

ES.1 PROJECT OVERVIEW

Southern California Edison Company (SCE) is proposing to construct the Tehachapi Renewable Transmission Project (TRTP) to provide the electrical facilities necessary to interconnect new wind turbine based electrical generation in excess of 700 megawatts (MW) and up to approximately 4,500 MW from the Tehachapi Wind Resource Area (TWRA). The TWRA has been identified as the richest wind resource area in California. The proposed TRTP would consist of a series of new and upgraded high-voltage transmission lines (T/L) and substation facilities to deliver electricity from new wind farms in eastern Kern County, California, to the Los Angeles Basin.

The proposed TRTP consists of eight segments enumerated as Segment 4 through Segment 11. Proposed Segments 4, 5, and 10 that would involve upgrading and expanding SCE’s transmission system north of SCE’s Vincent Substation in order to integrate TWRA wind generation to SCE’s electric system. Proposed Segments 6, 7, 8, and 11 would involve upgrading and expanding SCE’s transmission system south of SCE’s Vincent Substation in order to deliver TWRA wind generation to SCE’s load centers in the Los Angeles Basin. Segment 9 would involve building a new substation (Whirlwind Substation in Kern County), expanding two existing substations (Antelope and Vincent substations), and upgrading three substations (Gould, Mesa, and Mira Loma substations) (refer to Figure ES-1).

This Proponent’s Environmental Assessment (PEA) and the associated Application for a Certificate of Public Convenience and Necessity (CPCN) are needed to comply with Ordering Paragraph No. 2 of California Public Utilities Commission (CPUC) Resolution E-3969, which is discussed in more detail in Section ES.2.

ES.2 PURPOSE AND NEED AND OBJECTIVES

The proposed multi-segment TRTP is needed to:

- Comply with Ordering Paragraph No. 2 of California Public Utilities Commission (CPUC) Resolution E-3969 which required SCE to “perform the studies necessary for the preparation of PEAs [Proponent’s Environmental Assessment] and the filing of CPCNs” for specified transmission facilities to accommodate future Tehachapi wind generation projects;
- Comply with the state-mandated Renewables Portfolio Standard (RPS) (i.e., 20 percent renewable by year 2010 per California Senate Bill 107¹) in an orderly, rational and cost-

¹ SB 107; Chapter 464, Statutes of 2006. SB 107 amends pertinent provisions in Public Resources Code Sections 25740 through 25751 and Public Utilities Code Sections 399.11 through 399.16.

EXECUTIVE SUMMARY

Tehachapi Renewable Transmission Project

effective manner, while also considering the need for maintaining reliable electric service during the upgrade and/or construction of new facilities;

- Integrate planned renewable generation resources², including those for which SCE has executed a Power Purchase Agreement totaling approximately 1,790 MW, from the TWRA in a manner that minimizes potential environmental impacts and impacts to existing and planned residences, where feasible, by maximizing the use of existing transmission corridors with facilities identified through the planning process of the CAISO South Regional Transmission Plan for 2006 in order to:
 - a) Maximize the use of existing, previously disturbed transmission line right-of-way to minimize effect on previously undisturbed land and resources;
 - b) Select route and tower locations with the lowest potential for environmental impacts while still meeting project objectives; and,
 - c) Select the shortest feasible route that minimizes environmental impacts and project costs.
- Meet the transmission reliability needs of the SCE owned and CAISO controlled transmission grid in the Antelope Valley resulting from projected load growth in this area;
- Increase transmission capability from SCE's Lugo Substation (located in Hesperia) to the Mira Loma Area (South of Lugo³), which is an existing transmission "bottleneck" that has been an ongoing source of reliability concern for the Los Angeles Basin and that will worsen with the inclusion of additional generation resources in the Tehachapi area;
- Interconnect and deliver energy from up to 4,500 MW of renewable and non-renewable resources located in the TWRA and in the SCE Big Creek Transmission Corridor in a way that complies with all applicable NERC/WECC⁴ Planning Standards, and in a manner that minimizes transmission line crossings; and,
- Support the State of California Greenhouse Gas Reduction Program.

In addition to the considerations listed above, SCE has identified the following Project objectives for meeting the TRTP's purpose and need:

² Under Sections 210 and 212 of the Federal Power Act (16 U.S.C § 824 (i) and (k)) and Sections 24 and 25 of the California Independent System Operator's (CAISO) Tariff, SCE is obligated to interconnect and integrate power generation facilities into its electric system.

³ South of Lugo is the term used to define the transmission corridor containing three SCE 500 kV T/Ls from Lugo Substation to Mira Loma Substation.

⁴ North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC).

EXECUTIVE SUMMARY

Tehachapi Renewable Transmission Project

1. Reliably interconnect new wind generation resources in the TWRA and enable SCE and other California utilities to comply with California's Renewable Portfolio Standard in an expedited manner;
2. Comply with all applicable reliability planning criteria required by NERC, WECC and the CAISO;
3. Construct facilities in an orderly, rational and cost-effective manner to maintain reliable electric service, by minimizing service interruptions, during construction;
4. Address the reliability needs of the CAISO controlled grid due to projected load growth in the Antelope Valley;
5. Address the South of Lugo transmission constraints, an ongoing source of concern for the Los Angeles Basin;
6. Maximize the use of existing transmission line right-of-ways in order to minimize effects on previously undisturbed land and resources;⁵
7. Minimize environmental impacts, through selection of routes, tower types and locations;
8. Where existing right-of-way is not available, utilize the shortest feasible route that minimizes environmental impacts; and,
9. Meet project needs in a cost-effective and timely manner.

ES.3 ALTERNATIVES TO THE PROPOSED PROJECT

ES.3.1 Overview

Alternatives to the Project were developed and evaluated based on the Project objectives, purpose, and need. As summarized in Section ES.2, the purpose of the proposed TRTP is to provide the electrical facilities necessary to integrate levels of new wind generation in excess of 700 megawatt (MW) and up to approximately 4,500 MW in the TWRA. SCE's TRTP includes a series of new and upgraded high-voltage electric transmission lines and substations to deliver electricity from new wind farms, planned by independent power producers, in eastern Kern County to the Los Angeles Basin. Alternatives considered include: 1) System Alternatives; 2) Technology Alternatives; 3) Routing Alternatives; and 4) No Project Alternative.

⁵ See Garamendi Principles (Senate Bill 2431, Stats. 1988, Ch. 1457) regarding State transmission siting policies, including; 1) encourage the use of existing rights-of-way by upgrading existing transmission facilities where technically and economically justifiable; 2) when construction of new transmission lines is required, encourage expansion of existing right-of-way, when technically and economically feasible; 3) provide for the creation of new rights-of-way when justified by environmental, technical, or economic reasons as determined by the appropriate licensing agency; 4) where there is a need to construct additional transmission capacity seek agreement among all interested utilities on the efficient use of that capacity.

ES.3.2 System Alternatives

System alternatives include non-transmission alternatives, such as in-basin generation of electricity or implementation of demand-side management and energy efficiency programs. Other system alternatives, such as routing transmission lines from the TWRA to Pacific Gas and Electric's (PG&E) Midway Substation (located near Bakersfield), are regional in scope. System alternatives were eliminated from further consideration (refer to Section 2.0 for detailed information).

ES.3.3 Technology Alternatives

Technology alternatives include composite core conductor, structure type and materials, overhead construction versus undergrounding transmission lines, and single-circuit or double-circuit transmission lines. Technologies were evaluated based on their feasibility, cost, reliability, and environmental impacts (refer to Section 2.0 for detailed information).

ES.3.4 Routing Alternatives

Types of routing and siting alternatives include alternative locations, use of existing corridors and R-O-Ws, and establishment of new corridors and R-O-Ws. Feasibility of the alternatives were determined by topography, cost and time associated with establishing transmission lines and associated equipment and facilities, and the ability of a corridor configuration to provide for reliability requirements. Environmental considerations included ground disturbance, visual impacts, and potential impacts to existing or planned developments (refer to Section 2.0 for detailed information).

ES.3.5 No Project Alternative

Under the No Project Alternative, there would be no facility upgrades or other changes to SCE's electric transmission system. Proposed TRTP Segments 4 through 11, including new and upgraded T/Ls and substations, would not be constructed (refer to Section 2.0 for detailed information).

