Volume 2 of 7

Final Environmental Impact Report/Statement

Southern California Edison's Application for the

Tehachapi Renewable Transmission Project

Application No. A.07-06-031

SCH No. 2007081156

Tehachapi Wind Turbines

Segment 4 in NW Antelope Valley

Segment 6 in Angeles National Forest

Gould Substation

Segment 8 in Rowland Heights

Chino Hills State Park

Segment 8 in Chino

Mira Loma Substation

Lead Agencies:

California Public Utilities Commission

USDA Forest Service

Prepared by:

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October 2009

TEHACHAPI RENEWABLE TRANSMISSION PROJECT

Final Environmental Impact Report/Statement

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3.6 Environmental Contamination and Hazards

3.6.1 Introduction

This section describes effects related to environmental contamination and hazards that would be caused by implementation of the Tehachapi Renewable Transmission Project (TRTP). The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to environmental contamination and hazards are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. No issues relevant to environmental contamination and hazards were raised during the scoping process.

Summary and Comparison of Alternatives

Table 3.6-1 on the following page presents some key factors related to environmental contamination and hazards for each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.6-1 are not impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.6.4.1 (Criteria for Determining Impact Significance) are described in Sections 3.6.5 through 3.6.11.

3.6.2 Affected Environment

The study area includes eight separate segments (4-11) and substations, extending approximately 175 miles north to south incorporating parts of Kern, Los Angeles, and San Bernardino Counties in California. The majority of listed hazard sites are in the southern portion of the proposed Project in Los Angeles and San Bernardino counties.

To collect information on the existing conditions for the TRTP, a search of regulatory agency databases was conducted by Environmental Data Resources, Inc (EDR, 2007a and 2007b). The agency databases identify sites with current or past hazardous waste concerns, such as the use and storage of chemicals, leaks and spills of chemicals, and leaking underground storage tanks. Such database searches by third-party specialized contractors are often relied upon by agencies and others to identify known or potential sources of contamination. Review of other available regulatory agency databases (SWRCB Geotracker and DTSC Envirostor) and of aerial photographs to verify land uses of concern was also performed. This review was performed in order to note any issues related to use and storage of hazardous materials within the Project area.

Table 3.6-1. Summary Comparison of Environmental Issues – Environmental Contamination and Hazards

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Soil contamination, including flammable or toxic gases, during construction (Impact E-1)	Construction of new T/Ls of comparable length and new, upgraded, or expanded substations in lieu of Project would have the same impacts.	Construct 853 new transmission structures across 172.5~~9~~ miles (Total does not include 66-kV structures). Includes 13~~2~~ temporary helicopter staging areas along Segments 6 and 11 supporting 6,633 (min.) to 9,339 (max.) helicopter round trips.	Construct 852 new transmission structures across 172.9~~3.3~~ miles (Total does not include 66-kV structures).	Approximate number of new tower structures constructed and miles of T/L upgrades: Alt 4A: ~~762~~ 799 T/L structures across approx. 164~~57~~ miles; Alt 4B: ~~781~~ 818 T/L structures across approx.167~~1~~ miles; Alt 4C: ~~802~~ 839 T/L structures across approx. 166~~3~~ miles (includes re-routes of existing CHSP T/Ls); Alt 4C Modified: 828 T/L structures across approx. 165 miles (includes re-routes of existing CHSP T/Ls); Alt 4D: ~~791~~ 828 T/L structures across approx. 167~~1~~ miles.	Construct 838 new transmission structures across 172.5~~9~~ miles (Total does not include 66-kV structures).	Same as Alternative 2. Includes 13 ~~11~~ temporary helicopter staging areas along Segments 6 and 11 supporting 31,394~~27,423~~ (min.) to 43,909~~38,335~~ (max.) helicopter round trips.	Same as Alternative 2.
Mobilization of contaminants currently existing in the soil (Impact E-2)	Construction of new T/Ls in urban areas with historic and recent commercial/industrial land uses in lieu of the Project would have the same impacts.	228 known contaminated sites within 0.25-mile of ROW.	Same as Alternative 2.	Known contamination sites within 0.25 mile of ROW: Alts 4A and 4B: 174 ~~169~~; Alts 4C, 4C Modified, and 4D: ~~170~~ 175. One known munitions testing/ disposal site within 150 feet of alignment.	Underground construction at shafts has increased potential to encounter pre-existing contaminated soil. Deep tunnel section likely below known soil and groundwater contamination.	Same as Alternative 2.	Underground construction of 0.6 mile of 66-kV subtransmission line in commercial land use areas has incrementally increased potential to encounter preexisting contaminated soil.
Exposure of workers and the public to landfill/natural gas (Impact E-3)	New T/Ls may or may not avoid landfills and oil fields.	19 landfills, 2 oil fields within 0.25-mile of ROW.	Same as Alternative 2.	Alts 4A, 4B, 4C, and 4C Modified: 19 landfills, 2 oil fields within 0.25-mile of ROW; Alt 4D: 19 landfills, 4 oil fields within 0.25-mile of ROW.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

Table 3.6-1. Summary Comparison of Environmental Issues – Environmental Contamination and Hazards

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading (Impact E-4)	Construction of new T/Ls in urban areas with historic and recent commercial/industrial land uses in lieu of the Project would have the same impacts.	New T/Ls traverse 48.5 miles of urban area with commercial/industrial land use.	Same as Alternative 2.	New T/Ls traverse 32.5 miles of urban area with commercial/industrial land use.	Generally the same as Alternative 2. Only east transition station located in urban area; remainder of deep tunnel and shafts are in non-urban areas.	Same as Alternative 2.	Same as Alternative 2.
Contamination of soils or groundwater within the Project area during operation (Impact E-5)	Operation and maintenance (O&M) of comparably-sized substations and length of T/L would have the same impacts as the Project.	O&M of one new substation and 3 expanded substations and 172.5~~9~~ miles of new T/L infrastructure (181.3~~7~~ circuit miles).	Same as Alternative 2.	The total distance of any of the Alternative 4 routes would be shorter than Alternative 2, but all of these routes would result in O&M of one new substation, one new switching station, and two expanded substations. T/L upgrade distances: Alt. 4A – 163.6~~57.2~~ miles; Alt. 4B – 167.2~~0.8~~ miles; Alt. 4C – 165.8~~62.8~~ miles; Alt 4C Modified –165.0 miles; Alt. 4D – 167.3~~0.8~~ miles.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Mobilization of contaminants or encountering ordnance currently existing in the soil (Impact E-6)	Construction of new T/Ls in areas with historic and recent munitions testing and disposal in lieu of the Project would have the same impacts.	No known munitions testing and disposal sites within 0.25-mile of ROW.	Same as Alternative 2.	Known area of munitions testing and disposal within 0.25 mile of ROW: Alts 4A and 4B avoid the munitions areas; Alts 4C, 4C Modified, and 4D: construction areas and access routes may encounter ordnance. ~~munitions testing and disposal sites.~~	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

