ritter Ranch.
- Agriculture – *Alternative 1* is preferred generally because use of alternative Substation 2C greatly reducing permanent impacts to Williamson Act lands.
- Noise – *Alternative 4* is preferred as noise impacts from construction and operation of the Project would be limited to a few scattered residences.
- Traffic and Transportation – *Alternatives 1 or 4* are preferred as they would result in similar impacts to the proposed Project, whereas the other alternatives would have the potential to result in greater impacts.
- Visual Resources – *Alternative 3* is preferred as it would parallel an existing transmission line corridor throughout Segment 2; require the relocation of only one existing residence along Segment 2, combining the benefits of Options A and B of the proposed Project; and would eliminate the visual clutter of crossing over/under existing transmission lines in Antelope-Vincent corridor.
- Population and Housing – *Alternative 4 or Option A* are preferred as they would avoid removal of existing and planned residential housing structures it would result in the same impacts as Option A of the proposed Project, whereas the other alternatives would have the potential to result in significant unavoidable greater impacts to existing and planned housing.

From the above summary of preferences by environmental issue area, and considering long-term impacts to the environment, the environmentally superior alternative is Alternative 3, Antelope-Vincent Re-route 1.

Table D.5-2. Summary Comparison of Environmental Issues/Impacts				
Proposed Project	Alternative 1: Substation 2C to Substation One via Cameron Canyon Road	Alternative 2: Substation 1B to Antelope via 100th Street	Alternative 3: Antelope-Vincent Re-route 1	Alternative 4: Antelope-Vincent Re-route 2
<i>Air Quality</i>				
Exceeds AVAQMD regional emission thresholds for: Daily NOx (385 lb/day) Daily PM10 (556 lb/day) Total PM10 (19.2 tons) <i>Option A:</i> Slightly increases the number of towers and AVAQMD Total PM10 increases (19.3 tons). <i>Option B:</i> Slightly decreases the number of new towers and reduces AVAQMD Daily NOx (378 lb/day), Daily PM10 (435 lb/day), and Total PM10 (15.2 tons).	Reduction in the average unpaved road travel distance, resulting in reduced fugitive dust emissions (PM10 & PM2.5). May place a few towers near residences in a couple of locations, specifically near Cameron Canyon Road.	Increase in the average unpaved road travel distance in the AVAQMD portion, resulting in increased fugitive dust emissions. Tower sites would generally be closer to paved roads (notably Tehachapi Willow Springs Road) for access in the KCAPCD portion, resulting in decreased fugitive dust emissions.	Reduction in the average unpaved road travel distance, resulting in a reduction in fugitive dust emissions. The overall reduction would be more or less the same as Option B of the proposed Project.	Fugitive dust emissions would be very similar to the proposed Project. May place a few towers near residences in a couple of locations, particularly within the Leona Valley.
<i>Biological Resources</i>				
27.4 miles of completely new ROW (located in native habitats).	27.4 miles of completely new ROW.	25.7 miles of completely new ROW.	24.9 miles of completely new ROW.	29.7 miles of completely new ROW.
Loss of riparian or sensitive desert wash resources (0.4 acres).	Greater impact to Mojave riparian forest habitat than proposed Project due to additional drainage crossings.	Same as proposed Project.	Same as proposed Project.	Same as proposed Project.
Loss of sensitive Joshua Tree woodland habitat and removal of Joshua Trees and Juniper Trees.	Same as proposed Project.	Greater than proposed Project due to crossing more Joshua tree woodland.	Same as proposed Project.	Same as proposed Project.
Potential take of Desert Tortoise.	Same as proposed Project.	Greater than proposed Project due to crossing more Joshua tree woodland-creosoto bush scrub habitats.	Same as proposed Project.	Same as proposed Project.
Potential to disturb nesting Swainson's Hawks.	Same as proposed Project.	Greater than proposed Project due to crossing more suitable nesting and foraging habitat for Swainson's Hawks.	Same as proposed Project.	Same as proposed Project.
Potential to disturb nesting special-status riparian birds.	Would cross additional riparian forest habitat resulting in greater disturbance to nesting special-status riparian birds.	Would cross additional riparian forest habitat resulting in greater disturbance nesting special-status riparian birds.	Same as proposed Project.	Same as proposed Project.

