

# D. Comparison of Alternatives

## D.1 Introduction

This section provides a comparison of the proposed Project and alternatives described in Section B and analyzed in Sections C.2 through C.15. The comparative analysis presented in this section focuses on the differences in impacts among the various alternatives, with particular emphasis given to the differences in significant impacts. 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 State CEQA Guidelines (Section 15126.6(e)(2)), the environmentally superior alternative identified by the CEQA Lead Agency is presented this section. Among the alternatives analyzed in this EIR/EIS, the NEPA Lead Agency, the USDA Forest Service, has not identified a preferred alternative, but such an alternative will be identified in the Final EIR/EIS (40 CFR 1502.14). Pursuant to NEPA Regulations (40 CFR 1505.2(b)), the environmentally preferred alternative or alternatives must be identified in the Record of Decision (ROD) for the Project.

Section D.2 provides a summary of the proposed Project and the alternatives analyzed in this EIR/EIS. Section D.3 presents a comparison matrix of environmental impacts and issues for all the alternatives. Section D.4 describes the methodology used for comparing alternatives, and provides a discussion highlighting the differences and similarities between the alternatives analyzed in this EIR/EIS by environmental issue area. Section D.5 identifies the environmentally superior alternative required by CEQA, and Section D.6 provides a discussion of the NEPA requirement for the selection of a preferred alternative.

## D.2 Summary of Alternatives

To facilitate a clear understanding of the various alternatives, this section provides a summary of the detailed descriptions for each alternative presented in Section B. The primary features of the proposed Project and each alternative are presented in series of tables below to allow for ease of comparison. A map of the proposed Project and alternatives is presented in Figure ES-2 and more detailed route maps are presented in Appendix 6.

### D.2.1 Proposed Project

The proposed Project involves the construction of an overhead single-circuit 500-kV transmission line between the Antelope Substation in the City of Lancaster and the Pardee Substation in the City of Santa Clarita. This new transmission line would provide capacity to transmit power from the wind energy resources that are expected to develop in Kern County and northern Los Angeles County in response to the State of California Renewable Portfolio Standard Program requirements to serve southern California residents and businesses. The proposed Project route would traverse the ANF generally within the existing Saugus-Del Sur Utility Corridor. The existing 66-kV subtransmission line in this corridor would be removed as part of the construction of the proposed Project. Details of the proposed Project are provided in Table D.2-1.

Transmission Line	Linear distance of transmission line	25.6 miles total 25.6 miles overhead, 0.0 miles underground
	Linear distance of existing ROW	22.8 miles (17.5 miles to be widened)
	Linear distance of new ROW	2.8 miles
	Linear distance on NFS lands	12.6 miles (0 miles of new ROW)
	Estimated duration of construction	13 months
	Existing 66-kV line	To be removed Mile 1.1 to 18.6

Substation Modifications	Antelope Substation	220-kV substation improvements 500-kV substation expansion
	Pardee Substation	220-kV Line Position 5 modified
	Transition Stations	None
Information Technology	Optical ground wire	Installed as part of new transmission lines on towers
Operations and Maintenance	Frequency/Type	Periodic inspections (once per year) on an as-needed basis. Preventative maintenance every six months.

### **D.2.2 Alternative 1: Partial Undergrounding of Antelope-Pardee Transmission Line**

Alternative 1 includes the installation of the 500-kV transmission line underground in specific high-impact segments of the proposed route, including along Del Sur Ridge on NFS lands within the ANF (approximately Mile 11.0 to Mile 15.0) and within the City of Santa Clarita (Mile 22.7 to Pardee Substation - Mile 26.2). Alternative 1 is identical to the proposed Project, except in those areas where underground construction and associated surface structures, such as transition stations, would be built and between Mile 20.3 and 22.3, where the existing single-circuit 500-kV towers located in the Pardee-Vincent 500-kV ROW would not be replaced with double-circuit towers. Instead, new single-circuit 500-kV towers would be placed in the vacant position within this existing ROW. The technology that would be used for the underground portions of this alternative would consist of Solid Dielectric Cables (XLPE) installed in concrete-encased ductbanks. A transition station of two to three acres in size would be required at each end of the underground segments. Details of Alternative 1 are provided in Table D.2-2.

Transmission Line	Linear distance of transmission line	26.2 miles total 18.7 miles overhead, 7.5 miles underground
	Linear distance of existing ROW	19.9 miles (17.5 miles to be widened)
	Linear distance of new ROW	6.3 miles
	Linear distance on NFS lands	8.6 miles overhead 4.0 miles underground
	Estimated duration of construction	10 months (overhead); 29 months (underground)
	Existing 66-kV line	To be removed from Mile 1.1 to 18.6
Substation Modifications	Antelope Substation	Expanded by 33 acres to increase rating from 220 kV to 500 kV, which includes 220-kV improvements (300 feet x 205 feet) and future 500-kV substation
	Pardee Substation	220-kV Line Position 5 modified
	Transition Stations	4 total (2 along Del Sur Ridge + 1 at San Francisquito Canyon Road + 1 at Pardee Substation)
Information Technology	Optical ground wire	Installed as part of new transmission line on towers and in ducts placed underground
Operations and Maintenance	Frequency/Type	System failures more difficult to identify in underground portions. Failures may result in re-excavation to replace underground cables.

### **D.2.3 Alternative 2: Antelope-Pardee East Mid-Slope**

Alternative 2 would follow a similar route to the proposed Project, but would relocate most of the towers further east, off the top of the Del Sur Ridge and closer to Bouquet Canyon. The alignment of Alternative 2 would help reduce the visibility of the transmission from various key observation points. Alternative 2 is identical to the proposed Project, except between proposed Project Mile 5.7 and Mile 17.5 (Alternative 2 Mile 18.6), where the alignment deviates from the existing utility corridor in order keep towers off the Del Sur Ridge. Details of Alternative 2 are provided in Table D.2-3.

<b>Table D.2-3. Features of Alternative 2</b>		
Transmission Line	Linear distance of transmission line	26.7 miles total 26.7 miles overhead, 0.0 miles underground
	Linear distance of existing ROW	11.0 miles (5.7 miles to be widened)
	Linear distance of new ROW	15.7 miles
	Linear distance on NFS lands	13.2 miles (12.2 miles of new ROW)
	Estimated duration of construction	14 months
	Existing 66-kV line	To be removed from Mile 1.1 to 18.6
Substation Modifications	Antelope Substation	Expanded by 33 acres to increase rating from 220 kV to 500 kV, which includes 220-kV improvements (300 feet x 205 feet) and future 500-kV substation
	Pardee Substation	220-kV Line Position 5 modified
	Transition Stations	None
Information Technology	Optical ground wire	Installed as part of new transmission lines on towers
Operations and Maintenance	Frequency/Type	Periodic inspections (once per year) on an as-needed basis. Preventative maintenance every six months. Access to some tower sites may be limited to helicopter or walk-in trails.

### **D.2.4 Alternative 3: Antelope-Pardee Single-Circuit 500-kV Towers between Haskell Canyon and Pardee Substation**

Alternative 3 includes constructing single-circuit 500-kV towers between Haskell Canyon and the Pardee Substation in the vacant position within the Pardee-Vincent 500-kV ROW, which is situated near the center of the ROW. Alternative 3 is identical to the proposed Project, except between Mile 20.3 and Mile 25.6 (on non-NFS lands), where single-circuit 500-kV towers would be constructed instead of constructing double-circuit 500-kV towers and removing the existing single-circuit 500-kV towers. Details of Alternative 3 are provided in Table D.2-4.

<b>Table D.2-4. Features of Alternative 3</b>		
Transmission Line	Linear distance of transmission line	25.6 miles total 25.6 miles overhead, 0.0 miles underground
	Linear distance of existing ROW	22.8 miles (17.5 miles to be widened)
	Linear distance of new ROW	2.8 miles
	Linear distance on NFS lands	12.6 miles (0 miles of new ROW)
	Estimated duration of construction	13 months
	Existing 66-kV line	To be removed from Mile 1.1 to 18.6
Substation Modifications	Antelope Substation	Expanded by 33 acres to increase rating from 220 kV to 500 kV, which includes 220-kV improvements (300 feet x 205 feet) and future 500-kV substation
	Pardee Substation	220-kV Line Position 5 modified
	Transition Stations	None
Information Technology	Optical ground wire	Installed as part of new transmission lines on towers
Operations and Maintenance	Frequency/Type	Periodic inspections (once per year) on an as-needed basis. Preventative maintenance every six months.

### **D.2.5 Alternative 4: Antelope-Pardee Re-Routing of New Right-of-Way along Haskell Canyon**

Alternative 4 re-routes the proposed Project around the Veluzat Motion Picture Ranch and the proposed Meadow Peak development near Santa Clarita. Alternative 4 is identical to the proposed Project, except between Mile 17.5 and Mile 20.3, where the transmission line would remain east of the proposed Project route

to avoid the Veluzat Motion Picture Ranch and planned development near Haskell Canyon. Details of Alternative 4 are provided in Table D.2-5.

Transmission Line	Linear distance of transmission line	25.9 miles total 25.9 miles overhead, 0.0 miles underground
	Linear distance of existing ROW	22.3 miles (16.4 miles to be widened)
	Linear distance of new ROW	3.6 miles
	Linear distance on NFS lands	12.5 miles (1.0 mile of new ROW)
	Estimated duration of construction	13 months
	Existing 66-kV line	To be removed from Mile 1.1 to 18.6
Substation Modifications	Antelope Substation	Expanded by 33 acres to increase rating from 220 kV to 500 kV, which includes 220-kV improvements (300 feet x 205 feet) and future 500-kV substation
	Pardee Substation	220-kV Line Position 5 modified
	Transition Stations	None
Information Technology	Optical ground wire	Installed as part of new transmission lines on towers
Operations and Maintenance	Frequency/Type	Periodic inspections (once per year) on an as-needed basis. Preventative maintenance every six months.

### **D.2.6 Alternative 5: Antelope-Pardee Sierra Pelona Re-Route**

Alternative 5 includes the construction of an overhead single-circuit 500-kV transmission line that would be routed to generally avoid the ANF, except for a short segment which would traverse the northeast corner of the Forest. Alternative 5 would proceed south from the Antelope Substation, crossing over the California Aqueduct and the Portal Ridge mountain range, and then continue in a southwest direction crossing over Elizabeth Lake Road in Leona Valley. At this point, Alternative 5 would turn south, entering the ANF (on NFS lands) for approximately 0.5 miles, then exit the ANF and continue in a southerly direction along the eastern border of the ANF through the western-most portion of the Ritter Ranch Development area. Once crossing the Sierra Highway and the Antelope Valley Freeway (SR-14), the transmission line would traverse two NFS land properties (1.0 mile) in Soledad Canyon and then enter the existing Pardee-Vincent corridor (Alternative 5 Mile 18.8) and continue west to the Pardee Substation (Alternative 5 Mile 37.2) in this existing corridor. Within the Pardee-Vincent corridor, between Alternative 5 Mile 18.8 and the Mile 37.2 (18.4 miles total) the existing single-circuit 500-kV towers would be replaced with double-circuit 500-kV towers. Alternative 5 deviates from the proposed Project from the Antelope Substation (Mile 0.0) to Mile 20.3 (Alternative 5 Mile 31.9), at which point the transmission line would rejoin the proposed Project route. Details of Alternative 5 are provided in Table D.2-6.

### **D.2.7 No Project/Action Alternative**

The No Project/Action Alternative is described in Section B.4.6. Although the No Project/Action Alternative would result in the proposed Project not being built, this alternative may lead to system-wide power flow and reliability problems due to overloading of the existing system, such as curtailed generation, thermal overload, and blackouts. To address these problems and to provide added system capacity to deliver wind power to load, it is likely that some type of unspecified transmission upgrades would be proposed in the future in order to accomplish goals similar to those of the Project. The timing and nature of any such future transmission upgrades are not known at this time.

Transmission Line	Linear distance of transmission line	37.2 miles total 37.2 miles overhead, 0.0 miles underground
	Linear distance of existing ROW	18.4 miles (0.0 miles to be widened)
	Linear distance of new ROW	18.8 miles
	Linear distance on NFS lands	1.5 miles (all new)
	Estimated duration of construction	16 months
	Existing 66-kV line	To be removed from Mile 1.1 to 18.6
Substation Modifications	Antelope Substation	Expanded by 33 acres to increase rating from 220 kV to 500 kV, which includes 220-kV improvements (300 feet x 205 feet) and future 500-kV substation
	Pardee Substation	220-kV Line Position 5 modified
	Transition Stations	None
Information Technology	Optical ground wire	Installed as part of new transmission lines on towers
Operations and Maintenance	Frequency/Type	Periodic inspections (once per year) on an as-needed basis. Preventative maintenance every six months.

### **D.3 Alternatives Comparison Matrix**

For comparison purposes, Table D.3-1 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). The No Project/Action Alternative would likely have impacts; however, the future transmission upgrades that might be carried out under the No Project/Action Alternative are unknown at this time. As such, the No Project/Action Alternative is not included in Table D.3-1.

The matrix provided in Table D.3-1 is organized by environmental issue area. A narrative summary of impacts by issue area is provided in Section D.4, below, with overall conclusions based on this matrix and the discussion in Section D.4 presented in Section D.5 (CEQA Environmentally Superior Alternative) and Section D.6 (NEPA Preferred Alternative or Alternatives).

### **D.4 Comparison of Alternatives**

A summary comparison of the environmental impacts of the proposed Project and alternatives is presented below for each of the environmental issue areas analyzed in Sections C.2 through C.15. Noteworthy differences between the proposed Project and alternatives are discussed on an issue-by-issue basis, focusing primarily on notable differences between the proposed Project and alternatives. For each issue area, a conclusion is made as to which alternative is environmentally preferable.

This analysis is provided, in part, to support the determination of the CEQA environmentally superior alternative (see Section D.5) and the NEPA preferred alternative (see Section D.6). The No Project/Action Alternative has not been included in the discussion below because the intent of the comparative analysis is to highlight differences among “action” alternatives, and because CEQA does not allow the selection of No Project Alternative as the environmentally superior alternative (State CEQA Guidelines §15126.6(e)(2)).

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/EIS.
- **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. The environmental impacts associated with the proposed Project and alternatives are summarized by class in Tables D.4-1 through D.4-14.

**D.4.1 Air Quality**

Table D.4-1 provides a summary of the impacts determined for Air Quality as discussed in detail in Section C.2.

	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	1 Class I 3 Class II 1 Class III 0 Class IV	2 Class I 2 Class II 1 Class III 0 Class IV	1 Class I 3 Class II 1 Class III 0 Class IV	1 Class I 3 Class II 1 Class III 0 Class IV	1 Class I 3 Class II 1 Class III 0 Class IV	1 Class I 3 Class II 1 Class III 0 Class IV

As shown in Table D.4-1, the proposed Project and alternatives would result in Class I impacts related to Air Quality. All alternatives would exceed the SCAQMD and AVAQMD daily regional significant emissions thresholds for a number of pollutants during construction even after mitigating to the extent feasible (Class I). Additionally, Alternative 1 exceeds the SCAQMD Localized Significance Thresholds (LST) for PM10 (Class I) during the undergrounding construction work through the populated sections of Santa Clarita, while all of the other alternatives will not have significant localized impacts after the implementation of the proposed mitigation measures (Class II).

While the proposed Project and alternatives would conform to the Federal General Conformity Rule after implementation of the proposed mitigation measures (Class II), Alternative 3 would result in the lowest annual (2008) emissions. In contrast, Alternative 1 would require additional mitigation beyond that required for the proposed Project and alternatives in the form of NOx emission offsets, in order to conform to the Federal General Conformity Rule. The proposed Project and alternatives would conform to the ANF air quality strategies after the implementation of the proposed mitigation measures (Class II). All project alternatives would have less than significant odor impacts (Class III).