The EDR database search for the proposed TRTP Segments 4-11 highlighted any sites within one mile of either side of the proposed alignment that are listed as past or current hazardous waste sites (EDR, 2007a). However, this section focuses on sites located within 0.25 mile of either side of the alignment as having real potential to impact the Project. Information about these sites was collected within the database report (EDR, 2007a) and reviewed for this analysis. The site-specific information is described in sections and tables below, each section representing a different segment of the proposed alignment or alternative to the Project.

No Phase I Environmental Site Assessments (ESAs) have been or were conducted as part of this study; however, SCE does plan to conduct Phase I ESA studies at each new or expanded substation location and along newly acquired transmission line rights-of-way (ROW). Each Phase I ESA would include an electronic records search of federal, state and local environmental databases. The database search would cover the entire TRTP route and would then be reviewed to identify any potential areas of concern that would require further assessment. ~~in areas of planned ground disturbance prior to Project construction.~~

3.6.2.1 Regional Setting

The transmission line for the proposed TRTP traverses land utilized for a variety of uses including: open-space recreation and preserve, national forest, residential housing, recreational, industrial and commercial businesses. Existing and past land use activities are used as potential indicators of hazardous material storage and use.

Many current and former commercial, industrial, and military sites have soil or groundwater that is contaminated by hazardous substances such as heavy metals, chemicals, solvents and vehicle fuel. Other hazardous materials sources include leaking underground storage tanks (LUSTs) in commercial, rural, and agricultural areas. Contaminated surface runoff may occur from polluted sites and agricultural fields that have been treated with pesticides, herbicides, and fumigants. In areas of past and current commercial or industrial use, contaminated groundwater plumes could exist along the transmission line routes.

Unknown contamination could also be present within the right-of-way (ROW) due to nearby past and current land uses. Examples of past and current land uses that could have resulted in unknown contamination include rural residences and farms that commonly have old or inactive underground fuel tanks (USTs); pesticide polluted runoff from agricultural properties; and commercial and industrial sites, historic and current, could have soil or groundwater contamination from unreported hazardous substance spills.

3.6.2.2 Alternative 2: SCE's Proposed Project

The proposed transmission line alignment and substation sites traverse and are located in areas with a mix of land uses, ranging from undeveloped to commercial and light industrial. Properties along the routes with land uses associated with hazardous material use, i.e. agricultural, commercial, and light industrial, have an increased potential to have had environmental contamination that may impact construction activities.

Segment 10

Segment 10 begins at the Windhub Substation site located within an unincorporated area of Kern County and traverses County land until it ends at the proposed Whirlwind Substation. Existing land uses along Segment 10 include residential, vacant, agricultural (grazing), and the Los Angeles Aqueduct. Aerial photographs along Segment 10 reveal vacant scrub land with scattered farms. One contaminated site with

potential to impact the Project has been identified within 0.25 mile of the Segment 10 alignment (EDR, 2007a). This site is summarized in Table 3.6-2.

Table 3.6-2. Contaminated Sites within 0.25 mile of the Alignment Segment 10

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
1	Alan Richard Dyer	7045 140th St West Rosamond, Ca	CDL	Illegal drug lab

Source: EDR, 2007a.
[1] EDR Environmental Information Data Site I.D. Number.
FEDERAL RECORDS
CDL: Clandestine Drug Lab

Segment 4

Segment 4 of the proposed Project traverses lands within unincorporated Kern County, unincorporated Los Angeles County, and the City of Lancaster. The predominant current land use traversed by the proposed Segment 4 is undeveloped open space, with a few small sections of scattered irrigated agriculture. Agricultural lands, including those that have been abandoned, are designated as Open and Non-developable. The existing land use of the last 2.2 miles of Segment 4 is predominantly vacant. There are no hazardous material sites listed within 0.25 mile of the Segment 4 alignment (EDR, 2007a).

Segment 5

Segment 5 extends from the Antelope Substation in the City of Lancaster to the existing Vincent Substation in Soledad Canyon. The predominant land use traversed by the proposed Segment 5 is undeveloped open space, with one small area devoted to agricultural use at S5 MP 5.8 through MP 7.4. Existing land uses also include vacant, residential, commercial, wildlife preserves and sanctuaries and electrical utility facilities. A review of aerial photos indicates some agricultural use, residential areas, mountainous open-space, and a low-density rural residential area approximately five miles northwest of the Vincent Substation. Planned residential developments are currently under construction throughout this area. There are two hazardous material sites within 0.25 mile of Segment 5 with potential to impact the proposed Project (EDR, 2007a). These sites are summarized below in Table 3.6-3.

Table 3.6-3. Contaminated Sites within 0.25 mile of the Alignment Segment 5

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
2	Antelope Substation	9364 W Avenue J Lancaster, Ca	HIST UST	Unleaded fuel, no leak detected
3	Jason's Auto Parts	415 W Sierra Highway Palmdale, Ca	LUST	Waste oil leak, tank closure

Source: EDR, 2007a.
[1] EDR Environmental Information Data Site I.D. Number.
STATE AND LOCAL RECORDS
HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.
LUST: Leaking Underground Storage Tank report

Segment 11

Segment 11 begins at Vincent Substation in the High Desert area of the County of Los Angeles and ends at the Mesa substation. Existing land uses within the 0.5 mile wide buffer include vacant, residential, special use facilities, and wildlife preserve from S11 MP 0.0 to MP 18.7 (Gould Substation). From Gould Substation to the Mesa Substation, existing land uses within the 0.5-mile buffer are mostly urban uses, and include electrical power facilities, single family and other residential, school, commercial, industrial,

public facilities, utilities, park, and agriculture. Seven helicopter staging areas (SCE #0 through 5, including alternate site SCE #3B) would be graded within the ANF between Vincent Substation and Gould Substation.