ES.4 DESCRIPTION OF THE PROPOSED PROJECT

The major proposed TRTP components have been separated into eight distinct segments. Under separate applications to the CPUC, SCE has previously requested and received approval for Segments 1, 2, and 3 of the Antelope Transmission Project⁶, which will also enhance transmission and related infrastructure serving the TWRA. Consequently the

⁶ Antelope Transmission Project Segment 1 Application (A.04-12-007) was approved in Decision 07-03-012. Antelope Transmission Project Segments 2 and 3 Application (A.04-12-008) was approved in Decision 07-03-045.

delineation of major components for the TRTP begins with Segment 4. It is currently planned by SCE that the proposed TRTP segments would be constructed over a 55-month period between April 2009 and November 2013. The proposed Project's major components are shown in Figure ES-1 and listed in Table ES-1, which are presented at the end of the Executive Summary.

ES.5 PROJECT ALTERNATIVES BY SEGMENT

ES.5.1 Introduction

The proposed TRTP would involve construction and upgrading of existing SCE 220 kV facilities to 500 kV standards and replacement of existing facilities along existing and new SCE R-O-Ws. Additionally, the TRTP would involve substation construction, expansion, and upgrades. No Project alternatives have been identified for Segments 4 through 8 and Segment 11. Project alternatives have been identified and assessed for Segments 9 and 10 which would both involve acquisition of new R-O-W/property as summarized in the following subsections.

ES.5.2 Segment 9 (Substation Facilities)

The Whirlwind Substation would be a new 500/220 kV substation located approximately 4 to 5 miles south of the Cottonwind Substation near the intersection of 170th Street and Holiday Avenue in Kern County near the TWRA. SCE is evaluating three alternative sites (Alternatives A, B, and C) for placement of the Whirlwind Substation. Alternative C is the proposed Whirlwind Substation location. Facilities associated with the proposed new substation (e.g., the substation pad and access road) would represent a permanent land disturbance of between 65 and 67 acres. These facilities would be within a larger land area acquired by SCE to accommodate the new substation. It is estimated that Alternative Site A would require acquisition of approximately 113 acres; Alternative Site B would require acquisition of approximately 102 acres; and Alternative Site C (Proposed Project) would require acquisition of approximately 106 acres.

ES.5.3 Segment 10 (New Whirlwind-Windhub 500 kV T/L)

Segment 10 of the Project is a proposed new approximately 17-mile-long single-circuit 500 kV transmission line needed to interconnect planned wind generation to the SCE grid. The new single-circuit line would be built on new R-O-W to be acquired on private land. The width of the new R-O-W would be 330 feet. SCE has developed two route alternatives (Alternative Segments 10A and 10B) for portions of Segment 10 as shown on Figure ES-1. Segment 10 is the proposed route for the New Whirlwind-Windhub 500 kV T/L.

ES.6 ENVIRONMENTAL IMPACTS AND MITIGATION

ES.6.1 Introduction

The impact findings for the proposed TRTP, including a listing of potentially significant impacts, applicant proposed measures (APMs), proposed mitigation measures, and residual impact findings, are presented by resource topic and CEQA significance criteria in Table ES-2. The completed CEQA Checklist presented in Appendix A supplements the information presented in Table ES-2. Table ES-2, PEA Section 4.0 (Environmental Impact Analysis and Mitigation Measures), and PEA Appendix A addresses the following topics:

- Aesthetic Resources
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services and Utilities
- Recreation
- Transportation and Traffic
- Paleontological Resources

A summary of key impact findings, by applicable environmental topics, follows.

ES.6.2 Summary of Key Impact Findings

With implementation of the specified APMs and proposed mitigation measures, the only significant impacts identified would be related to Aesthetics and Air Quality. With implementation of APMs and proposed mitigation measures, potential impacts associated

with construction and operation of the proposed TRTP for all other environmental resource topics are considered to be less than significant. Key impact finding summaries for Aesthetics and Air Quality follow.

ES.6.2.1 Aesthetic Resources

As discussed in Section 4.2 (Aesthetic Resources), the proposed TRTP would result in unavoidable significant impacts (under the California Environmental Quality Act [CEQA]) and adverse effects (under the National Environmental Policy Act [NEPA]) to aesthetic resources. A list of identified potential unavoidable significant impacts and adverse effects to aesthetic resources by TRTP segment and key observation point (KOP) are provided in Table ES-3.

ES.6.2.1.1 Construction Phase. With implementation of APMs for aesthetic resources (e.g., APMs AES -12, -15, -16, and -17; refer to Section 4.2.5), construction activities associated with TRTP Segments 4 through 11 would not result in unavoidable significant impacts to aesthetic resources (see Section 4.2, Aesthetic Resources).

ES.6.2.1.2 Operations Phase. Implementation of the proposed TRTP would result in unavoidable significant impacts to aesthetic resources during the operational phase due to implementation of Segments 7 and 8 for specific Key Observation Points (KOPs) when evaluated under CEQA. In addition, implementation of Segments 6 and 11 would potentially result in adverse effects to aesthetic resources in the Angeles National Forest (ANF) when evaluated under the NEPA and applicable U.S. Forest Service Scenic Integrity Objectives (SIOs) specified in the ANF Land Management Plan (LMP).

The unavoidable significant impact findings (using CEQA criteria) are considered to be unmitigable to less than significant levels. Implementation of both Segment 6 and Segment 11 on the ANF would result in less-than-significant impacts at all but one of the KOPs when the view was evaluated under CEQA. Implementation of Segment 11 near KOP 6.1 would result in an avoidable significant impact under CEQA and the impact is unmitigable to a level of less than significant. Implementation of both Segment 6 and Segment 11 on the ANF and the existing transmission corridor would continue to potentially be inconsistent with the ANF Scenic Integrity Objectives (SIOs) and, therefore, the proposed Project would result in a significant unavoidable adverse effect under NEPA. Certain portions of the proposed TRTP along Segments 6 and 11 (which are located in ANF designated utility corridors) may be inconsistent with the ANF LMP; however, the U.S. Forest Service may identify mitigation measures that would make the TRTP consistent with the LMP. Additionally, the ANF has the ability to reduce the identified inconsistencies or choose to amend the LMP to reduce the inconsistencies as part of the forthcoming NEPA Environmental Impact Statement (EIS) for the TRTP.

A summary of identified unavoidable significant impacts under CEQA and unavoidable adverse effects under NEPA are presented in Table ES-3; refer to Section 4.2 (Aesthetic Resources) and Appendix F for more information.

ES.6.2.2 Air Quality

ES.6.2.2.1 Construction Phase. To determine whether implementation of the proposed Project would violate any air quality standards or contribute substantially to an existing or projected air quality violation, a worst-case scenario⁷ approach (i.e., it was assumed that all construction phases would occur and overlap on any particular day) was taken to ensure that all potential air quality impacts were assessed. As such, emissions occurring during peak construction activities were quantified and used to determine air quality impacts. Overall Project construction emissions (i.e., considering overlapping emissions, by air basin, for all applicable TRTP segments) are presented in Table ES-4.

As discussed in Section 4.4 (Air Quality), the proposed TRTP would result in short-term, unavoidable significant effects to air quality during the construction phase of several TRTP segments in the South Coast Air Basin due to exceedences of the South Coast Air Quality Management District (SCAQMD) daily emission threshold limits. The following TRTP segments would exceed SCAQMD daily emission thresholds, as indicated: Segment 6 (NO_x), Segment 7 (NO_x), Segment 8 (NO_x and VOC), Segment 9 (NO_x and PM₁₀), and Segment 11 (NO_x, VOC, and CO). These impacts are considered to be individually significant and unavoidable.

To assess the potential significance of air quality impacts within each air basin for the overall proposed TRTP, daily and annual construction emissions were summed for TRTP segments located in the same air districts and air basin and compared to the applicable air district thresholds. A summary of the impact findings relative to unavoidable significant air quality effects during construction follows.

As shown in Table ES-4, annual construction emissions for the overall TRTP would exceed the Antelope Valley Air Quality Management District's (AVAQMD's) significance thresholds for NO_x in year 2010 and PM₁₀ in years 2010, 2011, and 2012 and, therefore, would be considered to have significant air quality impacts. Similarly, the comparison of the peak daily construction emissions with the SCAQMD significance thresholds shows that all pollutants exceed the thresholds with the exception of SO₂. The implementation of APMs identified in Section 4.4.5 would reduce overall emissions, but air quality impacts would remain significant and unavoidable during peak year construction in both air basins; these impacts would be short-term. Construction of the TRTP could potentially contribute to

⁷ The "worst-case scenario" is based on a set of conservative assumptions that, in aggregate, are currently not anticipated to be exceeded during the construction of the Project.