The ranking system shown in Table D.4-1 does not allow for differentiating the level of impacts or ranking the relative importance of each impact. ~~For air quality, this ranking system might lead to the incorrect conclusion that Alternative 5 could be the preferred alternative.~~ However, due to this alternative having a significantly longer route than all of the other alternatives, it has the second highest estimated construction emissions. The ranking system does correctly show Alternative 1 as the least preferable alternative due to its much higher air quality impacts that occur during the underground transmission line construction. There is very little difference

<b>Table D.3-1. Summary Comparison of Environmental Issues/Impacts</b>												
Environmental Issues / Impacts	Proposed Project		Alt. 1		Alt. 2		Alt. 3		Alt. 4		Alt. 5	
<b>AIR QUALITY</b>												
Construction – SCAQMD daily regional emissions, lb/day (Impact A-1)	NOx = 551 CO = 413 PM2.5 = 146	VOC = 66 PM10 = 677 SO <sub>2</sub> = 3	NOx = 665 CO = 489 PM2.5 = 190	VOC = 78 PM10 = 886 SO <sub>2</sub> = 3	NOx = 866 CO = 654 PM2.5 = 163	VOC = 101 PM10 = 695 SO <sub>2</sub> = 6	Same as proposed Project		Same as proposed Project		Same as proposed Project	
Construction – SCAB daily regional threshold exceeded (Impact A-1)	Yes (NOx and PM10)		Yes (NOx, VOC and PM10)		Yes (NOx, VOC, CO, PM10)		Yes (NOx and PM10)		Yes (NOx and PM10)		Yes (NOx and PM10)	
Construction – MDAB daily regional emissions, lb/day (Impact A-1)	NOx = 534 CO = 403 PM2.5 = 91	VOC = 64 PM10 = 324 SO <sub>2</sub> = 3	Same as proposed Project		Same as proposed Project		Same as proposed Project		Same as proposed Project		Same as proposed Project	
Construction – MDAB daily regional threshold exceeded (Impact A-1)	Yes (NOx and PM10)		Yes (NOx and PM10)		Yes (NOx and PM10)		Yes (NOx and PM10)		Yes (NOx and PM10)		Yes (NOx and PM10)	
Construction – SCAQMD localized significance thresholds exceeded (Impact A-2)	No		Yes (PM10)		No		No		No		No	
Construction – SCAQMD annual emissions, tons/year (Year 2008, except for Alt 1 is Year 2009) (Impact A-3)	NOx = 14.35 CO = 11.13 PM2.5 = 3.08	VOC = 1.88 PM10 = 12.89 SO <sub>2</sub> = 0.06	NOx = 26.37 CO = 18.42 PM2.5 = 7.15	VOC = 3.27 PM10 = 30.82 SO <sub>2</sub> = 0.04	NOx = 16.56 CO = 13.09 PM2.5 = 3.10	VOC = 2.17 PM10 = 10.59 SO <sub>2</sub> = 0.09	NOx = 14.16 CO = 10.92 PM2.5 = 3.02	VOC = 1.85 PM10 = 12.70 SO <sub>2</sub> = 0.06	NOx = 14.54 CO = 11.22 PM2.5 = 3.13	VOC = 1.90 PM10 = 13.05 SO <sub>2</sub> = 0.07	NOx = 16.91 CO = 13.13 PM2.5 = 3.77	VOC = 2.19 PM10 = 15.98 SO <sub>2</sub> = 0.08
Construction – SCAQMD general conformity threshold exceeded (Impact A-3)	No		Yes (NOx) – additional mitigation required		No		No		No		No	
Conform to Angeles National Forest air quality strategies (Impact A-5)	Yes, with mitigation		Yes, with mitigation		Yes, with mitigation		Yes, with mitigation		Yes, with mitigation		Yes, with mitigation	
<b>BIOLOGICAL RESOURCES</b>												
<b>Total land disturbance in acres (w/o MM V-4a) (Impact B-1, B-3, B-4, B-6, B-7, B-15, B-17, B-18)</b>	1264.8		22348.0		121.7446.6		1264.8		13025.5		15045.6	
Total land disturbance to NFS lands in acres (w/o MM V-4a) (Impact B-1, B-3, B-4, B-6, B-7, B-15, B-17, B-18, B-27)	43.5		91.0		37.9		43.5		44.5		9.9	
Total permanent land disturbance in acres On / Off NFS lands.	58.5 22.1 / 36.4		75.9 33.4 / 42.5		58.0 21.2 / 36.8		58.5 22.1 / 36.4		61.2 22.9 / 38.3		59.0 2.6 / 56.4	
Potential to cause increased soil erosion, sedimentation, and runoff into waters supporting sensitive species (Impact B-28)	Moderate		High		Moderate		Moderate		Moderate		Moderate to High	
Potential for invasion by exotic plants (Impact B-4)	Moderate.		Highest due to large area of ground disturbance.		Moderate. Mid slope location in relatively undisturbed habitat.		Moderate.		Moderate.		Moderate. Most of this area contains populations of exotic plants. However, removal of the 119 existing 66kV lines on NFS lands could result in the spread of invasive plants.	
Potential for avian collisions with the transmission line (Impact B-14 and B-23)	High due to prominent location on ridge top.		Moderate due to underground portion of transmission line.		Moderate to High due to mid slope location.		High due to prominent location on ridge top.		High due to prominent location on ridge top.		Moderate due to location. This area may have reduced potential for condor presence. In addition, this alternative would remove the existing line from NFS lands which could result in beneficial impacts to condors.	
Potential impacts to Management Indicator Species (Impact B-27)	Moderate due to ridge location.		Increased due to extensive trenching and construction schedule (29 months).		Moderate to High due to mid-slope location.		Moderate due to ridge location.		Moderate due to ridge location.		Low due to limited section of ROW on NFS lands. MIS species would be subject to disturbance when the existing lines are removed. Could result in beneficial impacts to condor.	
Jurisdictional waters and wetlands (Waters of the U.S. and CDFG jurisdiction) (Impact B-28)	Avoided on NFS lands. Potential impact at Haskell Canyon Road crossing		Avoided on NFS lands. Potential impact at Haskell Canyon Road crossing		Avoided on NFS lands. Potential impact at Haskell Canyon Road crossing		Avoided on NFS lands. Potential impact at Haskell Canyon Road crossing		Avoided on NFS lands. Potential impact at Haskell Canyon Road crossing		Avoided on NFS lands. Potential impact at Haskell Canyon Road crossing and small tributaries located along ROW.	

**Table D.3-1. Summary Comparison of Environmental Issues/Impacts**

Environmental Issues / Impacts	Proposed Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Duration of construction (i.e., duration of disturbance to wildlife) (Impact B-3, B-4, B-6, B-17, B-27, B-29)	13 months	10 months (overhead) 29 months (underground)	14 months	13 months	13 months	16 months
<b>CULTURAL RESOURCES</b>						
No. of archeologically (prehistoric) sensitive sites potentially impacted (Impact C-3, C-4, C-8, Alt 5 = C-19, C-20, C-21)	3 (includes historic component: Cochem Ranch)	3 (includes historic component: Cochem Ranch)	2 (includes historic component of Cochem Ranch)	3 (includes historic component: Cochem Ranch)	2 (includes historic component of Cochem Ranch)	3
No. of historically sensitive sites potentially impacted (Impact C-1, C-2, C-5, C-6, C-7, C-9, C-10, C-11, C-12, C-13 Alt 5 = C-2, C-15, C-16, C-17, C-18, C-22, C-23)	10	10	8	10	8	7
<b>GEOLOGY, SOILS, AND PALEONTOLOGY</b>						
Crossings of active faults (or traces) (Impact G-3, Alt. 1 = G-12)	San Andreas Fault, San Gabriel Fault (both overhead)	San Andreas Fault (overhead), San Gabriel Fault (underground) – mitigation recommended	San Andreas Fault, San Gabriel Fault (both overhead)	San Andreas Fault, San Gabriel Fault (both overhead)	San Andreas Fault, San Gabriel Fault (both overhead)	San Andreas Fault, San Gabriel Fault (both overhead)
Crossings of existing landslides (Impact G-4, G-9)	Two mapped landslides in the Pelona Schist along Del Sur Ridge	Same as proposed Project	Crosses several moderate sized landslides within the Pelona Schist. Numerous other small to moderate sized landslides mapped in the vicinity within the Pelona Schist.	Same as proposed Project	Two mapped landslides in the Pelona Schist along Del Sur Ridge; as well as the Mint Canyon and Castaic Formations, which underlie re-routed portion, are prone to landslides.	Re-route does not cross any mapped landslides. Shared alignment crosses several landslides. Numerous other landslides mapped in the vicinity.
Areas crossed with potential for liquefaction (Impact G-4)	Some portions of the alignment are located in areas underlain by potentially liquefiable alluvial deposits – mitigated	Santa Clarita underground segment is underlain by alluvial deposits in San Francisquito Canyon, Santa Clara River Valley, and alluvial and creek deposits of smaller side drainages.	Potentially liquefiable alluvial deposits on the valley floor of Bouquet Canyon east of Bouquet Reservoir, although unlikely tower structures will be placed in this area.	Same as proposed Project	Same as proposed Project	Santa Clara River Valley, Leona Valley, and in the alluvial and creek deposits of intervening drainages.
Potential to disturb significant fossil-bearing geologic formations (Impact G-9)	High to Moderate sensitivity – Anaverde Formation, Mint Canyon Formation, Castaic Formation, Saugus Formation	Similar as proposed Project, except substantially more excavation and ground disturbance in Saugus Formation located in Santa Clarita underground segment increases potential to disturb.	Same as proposed Project – Area of re-route has no potential (granitic and metamorphic rocks)	Same as proposed Project	Same as proposed Project	Same as proposed Project
Interferes with access to mineral resources (Impact G-10)	No	Yes (Bouquet Canyon Stone Quarry) – mitigation recommended	No	No	No	No
Substantial permanent alteration of topography (Impact G-11)	No	Yes (Del Sur Ridge) - mitigated	No	No	No	No
<b>PUBLIC HEALTH AND SAFETY</b>						
Project-related activities with increased potential for the accidental spill or release of hazardous substances <sup>1</sup> (Impact PH-1 and PH-4)	<ul style="list-style-type: none"> <li>• Tower construction (25.6 miles)</li> <li>• Substation modifications</li> </ul>	<ul style="list-style-type: none"> <li>• Tower construction (18.7 miles)</li> <li>• Undergrounding (6.9 miles)</li> <li>• Substation modifications</li> <li>• Maintenance of underground facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Tower construction (26.7 miles), particularly 11.8 miles of hillside towers</li> <li>• Substation modifications</li> <li>• Maintenance of hillside towers (11.8 miles)</li> </ul>	<ul style="list-style-type: none"> <li>• Tower construction (25.6 miles)</li> <li>• Substation modifications</li> </ul>	<ul style="list-style-type: none"> <li>• Tower construction (25.9 miles)</li> <li>• Substation modifications</li> </ul>	<ul style="list-style-type: none"> <li>• Tower construction (372 miles)</li> <li>• Substation modifications</li> </ul>
General location of excavation activities that may lead to the disturbance of contaminated soils (Impact PH-2 and PH-3)	<ul style="list-style-type: none"> <li>• Tower sites</li> <li>• Substation sites</li> </ul>	<ul style="list-style-type: none"> <li>• Tower sites</li> <li>• Mile 11-15</li> <li>• Mile 22.7-25.6</li> <li>• Substation sites</li> </ul>	<ul style="list-style-type: none"> <li>• Tower sites</li> <li>• Mile 5.7-17.5</li> <li>• Substation sites</li> </ul>	<ul style="list-style-type: none"> <li>• Tower sites</li> <li>• Substation sites</li> </ul>	<ul style="list-style-type: none"> <li>• Tower sites</li> <li>• Substation sites</li> </ul>	<ul style="list-style-type: none"> <li>• Tower sites</li> <li>• Substation sites</li> </ul>
Areas where the project may cause radio or television interference (Impact PH-5)	Localized residences and businesses in Lancaster and Santa Clarita, specifically Veluzat Motion Picture Ranch	Same as proposed Project	Same as proposed Project	Same as proposed Project	Same as proposed Project	Localized residences and businesses in Lancaster, Palmdale, Agua Dulce, Acton, and Santa Clarita
<b>FOREST MANAGEMENT ACTIVITIES</b>						
Construction activities would restrict aggressive ground fire suppression on Del Sur Ridge (Impact F-3)	Yes	Yes	Yes	Yes	Yes	No

<sup>1</sup> "Hazardous substances" refers to a wide variety of potentially harmful materials, including but not limited to the following: gasoline, diesel fuel, oil, hydraulic fluid, lubricants, paints, solvents, adhesives, and cleaning chemicals.



**Table D.3-1. Summary Comparison of Environmental Issues/Impacts**

Environmental Issues / Impacts	Proposed Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Construction activities would affect aggressive aerial fire suppression (Impact F-3)	Yes	No	Yes	Yes	Yes	No
Transmission line operation would affect aggressive fire suppression on Del Sur Ridge (Impact F-4)	Yes	No	No	Yes	Yes	No
Transmission line would affect aggressive fire suppression activities near Bouquet Canyon Reservoir (Impact F-4)	Yes	Yes	No	Yes	Yes	No
Transmission line would affect fire prevention activities on Del Sur Ridge (Impact F-5)	Yes	No	No	Yes	Yes	No
Transmission line would affect firefighter safety on Del Sur Ridge (Impact F-6)	Yes	No	No	Yes	Yes	No
<b>HYDROLOGY AND WATER QUALITY</b>						
Major overhead water body crossings (Name: Mile) (Impact H-2 to H-4)	10: CA Aqueduct: 2.9 Amargosa Creek: 5.1 Spunky Canyon: 7.5, 8.6 Bouquet Reservoir: 9.3-9.9 Bee Canyon: 10-10.6 Haskell Canyon: 17.6-17.7, 20.7 Pettinger Canyon: 18.8-19.5 San Francisquito Canyon: 24	9: CA Aqueduct: 2.9 Amargosa Creek: 5.1 Spunky Canyon: 7.5, 8.6 Bouquet Reservoir: 9.3-9.9 Bee Canyon: 10-10.6 Haskell Canyon: 17.6-17.7, 20.7 Pettinger Canyon: 18.8-19.5	8: CA Aqueduct: 2.9 Spunky Canyon Bouquet Canyon (x2) Haskell Canyon: 17.6-17.7, 20.7 Pettinger Canyon: 18.8-19.5 San Francisquito Canyon: 24	10: CA Aqueduct: 2.9 Amargosa Creek: 5.1 Spunky Canyon: 7.5, 8.6 Bouquet Reservoir: 9.3-9.9 Bee Canyon: 10-10.6 Haskell Canyon: 17.6-17.7, 20.7 Pettinger Canyon: 18.8-19.5 San Francisquito Canyon: 24	8: CA Aqueduct: 2.9 Amargosa Creek: 5.1 Spunky Canyon: 7.5, 8.6 Bouquet Reservoir: 9.3-9.9 Bee Canyon: 10-10.6 Haskell Canyon: 20.7 San Francisquito Canyon: 24	14: California Aqueduct: 2.6 Amargosa Creek: 4.5 Bouquet Canyon: 9.1, 30.3 Maple Canyon: 9.9 Willow Spring Gulch: 13.1, 13.7 Agua Dulce Canyon: 13.7-14.1, 21.9 Escondido Canyon: 17.5 Tick Canyon: 24.1 Mint Canyon: 26 Haskell Canyon: 32.5 San Francisquito Canyon: 35.8
Minor (mountain stream <sup>2</sup> or valley wash <sup>3</sup> ) overhead water body crossings (Impact H-2 to H-4)	19	15	29	19	22	19
Minor (mountain stream) underground crossings	0	4	0	0	0	0
Miles within the Antelope Valley Groundwater Basin (Impact H-2 to H-4)	7.0	7.0	7.0	7.0	7.0	7.0
Miles within the Santa Clara Valley East Groundwater Basin (Impact H-2 to H-4)	3.6	3.6	3.6	3.6	3.6	9.0
<b>LAND USE AND PUBLIC RECREATION</b>						
Consistent with an amendment to the 2005 ANF Land Management Plan	Requires amendment to Scenic Integrity Objectives and ANF S1	Requires amendment to Scenic Integrity Objectives, ANF S1, and utility corridor designation	Requires amendment to Scenic Integrity Objectives, ANF S1, and utility corridor designation	Requires amendment to Scenic Integrity Objectives and ANF S1	Requires amendment to Scenic Integrity Objectives, ANF S1, and utility corridor designation	Requires amendment to Scenic Integrity Objectives and utility corridor designation
Permanent condemnation/preclusion of residential/commercial uses (excluding private property upon which residences are not affected) (Impact L-3 and L-4)	Precluded commercial use – Veluzat Motion Picture Ranch	Precluded commercial use – Veluzat Motion Picture Ranch	Precluded commercial use – Veluzat Motion Picture Ranch	Precluded commercial use – Veluzat Motion Picture Ranch	None	Potential condemnation of one or more homes (final outcome dependant on more detailed alignment studies)
No. of private parcels traversed (estimated) (Impact L-3)	58 (6 are within the ANF)	58 (6 are within the ANF)	59 (7 are within the ANF)	58 (6 are within the ANF)	60 (8 are within the ANF)	103 (none are within the ANF)
Recreational resources potentially affected (No. of sites / No. of trails) (Impact R-1 and R-2)	5 sites / 74 trails	5 sites / 74 trails	5 sites / 74 trails	5 sites / 74 trails	5 sites / 74 trails	1 site / 92 trails
Construction and/or improvement of access/spur roads within NFS lands (Impact R-3 and R-4)	Access roads: 9.7 miles Spur roads: 1.1 miles	Access roads: 10.2 miles Spur roads: 3.1 miles	Access roads: 10.4 miles Spur roads: 0.3 miles	Access roads: 9.7 miles Spur roads: 1.1 miles	Access roads: 9.6 miles Spur roads: 1.5 miles	Access roads: 1.2 miles Spur roads: 0.1 miles

<sup>2</sup> "Mountain stream" is a descriptive term for an unnamed stream, creek, or wash located in hilly or mountainous terrain.

<sup>3</sup> "Valley wash" refers to a dry streambed that may have only occasional flow.