Aerial photos show Segment 11 traverses open space land south from the Vincent substation through the ANF into the Gould substation. Then from Gould to Mesa substation, the alignment passes through commercial, residential, and industrial facilities that include car dealerships and service stations.

According to oil field maps (DOGGR, 2004a; DOGGR, 2006), Segment 11 approaches six plugged and abandoned wells (dry holes) within approximately 500 feet as it heads south towards the Mesa substation. These abandoned, dry wells pose a low risk from a health and safety standpoint.

Eighty-one contaminated sites are located within 0.25 mile of Segment 11 from Gould to Mesa substation where the proposed Project consists only of stringing a new conductor on a vacant position on the existing towers~~with potential to impact the proposed Project~~ (EDR, 2007a). Consequently, there is no planned ground disturbance and low potential for the contaminated sites to impact this segment of the proposed Project. In the event ground disturbance is required, ~~T~~these sites are summarized below in Table 3.6-4. EDR Sites 20, 170, and 174 are designated as landfill operations, located at S11 MP 26, and at the Mesa substation, respectively. Site 33 is a designated US and Cal EPA Brownfield with Deed Restriction, located at mile marker S11 MP 28 in the City of Pasadena. Also of note, at approximately 1.5 miles west of the Segment 11 alignment and approximately 3 miles north of the Mesa substation, lies the San Gabriel Valley Groundwater Basin (Area 3) Superfund site (not listed in Table 3.6-4 due to distance from alignment).

Table 3.6-4. Contaminated Sites within 0.25 mile of the Alignment Segment 11

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
10	Gould Substation	5858 Angeles Crest Hwy La Canada, Ca	RCRA-LQG	No violations found.
11	Conscon Davidson Homes	3900 Lincoln Ave N Altadena, Ca	LUST, Cortese	Diesel, case closed
12	Las Flores Debris Disposal Site	3400 Rubio Canyon Altadena, Ca	WMUDS/SWAT	
13	Kelly-Altadena	2400 Kinclair Drive Altadena, Ca	WMUDS/SWAT	
14	Los Angeles County Fire Station #066	2764 E Eaton Canyon Dr Pasadena, Ca	SWEEPS UST	
14	Pasadena Civil Defense Center	2783 Eaton Canyon Dr. Pasadena, Ca	UST	
15	Arco #875	1633 Altadena Dr Pasadena, Ca	LUST, Cortese	Gasoline. Affecting soil only. Case closed. Site not tested for MTBE.
16	F & F Fire Warden # 66	2764 New York Dr Pasadena, Ca	HIST UST	Diesel
16	City Of Pasadena	2783 New York Dr Pasadena, Ca	HIST UST, SWEEPS UST	Unleaded
17	Unocal #6088	1320 Altadena Dr N Pasadena, Ca	LUST, Cortese	Affecting soil only.
18	Eaton Debris Disposal Site	2986 New York Drive Pasadena, Ca	WMUDS/SWATUST, HIST UST, Los Angeles CO. HMS, SWEEPS UST	Regular, unleaded, diesel

Table 3.6-4. Contaminated Sites within 0.25 mile of the Alignment Segment 11

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
18	Home Savings Pasadena Loan Center	2947 Bradley St Pasadena, Ca	Los Angeles CO. HMS, SWEEPS UST	
18	Pasadena Loan Service	2923 Bradley St Pasadena, Ca	CA FID UST, SWEEPS UST	Diesel
18	Avery Int Research Center	2900 Bradley St Pasadena, Ca	Los Angeles CO. HMS, SWEEPS UST	
19	Osborne Contractors	2900 Woodlyn Pasadena, Ca	WMUDS/SWAT	
20	North Avenue Dump / Osborn Construction	3100 New York Drive Pasadena, Ca	LF	
22	Burroughs Corp	460 N Sierra Madre Villa Ave Pasadena, Ca	LOS ANGELES CO. HMS, SWEEPS UST	
23	Service Station 2248	3275 E Foothill Blvd Pasadena, Ca	HIST UST, Los Angeles CO. HMS, UST, SWEEPS UST, LUST, Cortese	Unleaded, premium, waste oil. Affected soil only. MTBE detected
24	Naval Information Research Foundation; Space Bank Mini-Storage	3202 E. Foothill Blvd Pasadena, Ca	LUST, ENVIROSTOR, SLIC, RESPONSE, HIST CAL-SITES, FUDS	The level of contaminants at the site poses an unacceptable excess cancer risk of 4.4 x 10-4 due to arsenic, lead, mercury, thallium, Semi-VOCs, and other petroleum hydrocarbon. Based on this result, further action is required at the site.
25	Avon Products - Pasadena Branch	2940 E. Foothill Blvd. Pasadena, Ca	SWEEPS UST, HIST UST, LOS ANGELES CO. HMS, CA FID UST	Diesel
26	Thrifty #024	2800 Foothill Blvd E Pasadena, Ca	LUST, Cortese	Gasoline
29	ABC Cleaners	2982 E Colorado St Pasadena, Ca	CLEANERS	
29	Pasadena Chrysler-Plymouth	2965 E Colorado Blvd Pasadena, Ca	HIST UST, CA FID UST, LOS ANGELES CO. HMS, SWEEPS UST	Waste oil, unleaded
29	Arco Oil #14; Arco Petroleum Prod Co # 5184; Prestige Stations Inc #675	3100 E. Colorado Blvd. Pasadena, Ca	UST, CA FID UST, LOS ANGELES CO. HMS, SWEEPS UST, HIST UST	
29	Jack Wall Chevrolet	3003 E Colorado Blvd Pasadena, Ca	CA FID UST, HIST UST, LOS ANGELES CO. HMS, SWEEPS UST	Unleaded, diesel
30	Vince S Auto Service	3230 E. Colorado Blvd Pasadena, Ca	LOS ANGELES CO. HMS	