EXECUTIVE SUMMARY

Tehachapi Renewable Transmission Project

existing violations of O₃ and PM₁₀ air quality standards. Therefore, the construction of the TRTP would have certain short-term unavoidable significant impacts on air quality. While these impacts are potentially significant based on preliminary engineering and the “worst-case scenario” analysis, it is anticipated that final engineering would be expected to reduce the impacts to a less-than-significant level.

If the Project were to cause annual emissions that exceed the General Conformity Rule (GCR) *DeMinimis* thresholds, SCE would be required to prepare a comprehensive Air Quality Conformity Analysis and Determination. It should be noted that the GCR *DeMinimis* thresholds are for the entire air basins and are not for individual air districts. Therefore, to determine conformity requirements for Mojave Desert Air Basin (MDAB), construction emissions generated in Kern County (i.e., Kern County Air Pollution Control District [KCAPCD] jurisdiction) are added to emissions generated in northern Los Angeles County (i.e., AVAQMD jurisdiction). Based on the current proposed Project schedule, the maximum annual construction emissions for the proposed Project would occur in 2010 within the MDAB and in the South Coast Air Basin (SCAB). Annual construction emissions for year 2010 in the MDAB and the SCAB were compared to their respective GCR *DeMinimis* thresholds and are provided in Table ES-5.

Table ES-5 shows that the maximum annual construction emissions generated within the MDAB in year 2010 are below the GCR *DeMinimis* thresholds, and are therefore considered to be consistent with the State Implementation Plan (SIP). However, annual emissions generated during the peak construction year within the SCAB exceed the NO_x thresholds by 9.6 percent and are under the thresholds for all other pollutants. To ensure the proposed Project conforms to the SIP, NO_x emissions would have to be reduced by at least approximately 10 percent. It should be noted that construction emissions were estimated based on a worst-case scenario (e.g., all construction activities were assumed to overlap throughout the entire year), which is unlikely. NO_x emissions are directly correlated with the number and type of equipment used and operating hours. Based on this consideration, NO_x emissions could be reduced through various methods such as reducing the number of equipment operating at any one time, extending the construction time frame, and/or scheduling of equipment to reduce duplicate equipment operating for the same purpose during the construction phase. The detailed annual emissions calculations and associated assumptions used in the calculations are provided in Appendix G. Emissions generated from the construction and operation of the proposed TRTP would not be expected to expose nearby sensitive receptors to substantial pollutant concentrations or odor impacts.

Although the worst case daily TRTP construction emissions would exceed applicable daily emission thresholds in the SCAQMD and potentially exceed annual NO_x thresholds within the SCAB, SCE would implement air quality related APMs (refer to Section 4.4.5) that would minimize Project-related emissions to the extent feasible.

ES.6.2.2.2 Operations Phase. All operation-related air quality effects of the proposed TRTP are considered to be less than significant.

ES.7 COMPARISON OF PROPOSED PROJECT AND ALTERNATIVES

ES.7.1 Introduction

As summarized in ES.4 (Description of the Proposed Project), the proposed TRTP consists of the construction and operation of Segments 4 through 11.

Alternatives to the Project were developed and evaluated based on the Project objectives, purpose, and need. The primary purpose of the proposed TRTP is to provide the electrical facilities necessary to integrate levels of new wind generation in excess of 700 MW and up to approximately 4,500 MW in the TWRA. SCE's TRTP includes a series of new and upgraded high-voltage electric transmission lines and substations to deliver electricity from new wind farms, planned by independent power producers, in eastern Kern County to the Los Angeles Basin.

Selection of alternatives for either further evaluation or elimination was based on their ability to meet the purpose and need in a manner that was consistent with the Project objectives, including engineering feasibility, cost effectiveness, and minimization of environmental impacts. The range of alternatives initially considered included: 1) system alternatives; 2) technology alternatives; and 3) routing/siting alternatives. Alternatives eliminated from further consideration are discussed in Section 2.4.2 of the PEA.

ES.7.2 Alternatives Retained for Consideration

The alternatives retained for further consideration are:

- Segment 9: Whirlwind Substation- Alternative Site A, Alternative Site B, and Alternative Site C (proposed)
- Segment 10: Segment 10 (proposed), Alternative Segment 10A, and Alternative Segment 10B

Summary descriptions of these TRTP alternatives follow.

ES.7.2.1 Whirlwind Substation

Segment 9 would include the construction of a new substation, the Whirlwind Substation, as well as upgrades to several existing substations with new equipment.

ES.7.2.1.1 Whirlwind Substation Description. The Whirlwind Substation would be a new 500/220 kV substation located approximately 4 to 5 miles south of the planned Cottonwind Substation near the intersection of 170th Street and Holiday Avenue in Kern County near the TWRA. Three alternative sites, A, B, and C, have been identified for the new Whirlwind Substation. All three alternatives are located in the same general area. Most activities supporting construction of the Whirlwind Substation would be common to all three alternative sites, although there would be some variation in the amount of total disturbance required based on configuration of the facility footprint and access road. Permanent land disturbance would be between 65 and 67 acres. The facility and access roads would be accommodated within a larger land area to be acquired by SCE. The proposed new Whirlwind Substation would include a 500 kV switchyard and a 220 kV switchyard to connect to the T/Ls included as part of Segment 4 and Segment 10.

Whirlwind Substation Alternative A. Alternative Site A would be located on approximately 113 acres of previously disturbed land. It is assumed that grading results in stripping an average of 2 inches over the entire substation site resulting in an estimated quantity of 15,000 cubic yards of soil mixed with small stones and organic matter. The material would be disposed of in an appropriate manner.

Whirlwind Substation Alternative B. Alternative Site B would be located on approximately 102 acres of previously undisturbed land. It is assumed that grading of the entire substation site would result in an estimated quantity of 24,000 cubic yards of soil mixed with small stones and organic matter. The material would be disposed of in an appropriate manner.

Whirlwind Substation Alternative C (Proposed). Alternative Site C would be located on approximately 106 acres, partly on previously disturbed and plowed land and partly on native terrain. The average natural slope ranges between 1 and 3 percent across the proposed site. It is assumed that grading of the entire substation site would result in an estimated quantity of 15,000 cubic yards of soil mixed with small stones and organic matter. The material would be disposed of in an appropriate manner.

It is important that the new substation alternatives are in line with the Cottonwind and Antelope substations and be located near proposed wind generation projects in the area to reduce routing distances and support electric transmission efficiency. The Alternative A connection would require crossing of existing 220 kV transmission lines, which would decrease overall reliability. Additionally, soil stability issues could be a concern as an aquifer recharge facility is proposed for the site. Alternatives B and C are comparable with the exception of disturbed and undisturbed land.

Land disturbance and land acquisition of the three alternatives are relatively comparable. All three alternatives are feasible, would provide the shortest distance for routing between

EXECUTIVE SUMMARY

Tehachapi Renewable Transmission Project

Cottonwind and Antelope substations, and require no significant transmission line extensions. The alternatives comply with CAISO requirements in the selection of the shortest feasible route that minimizes environmental impacts and project costs.

Whirlwind Substation Alternatives A, B, and C would serve the purpose of the TRTP by providing the electrical facilities necessary to integrate levels of new wind generation through construction of a new 500/220 kV substation. All three alternatives are feasible and would comply with CAISO requirements and, therefore, were retained for analysis.

Alternative Site A is located on Prime Farmland and on a permitted aquifer recharge area. Alternative Site B would require approximately 60 percent more grading than Alternative C (i.e., 24,000 cubic yards versus 15,000 cubic yards). From an environmental impact perspective, the Whirlwind Substation Alternative Site A is inferior to Alternative Site B and Alternative Site C. Alternative Site B and C are essentially the same from an environmental impact perspective.

ES.7.2.2 Segment 10: New Whirlwind – Windhub 500 kV T/L

ES.7.2.2.1 Description. This alternative would require new R-O-W for a new approximately 16.8-mile-long single-circuit 500 kV transmission line between the Windhub and Whirlwind substations. Segment 10 would provide a transmission system connection to the planned Windhub Substation⁸ in a new 330-foot-wide R-O-W that is separated by at least 2,000 feet from the 500 kV transmission line associated with Segment 3 of the Antelope Transmission Project⁹. The route would represent the most direct route feasible for transmitting energy between the Windhub and Whirlwind substations.