Table D.5-2. Summary Comparison of Environmental Issues/Impacts				
Proposed Project	Alternative 1: Substation 2C to Substation One via Cameron Canyon Road	Alternative 2: Substation 1B to Antelope via 100th Street	Alternative 3: Antelope-Vincent Re-route 1	Alternative 4: Antelope-Vincent Re-route 2
Potential to take or loss of habitat for Mohave ground squirrel.	Same as proposed Project.	Greater impacts to habitat suitable for listed species such as Mohave ground squirrel.	Same as proposed Project.	Same as proposed Project.
Potential loss of and/or disturbance to short-joint beavertail cactus.	Slightly greater than proposed Project.	Same as proposed Project.	Same as proposed Project.	Same as proposed Project.
Potential to impact aquatic habitat for southwest pond turtle and two-striped garter snake.	Same as proposed Project.	Same as proposed Project.	Greater than proposed Project.	Same as proposed Project.
Potential loss of nesting and foraging habitat for Loggerhead Shrikes, Bendire's Thrashers, and LeConte's Thrashers.	Same as proposed Project.	Greater than the proposed Project.	Same as proposed Project.	Same as proposed Project.
Potential loss of occupied Burrowing Owl habitat.	Same as proposed Project.	Greater than the proposed Project.	Same as proposed Project.	Same as proposed Project.
Potential to disturb nesting raptors.	Greater than the proposed Project.	Greater than the proposed Project.	Same as proposed Project.	Same as proposed Project.
Potential to disturb Desert Tortoise movement as a result of habitat modification.	Same as proposed Project.	Greater than the proposed Project.	Same as proposed Project.	Same as proposed Project.
<i>Cultural Resources⁴</i>				
Potential to impact 31 cultural resources sites.	Potential to impact 29 cultural resources sites. Would NOT impact AP3-133 and AP3-134.	Potential to impact 30 cultural resource sites. Would NOT impact AP3-113.	Potential to impact 29 cultural resources sites. Would NOT impact AP2-106 and AP2-107.	Potential to impact 29 cultural resources sites. Would NOT impact AP2-106 and AP2-107.

⁴ Specific additional cultural resources sites that would be impacted by Alternatives 1 through 4 have not been included herein due to lack of field surveys of the alternative routes. As such, it is possible that the alternative that has the potential to impact the greatest number of cultural resources sites has not been accurately identified. However, with implementation of project mitigation measures, including CA-1a and CA-1b, all impacts to cultural resources would be mitigated to a less-than-significant level (Class II).