Table 3.6-4. Contaminated Sites within 0.25 mile of the Alignment Segment 11

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
33	Kinneloa Ave Property; City of Pasadena	175 S Kinneloa Ave Pasadena, Ca	DEED, VCP, ENVIROSTOR, BROWNFIELD	Voluntary Cleanup of halogenated organic compounds, metals, other inorganic solid waste, asbestos containing materials. Cal DTSC Deed Restriction: no excavation or activities which disturb the soil at any depth without approval.
39	Mobil Oil Corp	2549 Huntington Dr San Marino, Ca	SWEEPS UST, CA FID UST	
39	M H Whittier Corp	1600 Huntington Dr South Pasadena, Ca	CA FID UST, SWEEPS UST	
39	Unocal Corp Ss 4356	2390 Huntington Dr San Marino, Ca	CA FID UST, SWEEPS UST	
40	Gasoline Storage Tank	3303 Huntington Dr Pasadena, Ca	HIST UST	unleaded
53	Ensign Jim Trucking	6336 N Lemon Ave San Gabriel, Ca	RCRA	1 violation record(s) reported at this site
74	Jefferson Middle School Expansion	1358/1364 - 1374 E. Las Tunas Dr San Gabriel, Ca	ENVIROSTOR	
74	Arco #9665/Former Thrifty Station #284	1386 E. Las Tunas Dr San Gabriel, Ca	LUST, Cortese	Tank replaced march 1998. 484 tons of contaminated soil removed and treated.
74	San Gabriel Cleaner	1307-1309 E Las Tunas Dr San Gabriel, Ca	CLEANERS	
75	88 Dry Cleaners	1131 E. Las Tunas Dr. San Gabriel, Ca	LUST, SLIC	VOC leak detected and confirmed 1999, case open
91	ETC Carpet Mills Ltd.	5012 Walnut Grove San Gabriel, Ca	LUST, Cortese	Diesel
91	Duke's Landscape Service	5009 Walnut Grove Ave San Gabriel, Ca	HIST UST	
91	Walnut Dyeing & Finishing	5012 N Walnut Grove Ave Rosemead, Ca	LOS ANGELES CO. HMS, SWEEPS UST	
92	Rayne Water Systems	8428 E Clanton St San Gabriel, Ca	LOS ANGELES CO. HMS	
94	Huy Fong Foods Inc	5001 Earle Ave; 5045 Earle Ave Rosemead, Ca	LOS ANGELES CO. HMS, LUST, SLIC	
94	Tur-Bo Jet Products Co	5025 Earle Ave. Rosemead, Ca	LUST, SLIC	VOC release
94	So Cal Edison Co; Rosemead Service Center	5016 Earle Ave Rosemead, Ca	LOS ANGELES CO. HMS, HIST UST, SWEEPS UST	Waste oil
94	Gordon Pest Control; Ladco Labs	4939 Earle Ave Rosemead, Ca	LOS ANGELES CO. HMS, HIST UST, LUST, SLIC	
94	San Gabriel County Water Dist	8366 Grand Ave. Rosemead, Ca	LUST, SLIC	

Table 3.6-4. Contaminated Sites within 0.25 mile of the Alignment Segment 11

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
100	Pacific Bell	8633 Grand Ave Rosemead, Ca	LOS ANGELES CO. HMS, HIST UST, SWEEPS UST, UST, CA FID UST, LUST, SLIC	Waste oil
100	Calif-American Water Co	8657 Grand Ave Rosemead, Ca	HIST UST, SWEEPS UST	Unleaded
100	Sakaida Nursery Inc	8626 Grand Ave Rosemead, Ca	UST, LOS ANGELES CO. HMS, SWEEPS UST	
102	California Christian Home	8417 E Mission Dr San Gabriel, Ca	SWEEPS UST	
108	Alvarez. Charles & Jeanet	1425 Delta San Gabriel, Ca	Cortese	
110	Cal Brick & Tile	8632 Valley Blvd Rosemead, Ca	LOS ANGELES CO. HMS, SWEEPS UST	
110	Reliable Lumber Inc.	8614 Valley Blvd Rosemead, Ca	HIST UST, CA FID UST, LOS ANGELES CO. HMS, LUST, Cortese	gasoline
110	Gas Station; Century Pacific Associates; John's Service Station	8548 Valley Blvd Rosemead, Ca	CA FID UST, SWEEPS UST, Cortese, HIST UST, LUST	Affected soil only, unleaded, oil, premium, regular
111	Mac Boyd Estate-Mary Parker; Charlie Hanks	1029 E Valley Blvd San Gabriel, Ca	HIST UST, LOS ANGELES CO. HMS, SWEEPS UST	
121	Vacant Service Station	3365 Walnut Grove Ave Rosemead, Ca	LOS ANGELES CO. HMS. SWEEPS UST	
126	East - West Auto Center	3127 San Gabriel Blvd Rosemead, Ca	HIST UST	Waste oil
129	Gary Mankerian 14-886; Mobil Oil Corp; Wee Auto Sales Property	3003 San Gabriel Blvd Rosemead, Ca	HIST UST, LOS ANGELES CO. HMS, SWEEPS UST, LUST, Cortese	Waste oil, regular, unleaded
129	Arco #1285; Bob Sugasawara	8204 Garvey Ave Rosemead, Ca	LUST, Cortese, LOS ANGELES CO. HMS, SWEEPS UST, HIST UST	Gasoline, waste oil
129	Kmart Enterprises	8150 Garvey Ave Rosemead, Ca	HIST UST, LOS ANGELES CO. HMS, SWEEPS UST	Waste oil