<b>Table D.3-1. Summary Comparison of Environmental Issues/Impacts</b>						
<b>Environmental Issues / Impacts</b>	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
Linear miles of traversed Farmland (Impact L-5 and L-6)	0.5 miles	0.5 miles	0.5 miles	0.5 miles	0.5 miles	0.8 miles
<b>NOISE</b>						
Sensitive receptors significantly impacted by temporary noise from construction activities, as well as routine inspection and maintenance activities (Impact N-1, N-4, N-7)	Residents of Lancaster, Santa Clarita, ANF, L.A. County, Veluzat Motion Picture Ranch	Residents of Lancaster, L.A. County, Veluzat Motion Picture Ranch. Additional construction activities and traffic associated with underground construction, as well as the increase duration of construction, would increase impacts to sensitive receptors in Santa Clarita, ANF, and along haul truck traffic routes.	Residents of Lancaster, Santa Clarita, ANF, L.A. County, Veluzat Motion Picture Ranch.	Residents of Lancaster, Santa Clarita, ANF, L.A. County, Veluzat Motion Picture Ranch. Minimal reduction in noise as a result of NOT removing the existing single-circuit towers along 5.3-mile segment between Mile 20.3 and Mile 25.6 (Pardee Substation)	Residents of Lancaster, Santa Clarita, ANF, and L.A. County	Residents of Lancaster, Santa Clarita, Leona Valley, ANF, L.A. County (Acton)
Sensitive receptors significantly impacted by permanent operations (Impact N-2, N-3, N-5, N-6)	Corona noise levels exceed L.A. County standards at Veluzat Motion Picture Ranch	Corona noise levels exceed L.A. County standards at Veluzat Motion Picture Ranch	Corona noise levels exceed L.A. County standards at Veluzat Motion Picture Ranch	Corona noise levels exceed L.A. County standards at Veluzat Motion Picture Ranch	None – Corona noise levels would NOT exceed L.A. County standards for residential receptors	None – Corona noise levels would NOT exceed L.A. County standards for residential receptors
Significant temporary noise impacts to recreational users in the ANF (Impact N-8)	Yes 12.6 miles on NFS lands	Yes 12.6 miles on NFS lands	Yes 13.2 miles on NFS lands	Yes 12.6 miles on NFS lands	Yes 12.5 miles on NFS lands	Yes 1.5 miles on NFS lands
Duration of construction (i.e., duration of construction noise pollution) (Impact N-1)	13 months	10 months (overhead) 29 months (underground)	14 months	13 months	13 months	16 months
<b>PUBLIC SERVICES</b>						
Increase demand for fire protection services during construction (Impact P-1)	Construction activities for overhead transmission line could temporarily increase demand for fire protection, particularly on NFS lands	Trenching activities have a greater demand for fire protection than overhead transmission construction activities, particularly on NFS lands	Fire protection demands would be largely similar to the proposed Project, although with a greater demand for aerial resources along the 37 towers off access roads	Fire protection demands would be the same as the proposed Project	Fire protection demands would be the same as the proposed Project	Greater length of route would increase demand for fire protection services over the proposed Project
Increase demand for fire protection services during operation (Impact P-2)	Operation of a double-circuit 500-kV overhead transmission line would increase demand for fire protection services	Installation of transmission line underground for portions of the route would reduce long-term fire protection demand	Fire protection demands would be largely similar to the proposed Project, although with a greater demand for aerial resources along the 37 towers off access roads	Fire protection demands would be the same as the proposed Project. Single-circuit 500-kV would have a slightly less demand on fire protection services than the proposed Project	Fire protection demands would be the same as the proposed Project	Greater length of route would increase demand for fire protection services over the proposed Project
<b>SOCIOECONOMICS</b>						
Construction Workforce	Approximately 20 to 120 personnel, with an estimated average daily workforce of 50 personnel	Greater than 120 workers due to specialized underground construction	Approximately 20 to 120 personnel, with an estimated average daily workforce of 50 personnel	Approximately 20 to 120 personnel, with an estimated average daily workforce of 50 personnel	Approximately 20 to 120 personnel, with an estimated average daily workforce of 50 personnel	Approximately 20 to 120 personnel, with an estimated average daily workforce of 50 personnel
Business Disruption (Impact S-1 to S-3, Alt 1 = S-6)	Bouquet Canyon Stone Quarry, Veluzat Motion Picture Ranch, and agricultural uses	Bouquet Canyon Stone Quarry, Veluzat Motion Picture Ranch, and agricultural uses	Veluzat Motion Picture Ranch and agricultural uses	Veluzat Motion Picture Ranch and agricultural uses	Bouquet Canyon Stone Quarry and agricultural uses	Agricultural uses only
Residential Displacement (Alt 1 = Impact S-7)	No	No	No	No	No	Some Potential
<b>TRAFFIC AND TRANSPORTATION</b>						
Number of road crossings (Impact T-1)	256 (78 on NFS lands)	20 (7 on NFS lands)	2825 (87 on NFS lands)	25 (7 on NFS lands)	2425 (79 on NFS lands)	32 (0 on NFS lands)
Number of roadway segments immediately adjacent to transmission route	5	2	3	5	5	1
Restricts access to homes and businesses due to underground construction activities (Alt 1 = Impact T-9)	No	Yes	No	No	No	No
Restricts access to Bouquet Canyon Stone Company (Alt 1 = Impact T-9)	No	Yes	No	No	No	No
Number of SR-14 & Sierra Highway Crossings (Impact T-1)	0	0	0	0	0	4
Inconsistency with transportation plans	No	No	No	No	No	Yes

<b>Table D.3-1. Summary Comparison of Environmental Issues/Impacts</b>						
<b>Environmental Issues / Impacts</b>	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
Tower heights may exceed FAA 200-foot threshold and would require FAA review and approval of Project (Impact T-8)	Yes	No	Yes	No	Yes	Yes
<b>UTILITIES AND SERVICE SYSTEMS</b>						
Acre-feet of water required for construction (Impact U-1)	5.82	25.00	6.06	5.77	6.00	8.60
Tons of waste generated by construction (Impact U-2)	2,876	173,772	2,899	2,242	2,886	4,976
<b>VISUAL RESOURCES</b>						
With Forest Plan amendment, meets a minimum level of acceptable scenic integrity objective? If yes, what Miles would meet Very Low Scenic Integrity Objective (SIO)?	Yes – Achieves Very Low SIO from Mile 5.7 to 17.6	No – Achieves Unacceptably Low SIO from Mile 11.0 to 15.0	Yes – Achieves Very Low SIO from Mile 6.4 to 7.7 and 13.5 to 14.0	Yes – Achieves Very Low SIO from Mile 5.7 to 17.6	Yes – Achieves Very Low SIO from Mile 5.7 to 17.6 and 18.3 to 18.8	Yes – Achieves Very Low SIO from Mile 5.6 to 6.1, 17.1 to 17.5, and 17.9 to 18.5
Number of crossings of the Pacific Crest National Scenic Trail on NFS lands (Impact V-4)	1	1	1	1	1	0
Number of crossings of the Pacific Crest National Scenic Trail on BLM lands (Alt 5 = Impact V-27)	0	0	0	0	0	1
Maximum number of levels below SIOs without mitigation	4	4	3	4	4	4
Maximum number of levels below SIOs with mitigation	3	4	3	3	3	1 – 0.5 miles through ANF 3 – 1.0 mile through newly acquired NFS lands in Soledad Canyon
Visible from Veluzat Motion Picture Ranch “Main Street” (Impact V-9)	Yes	Yes	Yes	Yes	No	No
Achievable SIO, with mitigation measures, as seen from Pacific Crest National Scenic Trail on NFS lands (Impact V-4)	Very Low	Very Low	Very Low	Very Low	Very Low	N.A.
Achievable Visual Resource Management System (VRM) Class, with mitigation measures, as seen from Pacific Crest National Scenic Trail on BLM lands (Impact V-27)	N.A.	N.A.	N.A.	N.A.	N.A.	VRM Class IV
Visible from San Francisquito Canyon Road, and achieves what SIO with mitigation? (Impact V-5)	Yes – Very Low	Yes – Unacceptably Low	No – High	Yes – Very Low	Yes – Very Low	No – High
Visible from Bouquet Reservoir, and achieves what SIO with mitigation? (Impact V-6)	Yes – Very Low	Yes – Very Low	Yes – Low	Yes – Very Low	Yes – Very Low	No – High
Visible from Bouquet Canyon Road, and achieves what SIO with mitigation? (Impact V-7)	Yes – Very Low	No – High	Yes – Very Low	Yes – Very Low	Yes – Very Low	No – High
Visible from Vasquez Canyon Road, and achieves what SIO with mitigation? (Impact V-8)	Yes – Very Low	Yes – Unacceptably Low	Yes – High	Yes – Very Low	Yes – Very Low	No – High
Visible from North Park Elementary School and Chesebrough Park (Impact V-13)	Yes	No	Yes	Yes	Yes	Yes
Visible from Copper Hill Road (Impact V-14)	Yes	No	Yes	Yes	Yes	Yes
Visible from Vasquez Rocks County View Park (Alt 5 = Impact V-25)	No	No	No	No	No	Yes
Transmission line in ANF is viewed following along ridgelines in a “skylined” condition	Yes	Yes	No	Yes	Yes	No

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in air quality impacts or calculated emissions to choose a preference between the other four alternatives; however, considering all of the air quality impact criteria and their relative importance, construction emission estimates, and assumed differences in operating/maintenance requirements, Alternative 3 would be preferable as it would result in the lowest annual (2008) emissions.

In conclusion, the alternative that is preferred from an air quality perspective is Alternative 3. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 3.* This alternative has marginally lower annual and overall project construction emissions than the proposed Project due to less existing tower demolition (i.e., wreckout). The worst-case daily emissions are assumed to be the same as those for the proposed Project due to similar construction scheduling and construction requirements. The inspection and maintenance operating emissions would essentially be the same as that for proposed Project.
- *Proposed Project.* After Alternative 3, the proposed Project has the lowest annual and total construction emission totals (with the exception of the fugitive dust emission for Alternative 2 that are discussed below), and the proposed Project's emissions within the SCAB are only marginally higher (less than two percent higher) than those for Alternative 3, while the emissions within the MDAB would be identical. The worst-case daily emissions are essentially identical to Alternatives 3, 4, and 5 due to the identical assumptions regarding the worst-case daily construction activity overlap, and lower than the worst-case daily emissions for Alternatives 1 and 2 due to the proposed Project having no underground line construction (Alternative 1) and no additional helicopter construction (Alternative 2). The annual emissions and total emissions are the second lowest due to the proposed Project being comprised of only of overhead transmission line and the short length and relatively low number of towers required for the proposed Project route. The inspection and maintenance operating emissions for the proposed Project would be as low as or lower than the operating emission for all of the alternatives due to the fact that the proposed Project has, tied with Alternative 3, the shortest transmission route.
- *Alternative 4.* This alternative has annual and total construction emissions that are marginally higher than the proposed Project due to a marginally longer route. The worst-case daily emissions are assumed to be the same as those for the proposed Project due to similar construction scheduling and construction requirements. The inspection and maintenance operating emissions would essentially be the same as that for proposed Project.
- *Alternative 2.* This alternative has higher annual and total construction emissions and daily construction emissions due to additional helicopter use. The annual and overall fugitive dust emissions are somewhat lower than all of the other alternatives; however, helicopter prop wash emission formation is not included in the fugitive dust emission totals, and the equipment related PM10/PM2.5 emissions are higher than the preceding alternatives and these emissions are weighted more strongly than the fugitive dust emissions due to the more significant health impacts related with engine exhaust emissions. However, the higher daily emissions from this alternative are due to remote helicopter emissions, so the daily emissions increase does not cause this alternative to be ranked lower than fourth. The inspection and maintenance operating emissions would essentially be the same as that for proposed Project.
- *Alternative 5.* This alternative has the second highest annual and total emissions and increases emissions in both the SCAB and MDAB (not shown in the Table D.3-1 summary) portions of the route due to the increase in transmission line route length in both air basins. The worst-case daily emissions are assumed to be the same as those for the proposed Project due to the longer construction schedule allowing for the same

worst-case daily construction activities. The inspection and maintenance operating emissions would be somewhat higher than the preceding four alternatives due to the increase in route length.

- *Alternative 1.* This alternative has significantly higher annual and total construction emissions than all of the other alternatives and has a much longer construction schedule which will cause the significant regional emission impacts to last longer than the other alternatives. Additionally this alternative is the only alternative to have significant localized impacts due to the underground transmission line construction occurring so close to sensitive receptors. The worst-case daily emissions are higher than all of the other alternatives other than Alternative 2, and the effective ground-level impacts of this alternative’s maximum daily emissions may be higher those of Alternative 2 as all of the incremental increase in emissions occur at ground level. The inspection and maintenance operating emissions for this alternative would be the highest of all of the alternatives due to the additional inspection and maintenance activities required for the underground transmission line segments.

**D.4.2 Biological Resources**

Table D.4-2 provides a summary of the impacts determined for Biological Resources as discussed in detail in Section C.3.

<b>Table D.4-2 Impact Significance Summary – Biological Resources</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I
	26 Class II	26 Class II	26 Class II	26 Class II	26 Class II	25 Class II
	7 Class III	7 Class III	7 Class III	7 Class III	7 Class III	7 Class III
	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV	1 Class IV

As shown in Table D.4-2, neither the proposed Project nor any of the alternatives would result in significant, unavoidable impacts (Class I). With the exception of Alternative 5 which contains one beneficial impact (Class IV), each of the impacts resulting from construction and operation of the proposed Project and alternatives would create less-than-significant (Class III) or potentially significant but mitigable (Class II) impacts to biological resources with implementation of Mitigation Measures B-1a through B-26. Most of the differences related to the impacts of the proposed Project or alternatives are related to ground disturbance, location of the transmission line or ancillary facilities, construction timing, or presence of sensitive species. Although each of the impacts identified in this EIS/EIR are mitigable, the potential scale of the impact varies for each alternative. The one beneficial impact resulting from the location of the transmission line on non-NFS lands would be to reduce potential impacts from line collisions on the California condor. The stated goal of the USFWS Condor Recovery Plan and the Forest Plan is the reintroduction of this animal to the ANF. By removing or locating potential obstacles to flight outside regions where this species may occur, a potential beneficial impact is possible. It should be noted, however, that even under alternatives that would locate the transmission line on NFS lands, the impact would remain less than significant with implementation of raptor and condor protection measures.

Potentially significant, but mitigable, impacts associated with the proposed Project and alternatives would primarily occur during construction. Construction activities would include clearing and grading of tower pads, the grading of existing access roads, tower removal, and transportation. New access or stub roads would also be required at some tower locations. These activities would result in temporary or permanent loss of native vegetation (Impact B-1) and foraging habitat (Impacts B-3 and B-10), which would in turn have the potential to affect a number of sensitive plants and wildlife. Construction activities could result in potential impacts to listed

and special-status plant species (Impacts B-7 and B-15); federal- and State-listed amphibians, including arroyo toad and California red-legged frog (Impacts B-8 and B-9); and special status amphibians (Impact B-16), reptiles (Impact B-17), birds (Impacts B-6, B-11 through B-14, and B-19 through B-23), and mammals (Impacts B-24 through B-26). Construction activities would also have the potential for the introduction of non-native and invasive plant species (Impact B-4) that could threaten native vegetation communities and wildlife, and would affect USDA Forest Service Management Indicator Species (MIS) (Impact B-27).

Alternative 1 would create the potential for the greatest impacts to biological resources. Construction activities required for installation of the underground infrastructure for Alternative 1 would result in the largest permanent disturbance to native vegetation on the ANF. In addition, the extensive time required for construction of Alternative 1 would result in increased levels of temporary disturbances to wildlife, and would increase the potential for the introduction or spread of noxious/invasive weeds on NFS lands. Under Alternative 1, approximately ~~223~~218 acres of land would be subject to disturbance from project construction, and an estimated 75.9 acres of land would be permanently disturbed. Of this, most would occur on NFS lands.

Alternative 2 would also result in disturbance to NFS lands from the placement of the mid-slope towers. These areas are located in vegetated areas and would require a combination of new and improved access roads~~spur roads~~ and helicopter construction to complete. In comparison to Alternative 1, Alternative 2 would slightly decrease the total area of permanent disturbances (an estimated 166.6 acres in comparison to 218 acres), but would be greater than permanent disturbances associated with the proposed Project and Alternatives 3, 4 and 5. The placement of towers in mid-slope areas may reduce potential impacts to raptors from line collisions; however, construction on the hillsides would increase the potential for impacts to aquatic habitats located down slope from the line and may result in adverse but not significant impacts to MIS on NFS lands.

Alternatives 3 and 4 would have more adverse impacts to biological resources than the proposed Project, but would be less adverse than Alternative 5 due to the overall habitat quality of Alternative 5, as addressed below. While each of the potentially significant impacts listed above would be mitigated to less-than-significant levels, impacts would generally be less adverse for the proposed Project or Alternative 3 when compared to the remaining alternatives (Alternatives 1, 2, 4 and 5).