Several alignment alternatives were considered for siting a new 500 kV transmission line between the recently permitted Windhub Substation and the proposed new Whirlwind Substation. The goal in identifying appropriate alignment alternatives was to find the least environmentally intrusive alignment.

The proposed new single-circuit 500 kV transmission line would exit the south side of the Windhub Substation generally heading southwest for approximately 4 miles, where the route would turn west for less than half a mile, and then turn south for approximately 3 miles. At this point, the route would turn southwest and parallel the south side of Petroleum Road for approximately 9 miles to the intersection of Rosamond Boulevard and North 170th Street.

⁸ The proposed Windhub 500/220/66 kV Substation has been licensed and was addressed in the PEA submitted to support the Antelope Transmission Project, Segments 2 and 3 (A.04-12-008) and approved in Decision 07-03-045.

⁹ The proposed Antelope-Windhub 500 kV T/L has been licensed and was addressed in the PEA submitted to support the Antelope Transmission Project, Segments 2 and 3 (A.04-12-008) and approved in Decision 07-03-045.

The route would then turn south for less than a mile where the transmission line would enter the east side of the proposed new Whirlwind Substation.

Two alignment alternatives, Segment 10A and 10B, were considered for the western portion of Segment 10, as summarized below:

- **Alternative Segment 10A.** This alternative route would mostly parallel the existing Los Angeles Aqueduct and access roads. Alternative Segment 10A is approximately 9.6 miles long, whereas the corresponding portion of proposed Segment 10 is approximately 8.8 miles long.
- **Alternative Segment 10B.** Alternative T/L route Segment 10B is a variation of Alternative Segment 10A. This alternative route departs Segment 10A and heads west for approximately 4 miles. At this point, the route turns south along the undesignated 160th Street West for approximately 2 miles. From this point, the route realigns with Segment 10A. Segment 10B is approximately 5 miles long, whereas the corresponding portion of Segment 10A is approximately 3.7 miles long.

Segment 10, 10A, and 10B generally meet the Project objectives, purpose, and need and further provide the critical interconnection of wind generation resources in the TWRA to the SCE transmission line system.

Segment 10 provides an additional point of connection to the Windhub Substation for delivery of wind energy resources from the TWRA. Because a new R-O-W would be required in this corridor, three routing options were identified for Segment 10. While Alternative Segments 10A and 10B are less direct than Segment 10 and, therefore, potentially less efficient, they are considered feasible and otherwise meet the Project objectives, purpose, and need. Each of the three alignment options was retained for analysis to determine which alignment would provide a reliable conduit with the least amount of environmental impact.

From an environmental impact perspective, proposed Segment 10 and Alternative Segments 10A and 10B are generally equivalent, although proposed Segment 10 is the shortest, most direct route with the best access (i.e., parallels General Petroleum Road over most of its length). Segment 10 would result in less construction and operational phase disturbance than Alternative Segment 10A, while Segment 10B would result in the most disturbance.

ES.8 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project Alternative would result in the fewest environmental effects. Under the No Project Alternative, there would be no facility upgrades or other changes to SCE's electric transmission system. Proposed TRTP Segments 4 through 11, including new and upgraded

EXECUTIVE SUMMARY

Tehachapi Renewable Transmission Project

T/Ls and substations, would not be constructed. However, the No Project Alternative would not meet the Project purpose and need and/or objectives (refer to Section 2.4.3 for more information).

Other potential alternatives to the TRTP were considered and eliminated from further consideration as discussed in Section 2.0 (Alternatives to the Proposed Project). The proposed TRTP is considered by SCE to be the only feasible and cost effective method of meeting the Project purpose, need, and objectives. Therefore, the TRTP is considered to be the environmentally superior alternative.

Whirlwind Substation Alternative Sites B and C are superior to Alternative Site A because Alternative Site A is within a permitted aquifer recharge area and on Prime Farmland. Whirlwind Substation sites B and C are essentially equal from an environmental impact perspective except that Whirlwind Alternative Site B would require an estimated 24,000 cubic yards of grading versus an estimated 15,000 cubic yards for Whirlwind Alternative Site C. Whirlwind Alternative Site C is superior to Alternative B relative to the amount of grading required. However, the difference is relatively minor and Whirlwind Alternative Sites B and C are considered to be acceptable from an environmental perspective.

The proposed Segment 10 route and Alternative Segments 10A and 10B are essentially the same from an environmental perspective with the following exceptions: 1) proposed Segment 10 is the most direct, shortest T/L route, paralleling General Petroleum Road over the majority of its length (i.e., has best existing access); and 2) proposed Segment 10 would involve the least amount of R-O-W acquisition and associated construction and permanent disturbance whereas Alternative Segment 10B would require the most R-O-W acquisition and associated disturbance. These differences are relatively minor, and all three Segment 10 routes are considered to be acceptable from an environmental perspective.

TABLE ES-1
SUMMARY OF PROPOSED PROJECT COMPONENTS BY SEGMENT,
TEHACHAPI RENEWABLE TRANSMISSION PROJECT (TRTP)

Overall Project Construction

- Proposed construction duration of 55 months (estimated to begin in April 2009 and end in November 2013)
- Transmission facility construction generally scheduled for Monday through Friday, 7:00 a.m. to 5:00 p.m.; when extended hours would require a variance, it would be acquired
- Substation construction generally scheduled for Monday through Friday, 7:00 a.m. to 5:00 p.m.; when extended hours would require a variance, it would be acquired
- Workforce ranging in size from 10 to 300 persons, with daily average workforce of approximately 75 persons
- Disturbance of approximately 1,444 acres, with restoration of approximately 1,297 acres, resulting in permanent land disturbance of approximately 147 acres

Segment 4: Whirlwind 500/220 kV Transmission Line Elements

- Proposed construction duration of 24 months (estimated to begin April 2009 and end April 2011)
- Initiates at the Cottonwind Substation and ends at the existing Antelope Substation
- Construct two new parallel 4-mile single-circuit 220 kV transmission lines between the Cottonwind Substation and the proposed new Whirlwind Substation
- Construct new 16-mile single-circuit 500 kV Antelope – Whirlwind 500 kV T/L
- All construction within new 200-foot-wide R-O-W (20 miles)
- Erect approximately 165 new transmission structures, including:
 - 88 single-circuit 220 kV LSTs
 - 77 single-circuit 500 kV LSTs
- Would require approximately 34 new pulling locations, 34 tensioner locations, and 19 new splicing locations

Segment 5: Antelope – Vincent No. 2 500 kV Transmission Line

- Proposed construction duration of 21 months (estimated to begin July 2009 and end April 2011)
- Initiates at the existing Antelope Substation and ends at the existing Vincent Substation
- Remove the existing Antelope – Vincent 220 kV T/L and the existing Antelope – Mesa 220 kV T/L
- Construct new 18-mile single-circuit Antelope – Vincent No. 2 500 kV T/L
- All construction in existing 200-foot-wide R-O-W (18 miles)
- Erect approximately 67 new transmission structures, including:
 - 67 single-circuit 500 kV LSTs
- Would require approximately 14 new pulling locations, 16 tensioner locations, and 7 new splicing locations

Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500 kV (initially energized at 220 kV) Transmission Line and Section of New Mira Loma – Vincent 500 kV Transmission Line

- *Editors Note: For brevity, Segment 6 is named "New Replacement Rio Hondo – Vincent No. 2 500 kV T/L" in other sections of this PEA document*
- Proposed construction duration of 37 months, (estimated to begin April 2009 and end December 2011)
- Initiates at the existing Vincent Substation and ends at the southern boundary of the ANF

TABLE ES-1 (CONTINUED)
SUMMARY OF PROPOSED PROJECT COMPONENTS BY SEGMENT
TEHACHAPI RENEWABLE TRANSMISSION PROJECT (TRTP)