Table 3.6-4. Contaminated Sites within 0.25 mile of the Alignment Segment 11

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
131	Circle K Store #5221 Former	8609 Garvey Rosemead, Ca	Cortese, LUST, LOS ANGELES CO. HMS, SWEEPS UST	3 tanks removed 6/12/90. Contaminated soil back- filled, confirmation soil boring indicated very low levels of benzene and TPH
132	Ta-Ting Kan	8515 Garvey Ave Rosemead, Ca	HIST UST, SWEEPS UST	premium
133	California Target Enterprises Service Station 014	8350 Garvey Ave Rosemead, Ca	HIST UST, LUST, Cortese, SLIC, LOS ANGELES CO. HMS, SWEEPS UST	Diesel, regular
133	Laidlaw Harvey Davidson	8351 Garvey Ave Rosemead, Ca	LUST, LOS ANGELES CO. HMS	Waste oil
133	Laidlaw Harley Davidson	8399 Garvey Ave Rosemead, Ca	LUST	Waste oil
136	Los Angeles County Fire Dept Fire Station #005	2644 San Gabriel Blvd Rosemead, Ca	LOS ANGELES CO. HMS, SWEEPS UST, HIST UST, LUST, SLIC	Diesel, VOCs
136	Venus Motel Corp	2618 San Gabriel Blvd Rosemead, Ca	LOS ANGELES CO. HMS, SWEEPS UST	
136	Db Performance Engineering; Hui Property	2602 San Gabriel Blvd. Rosemead, Ca	LUST, SLIC, Cortese, LOS ANGELES CO. HMS	Gasoline, the UST had been removed before the Phase II.
136	Deanco, Inc. Upgrade Auto Parts	2445 San Gabriel Blvd Rosemead, Ca	HIST UST, LOS ANGELES CO. HMS	Unleaded, diesel
136	K.A. Fogg	2435 San Gabriel Blvd Rosemead, Ca	SWEEPS UST	
136	Lyndow Partners	2438 San Gabriel Blvd Rosemead, Ca	SWEEPS UST	
145	Southern California Edison; SCE - General Office Garage	8380 Klingerman St Rosemead, Ca	SWEEPS UST, UST	
160	San Gabriel Nursery	2015 Potrero Grande Dr Monterey Park, Ca	UST	
163	Union Bank Operations Center	1980 Saturn St Monterey Park, Ca	SWEEPS UST, UST, LOS ANGELES CO. HMS	
163	Sanwa Bank California	1977 Saturn St Monterey Park, Ca	LOS ANGELES CO. HMS, SWEEPS UST, UST	
166	Alpha Photonics	2019 Saturn St Monterey Park, Ca	RCRA, LQG	

Table 3.6-4. Contaminated Sites within 0.25 mile of the Alignment Segment 11

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
167, 174	SCE - Montebello Service Center	1000 Potrero Grande Dr Monterey Park, Ca	UST, LOS ANGELES CO. HMS, LA Co. Site Mitigation, HIST UST, CA FID UST, SWEEPS UST, LUST, Cortese	Unleaded, waste oil
170, 174	Operating Industries, Inc. OII Landfill	900 Potrero Grande Drive Monterey Park, Ca	LF, LUST, WMUDS/SWAT CA BOND EXP. PLAN, HIST UST, ENVIROSTOR, HISTORICAL CAL-SITES, Cortese	Unleaded, diesel. Designated in Segment 7 as Superfund site (site 0).
174	Resurrection Cemetery	966 Potrero Grande Dr Rosemead, Ca	HIST UST	Unleaded, diesel
184	Southern California Edison; Mesa Substation	700 Potrero Grande Dr Monterey Park, Ca	LUST, LOS ANGELES CO. HMS, CA FID UST, SWEEPS UST, HIST UST	MTBE Detected.
184	Shell 4 U	430 Potrero Grande Dr Monterey Park, Ca	UST	

Source: EDR, 2007a.

[1] EDR Environmental Information Data Site I.D. Number.

FEDERAL RECORDS

FUDS: Formerly Used Defense Sites, locations of Formerly Used Defense Sites properties where the U.S. Army Corps of Engineers is actively working or will take necessary cleanup actions.

RCRA-LQG: Resource Conservation and Recovery Act Information, Large Quantity Generator

US BROWNFIELDS: A listing of Brownfield Sites

STATE AND LOCAL RECORDS

CA BOND EXP. PLAN: Bond Expenditure Plan

CA FID UST: Facility Inventory Database of Underground Storage Tank locations

CLEANERS: Cleaner Facilities, a list of drycleaner related facilities that have EPA ID numbers.

CORTESE: "Cortese" Hazardous Waste & Substances Sites List.

DEED: Deed Restriction Listing

ENVIROSTOR: EnviroStor Database

HISTORICAL CAL-SITES: Calsites Database; potential or confirmed hazardous substance release properties

HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.

LF: Active, closed and inactive landfills

LUST: Leaking Underground Storage Tank report

RESPONSE : State Response sites

SLIC: Spills, Leaks, Investigations, Cleanups cases

SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.

UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies

VCP: Voluntary Cleanup Program Properties

WMUDS/SWAT: Waste Management Unit Database System

COUNTY RECORDS

LOS ANGELES CO. HMS: Street number list of industrial waste and underground storage tank sites

Segment 6

Segment 6 begins at the Vincent Substation and traverses National Forest System (NFS) lands until it ends at the southern boundary of the ANF. Existing land uses are electrical power facilities (primarily within the Project ROW) and vacant, undeveloped open space within 0.25 mile of the alignment. Aerial photos reveal mountainous terrain until Segment 6 reaches Segment 7 just north of the City of Duarte. ~~Five~~ Six helicopter staging areas (SCE #6, 6B, 7, 8, ~~and~~ 9, and 10) will be graded within the ANF and just south of the ANF along the southern part of Segment 6. There are five hazardous material sites within 0.25 mile of the Segment 6 with potential to impact the proposed Project (EDR, 2007a). These sites are summarized below in Table 3.6-5.

Table 3.6-5. Contaminated Sites within 0.25 mile of the Alignment Segment 6

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
4	Los Angeles County Forester & Fire Warden Mt. Gleason	26650 Angeles Forest Hwy Acton, Ca	HIST UST	Diesel
5	Los Angeles County Fire Camp #16	26652 Angeles Forest Hwy Palmdale, Ca	LUST; Cortese	Leak being confirmed
5	Los Angeles County Mt. Gleason Fire Camp 16 Inmate Camp	26650 Angeles Forest Hwy Palmdale, Ca	HIST UST CA FID UST; SWEEPS UST	Diesel, unleaded
6	Monte Cristo Station Angeles National Forest	23681 Angeles Forest Hwy Palmdale, Ca	HIST UST	Non-leaking UST removed in 1990s; currently 4 active ASTs
7	Tanbark Flats Angeles National Forest	Tanbark Station Rd Tanbark Flats, Ca	LUST; Cortese	Diesel leak, affecting soil only. Case closed.