Table D.5-2. Summary Comparison of Environmental Issues/Impacts				
Proposed Project	Alternative 1: Substation 2C to Substation One via Cameron Canyon Road	Alternative 2: Substation 1B to Antelope via 100th Street	Alternative 3: Antelope-Vincent Re-route 1	Alternative 4: Antelope-Vincent Re-route 2
<i>Geology, Soils, and Paleontology</i>				
<p>Hills and slopes crossed by Segment 2 are underlain by landslide prone Pelona Schist, and several areas cross mapped landslides.</p> <p>Portions of Segment 3 and most of Segment 2 are underlain by soils classified as having moderate to severe hazard of erosion on roads and trails.</p> <p>Crosses active traces of the Garlock and San Andreas faults.</p> <p>Crosses potentially liquefiable deposits in Leona and Anaverde Valleys.</p>	<p>Crosses the Garlock fault in an Alquist-Priolo Zone. Continues to cross the San Andreas Fault</p> <p>Crosses steep slopes in the Tehachapi Mountains increasing the potential for seismically induced slope failures.</p>	<p>Same as the proposed Project.</p>	<p>Crosses less landslide prone area and more area with liquefaction potential, decreasing the potential severity of impacts from seismically induced slope failures and increasing the severity of impacts from liquefaction in comparison to the proposed Project.</p> <p>Shorter T/L route crosses less erosion prone soils than the proposed Project.</p> <p>Crosses the San Andreas fault in an Alquist-Priolo Zone. Continues to cross the Garlock fault.</p>	<p>Crosses substantially more mapped landslides and a longer section of landslide prone Pelona Schist, and more potentially liquefiable young Alluvium in the Leona Valley than the proposed Project.</p> <p>Crosses more erosion prone soils than the proposed Project.</p>
<i>Hazards and Hazardous Materials</i>				
<p>Potential for soil or groundwater contamination from spills or leaks during construction and operation.</p>	<p>Same as proposed Project.</p>	<p>Same as proposed Project.</p>	<p>Same as proposed Project.</p>	<p>Same as proposed Project.</p>
<i>Hydrology and Water Quality</i>				
<p>Construction activities, especially in hillside areas, would create soil erosion and sedimentation that could affect water quality.</p> <p><i>Option A:</i> Slightly increases the number of T/L towers and associated impacts to water quality.</p> <p><i>Option B:</i> Shorter T/L route would result in reduced impacts to water quality related to: soil erosion related to construction; hillside construction around Ritter Ranch; potential for release of hazardous materials.</p> <p>- T/L would cross Anaverde Creek</p>	<p>Introduces excavation activities (such as tower installation) in the Fremont Valley Groundwater Basin.</p> <p>T/L would cross Cameron Canyon Creek.</p> <p>T/L would potentially cross more ephemeral waterways and valley washes.</p>	<p>Slightly increases the number of T/L towers and associated impacts to water quality.</p> <p>T/L would cross the same waterways as the proposed Project; between Mile S3-9.5 and S3-30.6, these waterways would be crossed to the east of the proposed Project.</p>	<p>Shorter T/L route would result in reduced impacts to water quality related to: soil erosion related to construction; hillside construction around Ritter Ranch; potential for release of hazardous materials.</p> <p>T/L would traverse Anaverde Creek one time (vs. two crossings for the proposed Project).</p> <p>T/L would traverse three minor tributaries of Anaverde Creek between Mile S2-8.6 and S2-10.4.</p> <p>T/L would not traverse Ritter Canyon Creek (proposed Project Mile S2-</p>	<p>Crosses fewer ephemeral waterways and valley washes.</p> <p>T/L crosses Rogers Creek (Mile S2-8.7 and Mile S2-9.2) and Pine Creek (Mile S2-9.4 and Mile S2-9.8).</p> <p>T/L does not cross Railroad Canyon Creek (proposed Project Mile S2-4.4).</p>

Table D.5-2. Summary Comparison of Environmental Issues/Impacts

Proposed Project	Alternative 1: Substation 2C to Substation One via Cameron Canyon Road	Alternative 2: Substation 1B to Antelope via 100th Street	Alternative 3: Antelope-Vincent Re-route 1	Alternative 4: Antelope-Vincent Re-route 2
<p>one time (vs. two) - T/L would not cross Ritter Canyon Creek</p>			<p>9.2, S2-10.8).</p>	
Land Use				
<p>Precludes the use of the AVUHSD property for educational facilities within 350 feet of the Project ROW. Requires the relocation of at least 3 residences along <u>Cherry Tree Lane</u> in Segment 2. <u>Temporary closure of the PCT and trails within Ritter Ranch and other areas of the City of Palmdale and unincorporated L.A. County.</u> <u>Siting of lattice steel towers along Segment 3 may permanently affect recreational access to the PCT (i.e., parking).</u> <i>Option A</i> avoids the relocation of these residences. <i>Option B</i> precludes planned development in Ritter Ranch <u>and Anaverde Ranch.</u> <i>Option B</i> precludes the use of <u>planned educational facilities in Ritter Ranch and Anaverde Ranch.</u> Temporary closure of the PCT and trails within Ritter Ranch. <i>Option B</i> avoids impacts to Ritter Ranch trails. <u>Siting of lattice steel towers along Segment 3 may permanently affect recreational access to the PCT (i.e., parking).</u></p>	<p>Precludes the use of the AVUHSD property for educational facilities within 350 feet of the Project ROW. Requires the relocation of 3 residences along <u>Cherry Tree Lane</u> in Segment 2, and may require the relocation of residences on Cameron Canyon Road along Segment 3. Temporary closure of the PCT and trails within Ritter Ranch. Avoids the PCT trailhead and parking area.</p>	<p>Precludes the use of the AVUHSD property for educational facilities within 350 feet of the Project ROW. <u>Precludes the use of planned educational facilities in Ritter Ranch and Anaverde Ranch.</u> Requires the relocation of 3 residences along <u>Cherry Tree Lane</u> in Segment 2, and may require the relocation of a residence on Hamilton Road along Segment 3. Temporary closure of the PCT and trails within Ritter Ranch <u>and other areas of the City of Palmdale and unincorporated L.A. County.</u> Siting of lattice steel towers along Segment 3 may permanently affect recreational access to the PCT (i.e., parking).</p>	<p>Avoids impacts to AVUHSD property. Avoids the relocation of residences along <u>Cherry Tree Lane</u> in Segment 2. Precludes planned residential development in Ritter Ranch <u>and Anaverde Ranch.</u> Temporary closure of the PCT <u>and trails within City of Palmdale and unincorporated L.A. County.</u> Avoids trails within Ritter Ranch. Siting of lattice steel towers along Segment 3 may permanently affect recreational access to the PCT (i.e., parking).</p>	<p>Avoids impacts to AVUHSD property. Avoids the relocation of residences along <u>Cherry Tree Lane</u> in Segment 2, and the preclusion of residential development in Ritter Ranch <u>and Anaverde Ranch.</u> Temporary closure of the PCT and trails within Ritter Ranch <u>and trails within City of Palmdale and unincorporated L.A. County.</u> Siting of lattice steel towers along Segment 3 may permanently affect recreational access to the PCT (i.e., parking).</p>
Agriculture				