-
- Remove 5 miles of the existing Rio Hondo - Vincent No. 2 220 kV T/L between Vincent Substation and the "crossover" span
-
- Construct new 27-mile single-circuit Rio Hondo – Vincent No. 2 500 kV T/L (initially energized at 220 kV)
 - Construct new 5-mile single-circuit Mira Loma – Vincent 500 kV T/L from the Vincent Substation to the "crossover" span
 - Eliminate the existing crossing of the Rio Hondo – Vincent No. 2 220 kV T/L over the Antelope – Mesa 220 kV T/L
 - All construction in existing 200- to 400-foot-wide R-O-W (32 miles)
 - Erect approximately 140 new transmission structures, including:
 - 2 single-circuit 220 kV LSTs
 - 30 single-circuit 500 kV TSPs
 - 104 single-circuit 500 kV LSTs
 - 4 three-pole dead-end 500 kV structures
 - Would require approximately 16 new pulling locations, 16 tensioner locations, and 16 new splicing locations
-

Segment 7: Section of New Replacement Rio Hondo – Vincent No. 2 500 kV Transmission Line (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500 kV Transmission Line

- *Editors Note: For brevity, Segment 7 is named "New Mira Loma – Vincent 500 kV T/L" in other sections of this PEA document*
 - Proposed construction duration of 31 months (estimated to begin April 2009 and end in November 2011)
 - Initiates at the southern boundary of the ANF and ends at the existing Mesa Substation
 - Remove and replace existing 220 kV structures with 500 kV structures
 - Remove 16 miles of the existing Antelope – Mesa 220 kV T/L between the southern boundary of the ANF and the Mesa Substation
 - Construct new 16-mile 500 kV double-circuit transmission line to include the Rio Hondo – Vincent No. 2 500 kV T/L (initially energized at 220 kV) and the Mira Loma – Vincent 500 kV T/L
 - Connect the new Rio Hondo – Vincent No. 2 500 kV T/L (initially energized at 220 kV) into the Rio Hondo Substation
 - Relocate several existing 66 kV subtransmission lines between the existing Rio Hondo Substation and the existing Mesa Substation
 - All construction in existing 200- to 250-foot-wide R-O-W (16 miles)
 - Erect approximately 81 new transmission structures, including:
 - 1 double-circuit 220 kV LST
 - 2 double-circuit 500 kV TSPs
 - 2 single-circuit 500 kV LSTs
 - 76 double-circuit 500 kV LSTs
 - Erect approximately 150 new double-circuit 66 kV subtransmission LWSPs and TSPs
 - Would require approximately 16 new pulling locations, 16 tensioner locations, and 16 new splicing locations
-

TABLE ES-1 (CONTINUED)
SUMMARY OF PROPOSED PROJECT COMPONENTS BY SEGMENT
TEHACHAPI RENEWABLE TRANSMISSION PROJECT (TRTP)

Segment 8: Section of New Mira Loma – Vincent 500 kV Transmission Line

- *Editors Note: For brevity, Segment 8 is named "New Mira Loma – Vincent 500 kV T/L" in other sections of this PEA document*
- Proposed construction duration of 36 months (estimated to begin April 2009 and end in April 2012)
- Initiates near the Mesa Substation and ends at the Mira Loma Substation
- Remove various 220 kV T/L structures between the existing Mesa Substation and the existing Mira Loma Substation
- Construct approximately 33 miles of new single- and double-circuit 500 kV T/L to include approximately 33 miles of the new Mira Loma – Vincent 500 kV T/L
- Construct approximately 7 miles of new double-circuit 220 kV T/L from the Chino Substation to the Mira Loma Substation
- Relocate several existing 66 kV subtransmission lines in the area of the existing Mesa Substation and the existing Chino Substation
- Most construction in existing 150- to 250-foot-wide R-O-W (30 miles); additional construction in new 100-foot-wide R-O-W (3 miles); additional construction in new 240-foot-wide R-O-W (< 1 mile); additional construction in new 150-foot-wide R-O-W (< 1 mile)
 - Rose Hills Cemetery R-O-W relocation (existing: 200-foot-wide; future: 240-foot-wide)
 - Hacienda Heights R-O-W expansion (existing: 150-foot-wide; future: 250-foot-wide)
 - Fullerton Road new R-O-W (existing: none; future: 100-foot-wide)
 - Ontario R-O-W expansion (existing: 100-foot-wide; future: 250-foot-wide)
- Erect approximately 226 new transmission structures, including:
 - 2 single-circuit 220 kV LSTs
 - 57 double-circuit 220 kV LSTs
 - 3 single-circuit 500 kV LSTs
 - 92 double-circuit 500 kV LSTs
 - 2 single-circuit 220 kV TSPs
 - 11 double-circuit 220 kV TSPs
 - 5 three-pole dead-end 220 kV structures
 - 4 single-circuit 500 kV TSPs
 - 50 double-circuit 500 kV TSPs
- Erect new double-circuit 66 kV subtransmission LWSPs
- Would require approximately 33 new pulling locations, 33 tensioner locations, and 33 new splicing locations

Segment 9: Substation Facilities

- Proposed Antelope construction duration: 45 months (estimated to begin in February 2010 and end in November 2013)
 - Proposed Whirlwind construction duration: 13 months (estimated to begin in July 2010 and end in August 2011)
 - Proposed Vincent construction duration of 45 months (estimated to begin in February 2010 and end in November 2013)
-

TABLE ES-1 (CONTINUED)
SUMMARY OF PROPOSED PROJECT COMPONENTS BY SEGMENT
TEHACHAPI RENEWABLE TRANSMISSION PROJECT (TRTP)

2013)

- Proposed Other construction duration: 13 months (estimated to begin in October 2011 and end in November 2013)
- Construct new Whirlwind Substation; activity would require acquisition of new substation property between approximately 102 to 113 acres and permanent disturbance of 65 to 67 acres

-
- Expand and upgrade existing Antelope and Vincent Substations to accommodate new 500 kV and 220 kV equipment; activity would require acquisition of additional substation property – approximately 18 acres for Antelope upgrade and approximately 0.2 acre for Vincent upgrade; Vincent expansion would cover approximately 18 acres
 - Upgrade existing Mesa and Gould Substations to accommodate new 220 kV equipment
 - Upgrade existing Mira Loma Substation to accommodate new 500 kV equipment

Segment 10: New Whirlwind – Windhub 500 kV Transmission Line

-
- Proposed construction duration of 8 months (estimated to begin February 2011 and end in October 2013)
 - Initiates at the Windhub Substation and ends at the proposed new Whirlwind Substation
 - Construct new 17-mile single-circuit Windhub – Whirlwind 500 kV T/L
 - All construction (17 miles) within new 330-foot-wide R-O-W
 - Erect approximately 96 new transmission structures, including:
 - 96 single-circuit 500 kV LSTs
 - Would require approximately 16 new pulling locations, 16 tensioner locations, and 7 new splicing locations

Segment 11: New Mesa – Vincent (via Gould) 500/220 kV Transmission Line

-
- Proposed construction duration of 17 months (estimated to begin April 2012 and end in November 2013)
 - Initiates at the existing Vincent Substation and ends at the existing Mesa Substation
 - Remove 4 miles of the existing Vincent – Pardee No. 1 220 kV T/L
 - Remove 15 miles of the existing Eagle Rock – Pardee 220 kV T/L
 - Construct new 19-mile 500 kV single-circuit T/L between Vincent and Gould Substations (initially energized at 220 kV)
 - String 18 miles of new 220 kV conductor on the vacant side of the double-circuit structures of the Eagle Rock - Mesa 220 kV T/L
-
- Most construction would take place within existing 200- to over 400-foot-wide R-O-W (19 miles); additional R-O-W width of approximately 250 feet would be required on the west side of the existing R-O-W near Gould Substation (for up to 3 miles)
 - Erect approximately 76 new transmission structures, including:
 - 2 single-circuit 220 kV poles
 - 7 single-circuit 220 kV LSTs
 - 67 single-circuit 500 kV LSTs
 - Would require approximately 12 new pulling locations, 15 tensioner locations, and 5 new splicing locations
-