Source: EDR, 2007a.
[1] EDR Environmental Information Data Site I.D. Number.
STATE AND LOCAL RECORDS
CA FID UST: Facility Inventory Database of Underground Storage Tank locations
CORTESE: "Cortese" Hazardous Waste & Substances Sites List.
HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.
LUST: Leaking Underground Storage Tank report
SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.

Segment 7

Segment 7 begins at the ANF boundary in the northernmost portion of the City of Duarte and ends at the Mesa Substation. Areas within the ROW or flanking it within the northernmost 1.2-mile portion of Segment 7 are used exclusively as undeveloped open space. Continuing south all the way to Mesa Substation, areas within or adjacent to the ROW are in urban use and open space along the San Gabriel River. Existing SCE permitted secondary land uses within the ROW include the following: plant nurseries, golf course greens, at-grade vehicular parking lots, undeveloped industrial areas, and specialty fruit or vegetable crop production.

A portion of Segment 7 is within the northern boundary of the Montebello oil field in Los Angeles County for a distance of approximately 3.5 miles. The Montebello oil field was first discovered in 1917 and by the 1920s was producing one-eighth of California's crude oil (CTI, 2008). According to oil field maps (DOGGR, 2003), Segment 7 approaches 20 plugged and abandoned wells, either dry holes or previously oil producing, within approximately 500 feet. In addition, Segment 7 approaches two plugged and abandoned dry wells within approximately 500 feet, just north of the Rio Hondo substation (DOGGR, 2004a).

Within approximately 200 feet of the alignment, are eight completed oil wells (DOGGR, 2003). These wells are active, as the Montebello oil field is still producing. The new larger structures proposed for Segment 7 may require deeper foundations and the proximity to active oil wells, oil field waste, and subterranean methane must be considered.

Aerial photograph review shows Segment 7 borders the Santa Fe Flood Control Basin and follows the San Gabriel River south. Abundant commercial, residential and industrial sites are near the alignment.

Fifty sites were designated as contaminated or potentially contaminated within 0.25 mile of the Segment 7 with potential to impact the proposed Project, including landfill disposal sites, nurseries, trucking companies, and gas stations (EDR, 2007a). Several EDR sites [35 (S7 MP 2), 47 (S7 MP 4.2), 50, 51, 52, 56 (S7 MP 4.3-4.4), 62, 64 (S7 MP 4.7-4.9), 165 (S7 MP 10.8), 185/193 (S7 MP 14.2-14.5), and 0 (Mesa Substation, S7 MP 15.8)] are noted as landfill operations, and are located along the San Gabriel River from I-210 southwest towards the Mesa substation. The Operating Industries Landfill (Site 0) is a designated Superfund site located immediately east of the Mesa Substation and incorporates 190 acres. Also of note, the Segment 7 alignment overlies the San Gabriel Valley (Area 1 and Area 2) designated Superfund sites. The groundwater Superfund site and on-going cleanup is a large regional effort to remove volatile organic compounds from the San Gabriel groundwater basin aquifers. The boundaries of the groundwater Superfund sites are more than 0.25 mile from the proposed Project and alignment. These sites are summarized below in Table 3.6-6.

Table 3.6-6. Contaminated Sites within 0.25 mile of the Alignment Segment 7

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
0	Operating Industries Inc Landfill	2550 Greenwood Ave. Monterey Park, CA 91755	NPL, CERCLIS, RCRA-LQG, CORRACTS, CONSENT ROD	Designated Superfund site located at Mesa Substation, 900 Potrero Grande Drive, Monterey Park, CA, totaling 190 acres. Also listed in Segment 11 (Site 170, 174).
28	Maddock Debris Disposal Site	400 Vineyard Ave. Duarte, Ca	WMUDS/SWAT	
35	Watson Duarte Substation; Watson Biogas Systems - #400; Canyon Park Dump	1000 Las Lomas Rd Duarte, Ca	HIST UST, SWEEPS UST, LF	Diesel
35	Heyden-Canyon Park	1100 Fish Canyon Road Duarte, Ca	WMUDS/SWAT	
35	O Brien Mach Co	1100 Las Lomas Rd Duarte, Ca	LOS ANGELES CO. HMS, SWEEPS UST	
35	7-Eleven Store #20248 (2132); The Southland Corp Ss 20248	2705 Huntington Dr Duarte, Ca	HIST UST, LUST, Cortese, CA FID UST, LOS ANGELES CO. HMS, SWEEPS UST	Gasoline
35	Abor Nursery Inc.	2758 Huntington Dr Duarte, Ca	SWEEPS UST	
35	Mike Brown Grandstand	2800 Huntington Dr Duarte, Ca	LUST, Cortese, CA FID UST, SWEEPS UST, HIST UST	Affected soil only, gasoline, unleaded, diesel