Table D.5-2. Summary Comparison of Environmental Issues/Impacts				
Proposed Project	Alternative 1: Substation 2C to Substation One via Cameron Canyon Road	Alternative 2: Substation 1B to Antelope via 100th Street	Alternative 3: Antelope-Vincent Re-route 1	Alternative 4: Antelope-Vincent Re-route 2
Temporary conversion of Farmland: 1.2 acres Prime Farmland 0.6 acre Farmland of Statewide Importance 0.1 acre Unique Farmland	Temporary conversion of Farmland: Same as proposed Project	Temporary conversion of Farmland: 1.8 acres Prime Farmland 0.6 acre Farmland of Statewide Importance 0.1 acre Unique Farmland	Temporary conversion of Farmland: Same as proposed Project	Temporary conversion of Farmland: 1.5 acres Prime Farmland 0.6 acre Farmland of Statewide Importance 0.1 acre Unique Farmland
Permanent conversion of Farmland: 2.0 acres Prime Farmland 1.5 acres Farmland of Statewide Importance 0.3 acre Unique Farmland	Permanent conversion of Farmland: Same as proposed Project	Permanent conversion of Farmland: 2.9 acres Prime Farmland 1.5 acres Farmland of Statewide Importance 0.2 acre Unique Farmland	Permanent conversion of Farmland: Same as proposed Project	Permanent conversion of Farmland: 2.1 acres Prime Farmland 1.5 acres Farmland of Statewide Importance 0.3 acre Unique Farmland
Temporary disturbance of Williamson Act lands: 0.9 acre Prime Farmland 0.6 acre Mixed	Temporary disturbance of Williamson Act lands: Same as proposed Project	Temporary disturbance of Williamson Act lands: 1.8 acres Prime Farmland 0.6 acre Mixed	Temporary disturbance of Williamson Act lands: Same as proposed Project	Temporary disturbance of Williamson Act lands: Same as proposed Project
Permanent disturbance of Williamson Act lands: 1.0 acre Prime Farmland 28.6 acres Mixed	Permanent disturbance of Williamson Act lands: 1.0 acre Prime Farmland 0.3 acre Mixed	Permanent disturbance of Williamson Act lands: 1.2 acres Prime Farmland 28.6 acres Mixed	Permanent disturbance of Williamson Act lands: Same as proposed Project	Permanent disturbance of Williamson Act lands: Same as proposed Project
Noise				
Construction equipment noise levels between 70 and 90 dBA (at 50 feet) would violate local noise ordinances along the route. Operational corona noise levels would increase ambient noise levels for sensitive receptors along the route. Operational noise levels between 55 and 65 dBA (wet weather, heavy load) would exceed LA County Noise Ordinance standard of 45 dBA for sensitive areas. <i>Option A:</i> Reduced number of sensitive receptors between Mile S2-5.7 and Mile S2-7.7.	Construction and operational noise would affect additional sensitive receptors along Cameron Canyon Road. Noise impacts would be greater than the proposed Project.	Construction and operational noise impacts would increase for residences near the Los Angeles/Kern County line, including on Hamilton Road, Avenue A, 100 th Street West (between Avenues A & B), and Avenue D. Noise impacts would be greater than the proposed Project.	Construction and operational noise impacts would increase for residences along Godde Hill Road, Hacienda Ranch Road, Cherry Tree Lane in unincorporated LA County. Nearby sensitive receptors within the Ritter Ranch and Anaverde community developments would be affected. Noise impacts would have the potential to be greater than the proposed Project depending on development within Ritter Ranch and Avaverde community development areas.	Construction and operational noise impacts would occur for residences along Elizabeth Lake Road, Calva Street, 86 th Street West, and Bouquet Canyon Road. Noise impacts would be generally the same as the proposed Project.