The proposed Project in addition to Alternatives 3 and 4 would be constructed primarily within an existing utility ROW on both private and NFS lands. As such, the majority of construction activities would occur along existing access and spur roads. Historically, most of these areas have been subject to previous disturbance by construction and ongoing maintenance activities. Therefore, the proposed Project and Alternatives 3 and 4 would reduce total impacts to undisturbed habitat in comparison to Alternatives 1, 2 and 5 (the approximate total acreages of disturbance [temporary and permanent disturbances combined] by each alternative are as follows: Alternative 1 - 223 acres; Alternative 2 - 121.7 acres, Alternative 4 - 130.5 acres, Alternative 5 - 150.6 acres; proposed Project and Alternative 3 - 126.8 acres) Some impacts to undisturbed areas would occur from the grading of new spur roads and the creation of a new ROW through Haskell Canyon; however, this disturbance would occur to less acreage than the other alternatives. Because the proposed Project and Alternatives 3 and 4 would impact the least amount of undisturbed habitat, they are equally preferred to minimize adverse effects to biological resources.

Alternative 5 is located almost entirely on non-NFS lands and would require the development of a new transmission line corridor in a portion of the ROW. Approximately ~~Only~~ 49 percent (18.4 miles) of this route would be constructed within an existing utility ROW, and approximately 51 percent (18.8 miles) of the alternative would require the construction of a new ROW. However, the new ROW area supports a series of existing dirt access roads and the total expected area of permanent disturbance is the same as the proposed

Project. Additionally, in comparison to the other alternatives, the overall habitat quality of several segments of Alternative 5's ROW is considered to be of less value due their close proximity to urbanized and semi-urbanized areas and previous disturbances. Although some portions of the new transmission line would be located in undisturbed habitat (Ritter Ranch Conservancy Lands and NFS lands), much of the proposed ROW would be located in an existing utility ROW characterized by more disturbed plant communities and pasture lands. Impacts to foraging habitat, native vegetation, listed and special-status plant species, and animal species could occur but impacts would be considered less than significant with mitigation. The construction of this alternative would place the transmission line in areas that have reduced potential to support the California condor and would also result in the removal of the existing 66-kV transmission line from the ANF. This action could reduce the potential for aerial collisions to condors and other raptors. This alternative would also result in the removal of lines from the Bouquet Reservoir which could also reduce adverse impacts to migratory waterfowl who may utilize the reservoir. Although Alternative 5 would not result in the smallest net acreage of total disturbance (temporary and permanent disturbances combined), in comparison to the other alternatives, its overall impacts to high quality, undisturbed habitat would be the smallest. Additionally, Alternative 5 would be expected to result in the greatest beneficial impacts to condors, raptors and migratory waterfowl, as outlined above.

In conclusion, the alternative that is preferred from a biological perspective is Alternative 5. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 5.* This alternative would result in only slightly greater temporary impacts to habitat compared to the other alternatives and may result in beneficial impacts to the California condor and MIS on NFS lands. In addition, this alternative is located in habitats characterized by greater disturbance than the other alternatives.
- *Alternative 2.* This alternative would result in a net reduction of habitat loss compared to the other alternatives and would place the transmission line towers down slope from the Del Sur Ridge. This alternative may reduce the potential for line collisions by raptors, including condors by reducing the number of towers located on the top of Del Sur Ridge. Construction in mid-slope areas does introduce some potential risk to MIS and sensitive aquatic resources that are present in Bouquet Creek; however, these impacts are not expected to result in significant impacts.
- *Proposed Project/Alternative 3/Alternative 4.* These alternatives would be considered the same regarding potential impacts to biological resources. With the exception of minor route alignments these alternatives are largely the same and would result in the same types of impacts to biological resources.
- *Alternative 1.* This alternative would result in the longest period of construction disturbance to plant and wildlife communities in both the ANF and the Santa Clarita area compared to that of the proposed Project or any of the alternatives due to activities associated with underground construction (29 months verses 13-16 months). The large area of disturbance and increased level of construction activity would increase the potential for the introduction of exotic weeds and would have the greatest impact to MIS on the ANF. The development of an all weather road along the ridge line would also result in indirect effects to wildlife from increased recreational usage.

#### **D.4.3 Cultural Resources**

Table D.4-3 provides a summary of the impacts determined for Cultural Resources as discussed in detail in Section C.4.



	Proposed Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
<b>Impact Significance Summary</b>	0 Class I 13 Class II 1 Class III 0 Class IV	0 Class I 13 Class II 1 Class III 0 Class IV	0 Class I 10 Class II 1 Class III 0 Class IV	0 Class I 13 Class II 1 Class III 0 Class IV	0 Class I 10 Class II 1 Class III 0 Class IV	0 Class I 11 Class II 0 Class III 0 Class IV

As shown in Table D.4-3, neither the proposed Project nor any of the alternatives would result in significant, unavoidable impacts (Class I). As described in Section C.4 (Cultural Resources), impacts to cultural resources are site-specific. Construction activities associated with the proposed Project route and Alternatives 1 and 3 would result in the potentially significant damage or destruction of a part or all of twelve potentially significant cultural resources, as well as have the potential to disturb undiscovered/unknown cultural resources (Impact C-14). Construction activities associated with Alternatives 2 and 4 would result in the potentially significant damage or destruction of a part or all of nine potentially significant cultural resources, as well as have the potential to disturb undiscovered/unknown cultural resources (Impact C-14). However, implementation of mitigation measures would subsequently reduce all potentially significant impacts to less-than-significant levels (Class II). In addition, grading of Forest Service roads during construction, which would not cause permanent alterations for the road alignments (Impact C-5), would result in less than significant impacts (Class III) for the proposed Project and Alternatives 1, 2, 3, and 4.

As shown in Table D.4-3, Alternative 5 would result in eleven impacts that could be mitigated to less-than-significant levels (Class II) and no impacts that would be less than significant without mitigation (Class III). As previously mentioned, all of the impacts associated with cultural resources are site-specific, so, with exception of one linear resource which occurs in all routes, the Class II impacts that would occur for Alternative 5 are associated with different resources sites than the Class II impacts that would occur for the proposed Project route and Alternatives 1, 2, 3, and 4.

In conclusion, the alternatives that are preferred from a cultural resources perspective are Alternatives 2 and 4. Below is a summary of the ranking of the proposed Project route and alternatives.

- *Alternative 2 / Alternative 4.* These alternatives are preferred because they have the fewest Class II impacts.
- *Alternative 5.* This alternative has ten Class II impacts.
- *Proposed Project / Alternative 1 / Alternative 3.* The proposed Project route and Alternatives 1 and 3 have twelve Class II impacts.

However, this ranking will change once the resources are evaluated for National Register of Historic Places eligibility. Only impacts to eligible resources are potentially significant. Therefore, the number of Class II impacts by alternative will change.

#### **D.4.4 Geology, Soils, and Paleontology**

Table D.4-4 provides a summary of the impacts determined for Geology, Soils, and Paleontology as discussed in detail in Section C.5.

	Proposed Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
<b>Impact Significance Summary</b>	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I
	9 Class II	12 Class II	10 Class II	9 Class II	9 Class II	9 Class II
	1 Class III	1 Class III	1 Class III	1 Class III	1 Class III	1 Class III
	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV

As shown in Table D.4-4, neither the proposed Project nor any of the alternatives would result in significant and unmitigable impacts (Class I). As described in Section C.5 (Geology, Soils, and Paleontology), the proposed Project and alternatives would generally have similar significant but mitigable impacts (Class II) related to damage to transmission lines resulting from surface fault ruptures at active fault crossings (Impact G-4); seismically-induced landslides, liquefaction, settlement, lateral spreading, surface cracking (Impact G-5), strong groundshaking (Impact G-6), corrosive soils (Impact G-7), and expansive and/or collapsible soils (Impact G-8).

While the proposed Project and alternatives would have similar significant but mitigable impacts (Class II) with respect to damage by temporary slope instability (Impact G-1); erosion (Impact G-2); and landslides, earth flows, or debris slides (Impact G-9), the slight differences in alignment and amount of ground disturbance results in increased potential for these impacts for Alternative 2. Alternative 2 crosses several existing landslides within the landside prone Pelona Schist and would require significant grading to construct access roads and work areas, which would permanently alter the topography (Impact G-14) in soil units with sever potential for erosion, and may therefore be slightly more susceptible to these impacts than the other alternatives.

Alternative 5 would be subject to a higher potential for strong groundshaking to damage project structures (Impact G-6) from the major faults in the region due to this alignments closer proximity to many of the active regional faults, which results in a larger portion of the alignment with estimated peak ground accelerations (PGA) of 0.6 to 0.8g.

Alternative 1 would be susceptible to substantial damage from ground rupture/fault displacement to the underground portion of the alignment in the Santa Clarita area, where it crosses the active San Gabriel fault (Impact G-13), which is a significant but mitigable impact (Class II), unless it is determined upon further evaluation (during detailed engineering) that the proposed mitigation measures would not reduce this significant impact to a less-than-significant level. Alternative 1 may be particularly susceptible to liquefaction related damage (Impact G-5) as a large portion of the Santa Clarita underground segment of Alternative 1 is underlain by young alluvium, in San Francisquito Canyon and the Santa Clara River Valley. Because the construction of the underground segment in the Santa Clarita area would result in more excavation and ground disturbance in the potentially fossil bearing Saugus Formation, Alternative 1 also has a slightly greater potential for damage to or destruction of significant fossils (Impact G-10). Alternative 1 would have additional significant but mitigable (Class II) impacts resulting from interference with access to known mineral resources (Impact G-11), such as the Bouquet Canyon Stone Quarry, and the potential to damage the underground transmission line as a result of surface fault rupture at the crossing of the active San Gabriel Fault in Santa Clarita (Impact G-13). Furthermore, Alternative 1 would introduce underground infrastructure and large graded pads for transition stations that would substantially alter topography (Impact G-12) along Del Sur Ridge (a Class II impact), while the proposed Project and the other alternatives would only include minor topographic changes resulting from access road and work area grading (Impact G-3) which is a less than significant (Class III) impact.

Based on the impacts shown in Table D.4-4 and the discussion provided above, the proposed Project and Alternatives 2, 3, 4, and 5 would be preferable to Alternative 1 with regards to Geology, Soils, and Paleontology impacts.

In conclusion, from a geology, soils, and paleontology perspective, the proposed Project and Alternative 3 are equally preferred. Alternative 3 has identical impacts as the proposed Project due to its identical alignment and thus identical geologic setting. Below is a summary of the ranking of the proposed Project and alternatives.

- *Proposed Project/Alternative 3.* The proposed Project and Alternative 3 result in the least ground disturbance and thus result in the lowest potential for construction related slope instability and erosion.
- *Alternative 4.* Alternative 4 is only slightly less preferred due to a minor increase in potential soil erosion due to a slightly larger amount of ground disturbance than the proposed Project (approximately 125.5 acres vs. 121.8 acres).
- *Alternative 2/Alternative 5.* Alternatives 2 and 5 are equally less preferred, although each has differing reasons. Alternative 2 crosses more existing landslides than the other alignments and would have the most susceptibility to Impacts G-1 and G-9. Alternative 5 would be subject to a higher potential for strong groundshaking to damage project structures (Impact G-6) than the proposed Project or other alternatives.
- *Alternative 1.* Alternative 1 is the least preferred alternative due to its increased potential for liquefaction related damage (Impact G-5); slightly greater potential for damage to or destruction of significant fossils (Impact G-10); and additional impacts not found in the other alternatives: impacts resulting from interference with access to known mineral resources (Impact G-11), substantial alteration of topography (Impact G-12); and the substantial potential to damage the underground transmission line as a result of surface fault rupture at the crossing of the active San Gabriel Fault in Santa Clarita (Impact G-13).

**D.4.5 Public Health and Safety**

Table D.4-5 provides a summary of the impacts determined for Public Health and Safety as discussed in detail in Section C.6.

<b>Table D.4-5. Impact Significance Summary – Public Health and Safety</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	0 Class I 6 Class II 1 Class III 0 Class IV	0 Class I 6 Class II 1 Class III 0 Class IV	0 Class I 6 Class II 1 Class III 0 Class IV	0 Class I 6 Class II 1 Class III 0 Class IV	0 Class I 6 Class II 1 Class III 0 Class IV	0 Class I 6 Class II 1 Class III 0 Class IV

As shown in Table D.4-5, the proposed Project and alternatives would not result in any significant impacts (Class I) related to Public Health and Safety. As described in Section C.6 (Public Health and Safety), the proposed Project and all alternatives would result in similar adverse, but less than significant impacts (Class II) associated with soil or groundwater contamination resulting from improper handling and/or storage of hazardous materials during construction (Impact PH-1), encountering known and unknown preexisting soil or groundwater contamination (Impact PH-2 and PH-3), releasing hazardous materials during transmission line maintenance and during operations at substations (Alternative 1 only) (Impact PH-4), causing radio or television interference (Impact PH-5), and creating induced currents and shock hazards in joint-use corridors (Impact PH-6). However, underground construction associated with Alternative 1 would have a greater potential to contaminate soils or groundwater (Impact PH-1) as it is substantially more invasive. The underground facilities for Alternative 1 also have the potential to require more frequent repair or replacement of infrastructure than

overhead facilities would, which could result in the need to re-trench and excavate, thereby re-introducing the potential for the accidental release of hazardous materials during the operation and maintenance of Alternative 1 (Impact PH-4).

The proposed Project and all alternatives would result in less-than-significant impacts (Class III) related to causing synchronous pacemakers to revert to an asynchronous mode.

Based on the impacts shown in Table D.4-5 and the discussion provided above, the proposed Project and Alternatives 2, 3, 4, and 5 would have fewer impacts than Alternative 1 and would otherwise have generally equivalent impacts and would, therefore, be preferable with regard to Public Health and Safety issues.

- *Proposed Project/Alternative 2/Alternative 3/Alternative 4/Alternative 5.* The proposed Project and Alternatives 2, 3, 4, and 5 have equivalent levels of potential significance related to Impacts PH-1 through PH-4 and would be equally preferable to Alternative 1.
- *Alternative 1.* Alternative 1 has significantly more ground disturbance in the Santa Clarita area resulting in an increased potential for Impacts PH-1 and PH-3. Additionally, repair of the underground facilities for Alternative 1 could result in the need to re-trench and excavate, thereby re-introducing the potential for the accidental release of hazardous materials during the operation and maintenance of Alternative 1 (Impact PH-4).

**D.4.6 Forest Management Activities**

Table D.4-6 provides a summary of the impacts to Forest Management Activities as discussed in detail in Section C.7.

<b>Table D.4-6. Impact Significance Summary – Forest Management Activities</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	3 Class I 10 Class II 0 Class III 0 Class IV	2 Class I 8 Class II 1 Class III 2 Class IV	1 Class I 7 Class II 0 Class III 2 Class IV	3 Class I 10 Class II 0 Class III 0 Class IV	3 Class I 10 Class II 0 Class III 0 Class IV	2 Class I 3 Class II 0 Class III 2 Class IV

As shown in Table D.4-6, the proposed Project and alternatives would result in several significant, unavoidable (Class I) impacts related to Forest Management Activities. The proposed Project and all of the alternatives except Alternative 2 would result in a Class I impact associated with increased tower heights on ridge tops restricting aggressive aerial fire suppression (Impact F-4). Similarly, the proposed Project and all of the alternatives except Alternative 2 and 5 would result in a Class I impact associated with increased tower heights affecting the safety of aerial firefighters (Impact F-6). While the underground transmission lines in Alternative 1 would reduce this impact along Del Sur Ridge, approximately 2.0 miles of transmission line would remain on ridge tops along other portions of the route. The proposed Project and all of the alternatives except Alternative 1 would also result in one Class I impact which would be associated with the location of the transmission line the safety of nearby communities in a fire event (Impact F-6).

The proposed Project and all of the alternatives would result in a variety of significant, but mitigable (Class II) impacts associated with Forest Management Activities. The proposed Project and all of the alternatives would have four Class II impacts associated with construction (Impact F-1) and operation (Impact F-2) of the transmission line starting a wildfire on NFS lands, operation of the transmission line affecting aggressive ground-based fire suppression (Impact F-4), and operation of the transmission line affecting the safety of

ground-based firefighters (Impact F-6) although implementation of Mitigation Measures F-1 (Develop a Fire Plan with the Forest Service), F-2 (Develop an Operation and Maintenance Plan with the Forest Service), F-4b (De-energize the transmission line), F-6a (SCE Shall Enter into an Agreement with the ANF to Widen the Del Sur Ridge Fuelbreak), and F-6b (Provide Transmission Line Safety Training to ANF Staff) would reduce these impacts to a less-than-significant level. The proposed Project and all of the alternatives except Alternative 5 would have two Class II impacts associated with new roads increasing the potential for fire starts (Impact F-2) and construction affecting ground fire suppression (Impact F-3), but Mitigation Measures R-4 (Permanent Closure and Re-vegetation of Construction Roads) and T-1a (Ensure Emergency Response Access), respectively, would reduce these impacts to a less-than-significant level. The proposed Project and all the alternatives except Alternatives 1 would have one Class II impact associated with construction activities affecting aerial fire suppression (Impact F-3), which would be mitigated to a less-than-significant impact through the implementation of Mitigation Measure F-3 (SCE Helicopters Shall Cease Activities in the Event of Fire). The proposed Project and Alternatives 1, 3, and 4 would also each have two Class II impacts associated with increased tower heights on ridge tops restricting aggressive aerial fire suppression at Bouquet Canyon Reservoir (Impact F-4) and transmission line operation affecting fire prevention activities (Impact F-5). Impacts to aerial firefighters were identified to be different at Bouquet Canyon Reservoir as Mitigation Measure F-4a (Site and Design Towers to Match Existing Height) would ensure that the tops of the towers near the reservoir are no higher than the tops of the existing towers. Implementation of Mitigation Measure F-5 (SCE Shall Enter into a Fuelbreak Agreement with the ANF) would reduce the effects on fire prevention to less-than-significant levels. The proposed Project and Alternatives 3 and 4 would also each have a Class II impact associated with the indirect effects of the transmission line on Del Sur Ridge affecting firefighter safety (Impact F-6). Implementation of Mitigation Measure F-5 (SCE Shall Enter into a Fuelbreak Agreement with the ANF) would reduce the effects to less-than-significant levels.