**TABLE ES-2
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
AESTHETIC RESOURCES					
Would the Project have a substantial effect on a scenic vista?	4	APM AES-1, APM AES-3, APM AES-4, APM AES-5, APM AES-8, APM AES-9, APM AES-11, APM AES-12	Less than significant	Not applicable	Less than significant
	5 – 11	Not applicable	No impact	Not applicable	No impact
Would the Project damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	8	APM AES-1, APM AES-3, APM AES-4, APM AES-5, APM AES-8, APM AES-9, APM AES-11, APM AES-12, APM AES-13	Potentially significant	MM AES-8-1	Potentially significant
	6, 11	APM AES-1, APM AES-3, APM AES-4, APM AES-5, APM AES-6, APM AES-8, APM AES-9, APM AES-10, APM AES-11, APM AES-12, APM AES-13	Less than significant	Not applicable	Less than significant
	4, 5, 7, 9, 10,	Not Applicable	No impact	Not applicable	No impact
Would the Project substantially degrade the existing visual character or quality of the site and its surroundings?	11	APM AES-1, APM AES-3, APM AES-4, APM AES-5, APM AES-6, APM AES-7, APM AES-8, APM AES-9, APM AES-10, APM AES-11, APM AES-12, APM AES-13, APM AES-14, APM AES-15,	Adverse under NEPA and at KOP 6.1, potentially significant under CEQA	MM AES-11-1	Adverse under NEPA and less than significant under CEQA

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
		APM AES-16, APM AES-17			
	6	APM AES-1, APM AES-3, APM AES-4, APM AES-5, APM AES-6, APM AES-7, APM AES-8, APM AES-9, APM AES-10, APM AES-11, APM AES-12, APM AES-13, APM AES-14, APM AES-15, APM AES-16, APM AES-17	Adverse under NEPA and less than significant under CEQA	Not applicable under CEQA; None identified to address finding of Adverse Effects under NEPA	Adverse under NEPA and less than significant under CEQA
	7, 8	APM AES-1, APM AES-2, APM AES-3, APM AES-4, APM AES-5, APM AES-6, APM AES-7, APM AES-8, APM AES-9, APM AES-11, APM AES-12, APM AES-13, APM AES-14, APM AES-15, APM AES-16, APM AES-17	Potentially significant	Seg 8: MM AES-8-2, MM AES-8-3	Potentially significant
	4, 5, 10	APM AES-1, APM AES-2, APM AES-3, APM AES-4, APM AES-5, APM AES-6, APM AES-7, APM AES-8, APM AES-9, APM AES-11, APM AES-12, APM AES-13, APM AES-14, APM AES-15, APM AES-16, APM AES-17	Less than significant	Not applicable	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
	9	APM AES-1, APM AES-3, APM AES-4, APM AES-5, APM AES-6, APM AES-7, APM AES-8, APM AES-9, APM AES-11, APM AES-12, APM AES-13, APM AES-14, APM AES-15, APM AES-16, APM AES-17, APM AES-18, APM AES-19, APM AES-20, APM AES-21, APM AES-22, APM AES-23	Less than significant	Not applicable	Less than significant
Would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	4 through 8, 10, 11	APM AES-1, APM AES-3, APM AES-4	No impact	Not applicable	No Impact
	9	APM AES-18, APM AES-19, APM AES-20, APM AES-21, APM AES-22	Less than significant	Not applicable	Less than significant
AGRICULTURAL RESOURCES					
Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and monitoring Program of the California Resources Agency, to non-agricultural use?	4, 5, 8, 10	APM AG-1, APM AG-2, APM AG-3	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
	9	None required	Less than significant	None required	Less than significant
	6, 7, 11	None required	No impact	None required	No impact
Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?	4, 8, 9, 10	None required	Less than significant	None required	Less than significant
	5, 6, 7, 11	None required	No impact	None required	Less than significant
Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	4, 5, 8, 10	APM AG-1, APM AG-2, APM AG-3	Less than significant	None required	Less than significant
	9	APM AG-1, APM AG-2, APM AG-3	Less than significant	None required	Less than significant
	6, 7, 11	None required	No impact	No applicable	No impact
AIR QUALITY					
Would the Project conflict with or obstruct implementation of the applicable air quality plan?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project violate any air quality standard or contribute to an existing or projected air quality violation?	7, 8, 11	APM AQ-1, APM AQ-2, APM AQ-3, APM AQ-4, APM AQ-5, APM AQ-6, APM AQ-7, APM AQ-8, APM AQ-9	Potentially significant	None feasible	Potentially significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
	4, 5, 6, 9, 10	APM AQ-1, APM AQ-2, APM AQ-3, APM AQ-4, APM AQ-5, APM AQ-6, APM AQ-7, APM AQ-8, APM AQ-9	Less than significant	None required	Less than significant
Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project Region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	6, 7, 8, 9, 11	APM AQ-2, APM AQ-3, APM AQ-4, APM AQ-5, APM AQ-6, APM AQ-7, APM AQ-8, APM AQ-9	Potentially significant	None feasible	Potentially significant
	4, 5, 10	APM AQ-1, APM AQ-2, APM AQ-3, APM AQ-4, APM AQ-5, APM AQ-6, APM AQ-7, APM AQ-8, APM AQ-9	Less than significant		Less than significant
Would the Project expose sensitive receptors to substantial pollutant concentrations?	4 – 11	APM AQ-1, APM AQ-2, APM AQ-3, APM AQ-4, APM AQ-5, APM AQ-6, APM AQ-7, APM AQ-8, APM AQ-9	Less than significant	None required	Less than significant
Would the Project create objectionable odors affecting a substantial number of people?	4 – 11	APM AQ-1, APM AQ-2, APM AQ-5, APM AQ-6	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
BIOLOGICAL RESOURCES					
Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	4 – 11	APM BIO-1, APM BIO-2, APM BIO-3, APM BIO-4, APM BIO-5, APM BIO-6, APM BIO-7, APM BIO-8, APM BIO-9	Potentially significant	BIO MIT-1, BIO MIT-2, BIO MIT-3, BIO MIT-4, BIO MIT-5, BIO MIT-6, BIO MIT-7, BIO MIT-8, BIO MIT-10, BIO MIT-11	Less than significant
Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	6, 7, 8, 11	APM BIO-2, APM BIO-3, APM BIO-4, APM BIO-5, APM BIO-7	Potentially significant	BIO MIT-3, BIO MIT-9	Less than significant
	4, 5, 9, 10	APM BIO-2, APM BIO-3, APM BIO-4	Less than significant	None required	Less than significant
Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	6, 7, 8, 11	APM BIO-2, APM BIO-3, APM BIO-4, APM BIO-5, APM BIO-7	Potentially significant	BIO MIT-1, BIO MIT-2	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
	5	APM BIO-3	Less than significant	None required	Less than significant
	4, 9, 10	None required	No impact	None required	No impact
Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	6, 7, 8, 11	None proposed	Potentially significant	BIO MIT-9	Less than significant
	4, 5, 9, 10	None required	No impact	None required	No impact
Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	4, 9, 10	None proposed	Potentially significant	BIO MIT-4, BIO MIT-5	Less than significant
	5, 6, 7, 8, 11	None required	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
CULTURAL RESOURCES					
Would the Project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	4 – 11	APM CR-1, APM CR-2, APM CR-3, APM CR-4, APM CR-5, APM CR-6, APM CR-7	Less than significant	None required	Less than significant
Would the Project cause a substantial adverse change in the significance of a archaeological resource pursuant to § 15064.5?	4 – 11	APM CR-1, APM CR-2, APM CR-3, APM CR-4, APM CR-5, APM CR-6, APM CR-7	Less than significant	None required	Less than significant
Would the Project disturb any human remains, including those interred outside of formal cemeteries?	4 – 11	APM CR-1, APM CR-2, APM CR-3, APM CR-4, APM CR-5, APM CR-6, APM CR-7	Less than significant	None required	Less than significant
GEOLOGY AND SOILS					
Would the Project expose people or structures to potential substantial adverse effects as a result of	5, 6, 7, 8, 11	APM GEO-1, APM GEO-2	Less than significant	None required	Less than significant
(i) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	4, 9, 10	APM GEO-2	No impact (APM)	None required	No impact

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
(ii) Strong seismic ground shaking?	4 – 11	APM GEO-1	Less than significant	None required	Less than significant
(iii) Seismic-related ground failure including liquefaction?	4 – 11	APM GEO-1, APM GEO-2	Less than significant	None required	Less than significant
(iv) Landslides?	4 – 11	APM GEO-1, APM GEO-2	Less than significant	None required	Less than significant
Would the Project result in substantial soil erosion or the loss of topsoil?	4 – 11	APM GEO-1, APM GEO-3	Less than significant	None required	Less than significant
Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	4 – 11	APM GEO-2	Less than significant	None required	Less than significant
Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	4 – 11	APM GEO-2	Less than significant	None required	Less than significant
Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	4 – 11	None required	No impact	None required	No impact