Table D.5-2. Summary Comparison of Environmental Issues/Impacts				
Proposed Project	Alternative 1: Substation 2C to Substation One via Cameron Canyon Road	Alternative 2: Substation 1B to Antelope via 100th Street	Alternative 3: Antelope-Vincent Re-route 1	Alternative 4: Antelope-Vincent Re-route 2
<i>Option B:</i> Increased number of sensitive receptors between Mile S2-8.1 and Mile S2-11.2 (proposed route Mile S2-14.9)				
Traffic and Transportation				
<p>Temporary road closures would be required during stringing of the T/L.</p> <p>Traffic detours or controlled continuous traffic breaks may be required at road crossings.</p> <p>Construction-related traffic may contribute to congestion on heavily traveled or narrow roads.</p> <p>Short-term road closures could interfere with emergency response vehicles, bus routes, rail traffic, pedestrian movements, bike paths.</p> <p><i>Option A:</i> The alignment would be longer than the proposed route, but impacts to traffic and transportation would be the same.</p> <p><i>Option B:</i> At least one additional road crossing would occur in the Ritter Ranch and Anaverde developments.</p>	<p>T/L would cross over Cameron Canyon Road.</p> <p>T/L would not cross over Tehachapi-Willow Springs Road.</p> <p>Traffic and transportation impacts would be the same as the proposed Project.</p>	<p>Construction activities within the road ROW for 100th Street could be greater due to the T/L alignment being adjacent to 100th Street.</p> <p>Duration of construction activities within a road ROW could be extended.</p> <p>Traffic and transportation impacts would be greater than the proposed Project.</p>	<p>T/L route would cross through a portion of the Ritter Ranch development area, affecting traffic on area roadways.</p> <p>Construction of the T/L may impede pedestrian movements and bike paths in the Ritter Ranch development area.</p> <p>Traffic and transportation impacts would be greater than the proposed Project.</p>	<p>T/L would cross Bouquet Canyon Road. T/L would not cross Godde Hill Road.</p> <p>Traffic and transportation impacts would be the same as the proposed Project.</p>