Alternative 1 would have one Class III, non-significant impact. As helicopter construction for Alternative 1 would be largely incidental, construction impacts on aggressive fire suppression by helicopters would not be significant.

Alternatives 1, 2, and 5 would also result in a number of beneficial (Class IV) impacts. The four miles of underground transmission line in Alternative 1 would result in benefits to fire prevention activities (Impact F-5) and firefighter and community safety (Impact F-6). Relocating the transmission line off of Del Sur Ridge in Alternatives 2 and 5 would result in benefits to aggressive fire suppression activities (Impact F-4) as well as firefighter safety (Impact F-6).

Based on the impacts shown in Table D.4-6 and the discussion provided above, Alternative 5 would be preferable to Alternatives 1, 2, 3, 4, and the proposed Project, with regard to Forest Management Activities impacts.

In conclusion, the alternative that is preferred from a forest management perspective is Alternative 5. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 5.* As Alternative 5 would be largely off of NFS lands, this alternative would result in the fewest impacts to Forest Management Activities and would benefit the aggressive fire suppression and firefighter safety by relocating the transmission line away from Del Sur Ridge.
- *Alternative 2.* Alternative 2 would also benefit aggressive fire suppression and firefighter safety by relocating the transmission line off of Del Sur Ridge, but because the route traverses the NFS lands, more impacts to Forest Management Activities would occur than Alternative 5.

- *Alternative 1.* As with Alternatives 2 and 5, Alternative 1 would benefit firefighter safety by locating the transmission line underground in Del Sur Ridge and would also benefit fire prevention activities. However, much of the rest of the route would be the same as the proposed Project and so would suffer from many of the same impacts associated with increased tower heights and fire prevention restrictions.
- *Proposed Project/Alternative 3/Alternative 4.* The proposed Project would not result in any benefits to fire prevention or fire suppression Forest Management Activities and with the overhead transmission line traversing the NFS lands would result in a wide variety of adverse impacts to these activities ~~Forest Management Activities~~. As the route of the transmission line through the NFS lands would be largely the same as the proposed Project, Alternatives 3 and 4 would have the same impacts as the proposed Project.

**D.4.7 Hydrology and Water Quality**

Table D.4-7 provides a summary of the impacts determined for Hydrology and Water Quality as discussed in detail in Section C.8.

<b>Table D.4-7. Impact Significance Summary – Hydrology and Water Quality</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I
	5 Class II	7 Class II	6 Class II	5 Class II	5 Class II	5 Class II
	3 Class III	1 Class III	2 Class III	3 Class III	3 Class III	3 Class III
	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV

As shown in Table D.4-7, neither the proposed Project nor any of the project alternatives would result in a significant and unavoidable impact (Class I) related to Hydrology and Water Quality. The proposed Project and Alternatives 1 through 5 would each have less than significant impacts after mitigation (Class II) with regards to degradation of water quality from soil erosion and sedimentation (Impact H-1), degradation of water quality from the accidental spill of hazardous substances during construction (Impact H-2), disturbance of groundwater resources through excavation (Impact H-4), creation of flood hazards (Impact H-7), and creation of mudflow hazards (Impact H-8). The proposed Project and Alternatives 1 through 5 would also have a less than significant impact with no mitigation required (Class III) with regards to the potential to overload a local stormwater drainage system due to increased surface water runoff (Impact H-6).

Although the impact classifications mentioned above are the same for the proposed Project and alternatives, there are variations in the impact characteristics that help to make differentiations. For instance, as described in Section C.8, Alternative 2 would be expected to have the least severe Class II impact on water quality degradation from soil erosion and sedimentation (Impact H-1) due to the use of helicopter construction, which would be less invasive and require fewer roadways. However, Impact H-1 for Alternative 2 would also be expected to increase in severity over time due to erosion that would occur around the 224 concrete tower footings (56 towers) that would be permanently installed in steep hillside areas east of Del Sur Ridge.

Similarly, construction of Alternative 1 would include a greater potential for the accidental spill of hazardous materials with the possibility of degrading water quality (Impact H-2) due to the more invasive construction activities required for installation of underground infrastructure, although this impact would be mitigated to a less-than-significant level. In addition, when compared with the proposed Project and other alternatives, operational activities associated with Alternative 1 would include a greater potential for the accidental spill of hazardous materials with the possibility of degrading water quality (Impact H-3). This is because maintenance of underground transmission lines could involve re-excavation and trenching of the project area, whereas

maintenance of overhead transmission lines would not include excavation or trenching. Therefore, the proposed Project and Alternatives 2 through 5 would not require mitigation for Impact H-3, whereas Alternative 1 would require mitigation in order to reduce Impact H-3 to a less-than-significant level (Class II).

The proposed Project and all alternatives would cause an increase in surface water runoff due to the introduction of new impervious areas (Impact H-5) such as transmission tower pads, footings, and roadways. As described in Section C.8, Alternatives 1 and 2 would require mitigation to reduce this impact to a less-than-significant level (Class II) whereas the proposed Project and Alternatives 3 through 5 would not require mitigation (Class III). This difference is largely due to the permanent impermeable areas introduced through Alternative 1 due to the installation of underground transmission lines and the temporary impermeable areas introduced through Alternative 2 due to the installation of pulling and splicing set-ups on steep hillside locations.

In conclusion, the alternative that is preferred from a hydrology and water quality perspective is Alternative 3. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 3.* Alternative 3 is preferable to the proposed Project and other alternatives with regards to hydrology and water quality impacts. This alternative would be the same as the proposed Project with the exception of the segment between Mile 20.3 and Mile 25.6, where Alternative 3 would avoid the demolition of existing transmission towers and therefore avoid the production of associated soil erosion and sedimentation that could degrade local water quality.
- *Proposed Project/Alternative 4.* The proposed Project and Alternative 4 would have the same impacts to hydrology and water quality, as indicated above in Table B.4-7 and discussed in Section C.8. These alternatives would be less preferable to Alternative 3 due to the production of soil erosion and sedimentation associated with the demolition of existing transmission towers between Mile 20.3 and Mile 25.6.
- *Alternative 5.* Alternative 5 would be less preferable than the proposed Project and Alternatives 3 and 4 because it would introduce impacts to hydrology and water quality along the proposed alignment as well as along the alignment of the existing 119 66-kV towers and associated hardware that would be removed from SCE's Saugus-Del Sur utility corridor. As with the proposed Project and Alternatives 3 and 4, Alternative 5 would have five Class II impacts and two Class III impacts.
- *Alternative 1.* In comparison with the proposed Project and preceding alternatives, Alternative 1 would have a greater potential to affect hydrology and water quality due to the more invasive nature of installing underground infrastructure. Alternative 1 is preferable to Alternative 2 because it would not introduce any Class I impacts to hydrology and water quality.
- *Alternative 2.* Alternative 2 is the least preferable alternative with regard to hydrology and water quality because it would introduce short-term and ongoing impacts to water quality due to erosion and sedimentation resulting from the installation of permanent infrastructure in steep hillside areas along the eastern mid-slope of Del Sur Ridge. Other impacts of Alternative 2 would be the same as the proposed Project, as discussed in Section C.8.

#### **D.4.8 Land Use and Public Recreation**

Table D.4-8 provides a summary of the impacts determined for Land Use and Public Recreation as discussed in Section C.9.

	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	2 Class I 6 Class II 2 Class III 0 Class IV	3 Class I 6 Class II 1 Class III 0 Class IV	2 Class I 6 Class II 2 Class III 0 Class IV	2 Class I 6 Class II 2 Class III 0 Class IV	1 Class I 6 Class II 2 Class III 0 Class IV	2 Class I 6 Class II 1 Class III 0 Class IV

As shown in Table D.4-8, the proposed Project and alternatives would result in several significant, unavoidable impacts (Class I) to existing land uses. Class I land use impacts are associated with a permanent preclusion to or degradation of an existing land use or recreational resource. For example, operational activities would permanently preclude or restrict current and future land uses on ~~the use of~~ private property under the proposed Project and each of the alternatives (Impact L-3). In the North Area of the Project route, the proposed Project and Alternatives 1, 2, 3, and 4 would expand the existing ROW over residential property, which would preclude future use of this land. Alternative 5 would also create significant and unavoidable impacts. Alternative 5 would establish a new ROW for approximately 18.8 miles, which would possibly require the removal of one or more homes, preclude use of lands in the ROW (restricted use only), and expose a larger number of land uses to construction and operational impacts as a result of the extended length of the route.

Similar significant, unavoidable impacts (Class I) would occur to commercial land uses under the proposed Project and several of the alternatives (Impact L-4). For example, operation of the proposed Project in addition to Alternatives 1, 2, and 3 would permanently preclude some of the established filming activities at the Veluzat Motion Picture Ranch. The proposed Project and the aforementioned alternatives would construct a transmission line across areas that are used as outdoor sets and natural scenery for the motion picture ranch. The transmission lines would also interfere with aerial filming practices, resulting in significant and unavoidable impacts to the operations of the motion picture ranch. However, Alternatives 4 and 5 would not be sited across areas used by the ranch for outdoor sets and scenery and, as such, would have no operational impact to the filming activities at the ranch.

Improvements to existing access and spur roads would result in potentially significant but mitigable impacts to OHV routes (Class II) for the proposed Project and Alternatives 2 through 5 (Impact R-3). Implementation of mitigation would reduce impacts to a less-than-significant level (see Section C.9.10). Alternative 1 would require the construction of an all-weather access road along existing OHV routes on Del Sur Ridge, which would permanently preclude OHV use along this route. Impacts to OHV recreationists under Alternative 1 would be significant and unavoidable (Class I).

The construction and/or improvement of access and spur roads within NFS lands would create significant impacts (Class II) to recreational resources under the proposed Project and alternatives (Impact R-4). New roads would allow unauthorized uses (e.g., illegal OHV use) to access new areas of the ANF, which would contribute to resource degradation. Implementation of mitigation would reduce impacts to a less-than-significant level (Class II) (see Section C.9.10).

Alternative 5 would create an additional Class I impact, as it would contribute to the long-term loss or degradation of a recreational resource (Impact R-2). Much of Alternative 5 would not be located within an existing ROW or utility corridor, and would not involve replacing an existing transmission line across the Sierra Pelona Trail as well as other local trails. Consequently, this alternative would introduce a new industrial land use across recreational resources ~~in Ritter Ranch~~, thereby changing the natural or scenic quality of these trails (Class I). Although the proposed Project and Alternatives 1, 2, 3, and 4 would also construct a transmission line across the PCT and other trails, they would remove an existing transmission line that crosses these trails prior



to constructing a new line within or adjacent to the existing trail crossing. As such, the Project and Alternatives 1, 2, 3, and 4 would not alter the number and type of land uses that cross a recreational resource, and consequently would have less-than-significant impacts (Class III) to recreational users of the PCT and other trails.

Construction activities associated with the proposed Project and all alternatives would create less-than-significant impacts to adjacent residential and commercial land uses (Impact L-1) with mitigation incorporated (Class II). However, Alternative 1 would require a greater level of mitigation than the other alternatives, due to the additional impacts associated with underground installation of the transmission line, which would temporarily disrupt and possibly block access to side streets, entrances, and driveways. Alternative 1 would also result in significant but mitigable construction impacts (Class II) to the Bouquet Canyon Stone Quarry, as it would disrupt access along Del Sur Ridge Road during undergrounding activities (Impact L-2). Recommended mitigation would reduce impacts to a less-than-significant level (see Section C.9.7). As the proposed Project and Alternatives 2, 3, 4, and 5 would not involve undergrounding, and would maintain continual access along Del Sur Ridge Road for the passage of construction equipment, impacts to the quarry would be less than significant (Class III).

Similarly, construction activities associated with the proposed Project and all alternatives would create less-than-significant impacts to established recreation areas (Impact R-1) with mitigation incorporated (Class II). The proposed Project and Alternatives 1, 2, 3, and 4 would temporarily preclude recreational activities along the PCT, other local trails, and OHV trails in the ANF, and also at Mountainview Park in the City of Santa Clarita. Alternative 5 would create potentially significant construction impacts to ~~hiking trails in Ritter Ranch and to the PCT and other local trails~~. For each of the alternatives and proposed Project, implementation of mitigation discussed in Sections C.9.5 through C.9.10 would reduce impacts to a less-than-significant level.

Impacts to Farmland resulting from the construction and operation of the proposed Project and all alternatives (Impacts L-5 and L-6) would be less than significant with mitigation incorporated (Class II) (see Sections C.9.5 through C.9.10). The proposed Project and each of the alternatives would temporarily impact Farmland during the erection of new transmission towers. Given the size of the 500-kV towers, some Farmland would be permanently precluded at the tower bases during operation of the alternatives and the proposed Project.

As indicated in Table D.4-8, Alternative 4 is preferable to the proposed Project and the other alternatives, with regard to land use impacts. Of the potential impacts discussed, Alternative 4 would avoid Class I impacts to the Veluzat Motion Picture Ranch and to recreational trails, and would not require the removal of existing residences. The remaining significant impacts that would occur under Alternative 4 would affect the use of private lands as well as create new roads within the ANF. However, these impacts would also occur under the proposed Project and Alternatives 1, 2, 3, and 5.

In conclusion, the alternative that is preferred from a land use and public recreation perspective is Alternative 4. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 4.* As Alternative 4 would avoid significant impacts to the Veluzat Motion Picture Ranch, the Bouquet Canyon Stone Company, and recreational trails, it is the preferred alternative regarding land use and public recreation.
- *Proposed Project/Alternative 2/Alternative 3.* The proposed Project, Alternative 2, and Alternative 3 would avoid significant impacts to Bouquet Canyon Stone Company and recreational trails. Approximately 11 miles of new and/or improved access/spur roads would be created, which is less than the miles of roads required for Alternative 1. Although the proposed Project, Alternative 2, and Alternative 3 would

permanently preclude or restrict current and future land uses on private land, they would not require the removal of existing residences.

- *Alternative 5.* Alternative 5 would avoid significant impacts to the Veluzat Motion Picture Ranch and the Bouquet Canyon Stone Company. Alternative 5 would traverse 103 privately owned parcels and possibly remove one or more homes. However, it would result in fewer significant and unavoidable land use and public recreation impacts than Alternative 1.
- *Alternative 1.* Alternative 1 would significantly impact the Veluzat Motion Picture Ranch and would contribute to the permanent loss of OHV routes on Del Sur Ridge. This alternative would require mitigation to reduce the impacts to Bouquet Canyon Stone Company to a less-than-significant level. Undergrounding activities along Del Sur Ridge Road would also require an extended closure of recreational trails. Given the greater number of significant impacts, this alternative is the least preferable among the proposed Project and alternatives.

**D.4.9 Noise**

Table D.4-9 provides a summary of the impacts determined for Noise as discussed in detail in Section C.10.

<b>Table D.4-9 Impact Significance Summary – Noise</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	6 Class I	6 Class I	6 Class I	6 Class I	3 Class I	3 Class I
	0 Class II	0 Class II	0 Class II	0 Class II	1 Class II	0 Class II
	2 Class III	2 Class III	2 Class III	2 Class III	2 Class III	2 Class III
	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV

As shown in Table D.4-9, the proposed Project and all of the alternatives would result in Class I impacts related to Noise. Class I noise impacts are directly related to (1) temporary construction, inspection, and maintenance noise levels violating local noise standards (Impacts N-1, N-4), which would occur for the proposed Project and all alternatives; (2) operational (corona) noise levels specifically impacting the Veluzat Motion Picture Ranch located in Haskell Canyon (Impacts N-2, N-5), which would be effected by the proposed Project and Alternatives 1, 2, and 3; (3) temporary increases in ambient noise levels severely disrupting the Veluzat Motion Picture Ranch (Impact N-7) , which would occur for the proposed Project and Alternatives 1, 2, and 3, as well as recreational users of the ANF (Impact N-8), which would occur for the proposed Project and all alternatives.

Alternative 5 would result in the same construction noise impacts (Impact N-1) as the proposed Project in the Santa Clarita area as it would be identical between Mile 31.9 (proposed Project Mile 20.3) and Mile 37.2 (proposed Project Mile 25.6); however, additional residences in Leona Valley and Agua Dulce would be exposed to construction noise unlike the proposed Project or any of the other alternatives. As such, the greatest number of residence and sensitive receptors would be affected by construction noise as a result of Alternative 5. It should be noted, however, that Alternative 5 would be less likely to affect receptors in the ANF as it would only traverse 0.5 miles of the Forest.