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
HAZARDS AND HAZARDOUS MATERIALS					
Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	4 – 11	APM HAZ-2, APM HAZ-5	Less than significant	None required	Less than significant
Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	4 – 11	None required	No impact	None required	No impact
Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	4 – 11	None required	No impact	None required	No impact
Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and as a result, would it create a significant hazard to the public or the environment?	4 – 11	APM HAZ-1, APM HAZ-3	Less than significant	None required	Less than significant
For potential Project areas located within an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project	7, 8	None required	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s)¹	Applicant Proposed Measure(s)²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
result in a safety hazard for people residing or working in the Project Area?	4, 5, 6, 9, 10, 11	None required	No impact	None required	No impact
For potential Project areas located within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project Area?	4, 5, 10	None required	Less than significant	None required	Less than significant
	6, 7, 8, 9, 11	None required	No impact	None required	No impact
Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas of where residences are intermixed with wildlands?	4 – 11	APM HAZ-4	Less than significant	None required	Less than significant
HYDROLOGY AND WATER QUALITY					
Would the Project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality?	4 – 11	APM HYD-1, APM HYD-2, APM HYD-3, APM HYD-4, APM HYD-5, APM HYD-8	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s)¹	Applicant Proposed Measure(s)²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
Would the Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	4 – 11	APM HYD-1, APM HYD-2, APM HYD-6	Less than significant	None required	Less than significant
Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?	4	APM HYD-1, APM HYD-7	Less than significant	None required	Less than significant
	5 – 11	None required	Less than significant	None required	Less than significant
Would the Project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	4 – 11	None required	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
Would the Project place housing within a 100-year flood hazard area as mapped on a federal Flood Insurance Rate Map or other flood hazard delineation map?	4 – 11	None required	No impact	None required	No impact
Would the Project place within a 100-year flood hazard area structures which would impede or redirect flood flows?	4 – 11	APM HYD-7	Less than significant	None required	Less than significant
Would the Project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a failure of a levee or dam?	4 5, 6, 9, 10, 11	APM HYD-7	Less than significant	None required	Less than significant
	7, 8	None required	Less than significant		
Would the Project expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	4 – 11	APM HYD-1, APM HYD-7, APM GEO-2, APM GEO-3	Less than significant	None required	Less than significant
LAND USE AND PLANNING					
Would the Project physically divide an established community?	8	None required	Less than significant	None required	Less than significant
	4, 5, 6, 7, 9, 10, 11	None required	No impact	None required	No impact
Would the Project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project	4, 5, 7, 8, 9, 10	None required	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
(including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	6, 11	None required	No impact	None required	No impact
Would the Project conflict with any applicable habitat conservation plan or natural community conservation plan?	4 – 11	None required	Less than significant	None required	Less than significant
MINERAL RESOURCES					
Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	4 – 11	None required	No impact	None required	No impact
Would the Project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	4 – 11	None required	No impact	None required	No impact
NOISE					
Would the Project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or	4 – 11	APM NOISE-1	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
applicable standards of other agencies?					
Would the Project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project result in a substantial permanent increase in ambient noise levels in the Project Vicinity above levels existing without the Project?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project Vicinity above levels existing without the Project?	4 – 11	None required	Less than significant	None required	Less than significant
For potential Project areas located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public or private airport, or public/private use airport, would the Project expose people residing or working in the Project Area to excessive noise levels?	4, 5, 8, 10	None required	Less than significant	None required	Less than significant
	6, 7, 9, 11	None required	No impact	None required	No impact
POPULATION AND HOUSING					
Would the Project induce substantial population growth in an area, either directly	4 – 11	None required	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
(for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?					
Would the Project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	4 – 11	None required	No impact	None required	No impact
Would the Project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	4 – 11	None required	No impact	None required	No impact
PUBLIC SERVICES AND UTILITIES					
Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for	4 – 11	APM PUB-1	Less than significant	None required	Less than significant
(i) Fire protection?					
(ii) Police protection?	4 – 11	None required	No impact	None required	No impact

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
(iii) Schools?	4 – 11	None required	No impact	None required	No impact
(iv) Parks?	4 – 11	None required	No impact	None required	No impact
(v) Other public facilities?	4 – 11	None required	No impact	None required	No impact
Would the Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	4 – 11	None required	No impact	None required	No impact
Would the Project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?	4 – 11	None required	No impact	None required	No impact
Would the Project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's	4 – 11	None required	No impact	None required	No impact

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
projected demand in addition to the provider's existing commitments?					
Would the Project be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project comply with federal, state, and local statutes and regulations related to solid waste?	4 – 11	None required	No impact	None required	No impact
RECREATION					
Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	4 – 11	APM REC-1, APM REC-2	Less than significant	None required	Less than significant
Would the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	4 – 11	None required	No impact	None required	No impact
TRANSPORTATION AND TRAFFIC					
Would the Project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either	4 – 11	APM TRA-1, APM TRA-2, APM TRA-3, APM TRA-4, APM TRA-5	Less than significant		Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?					
Would the Project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	4 – 11	APM TRA-1, APM TRA-2, APM TRA-3, APM TRA-4, APM TRA-5	Less than significant	None required	Less than significant
Would the Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	4 – 11	None required	Less than significant	None required	Less than significant
Would the Project substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	4 – 11	None required	No impact	None required	No impact
Would the Project result in inadequate emergency access?	4 – 11	APM TRA-2, APM TRA-3, APM TRA-4	Less than significant	None required	Less than significant
Would the Project result in inadequate parking capacity?	4 – 11	None required	No impact	None required	No impact
Would the Project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	5, 7, 8, 11	APM TRA-3	Less than significant	None required	Less than significant

**TABLE ES-2 (CONTINUED)
SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS,
PROPOSED MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE**

Resource Area/CEQA Significance Criteria	TRTP Segment(s) ¹	Applicant Proposed Measure(s) ²	Potential Impact Significance	Proposed Mitigation Measure(s)	Resulting Level of Significance
	4, 6, 9, 10	None required	No impact	None required	No impact
PALEONTOLOGICAL					
Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	4 – 11	APM PALEO-1, APM PALEO-9	Less than significant	None required	Less than significant

¹ Note: Refer to Figure ES-1 for the locations of proposed TRTP segments. The impact assessment findings presented in Table ES-2 for Segment 9 and Segment 10 apply equally to Whirlwind Substation Alternative Sites A, B, and C (part of Segment 9) and proposed T/L route Segment 10 and alternative route Segments 10A and 10B, respectively.

² Refer to Section 4.0 for a description of each Applicant Proposed Measure (APM), by resource area.

**TABLE ES-3
IDENTIFIED UNAVOIDABLE SIGNIFICANT AESTHETIC RESOURCE
IMPACTS AND ADVERSE EFFECTS BY SEGMENT AND KOP**

Segment and KOP	Location/View Represented	Jurisdiction	Significance Under CEQA/ Adverse Effect Under NEPA ¹
Segment 6			
KOP-5.1	Angeles Forest Highway at Entrance Sign Represents foreground to middleground views toward the Segment 6 alignment from the lower portion of the Angeles Forest Highway and from residences in private in-holdings in this portion of the ANF.	Angeles National Forest	Adverse ¹
KOP-5.2	Angeles Forest Highway and Aliso Canyon Road Represents views toward the Segment 6 alignment from this portion of the Angeles Forest Highway where there is a road crossing, as well as from residences located in nearby private in-holdings.	Angeles National Forest	Adverse ¹
KOP-6.2	Mill Creek Summit Represents views toward the Segment 6 alignment from the recreation facilities at Mill Creek Summit, and from nearby areas of the Pacific Crest Trail and Angeles Crest Highway.	Angeles National Forest	Adverse ¹
KOP-7.1	Upper Big Tujunga Road Represents foreground to middleground views toward the Segment 6 alignment from southbound Big Tujunga Canyon Road.	Angeles National Forest	Adverse ¹
KOP-7.2	Vetter Mountain Trail Trailhead Represents views toward the Segment 6 alignment from the parking lot for the Vetter Mountain Lookout Trail, from the Vetter Mountain Lookout Trail itself, from the lookout, and from the Charlton Flats Picnic Area.	Angeles National Forest	Adverse ¹
KOP-7.3	Angeles Crest Highway West of Shortcut Saddle Represents middleground views toward the Segment 6 alignment from the Angeles Crest Scenic Byway.	Angeles National Forest	Adverse ¹
KOP-7.4	Silver Moccasin Trail Represents views toward the Segment 6 alignment from the Shortcut Saddle parking lot and picnic area, the Silver Moccasin Trail, the Shortcut Canyon Trail, and the Rincon-Shortcut Off-Highway Vehicle Route.	Angeles National Forest	Adverse ¹