Table 3.6-6. Contaminated Sites within 0.25 mile of the Alignment Segment 7

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
47	Aldon Concrete Products Corp.; City of Irwindale Lvts Operation	2455 Buena Vista St. Irwindale, Ca	LUST, SLIC, HIST UST, LF	VOCs, diesel
50	Griffith Company; Irwindale Yard	1380 Arrow Hwy Irwindale, Ca	LUST, Cortese, LOS ANGELES CO. HMS, SWEEPS UST, HIST UST:	Gasoline, unleaded. Affected soil only.
50	The Muller Company	1440 Arrow Hwy Irwindale, Ca	LOS ANGELES CO. HMS	
50, 56	Livingston-Graham; Irwindale Quarry Landfill	13550 Live Oak Los Angeles, Ca	Cortese, LUST LOS ANGELES CO. HMS,LF, UST, WMUDS/SWAT	
50	Jonell Oil Corporation	13649 Live Oak Lane Irwindale, Ca	CERCLIS	
50	Owl Rock Products	13646 Live Oak Lane Irwindale, Ca	LOS ANGELES CO. HMS	
50	Consolidated Freightways Motorfreight	13645 Live Oak Ln Irwindale, Ca	LUST, Cortese	Diesel, affected soil only.
50, 64	Chem Arrow Corp.	13643 Live Oak Lane Irwindale, Ca	LOS ANGELES CO. HMS, Notify 65	
50, 62, 64	Nu-Way Live Oak Landfill/Waste Management, Inc.; Irwindale Site	13620 Live Oak Lane Irwindale, Ca	LF, LOS ANGELES CO. HMS, WMUDS/SWAT	
51	Nu-Way Arrow Reclamation, Inc.	1270 Arrow Highway Irwindale, Ca	LF	
52	Irwindale Rock Plant Dumpsite; United Rock Products-Pit No. 1	1245 Arrow Highway Irwindale, Ca	HIST UST, LF, LUST, UST	Waste oil, unleaded. MTBE Detected.
61	B & B Redi-Mix Concrete	590 Live Oak Ave Irwindale, Ca	LUST, Cortese, LOS ANGELES CO. HMS, SWEEPS UST, HIST UST	Hydrocarbons, affected soil only. Waste oil, diesel, unleaded.
61	Superior Fast Freight	600 Live Oak Irwindale, Ca	LOS ANGELES CO. HMS, SWEEPS UST, ENVIROSTOR	A medium priority PEA recommended because of potential release of asbestos.
62	Robertson's Ready Mix	13623 Live Oak Ln Baldwin Park, Ca 91706	UST	
64	Consolidated Freightways	13645 Live Oak Ave Irwindale, Ca	HIST UST, SWEEPS UST	
64	Griffis Warehouse	13654 E Live Oak Ave Irwindale, Ca	LOS ANGELES CO. HMS, SWEEPS UST	
72	Home Savings of America	1002 Commerce Dr Irwindale, Ca	SWEEPS UST	
78	Home Savings of America	5050 Commerce Dr Baldwin Park, Ca	SWEEPS UST	
81	Home Savings of America	4900 Rivergrade Rd Irwindale, Ca	HIST UST, SWEEPS UST	Diesel, waste oil, unleaded.

Table 3.6-6. Contaminated Sites within 0.25 mile of the Alignment Segment 7

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
85	Lucent Technologies	4920 Rivergrade Rd Irwindale, Ca	RCRA LQG	
89	Bob Zadium Trucking	4600 Rivergrade Rd Baldwin Park, Ca	UST, HIST UST, SWEEPS UST	Diesel
97, 98	Southern California Edison; Irwindale Auto Service Center	13025 Los Angeles St Irwindale, Ca	LOS ANGELES CO. HMS, SWEEPS UST, CHMIRS, HIST UST, UST	Mineral Oil. While moving a transformer with a forklift, the transformer fell and broke. Oil went into a storm drain while it was raining. Waste Oil. Unleaded, diesel
97	United Ready Mixed Con Co Inc; Spancrete of California	13131 Los Angeles St Irwindale, Ca	HIST UST, SWEEPS UST, UST	Regular fuel
97	Industrial Asphalt	13130 Los Angeles St Irwindale, Ca	HIST UST, Cortese, LOS ANGELES CO. HMS, SWEEPS UST, LUST	Diesel, waste oil
98	Conrock Co Plant #3;	13000 Los Angeles St Irwindale, Ca	SWEEPS UST, AST, HIST UST	Diesel
115	Ghassan Abu Lashin; Mobil Oil Corp Service Station	12670 Ramona Blvd Baldwin Park, Ca	HIST UST, CA FID UST, SWEEPS UST, LUST, Cortese, UST	Waste oil, premium
117	Valle Lindo High School	12347 East Ramona Boulevard El Monte, Ca	LUST, ENVIROSTOR	Affected soil only, school clean-up
146	Fairchild Fasteners	13001 Temple Ave Industry, Ca	LUST, SLIC	VOCs
153	Woodland Farms Inc.;	263 San Fidel Ave La Puente, Ca	HIST UST, SWEEPS UST, UST	Premium, unleaded
165	Gallos Nursery Composting Operation	11528 Thienes Ave South El Monte, Ca	LF	
171	Ecology Auto Wrecking	2200 Greenwood Ave Monterey Park, Ca	SWEEPS UST	
173	Tosco/Unocal #31092; Unocal 76 Serv Station #6095;	1600 Paramount Blvd Montebello, Ca	UST, CHMIRS, SWEEPS UST, HIST UST, Cortese LUST	Unleaded, premium, waste oil
175	G&M Oil Co. #7; Petro Center; Eagle Stations	820 San Gabriel Blvd Rosemead, Ca	HIST UST, LUST, Cortese UST, SWEEPS UST	Waste oil, regular
176, 183	Los Angeles County Whittier Narrows Rec Ctr	823 Lexington Gallatin Rd. El Monte, Ca	HIST UST, UST	unleaded
177	Exxon Mobil Oil Corp; S. Girges	1220 Peck Rd South El Monte, Ca	RCRA LQG, LUST, HIST UST, LOS ANGELES CO. HMS, SWEEPS UST, UST	Gasoline, waste oil, MTBE Detected.
177	Peck Rd & Durfee Ave., El Monte	Peck Rd / Durfee Ave South El Monte, Ca	WMUDS/SWAT	

Table 3.6-6. Contaminated Sites within 0.25 mile of the Alignment Segment 7

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
177	Shell Service Station; #204-7389-0232	1130 Peck Rd South El Monte, Ca	SWEEPS UST, LUST, Cortese, RCRA LQG., UST, HIST UST	MTBE Detected. SITE HAS LOCALIZED GROUNDWATER CONTAMINATION.
180	Montebello Shopping Center	San Gabriel Blvd Montebello, Ca	Notify 65, LUST, SLIC	
181	Lfo T. Salais	712 San Gabriel Blvd Rosemead, Ca	HIST UST	Regular, unleaded, waste oil
185	Chevron USA Service Station 091049; J. C. Penney Store #2172-5	1500 Paramount Blvd Montebello, Ca	UST, SWEEPS UST	
185	Montebello Earth Station	1300 Montebello Blvd Montebello, Ca	UST, LOS ANGELES CO. HMS	
185, 193	Chevron USA Production; Standard Oil of California	1400 Montebello Blvd Montebello, Ca	LF, HIST UST, SWEEPS UST, LUST, SLIC	unleaded
186		926 DURFEE AVE EL MONTE, CA	CHMIRS	Storage of materials illegally,
190	Chevron #9-3895	2422 Peck Whittier, Ca	Cortese, HIST UST, LUST	Contaminated soil found at several boring locations
190	Chevron Station 93856	2442 Peck Rd Whittier, Ca	SWEEPS UST, LUST, HIST UST, Cortese	
190	Los Angeles Truck Centers L; La Freightliner Inc	2429 Peck Rd Whittier, Ca	CA FID UST, CERCLIS-NFRA, SWEEPS UST, UST, LUST, Cortese	
197	U.S. Army Corps of Engineers	645 Durfee Ave. South El Monte, Ca	LUST, SLIC, Cortese	

Source: EDR, 2007a.