Alternative 1 would result in the longest period of construction noise nuisance in both the ANF and the Santa Clarita area compared to that of the proposed Project or any of the alternatives due to activities associated with underground construction. In addition, underground construction activities would require additional equipment, labor, and materials (imported and exported), increasing the quantity of mobile noise sources associated with Alternative 1 in comparison to the proposed Project or any of the other alternatives. As such, construction noise associated with Alternative 1 would be substantially worse than the proposed Project or Alternatives 2, 3, and 4,

but would ultimately impact fewer sensitive receptors than Alternative 5 (Impact N-1). It should also be noted that additional inspection and maintenance activities would be required for Alternative 1 in comparison to the proposed Project and other alternatives due to the additional infrastructure associated with underground transmission lines and transition stations. As such, Alternative 1 would have the potential to result in greater and/or more frequent temporary noise impacts during maintenance activities than the proposed Project or other alternatives (Impact N-4).

Alternative 4 would reduce construction noise impacts to the Veluzat Motion Picture Ranch, unlike the proposed Project and Alternatives 1, 2, and 3, but would expose 12 additional residences in the Santa Clarita area to construction noise. Unlike the proposed Project and Alternative 2, Alternative 3 would not include the removal of the single-circuit 500-kV towers between Mile 20.3 and 25.6. As such, construction noise from onsite construction equipment and haul trucks within this segment of the ROW would be less than the proposed Project or any of the other alternatives; however impacts to the ANF and Veluzat Motion Picture Ranch would continue to occur.

Operational corona noise levels for the proposed Project and alternatives would be between 40 to 50 dBA. These operational noise levels would violate the Los Angeles County Noise Ordinance, which is 45 dBA for sensitive areas such as the Veluzat Motion Picture Ranch (Impact N-2), as well as result in a permanent and significant increase in noise levels that would disrupt the ranch (Impact N-5). Alternatives 4 and 5 would result in no corona noise impacts to the ranch because these alternatives are routed to avoid the ranch; however, the proposed Project and Alternatives 1, 2, and 3 would result in significant (Class I) impacts to the ranch from corona noise.

Temporary increases in ambient noise at Veluzat Motion Picture Ranch (Impact N-7) would also result in significant impacts (Class I) for the proposed Project and Alternatives 1, 2, and 3. Temporary impacts associated with Alternative 4 would be less than significant with mitigation incorporated (Class II) because although construction noise levels would be dramatically reduced, they would still have the potential to interfere with filming at the ranch's outdoor set location. Alternative 4 would be constructed within one half mile of the ranch, whereas Alternative 5 would not result in construction impacts that would disrupt ranch operations because its route is situated at least one mile or greater from the ranch at all points along its route.

For the proposed Project and all the alternatives, construction would result in temporary increases in ambient noise levels within the ANF (Impact N-8) which would result in significant impacts (Class I) to recreational users. In general, the proposed Project and Alternatives 1, 2, 3, and 4 would have the potential to disturb an equivalent number of recreational users within the ANF, although Alternative 1 would impact users over a longer duration; however, Alternative 5 would traverse only 0.5 miles within the ANF (1.5 miles total on NFS lands), thereby reducing not only the likelihood of disturbing recreational users but the duration of disturbance in comparison to the proposed Project or any of the other alternatives.

Additionally, there are several potential impacts associated with Noise that would be less than significant (Class III) with no mitigation recommended for the proposed Project or the alternatives. These Class III impacts include:

- Operational corona noise levels at residences would violate Los Angeles County standards (Impact N-3).
- Noise level increases related to routine inspection and maintenance would violate local standards (Impact N-4).
- Project-related activities would result in a permanent noise level increase related to routine inspection and maintenance (Impact N-6).

As indicated in Table D.4-9, Alternative 5 appears to result in the fewest impacts; however, of the impacts analyzed three out of the eight impacts are directly related to Project impacts on the Veluzat Motion Picture

Ranch (Impact N-2, N-5, and N-7). If the ranch were to be treated equivalently to residences along the Project alignment, Alternative 5 would not be preferable. Alternative 5 would result in a new utility ROW, impacting substantially more residences in Leona Valley and Agua Dulce than the proposed Project or any of the remaining alternatives. Therefore, Alternative 4 would be the preferred alternative as it would avoid impacts to the Veluzat Motion Picture Ranch and would impact the fewest residences.

In conclusion, the alternative that is preferred from a noise perspective is Alternative 4. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 4.* This alternative would result in only slightly greater noise impacts during construction than some of the alternatives (proposed Project and Alternative 3), as a result of being 0.3 miles longer; however, it would avoid (with mitigation) all noise impacts to the Veluzat Motion Picture Ranch.
- *Alternative 3.* This alternative would avoid construction impacts associated with the removal of the single-circuit 500-kV towers between Mile 20.3 and 25.6. As such, construction noise from onsite construction equipment and haul trucks within this segment of the ROW would be less than the proposed Project or the alternatives listed below. Noise impacts to the ANF and Veluzat Motion Picture Ranch would be significant.
- *Proposed Project.* The proposed Project would traverse 12.6 miles of NFS lands, as well as the Veluzat Motion Picture Ranch, and would include the removal of the single-circuit 500-kV towers between Mile 20.3 and 25.6. No significant noise impacts would be avoided.
- *Alternative 2.* This alternative would traverse 13.2 miles of NFS lands, as well as the Veluzat Motion Picture Ranch. Furthermore, construction (i.e. duration of noise impacts) would increase from 13 to 14 months. No significant noise impacts would be avoided.
- *Alternative 5.* This alternative would have the potential to expose the greatest number of residences to noise associated with construction, operation, and maintenance activities than any of the other alternatives, as it would traverse Lancaster, Leona Valley, Agua Dulce, and the Santa Clarita area. Furthermore, construction (i.e., duration of noise impacts) would increase from 13 to 16 months. Alternative 5, however, would avoid impacts to the Veluzat Motion Picture Ranch.
- *Alternative 1.* This alternative would result in the longest period of construction noise nuisance in both the ANF and the Santa Clarita area compared to that of the proposed Project or any of the alternatives due to activities associated with underground construction (29 months versus 13 to 16 months). Additional inspection and maintenance activities would be required resulting in greater and/or more frequent temporary noise impacts. Furthermore, noise impacts to the Veluzat Motion Picture would not be avoided.

#### **D.4.10 Public Services**

Table D.4-10 provides a summary of the impacts determined for Public Services as discussed in detail in Section C.11.

As shown in Table D.4-10, the proposed Project and alternatives would not result in any significant impacts (Class I) related to Public Services that cannot be mitigated to less-than-significant levels. As described in Section C.11 (Public Services), the proposed Project and all alternatives would result in the same two significant impacts (Class II), which could be mitigated such that these impacts would not be significant. These impacts would be associated with increased demands on fire and police protection on NFS lands during construction (Impact P-1) and operation (Impact P-2).

<b>Table D.4-10. Impact Significance Summary – Public Services</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I
	2 Class II	2 Class II	2 Class II	2 Class II	2 Class II	2 Class II
	0 Class III	0 Class III	0 Class III	0 Class III	0 Class III	0 Class III
	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV

While the impacts of construction on Public Services (Impact P-1) for the proposed Project and all of the alternatives would not be significant with the implementation of mitigation, each alternative would be slightly different in its impacts. Construction activities associated with Alternatives 2, 3, and 4 would be largely the same as described for the proposed Project, although the location of 37 towers away from road access in Alternative 2 would increase the demands on aerial firefighting resources in the case of a fire event. Alternative 1, with its underground segment, and Alternative 5, approximately 45 percent longer than the other alternatives, would require additional construction activities and would have an increased risk of fire hazard. Consequently, Alternatives 1 and 5 would have a greater potential demand on fire services during construction.

The impact of operation and maintenance activities on Public Services (Impact P-2) associated with the proposed Project and all of the alternatives would also be less-than-significant with the implementation of mitigation, but as with construction impacts, each alternative would be slightly different. Because the underground portions of Alternative 1 are less likely to result in a fire, Public Service demands for the operation of Alternative 1 would be less than the proposed Project and other alternatives. Operational impacts from the proposed Project and Alternatives 2, 3, and 4 would be similar, although as described above, the location of towers mid-slope could restrict road access could increase the demands on aerial firefighting resources. Although Alternative 5 would have the least amount of NFS land impacted by the transmission line, operation impacts on Public Services resulting from Alternative 5 would be greater than the proposed Project and other alternatives because of the additional length of this alternative.

In conclusion, the alternative that is preferred from a public services perspective is Alternative 1. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 1.* Although the underground construction activities associated with Alternative 1 would increase fire risks and the potential demand for fire protection services, locating the transmission line underground for portions of the route eliminates substantially reduces the risk of the transmission line starting a fire in these areas and reduces the overall long-term demand on public services.
- ~~*Alternative 3.* Alternative 3 would result in slightly reduced impacts to public service facilities serving the proposed transmission line route as those associated with the proposed Project due to the construction of single circuit towers versus double circuit towers associated with the proposed Project. Smaller transmission line towers would result in a slight decrease in potential fire hazards related to transmission line contact with vegetation.~~
- *Proposed Project / Alternative 3 / Alternative 4.* With the entire length of the proposed Project transmission line located overhead and configured as double-circuit towers, the fire risks associated with the proposed Project would result in a greater demand on fire protection services than Alternatives 1 and 3. Alternative 4 would result in the same impacts to Public Services as the proposed Project. While Alternative 3 would be strung on single-circuit towers rather than double-circuit towers, the conductors on the single-circuit towers would be at the same height as the lowest conductor on the double-circuit towers. Consequently, Alternative 3 would result in the same impacts to Public Services as the proposed Project.

- *Alternative 2.* Alternative 2 would result in similar impacts to Public Services as those associated with the proposed Project, although with the location of 37 of the towers away from access roads, this alternative would increase the demands on aerial firefighting resources in the case of a fire event.
- *Alternative 5.* This alternative would have similar fire risks as the proposed Project, but with more than 10 additional miles of transmission line. Consequently, this alternative would have the greatest demands on Public Services.

**D.4.11 Socioeconomics**

Table D.4-11 provides a summary of the impacts determined for Socioeconomics as discussed in detail in Section C.12.

<b>Table D.4-11 Impact Significance Summary – Socioeconomics</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	1 Class I	1 Class I	1 Class I	1 Class I	0 Class I	1 Class I
	2 Class II	3 Class II	2 Class II	2 Class II	1 Class II	1 Class II
	1 Class III	1 Class III	1 Class III	1 Class III	1 Class III	1 Class III
	1 Class IV	1 Class IV	1 Class IV	1 Class IV	1 Class IV	1 Class IV

As shown in Table D.4-11, operation of the proposed Project and alternatives (except Alternative 4) would result in significant and unavoidable impacts (Class I) related to Socioeconomics. The proposed Project and Alternatives 1, 2 and 3 would have similar operational impacts related to decreased revenue at the Veluzat Motion Picture Ranch (Impact S-2), which is located in Haskell Canyon, directly adjacent to the proposed Project between Mile 18.6 and 19.3. The lattice steel towers and conductors built under the proposed Project and these alternatives would visually interfere with film operations at the ranch’s outdoor sets. Operation of the transmission lines would also result in corona noise, which would interfere with audio recording during outdoor filming activities. These operational impacts would negatively affect revenues for the ranch by limiting the facility’s current business activities. Alternative 5 would traverse or be sited adjacent to several residences along Anthony Road and Hierba Road north of Sierra Highway, and would therefore possibly result in significant unavoidable socioeconomic impacts (Class I) (Impact S-7) as a result of removing residential structures to accommodate the new ROW.

Construction of the proposed Project and Alternatives 1, 2, and 3 could result in significant but mitigable impacts (Class II) resulting from temporary decreases in revenue for the Veluzat Motion Picture Ranch (Impact S-1), agricultural land owners (Impact S-3), and the Bouquet Canyon Stone Company (Impact S-6). Noise, dust, and placement of equipment from construction activities could affect business activities at the ranch under the proposed Project and Alternatives 1, 2, and 3. Removal of the 66-kV lattice steel towers and construction of new 500-kV towers for the proposed Project and alternatives would require construction equipment to traverse agricultural land. If they occurred during the growing season, construction activities could temporarily restrict crop production or damage crops, which could decrease revenues for affected agricultural landowners. Furthermore, the excavation activities required for Alternative 1 would temporarily restrict and possibly block access to the Bouquet Canyon Stone Company quarry on Del Sur Ridge Road, which could potentially disrupt its business and lead to decreased revenues. Property values along the various alignments were not found to result in significant impacts (Class III).

SCE’s property taxes are also expected to increase as a result of the proposed Project and all of the alternatives. Local property tax revenues are a function of tax rates charged within the affected jurisdictions. Any increase in local tax revenue is considered a beneficial impact (Class IV) to the local economy (Impact S-4).

As indicated in Table D.4-11, Alternative 4 is preferable to the proposed Project and other alternatives with regard to Socioeconomics. Of the potential impacts discussed, Alternative 4 would not have any significant unavoidable impacts (Class I), would only require mitigation for one impact (Impact S-3), and would preclude the impacts to the Veluzat Motion Picture Ranch associated with the proposed Project and the other alternatives (excluding Alternative 5).

In conclusion, the alternative that is preferred from a socioeconomic perspective is Alternative 4. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 4.* Alternative 4 would avoid direct revenue impacts to the Veluzat Motion Picture Ranch.
- *Alternative 5.* While Alternative 5 could result in the removal of existing housing (Class I impact), it would avoid direct revenue impacts to the Veluzat Motion Picture Ranch and Bouquet Canyon Stone Quarry.
- *Proposed Project/Alternative 2/Alternative 3.* The proposed Project would avoid the removal of existing housing and Bouquet Canyon Stone Quarry, but result in direct revenue impacts to the Veluzat Motion Picture Ranch. Alternatives 2 and 3 would result in socioeconomic impacts identical to those of the proposed Project.
- *Alternative 1.* Alternative 1 would result in similar socioeconomic impacts as those associated with the proposed Project, but would additionally result in direct revenue impacts to Bouquet Canyon Stone Quarry.

**D.4.12 Traffic and Transportation**

Table D.4-12 provides a summary of the impacts determined for Traffic and Transportation as discussed in detail in Section C.13.

<b>Table D.4-12 Impact Significance Summary – Traffic and Transportation</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I
	7 Class II	8 Class II	7 Class II	7 Class II	7 Class II	8 Class II
	1 Class III	0 Class III	1 Class III	0 Class III	1 Class III	1 Class III
	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV

As shown in Table D.4-12, the proposed Project and alternatives would not result in any significant impacts (Class I) related to Traffic and Transportation. The proposed Project and alternatives would have similar impacts (Class II) related to: temporary road closures or lane reductions during construction (Impact T-1); temporary congestion due to construction traffic (Impact T-2); temporary construction interference to emergency response (Impact T-3), transit and school bus routes (Impact T-4), and use of pedestrian/bicycle paths (Impact T-5); conflicts with the plan for a connector road (Impact T-6); and potential damage from construction activities to road ROWs (Impact T-7). Alternative 1, however, would have the additional impact of temporarily restricting access to properties during construction (Impact T-9), since segments of this alternative would be installed underground along roads that serve businesses, such as the Bouquet Canyon Stone Quarry on Del Sur Ridge Road, and residences in the Santa Clarita area. Alternative 5 would also have greater construction-related traffic impacts than the proposed Project and other alternatives because the transmission line route would cross several more public roadways, including crossing State Route 14 (which experiences

higher traffic volumes than any other road crossed by the Project) twice, than the other proposed routes. Alternative 5 could also conflict with planned improvements of State Route 14 without mitigation (Impact T-10). Furthermore, because the construction schedules for Alternatives 1 and 5 are of longer duration than those of the proposed Project and other alternatives, construction-related impacts would likewise be extended.

For Alternative 3, the existing single-circuit 500-kV towers would not need to be removed. As such, this alternative would result in fewer debris haul trips, thereby reducing construction-related roadway congestion (Impact T-2). Furthermore, because Alternative 3 would include the use of shorter towers (up to 178 feet) in the Santa Clarita area, it would have no impact related to aviation safety (Impact T-8). As indicated in Table D.4-12 and discussed above, Alternative 3 is preferable to the proposed Project and the other alternatives, with regards to Traffic and Transportation impacts. Alternative 3 would have less potential for increased construction-related roadway congestion and would have no impact related to aviation safety.