**TABLE ES-3 (CONTINUED)
IDENTIFIED UNAVOIDABLE SIGNIFICANT AESTHETIC RESOURCE
IMPACTS AND ADVERSE EFFECTS BY SEGMENT AND KOP**

Segment and KOP	Location/View Represented	Jurisdiction	Significance Under CEQA/ Adverse Effect Under NEPA ¹
Segment 7			
KOP-9.2	Royal Oaks/Tocino Intersection Represents upslope near-foreground to background views toward the Segment 7 alignment from residential neighborhoods in the flat areas of Duarte.	Duarte	Significant
KOP-10.2	Linard/Kayann Intersection Represents near-foreground views toward the Segment 7 alignment from an immediately adjacent residential area in South El Monte.	South El Monte	Significant
Segment 8			
KOP-14.1	Rose Hills Memorial Park Represents middleground views toward the Segment 8 alignment from the Rose Hills Memorial Park.	Unincorporated Los Angeles County	Significant
KOP-16.1	Highway 57 Represents middleground views toward the Segment 8 alignment from northbound Highway 57, an adopted California Scenic Route.	Unincorporated Los Angeles County	Significant
KOP-16.2	Crooked Creek Drive Representative of foreground views toward the Segment 8 alignment from residential neighborhoods in Diamond Bar.	Diamond Bar	Significant
KOP-17.1	Avenida Anita/Avenida Compadres Intersection Representative of foreground views toward the Segment 8 alignment from residential neighborhoods in the western area of Chino Hills.	Chino Hills	Significant
KOP-17.2	Coral Ridge Park Representative of foreground to distant views of the Segment 8 alignment from open space areas in the hillier parts of Chino Hills.	Chino Hills	Significant
Segment 11			
KOP-6.1	Pacific Crest Trail near Big Buck Camp This is the foreground view at the point that the Segment 11 alignment crosses the Pacific Crest Trail.	Angeles National Forest	Adverse ^{1,2}

TABLE ES-3 (CONTINUED)
IDENTIFIED UNAVOIDABLE SIGNIFICANT AESTHETIC RESOURCE
IMPACTS AND ADVERSE EFFECTS BY SEGMENT AND KOP

Segment and KOP	Location/View Represented	Jurisdiction	Significance Under CEQA/ Adverse Effect Under NEPA ¹
KOP-7.5	Big Tujunga Canyon Dam Overlook Representative of views toward the Segment 11 alignment from visitor areas at the Big Tujunga Dam.	Angeles National Forest	Adverse ¹
KOP-8.2	Crosstown Trail near the Gould Substation Representative of views toward the Segment 11 alignment from trails and other visitor areas at the base of the San Gabriel Mountain foothills.	Angeles National Forest	Adverse ¹

¹ Determination of adverse effect under NEPA applies to portions of proposed Project on U.S. Forest Service Land only.

² Also found to result in potentially significant impacts under CEQA when evaluated using Federal Highway Administration (FHWA) methodology; however, with implementation of proposed mitigation measure (MM) AES-11-1, this impact would be reduced to less than significant (under CEQA).

**TABLE ES-4
CONSTRUCTION EMISSION/AIR DISTRICT
REGIONAL EMISSION THRESHOLD COMPARISON**

Air District		Peak Daily and Annual Construction Emissions					
		NO _x	VOC	CO	PM ₁₀	PM _{2.5}	SO ₂
KCAPCD	2009 Annual Emissions (tons/yr) ¹	4.47	0.59	2.88	2.06	0.59	0.01
	2010 Annual Emissions (tons/yr) ²	9.19	1.42	6.61	6.23	1.66	0.01
	2011 Annual Emissions (tons/yr) ³	16.85	3.22	17.25	9.88	2.86	0.03
	Exceeds Thresholds?	N/A	N/A	N/A	N/A	N/A	N/A
AVAQMD	2009 Annual Emissions (tons/yr) ⁴	15.16	1.96	9.07	8.27	2.27	0.02
	2010 Annual Emissions (tons/yr) ⁵	26.76	3.76	17.30	25.66	6.37	0.04
	2011 Annual Emissions (tons/yr) ⁶	9.95	1.69	8.38	17.98	4.18	0.02
	2012 Annual Emissions (tons/yr) ⁷	6.22	1.16	5.93	15.01	3.42	0.02
	2013 Annual Emissions (tons/yr) ⁸	5.15	0.93	4.77	12.32	2.80	0.02
	AVAQMD Significance Annual Thresholds (tons/yr)	25	25	100	15	No Threshold	25
	Exceed Thresholds?	Yes	No	No	Yes	No	No
SCAB	2009 Daily Emissions (lbs/day) ⁹	1,199.41	191.56	968.74	208.41	98.69	3.65
	2010 Daily Emissions (lbs/day) ¹⁰	1,142.80	182.37	925.64	205.33	95.64	3.66
	2011 Daily Emissions (lbs/day) ¹¹	1,241.91	182.37	1,065.61	362.35	134.08	3.99
	2012 Daily Emissions (lbs/day) ¹²	1,682.31	246.97	1,309.96	368.84	147.92	6.70
	2013 Daily Emissions (lbs/day) ¹³	959.38	132.49	720.52	238.60	87.62	4.51
	SCAQMD Significance Daily Thresholds (lbs/day)	100	75	550	150	55	150
	Exceed Thresholds?	Yes	Yes	Yes	Yes	Yes	No

N/A = not applicable.

¹ Emissions are from construction activities occurring in year 2009 from Segment 4 in Kern County Air Pollution Control District (KCAPCD) jurisdiction (MDAB region).

TABLE ES-4 (CONTINUED)
CONSTRUCTION EMISSION/AIR DISTRICT
REGIONAL EMISSION THRESHOLD COMPARISON

- ² Emissions are from construction activities occurring in year 2010 from Segments 4 and 9 in KCAPCD jurisdictions (MDAB region).
- ³ Emissions are from construction activities occurring in year 2011 from Segments 4, 9, and 10 in KCAPCD jurisdictions (MDAB region).
- ⁴ Emissions are from construction activities occurring in year 2009 from Segments 4 and 6 in AVAQMD jurisdictions (MDAB region).
- ⁵ Emissions are from construction activities occurring in year 2010 from Segments 4, 5, 6, and 9 in AVAQMD jurisdictions (MDAB region).
- ⁶ Emissions are from construction activities occurring in year 2011 from Segments 4, 5, 6, and 9 in AVAQMD jurisdictions (MDAB region).
- ⁷ Emissions are from construction activities occurring in year 2012 from Segments 6, 9, and 11 in AVAQMD jurisdictions (MDAB region).
- ⁸ Emissions are from construction activities occurring in year 2013 from Segments 9 and 11 in AVAQMD jurisdictions (MDAB region).
- ⁹ Emissions are from construction activities occurring in year 2009 from Segments 6, 7, and 9 in SCAQMD jurisdictions (SCAB region).
- ¹⁰ Emissions are from construction activities occurring in year 2010 from Segments 6, 7, and 8 in SCAQMD jurisdictions (SCAB region).
- ¹¹ Emissions are from construction activities occurring in year 2011 from Segments 6, 7, 8, and 9 in SCAQMD jurisdictions (SCAB region).
- ¹² Emissions are from construction activities occurring in year 2012 from Segments 6, 8, 9, and 11 in SCAQMD jurisdictions (SCAB region).
- ¹³ Emissions are from construction activities occurring in year 2013 from Segments 9 and 11 in SCAQMD jurisdictions (SCAB region).

**TABLE ES-5
EMISSIONS/GENERAL
CONFORMITY EMISSIONS THRESHOLD COMPARISON**

Air Basin		Peak Year Construction Emissions			
		NO _x	VOC	CO	PM ₁₀
MDAB	2010 Emissions (tons/yr)	35.94	5.18	23.91	31.89
	Applicability Trigger (tons/yr)	100	100	No Threshold	100
	Exceed Thresholds?	No	No	No	No
SCAB	2012 Emissions (tons/yr)	27.39	4.48	23.52	19.85
	Applicability Trigger (tons/yr)	25	25	100	70
	Exceed Thresholds?	Yes	No	No	No