Table D.5-2. Summary Comparison of Environmental Issues/Impacts				
Proposed Project	Alternative 1: Substation 2C to Substation One via Cameron Canyon Road	Alternative 2: Substation 1B to Antelope via 100th Street	Alternative 3: Antelope-Vincent Re-route 1	Alternative 4: Antelope-Vincent Re-route 2
Visual Resources				
<p>Requires the relocation of at least 4 residences along Segment 2, resulting in significant, unavoidable (Class I) visual impacts.</p> <p><i>Option A:</i> Avoids the relocation of 3 of these residences.</p> <p><i>Option B:</i> Avoids new ROW and visual impacts to Sierra Pelona Ridge in Ritter Ranch.</p> <p>Visual impacts seen from PCT and PCT trailhead.</p> <p>Siting of 500-kV lattice steel towers along Segments 2 & 3 would create skyline blockage where no landform backdrops exist, creating significant visual impacts.</p>	<p>Substation 2C is 800-feet closer to Highway 58 and Jameson Street, therefore greater visual impacts to foreground views (KOP-1).</p> <p>220-kV line would potentially pass over 3 residences on Cameron Canyon Road, requiring relocation.</p> <p>220-kV line would be seen at foreground distances from several other residences on Cameron Canyon Road.</p> <p>Visual impacts would be greater than the proposed Project.</p>	<p>Would require the relocation of more than two-dozen existing residences.</p> <p>500-kV transmission line would be visible in the immediate foreground of 100th Street West for several miles.</p> <p>Visual impacts would be greater than the proposed Project.</p>	<p>Requires the relocation of 1 residence along Segment 2; however, 3 other existing residences at Elizabeth Lake Road remain intact, combining the benefits of Options A & B of proposed Project.</p> <p>Parallels an existing transmission line corridor throughout Segment 2.</p> <p>Eliminates visual clutter of crossing over/under existing transmission lines in Antelope-Vincent corridor, plus the visual clutter of the cut-over of Segment 2 at Mile 14.9.</p> <p>Visual impacts would be less than the proposed Project.</p>	<p>In Segment 2, all significant, unavoidable (Class I) visual impacts would be eliminated. Existing residences would remain and be unaffected.</p> <p>Visual impacts to foreground and middleground views from Bouquet Canyon Road are greater than the proposed Project or any other alternative.</p> <p>Visual impacts occur in middle-ground landscapes on Sierra Pelona Ridge for longer distances; therefore, fewer miles of foreground views to new transmission lines.</p> <p>Visual impacts would be greater than the proposed Project.</p>
Population and Housing				
<p>Removal of the following residential structures would occur:</p> <ul style="list-style-type: none"> ▪ Single family home on Avenue "L" in Lancaster would be eliminated without the implementation of Mitigation Measure L-2. ▪ Removal of a minimum of three existing residences in unincorporated Los Angeles County along Cherry Tree Lane. <p><i>Option A:</i> Avoids removal of a existing residences along Cherry Tree Lane. Would require the removal of single family home on Avenue "L" in Lancaster without implementation of Mitigation Measure L-2</p>	<p>Removal of 3 additional single-family residences (ranchettes with horse stables) along Cameron Canyon Road.</p> <p>In addition, this alternative would continue to require the removal of residential units along <u>Cherry Tree Lane, identical to those listed for the proposed Project.</u></p> <p>Housing impacts would be greater than the proposed Project.</p>	<p>Removal of the following residential units would be required in unincorporated Kern County:</p> <ul style="list-style-type: none"> ▪ 2 homes north of Rosamond Blvd ▪ 16 homes north of Ave. A ▪ 1 home north of Ave. B ▪ several homes along Leslie Ave off 100th Street ▪ 6 homes north of Ave. A. <p>In addition, this alternative would continue to require the removal of residential units along <u>Cherry Tree Lane, identical to those listed for the proposed Project.</u></p> <p>Housing impacts would be greater than the proposed Project.</p>	<p>Residential structures along Elizabeth Lake Road and Cherry Tree Lane would not be removed.</p> <p>ROW through the Ritter Ranch and Anaverde Ranch development areas would be widened, thus increasing the removal of <u>planned home sites under construction</u> within Ritter Ranch and <u>home sites planned within</u> Anaverde Ranch.</p> <p>Housing impacts would be greater than the proposed Project.</p>	<p>This Alternative would require the removal of residential units identical to those listed above for the proposed Project.</p> <p><u>No existing or planned residential units would be removed for this alternative.</u></p> <p>Housing impacts would be <u>identical less than</u> those described for the proposed Project.</p>

Table D.5-2. Summary Comparison of Environmental Issues/Impacts				
Proposed Project	Alternative 1: Substation 2C to Substation One via Cameron Canyon Road	Alternative 2: Substation 1B to Antelope via 100th Street	Alternative 3: Antelope-Vincent Re-route 1	Alternative 4: Antelope-Vincent Re-route 2
<p><i>Option B:</i> Removal of planned home sites under construction within Ritter Ranch and home sites planned within Anaverde Ranch. Option B would continue to require the removal of residential units along Cherry Tree Lane, identical to those listed above for the proposed Project.</p>				