In conclusion, the alternative that is preferred from a traffic and transportation perspective is Alternative 3. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 3.* Based on the analysis presented in Section C.13 Traffic, Alternative 3 is the preferred alternative to the proposed Project. This alternative would result in slightly decreased effects of Impacts T-1 and T-2 than the proposed Project due to the reduced construction traffic and activities required to complete it.
- *Proposed Project/Alternative 4.* The proposed Project and Alternative 4 would each result in one more impact (Impact T-8) than Alternative 3 (the preferred alternative) as well as slightly increased effects of Impacts T-1 and T-2 than Alternative 3 due to the increased construction traffic and activities required to complete them.
- *Alternative 2.* Impacts of this alternative are similar in type and number to those of the proposed Project, Alternative 3, and Alternative 4. However, the re-routed segment of Alternative 2 would include crossings at Spunky Canyon Road and Bouquet Canyon Road that would be within close proximity to each other. Bouquet Canyon Road provides a north-south route from Palmdale through the ANF to Santa Clarita. Spunky Canyon Road provides access to residential uses within the northern portion of the ANF. The proximity of these two crossings could result in increased duration and severity of Impacts T-1, T-2, T-4, and T-7.
- *Alternative 5.* Although this alternative would result in no impacts to the ANF, it would result in ~~nine~~ six more overhead road crossings than the proposed Project, including two crossings of State Route 14. The increased number of crossings would result in increased duration and severity of Impacts T-1, T-4, and T-7. This alternative could result in the additional Impact T-10 (Conflict with a Transportation Plan).
- *Alternative 1.* The underground construction activities required for implementation of this alternative would result in increased duration and/or magnitude of Impacts T-1, T-3, T-4, T-5, and T-9.

#### **D.4.13 Utilities and Service Systems**

Table D.4-13 provides a summary of the impacts determined for Utilities and Service Systems as discussed in detail in Section C.14.

As shown in Table D.4-13, neither the proposed Project nor any of the alternatives would result in a Class I impact. With the exception of Alternative 1, which would have two Class II impacts and three Class III impacts,



the proposed Project and all of the other alternatives would each have one Class II impacts and four Class III impacts for the issue area of utilities and service systems.

	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I	0 Class I
	1 Class II	2 Class II	1 Class II	1 Class II	1 Class II	1 Class II
	4 Class III	3 Class III	4 Class III	4 Class III	4 Class III	4 Class III
	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV	0 Class IV

The proposed Project and all alternatives would result in significant but mitigable impacts (Class II) with regards to adhering to State standards for quantities of waste material to be recycled (Impact U-5). Alternative 1 would result in a significant but mitigable impact associated with affecting the ability of utilities and service systems to meet local demands for solid waste disposal (Impact U-2). Due to additional waste generated during trenching for underground installation of the transmission line for two portions of the route, Alternative 1 would have greater potential to impact local landfills (Impact U-2) compared to the proposed Project and other alternatives. Due to the number and capacity of landfills serving the area, capacity for waste generated from construction is expected to be available and with implementation of mitigation measures, Impact U-2 would be reduced to less-than-significant levels (Class II). As substantially less waste would be generated by the proposed Project and the other alternatives, their impact on local landfills would not be significant (Class III). Alternative 3 would be expected to have the least impact because less waste would be generated as a result of not removing the existing single-circuit 500-kV towers from Mile 20.3 to Mile 25.6. Neither the proposed Project nor any of the alternatives are preferable for Impact U-5.

There are several potential impacts associated with utilities and service systems that would be less than significant with no mitigation recommended (Class III) for the proposed Project and all alternatives. These Class III impacts include:

- The proposed Project’s utility and service system demands would change the ability of water utilities and service system facilities to accommodate local demands (Impact U-1). The proposed Project and alternatives would require water for dust suppression and cleaning of equipment and the route is served by a variety of water sources that should adequately supply the required water. Both Alternative 1 and 5 would require additional water, but for the proposed Project and all the alternatives, the amount is considered relatively minor when compared to the Metropolitan Water District’s water supply for the region.
- The proposed Project’s utility and service system demands would change the ability of stormwater and wastewater utilities and service system facilities to accommodate local demands (Impact U-3). The construction of new tower foundations and new footings is offset by backfilling the existing footings and foundations, thus equaling the permeable surface area in the existing tower locations. The proposed Project and all alternatives would not significantly generate or increase stormwater runoff or wastewater.
- The proposed Project’s water supply demands would require new or expanded water entitlements or resources (Impact U-4). The proposed Project route and all alternatives are served by a variety of potable water sources that should adequately supply the needed water. Water used during construction would not substantially change the demands of the water suppliers, and would not require new or expanded potable water facilities, sources, or entitlements.

As indicated in Table D.4-13 and discussed above, the proposed Project and all alternatives result in the same Class II and Class III impacts. With regards to Utilities and Service Systems, Alternatives 1 and 5 are less preferable than the proposed Project and Alternatives 2, 3, and 4 due to additional soil removal resulting from underground trenching for Alternative 1 and the increased number of new towers to be installed resulting from the extended route length of Alternative 5, which may increase water usage and the generation of waste material. Alternative 3 would be preferable as less waste would be generated and less water would be required

for construction as a result of not removing the existing single-circuit 500-kV towers from Mile 20.3 to Mile 25.6.

In conclusion, the alternative that is preferred from a utilities and service system perspective is Alternative 3. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 3.* While the effects of Alternative 3 on wastewater and stormwater would be the same as for the proposed Project and all the other alternatives, Alternative 3 would require the least water and generate the least waste of the proposed Project and alternatives, requiring only 5.77 acre-feet of water and generating 1,991 tons of waste.
- *Proposed Project.* The proposed Project would require 5.82 acre-feet of water and would generate 2,620 tons of waste, both of which would be less than all of the other alternatives except Alternative 3.
- *Alternative 4.* Alternative 4 would require 6.00 acre-feet of water and generate 2,630 tons of waste, both of which would be less than Alternatives 2, 5, and 1.
- *Alternative 2.* Alternative 2 would require 6.06 acre-feet of water and generate 2,634 tons of waste, which would be less than the water required and waste generated by Alternatives 5 and 1.
- *Alternative 5.* Alternative 5 would require 8.60 acre-feet of water and would generate 4,605 tons of waste, more than the proposed Project or any of the other alternatives except Alternative 1.
- *Alternative 1.* Alternative 1 would generate the most waste and require the most water of any of the alternatives, generating 159,839 tons of waste and require 25.00 acre-feet of water.

**D.4.14 Visual Resources**

Table D.4-14 provides a summary of the impacts determined for Visual Resources as discussed in Section C.15.

<b>Table D.4-14. Impact Significance Summary – Visual Resources</b>						
	<b>Proposed Project</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Alt. 5</b>
<b>Impact Significance Summary</b>	14 Class I 2 Class II 2 Class III 0 Class IV	11 Class I 2 Class II 2 Class III 1 Class IV	12 Class I 2 Class II 2 Class III 2 Class IV	9 Class I 7 Class II 2 Class III 0 Class IV	14 Class I 2 Class II 2 Class III 0 Class IV	20 Class I 1 Class II 2 Class III 8 Class IV

Without mitigation, the proposed Project and Alternatives 1, 2, 3, 4 and 5, all of which would traverse the ANF to some degree, would result in significant, unavoidable visual impacts, and all would require a Forest Plan amendment in order to be consistent. As seen from Vasquez Canyon Road (Impact V-8), more than six miles of Del Sur Ridge, along with the existing 66-kV towers, are visible in the background. For the proposed Project, the existing 66-kV towers would be removed (as is true for the proposed Project and all alternatives) and existing access and spur roads, some of them overgrown and not visually evident, would be re-opened, re-graded, improved and used for de-construction of the existing 66-kV line and construction of the new 500-kV line.

The expanded ROW (proposed Project, Alternatives 1, 3, and 4) or new ROW (Alternatives 2 and 5) with taller and wider lattice steel towers, access and spur roads, would adversely affect scenic vistas, and substantially degrade the existing visual character of the National Forest. Alternative 5 degrades NFS landscapes the least, as it would cross over only 1.5-miles of NFS lands, near Leona Valley and just south of the Antelope Valley Freeway.

Alternative 1 would not meet the minimum threshold of acceptable visual change, achieving Unacceptably Low scenic integrity from Mile 11.0 to 15.0 in a highly visible location on top of Del Sur Ridge (Class I). This impact would be very visible from San Francisquito Canyon Road (Impact V-5) and Vasquez Canyon road (Impact V-8). However, Alternative 1 would result in one beneficial impact (Class IV), as existing infrastructure (66-kV towers) would be removed and new Project infrastructure would not be seen from Bouquet Canyon Road (Impact V-7). In Santa Clarita, Alternative 1 would place the transmission line underground, away from and out of sight from North Park Elementary School and Chesebrough Park (Impact V-13) and Copper Hill Drive (Impact V-14).

Alternative 2 would result in additional beneficial effects (Class IV), as views from San Francisquito Canyon Road (Impact V-5), Bouquet Reservoir (Impact V-6), and Vasquez Canyon Road (Impact V-8) would be improved with Project implementation. For Alternative 2, the new 500-kV ROW would be relocated onto the east side of Del Sur Ridge, away from and out of sight from San Francisquito Canyon Road (Impact V-5). With implementation of Alternative 2, the existing 66-kV towers would be removed from the top of Del Sur Ridge, and a new 500-kV transmission line would be constructed at a mid-slope location east of the current utility corridor. Based on the proposed tower locations all but approximately four new lattice steel towers would be completely screened by topography as seen from Vasquez Canyon Road (Impact V-8), and these four visible towers would be 5- to 6-miles away. This would result in a beneficial impact.

The proposed Project, Alternatives 1, 2, and 3, would result in significant, unavoidable impacts to the Veluzat Motion Picture Ranch (Impact V-9) as the transmission line would go directly over the “Main Street” movie set. However, Alternative 4 would re-route the Project alignment east of “Main Street,” which would result in no impacts to that movie set (Impact V-9).

Similar to Alternative 4, the new ROW established under Alternative 5 would also avoid impacts to the Veluzat Motion Picture Ranch (Impact V-9), as well as impacts to several other scenic vistas (Impacts V-2 through V-8) due to the new alignment east of the ANF. However, Alternative 5 would introduce new significant, unavoidable impacts (Class I) to visual resources by degrading the existing visual character or quality of different area as viewed from locations in Lancaster, Palmdale, Leona Valley, and Agua Dulce.

In general, some views of the Project alignment would have more viewers, and some viewers would be considered more critical and less accepting of environmental modifications. Both of these are factors when considering visual sensitivity. Research indicates that people visiting National Forests expect to see natural-appearing landscapes, not industrial-type elements such as transmission lines. Therefore, people driving along any of the roads in the ANF or walking/horseback-riding along the Pacific Crest National Scenic Trail (PCT) would have higher expectations of seeing natural, undisturbed landscapes rather than a transmission corridor. As such, impacts to scenic views from Lake Elizabeth Road (Impact V-3), the PCT (Impact V-4 and V-27), San Francisquito Canyon Road (Impact V-5), Bouquet Reservoir (Impact V-6), Bouquet Canyon Road (Impact V-7), and Vasquez Canyon Road (Impact V-8) would be considered to have higher sensitivity and therefore more significance than visual impacts to other areas where a natural landscape is less expected. Other sensitive viewpoints would include views from parks, such as Mountain View Park (Impact V-11) and Vasquez Rocks County Park (Impact V-25), views from the Veluzat Motion Picture Ranch (Impact V-9), as well as views from residences, although many residents in Antelope Valley and Santa Clarita already experience transmission line infrastructure.

Alternative 5 would avoid many of these above-mentioned “critical” views as it would be aligned generally outside the ANF. However, Alternative 5 would result in significant, unavoidable impacts (Class I) to Vasquez Rocks County Park and a portion of the PCT on BLM lands, south of Antelope Freeway, unlike the proposed

Project and remaining alternatives. Alternative 5 would be viewed from the PCT where it crosses an existing utility corridor with one-500-kV and two-220-kV transmission lines. Alternative 5 would avoid impacts to several “critical” views, such as those from San Francisquito Canyon Road (Impact V-5), Bouquet Reservoir (Impact V-6), and Vasquez Canyon Road (Impact V-8), as discussed above.

As shown in Table D.4-14, Alternative 5 has the most beneficial (**Class IV**) visual results (8) because the existing 66-kV transmission line, conductors, towers, and foundations would be removed from SCE’s Saugus-Del Sur Utility Corridor (where approximately 86 towers would be removed from NFS lands and 33 towers removed from non-NFS lands), thereby improving the landscape character and scenic integrity of NFS lands and non-NFS lands, following landscape restoration activities that are assigned to this Project. This improved landscape situation is in an area where viewer expectations for a natural-appearing landscape are highest, among all alternatives. Alternative 5 avoids the Veluzat Motion Picture Ranch (Impact V-9), and as compared to the proposed Project and alternatives 1, 2, and 3, would result in an improved visual environment. As compared to existing conditions or the No Project/Action Alternative, Alternative 5 would result in No Change at this Ranch. Alternative 5 also has the greatest number of significant, unavoidable (**Class I**) visual impacts (20) because a new corridor would be established east of the ANF, and because new, taller double-circuit towers and conductors would be constructed in the existing Pardee-Vincent corridor. These taller structures would increase skyline blockage and structure prominence, and would decrease scenic integrity of landscapes from approximately Mile 18.8 to 37.2. For all of these reasons, Alternative 5 is the preferred alternative with regards to Visual Resources.

In conclusion, the alternative that is preferred from a visual resources perspective is Alternative 5. Below is a summary of the ranking of the proposed Project and alternatives.

- *Alternative 5.* Based on the analysis of visual resource impacts as explained in Section C.15, Visual Resources, Alternative 5 would have the most beneficial effects and on the visual environment of the ANF by removing existing 66-kV transmission line infrastructure. Alternative 5 would create the least detrimental effects on NFS lands by crossing only three small, scattered tracts, totaling 1.5-miles in length. Alternative 5 would cross the PCT in an environment where three large transmission lines already exist in an existing utility corridor, in a visually disturbed area, where viewer expectations for scenic integrity would be lower. This would lessen the overall visual impact to PCT users. Furthermore, Alternative 5 would avoid the Veluzat Motion Picture Ranch, although it would create significant, unavoidable visual impacts to non-NFS lands along the route, including in the communities of Leona Valley and Agua Dulce.
- *Alternative 2.* Alternative 2 would remove existing transmission line infrastructure from the top of Del Sur Ridge, thus improving the visual environment of NFS lands. However, Alternative 2 would still impact NFS lands from Mile 5.7 to 18.6, and therefore is not the preferred alternative for visual resources, but is preferred over the proposed Project and Alternatives 1, 3, and 4.
- *Alternative 3.* Alternative 3 would have the generally same visual impacts as the proposed Project in the Antelope Valley, ANF, and the Veluzat Motion Picture Ranch. It is preferred over the proposed Project from a visual resource standpoint because it would avoid the taller, more visually obtrusive, lattice steel structures (double-circuit towers) in Santa Clarita, and instead would create an additional single-circuit transmission line with shorter towers in an existing utility corridor.
- *Alternative 4.* Alternative 4 would generally have the same visual impacts as the proposed Project in the Antelope Valley, ANF, and Santa Clarita. It is preferred from a visual resource standpoint because it avoids the Veluzat Motion Picture Ranch; however, it would create more skyline blockage, structure

prominence, and industrial character in Santa Clarita because of the taller double-circuit towers, the same as the proposed Project.

- *Proposed Project.* The proposed Project would result in significant increases in visual contrasts, including increased structure prominence, increased skyline blockage, and increased scale dominance of industrial-character structures in the Antelope Valley, ANF, and Santa Clarita. The only alternative that has greater visual prominence and greater disturbance to the visual environment is Alternative 1, with its partial undergrounding on top of Del Sur Ridge and in Santa Clarita.
- *Alternative 1.* The underground section on NFS lands would create visually prominent, permanent landform and vegetation disturbances on Del Sur Ridge, and would result in visually unacceptable modifications to the National Forest landscape. Alternative 1 would have all the same visual impacts and disadvantages as the proposed Project in the Antelope Valley, in the Veluzat Motion Picture Ranch, and in Santa Clarita.

## D.5 CEQA Environmentally Superior Alternative

In accordance with CEQA requirements, an “environmentally superior alternative” must be identified among the alternatives analyzed in the EIR/EIS. 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. If the environmentally superior alternative is also the No Project alternative, State 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.3-1, 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/EIS preparers primarily considered those issue areas that have the greatest potential for resulting in long-term, significant impacts, which include visual resources, forest management activities, erosion, land use, public recreation, socioeconomics, and noise. Consideration was also given to community concerns, such as air quality, EMF, and noise, as well as public safety concerns, such as fire safety. 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 State 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 alternatives comparison matrix in Table D.3-1 (a side-by-side comparison of the proposed Project and alternatives), and as discussed in Section D.4, several of the alternatives have many 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. To a large degree, the major differences in alternatives revolve around the fact that most alternative routes cut across NFS lands, while one alternative largely avoids NFS lands. This major routing difference creates substantial differences between Alternative 5 and the other alternative routes, including the proposed Project. One way to compare alternatives is to determine which alternative is environmentally preferable for each issue area and then weigh the importance of each issue area to determine which alternative is superior overall. This evaluation is presented below by comparing the alternative routes that cross through the ANF (the proposed Project and Alternatives 1 through 4) to Alternative 5.

There are basically three alternative routes that traverse the ANF. These are the proposed Project, Alternative 1, and Alternative 2. Alternatives 3 and 4 are only substantially different from these other routes outside the ANF. In reviewing the comparisons of alternatives for each issue area in Section D.4, it is clear that Alternative 1, which involves placing the transmission line underground on Del Sur Ridge, has substantially greater impacts than the proposed Project and Alternative 2. For reasons primarily dealing with visual resources and fire fighting, Alternative 2 is preferable to the proposed Project. Therefore, the environmental advantages and disadvantages of a Forest versus a non-Forest route can best be determined by comparing Alternative 2 and Alternative 5.

Another route to consider is the combination of Alternatives 2 and 4. Unlike most of the other routing options, these two alternatives can be readily combined to form a hybrid alternative. The advantage of considering such a hybrid alternative is that Alternative 4 avoids certain specific impacts associated with Alternative 2 alone and also avoids most of the non-NFS impacts associated with Alternative 5. Therefore, the combination of Alternatives 2 and 4 is given consideration in the discussion of the advantages and disadvantages to Alternative 2 and Alternative 5 that follows.

Based on the comparisons of alternatives for each issue area presented in Section D.4, Alternative 2 is superior to Alternative 5 in five issue areas (air quality, cultural resources, noise, traffic/transportation, and utilities), whereas Alternative 5 is superior to Alternative 2 in seven issue areas (biological resources, geology/soils, forest management activities, hydrology/water quality, land use/public recreation, socioeconomics, and visual resources). There is no substantive difference in impacts related to public health/safety and public services. Of the differentiating issue areas, Alternative 2 is substantially superior to Alternative 5 in three issue areas (noise, traffic/transportation, and utilities), and Alternative 5 is substantially superior to Alternative 2 in four issue areas (biological resources, land use/public recreation, socioeconomics, and visual resources). As this demonstrates, these two alternatives both have advantages and disadvantages relative to each other. In determining the superiority of one alternative to the other, other considerations have to be taken into account, including long-term versus short-term advantages and the relative importance of some issues compared to others.

Many of the Project's impacts are associated only with construction and, therefore, are short term in nature, ranging in duration from a few days to the entire period of construction (14 to 16 months). These are impacts associated primarily with air quality, biological resources, cultural resources, geology/soils, water quality, noise, and traffic/transportation. While many of the short-term construction impacts are significant, it is usually the long-term impacts that are considered more important in determining the superiority of an alternative since such impacts have a lasting effect on the environment and will make an ongoing contribution to cumulative impacts. Many of the short-term impacts are a consequence of land disturbance associated with construction and have little lasting effect after the land surface has been restored after construction. Other short-term impacts are associated with temporary construction effects on human beings and the built environment, which cease when construction is completed. Therefore, in the case of the proposed transmission project, significant long-term effects are primarily associated with forest management activities (fire fighting), erosion (along newly created roads), land use/recreation, noise (corona noise from conductors), socioeconomics, and visual resources. Impacts related to other issue areas either cease when construction is over or are assumed to be insignificant after the land surface has been restored and revegetated (this is required by mitigation).

In reviewing the comparisons of the long-term effects for Alternatives 2 and 5 in Section D.4, Alternative 5 offers advantages in terms of visual resources on NFS lands. Effects on visual resources are also important considerations on non-NFS lands, but these effects are considered more significant on NFS lands due the Scenic Integrity Objectives of the 2005 ANF Forest Management Plan (Forest Plan). Although Alternative 2

substantially mitigates the visual impact on NFS lands by placing the transmission line in a mid-slope location. Alternative 5 has very little conflict with the Forest Plan because it largely avoids NFS lands. While this may make Alternative 5 seem superior to Alternative 2 from a visual resources standpoint, Alternative 5 also has certain disadvantages compared to Alternative 2. Alternative 5 would introduce a new transmission line into a 18.8-mile-long corridor where a transmission line does not currently exist. This added visual element would not be welcomed by viewers along the route of Alternative 5, and it would be more visible to a greater number of residents and travelers (along Sierra Highway, Escondido Avenue, and the Antelope Freeway) than Alternative 2. Therefore, both alternatives would have substantial adverse visual impacts.

The existence of transmission lines can hinder fire suppression in wildland areas, especially aerial operations. Therefore, both Alternative 5 and Alternative 2 would constrain the ability to aggressively fight a wildland fire in the vicinity of either route. Ridgetop locations are considered especially important to fire suppression and Alternative 2 attempts to minimize any hindrance the transmission line may cause to fire suppression by placing the transmission line in a mid-slope location rather than along the ridge top. Obviously, Alternative 5 presents little direct effect on fire fighting on the ANF because it largely avoids NFS lands, but a transmission line outside the ANF also presents a hindrance to aggressive fire fighting. The route for Alternative 5 would require transmission towers on Sierra Pelona ridge just outside the Forest boundary. Alternative 5 also traverses several inhabited areas not affected by Alternative 2, including portions of Leona Valley and Agua Dulce, where protection of homes and property would likely become a priority in the event of a wildland fire in that area. Therefore, fire fighting is problematic for both alternatives.

For both Alternative 2 and Alternative 5, new unpaved roads would need to be constructed across soils with a “severe” hazard rating for erosion. In addition, portions of existing unpaved roads would need to be improved. These roads would accelerate natural erosion processes, especially in steep hillside areas, because the soil surface would remain exposed as long as these roads are maintained and used. This impact is similar for both alternatives. However, Alternative 2 is expected to result in the creation of more new or improved roads along the transmission route than Alternative 5.

Long-term noise effects associated with the proposed transmission line are limited to corona noise and periodic noise that would be generated by maintenance activities. Noise associated with maintenance activities is generally minor and only occurs for a short time between long intervals and, therefore, is not significant. Corona noise is localized and only affects receptors in close proximity to the transmission line. Therefore, only adjacent noise-sensitive land uses have the potential to be adversely affected by corona noise. Alternative 5 has more adjacent land uses that would be exposed to corona noise for the first time, but Alternative 2 has one particularly sensitive adjacent land use – the Veluzat Motion Picture Ranch. If Alternative 2 is combined with Alternative 4, then the combination of these alternatives would result in the least overall noise impacts because it also minimizes impacts to the motion picture ranch.

In considering land use and socioeconomic impacts, Alternatives 2 and 5 both have advantages and disadvantages. Alternative 5 would avoid adverse effects to the Veluzat Motion Picture Ranch. This advantage of Alternative 5 is offset by the fact that it would require the acquisition of substantially more private land than Alternative 2 and would place the a new transmission line adjacent to more existing homes than Alternative 2. Alternative 5 is also expected to result in the loss of at least one existing home and the consequent displacement of the residents of any homes that need to be acquired. As a result, Alternative 5 has a greater magnitude of impact to existing land uses than Alternative 2. If Alternative 2 is combined with Alternative 4, then the combination of Alternative 2 and Alternative 4 would have the least impacts because it would avoid the effects to the motion picture ranch as well as impacts of Alternative 5 on existing land uses in the Leona Valley and Agua Dulce.

Alternative 2 and Alternative 5 both would have long-term effects on public recreational resources. Alternative 2 would involve new road construction on NFS lands to facilitate construction of the transmission line. These new roads would invite unauthorized OHV use, which could accelerate erosion, damage resources, and adversely affect public safety. Based on the Forest Service’s past experience with OHV use, Alternative 2 could cause significant impacts to the Forest and would have a greater impact than Alternative 5. Both Alternative 2 and Alternative 5 would cross the Pacific Crest Trail. Both alternatives would affect the trail by constructing a new transmission line across it, but this would be somewhat offset by the fact that the crossing of the trail by existing 66-kV line would be eliminated under both alternatives.

Considering the long-term effects of Alternatives 2 and 5 discussed above, the two alternatives both have advantages and disadvantages relative to each other. The question of which alternative is environmentally superiority is debatable and is influenced by the relative importance placed on different areas of impact. Alternative 5 has advantages in terms of erosion impacts and public recreation, and Alternative 2 has advantages related to noise, land use, and socioeconomics. From the standpoint of visual resources and fire fighting, both alternatives have significant adverse impacts, although these impacts are mitigated to a greater degree with Alternative 2.

The combination of Alternative 2 and Alternative 4 is a substantial improvement over Alternative 2 alone. The combination of Alternatives 2 and 4 avoids or further reduces long-term effects related to noise, land use, and socioeconomics. Long-term impacts related to visual resources, fire suppression, erosion, and public recreation would be basically the same for the Alternative 2/4 combination as for Alternative 2 alone. From the standpoint of effects on NFS lands and compliance with Forest Plan policies, Alternative 2 or the combination of Alternatives 2 and 4 clearly has greater impacts than Alternative 5. However, when considering the whole of action without placing added emphasis on Forest impacts and issues, the combination of Alternatives 2 and 4 is superior to Alternative 5, and would result in the fewest significant unavoidable (Class I) impacts overall.

Table D.5-1 provides a brief summary comparison of the Alternative 2 /4 combination compared to Alternative 2 or Alternative 4.

<b>Issue Area</b>	<b>Alternative 2</b>	<b>Alternative 4</b>	<b>Alternative 2/4 Combination</b>
<b>Air Quality</b>	Exceeds SCAB daily regional threshold for NOx, VOC, CO, and PM10	Exceeds SCAB daily regional threshold for NOx and PM10	On a daily basis, results in the same impacts as Alt. 2
	Exceeds MDAB daily regional threshold for NOx and PM10	Exceeds MDAB daily regional threshold for NOx and PM10	On a daily basis, results in the same impacts as Alt. 2
	Annual, tons/year: NOx=16.56; VOC=2.17; CO=13.09; PM10=10.59; PM2.5=3.10; SO2=0.09 (greater than PP)	Annual, tons/year: NOx=14.54; VOC=1.90; CO=11.22; PM10=13.05; PM2.5=3.10; SO2=0.09 (greater than PP)	Slight increase over Alt. 2 due to additional new ROW for the Alt 4
<b>Biological Resources</b>	Total land disturbance = 121.7 acres (less than PP)	Total land disturbance = 130.5 (greater than PP)	Between Alt. 2 and Alt. 4. Greater than Alt. 2 due to new ROW for Alt.4 deviation, but less than Alt. 4 because of helicopter construction assoc. with Alt. 2.
	13.2 miles across NFS lands (12.2 miles new ROW )	12.5 miles across NFS lands (1.0 miles new ROW )	12.0 miles across NFS lands (12.0 miles new ROW)
<b>Cultural Resources</b>	2 archaeological sites 8 historic sites	2 archaeological sites 8 historic sites	2 archaeological sites 8 historic sites



<b>Table D.5-1. Comparison of Alternatives 2 and 4 and the Alternative 2/4 Combination</b>			
<b>Issue Area</b>	<b>Alternative 2</b>	<b>Alternative 4</b>	<b>Alternative 2/4 Combination</b>
<b>Geology, Soils, and Paleontology</b>	Crosses several moderate sized landslides within the Pelona Schist. Numerous other small to moderate sized landslides mapped in the vicinity within the Pelona Schist.	Two mapped landslides in the Pelona Schist along Del Sur Ridge; as well as the Mint Canyon and Castaic Formations, which underlie re-routed portion, are prone to landslides.	Crosses several moderate sized landslides within the Pelona Schist, numerous small to moderate sized landslides mapped in the vicinity within the Pelona Schist, and the Mint Canyon and Castaic Formations which are prone to landslides
<b>Public Health and Safety</b>	Activities with increased potential for accidental spill or release of hazardous materials: <ul style="list-style-type: none"> <li>• Tower construction (26.7 miles), particularly 11.8 miles of hillside towers</li> <li>• Substation modifications</li> <li>• Maintenance of hillside towers</li> </ul>	Activities with increased potential for accidental spill or release of hazardous materials: <ul style="list-style-type: none"> <li>• Tower construction (25.9 miles)</li> <li>• Substation modifications</li> </ul>	Activities with increased potential for accidental spill or release of hazardous materials: <ul style="list-style-type: none"> <li>• Tower construction (27.0 miles), particularly 11.8 miles of hillside towers</li> <li>• Substation modifications</li> <li>• Maintenance of hillside towers</li> </ul>
<b>Forest Management Activities</b>	Transmission line would NOT affect aggressive fire suppression and fire prevention activities on Del Sur Ridge or fire fighter safety, or fire suppression activities near Bouquet Canyon Reservoir	Transmission line <i>would</i> affect aggressive fire suppression and fire prevention activities on Del Sur Ridge and fire fighter safety, and fire suppression activities near Bouquet Canyon Reservoir	Impacts to fire fighting and fire suppression would be the same as Alt. 2. The Alt. 4 deviation would not affect the Del Sur Ridge
<b>Hydrology and Water Quality</b>	Major overhead water body crossings: 8 CA Aqueduct Spunky Canyon Bouquet Canyon (x2) Haskell Canyon Pettinger Canyon San Francisquito Canyon	Major overhead water body crossings: 8 CA Aqueduct Amargosa Creek Spunky Canyon Bouquet Reservoir Bee Canyon Haskell Canyon San Francisquito Canyon	Major overhead water body crossings: 7 CA Aqueduct Spunky Canyon Bouquet Canyon (x2) Bee Canyon Haskell Canyon San Francisquito Canyon
<b>Land Use and Public Recreation</b>	Preclude commercial use – Veluzat Motion Picture Ranch	Avoids Veluzat Motion Picture Ranch	Avoids Veluzat Motion Picture Ranch
	5 recreational resources potentially affected, and 4 trails	5 recreational resources potentially affected, and 4 trails	Same as Alt. 2
<b>Noise</b>	Corona noise levels exceed L.A. County standards at Veluzat Motion Picture Ranch	Corona noise levels would NOT exceed L.A. County standards for residential receptors	Corona noise levels would NOT exceed L.A. County standards for residential receptors
<b>Public Services</b>	Greater demand for aerial fire protection resources during construction for the towers placed by helicopter (i.e. without access roads)	Construction activities could temporarily increase fire protection demands particularly on NFS lands.	Fewer miles across NFS lands would decrease overall potential to increase fire protection demands.
<b>Socioeconomics</b>	Veluzat Motion Picture Ranch and agricultural uses	Bouquet Canyon Stone Quarry and agricultural uses	Agricultural uses (only).
<b>Traffic and Transportation</b>	<del>2528</del> road crossings (78 on NFS lands)	<del>254</del> road crossings (79 on NFS lands)	<del>26</del> road crossings (8 on NFS lands)
<b>Utilities and Service Systems</b>	6.06 acre-feet of water 2,899 tons of waste generated (greater than PP)	6.00 acre-feet of water 2,886 tons of waste generated (greater than PP)	Water consumption and waste generated is expected to be slightly greater than Alt. 2 due to additional construction work associated with new ROW for Alt. 4 deviation

<b>Issue Area</b>	<b>Alternative 2</b>	<b>Alternative 4</b>	<b>Alternative 2/4 Combination</b>
<b>Visual Resources</b>	Visible from Veluzat Motion Picture Ranch "Main Street"	Not visible	Not visible
	Not visible from San Francisquito Canyon Road	Visible	Not visible
	Transmission line NOT viewed in a "skylined condition"	Transmission line viewed in a "skylined condition"	Transmission line NOT viewed in a "skylined condition"

## **D.6 NEPA Lead Agency Preferred Alternative**

The "preferred alternative" is a preliminary indication of the federal responsible official's preference of action, which is chosen from among the proposed Project and alternatives. The preferred alternative may be selected for a variety of reasons (such as the priorities of the particular lead agency) in addition to the environmental considerations discussed in the EIS. For the proposed Project, the federal responsible official is the Forest Supervisor of the ANF. If the Forest Supervisor is prepared to identify a preferred alternative at the time the Draft EIR/EIS is prepared, that alternative/s should be discussed in the draft document. If a preferred alternative has not been identified at the time the Draft EIS is prepared, it is assumed one or more will have been identified by the time the Final EIS is prepared. ~~At this time~~ In accordance with NEPA (40 CFR 1502.14(e)), the Forest Supervisor has not identified a the combination of Alternatives 2 and 4 as the preferred alternative. As such, the preferred alternative will be identified in the Final EIS per NEPA (40 CFR 1502.14(e)), "unless another law prohibits the expression of such a preference." As discussed in Section D.5, the combination of Alternatives 2 and 4 avoids and reduces long-term effects related to visual resources, noise, and socioeconomics. Alternative 2/4 combination would reduce long-term impacts related to visual resources and fire suppression by removing the transmission towers from ridgetop locations, which would minimize hindrances to fire suppression, as well as the visual prominence of the transmission towers. Furthermore, by combining Alternative 2 with Alternative 4, long-term noise and socioeconomic impacts to the Veluzat Motion Picture Ranch would also be avoided.

In addition to the preferred alternative, the federal responsible official, or federal lead agency, is also required to identify an "environmentally preferable alternative" in the ROD for the EIS (40 CFR 1505.2(b)). In contrast with the preferred alternative, the environmentally preferable alternative is the alternative that will promote the National Environmental Policy Act as expressed in NEPA's Section 101. Typically, this is the alternative that would cause the least environmental damage as well as preserve natural resources related to cultural and historical values. Therefore, the preferred alternative identified in the Final EIR/EIS may not be the same as the environmentally preferable alternative identified in the ROD. As with the CEQA environmentally superior alternative, the NEPA environmentally preferable alternative is subject to all mitigation measures applicable to NFS lands identified in Section C (Environmental Analysis).