[1] EDR Environmental Information Data Site I.D. Number.

FEDERAL RECORDS

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CONSENT: Superfund (CERCLA) Consent Decrees

CORRACTS: Corrective Action Report

NPL: National Priority List (Superfund)

RCRA-LQG: Resource Conservation and Recovery Act Information, Large Quantity Generator

ROD: Records of Decision

STATE AND LOCAL RECORDS

AST: Aboveground Petroleum Storage Tank Facilities.

CA FID UST: Facility Inventory Database of Underground Storage Tank locations

CHMIRS: California Hazardous Material Incident Report System

CORTESE: "Cortese" Hazardous Waste & Substances Sites List.

ENVIROSTOR: EnviroStor Database

HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.

LF: Active, closed and inactive landfills

LUST: Leaking Underground Storage Tank report

NOTIFY 65: Proposition 65 Records, facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

SLIC: Spills, Leaks, Investigations, Cleanups cases

SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.

UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies

WMUDS/SWAT: Waste Management Unit Database System
COUNTY RECORDS
LOS ANGELES CO. HMS: Street number list of industrial waste and underground storage tank sites

Segment 8

Segment 8A begins at the Mesa Substation and connects to the Chino Substation in the City of Chino. From the Chino Substation Segment 8A connects to the east at the Mira Loma Substation in the City of Ontario. Most of Segment 8A is located in urbanized areas within Los Angeles and San Bernardino Counties. Predominant existing land uses within the Segment 8A 0.5-mile wide buffer include agriculture, electrical power facilities/utilities, parks/recreation, and vacant. Some commercial, industrial, and water uses are also located along Segment 8A. Segment 8C is a 220 kV circuit that would be strung in parallel with the 500 kV Segment 8A from the Chino Substation to the Mira Loma Substation. Within the eastern portion of Segments 8A and 8C, in the Cities of Chino Hills, Chino, and Ontario, existing land uses also include single family residential uses.

Segment~~s~~ 8B ~~and 8C~~ would start at the Chino Substation and end at the Mira Loma Substation, and would be constructed within existing ROW located just north (varying distances between 200 feet and 3,400 feet) of ~~generally parallel~~ Segment 8A. Existing land uses along Segment 8B ~~and 8C~~ are single family residential, agriculture, parks, vacant, electrical power facilities/utilities, public facilities, and industrial in the Cities of Chino and Ontario.

Aerial photos show Segment 8 traverses the San Gabriel River Whittier Narrows Reservoir flood control basin as it leaves the Mesa substation, then travels through major industrial parks, service stations, Nike missile battery silos, and residential housing developments, among other commercial and industrial facilities. The majority of Segments 8A, 8B, and 8C travel through approximately seven miles of dairy farms and farmland that are converting to residential tracts between the Chino and Mira Loma Substations.

The Segment 8A alignment, beginning approximately two miles east of the Mesa substation, is within the northern boundary of the Montebello oil field in Los Angeles County for a distance of approximately 1.5 miles. According to oil field maps (DOGGR, 2003), Segment 8A approaches 15 plugged and abandoned wells, either dry holes or previously oil producing, within approximately 500 feet. In this area, Segment 8A passes within approximately 200 feet of four completed oil wells (DOGGR, 2003). These wells are active, as the Montebello oil field is still producing. As discussed for Segment 7, construction of new towers in this area must consider the proximity to the wells, oil field contamination and subsurface methane during construction.

The proposed Segment 8A alignment then travels east through the abandoned Lapworth oil field, where it approaches approximately eight plugged and abandoned wells (dry holes) (DOGGR, 2006). As it travels east through Los Angeles County, the alignment approaches the northern boundaries of the Whittier and Sansinena oil field areas for approximately five miles. This portion of Segment 8A passes within 500 feet of ten plugged and abandoned wells (dry holes) (DOGGR, 2005). Continuing east to the Chino and Mira Loma Substations, eight plugged and abandoned wells (dry holes) are within approximately 300-500 feet of the proposed alignment (DOGGR, 2004b).

There are eighty-three hazardous material sites within 0.25 mile of Segment 8 (8A, 8B and 8C) portion of the proposed TRTP transmission route with potential to impact the Project (EDR, 2007a). These sites are summarized below in Tables 3.6-7 through 3.6-9. The tables include three landfills (EDR Sites 207, 219 and 254), located at approximately S8A MP 4.8, S8B MP 4.4 and S8B MP 0.3, respectively.

Table 3.6-7. Contaminated Sites within 0.25 mile of the Alignment Segment 8A

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
195	Mobil Oil Corp Ss 11hnl	284 San Gabriel Blvd Montebello, Ca	CA FID UST, SWEEPS UST	
201, 202	Texaco Inc-Research Plant; Chevron/Texaco; Montebello Research Laboratory	329 Durfee Ave South El Monte, Ca	UST, LUST, SLIC, SWEEPS UST, RCRA LQG, HIST UST	Unleaded
204	Chemical Resource Corporation	12236 Coast Driver Whittier, Ca	HIST UST	
205	Shell Service Station	2600 Pellissier Pl Whittier, Ca	LUST	gasoline
206	Arga's Mexican Food	2825 Pellissier Pl. Industry, Ca	LUST, Cortese	gasoline
207	Los Angeles County Sanitation District-Puente Hills Landfill	2800 Workman Mill Rd Whittier, Ca	LF, UST, ENVIROSTOR, WMUDS/SWAT LUST, Cortese, CHMIRS, RCRA LQG, HIST UST	Landfill gas condensate
207	Unitog Rental Services; Cintas	2829 Workman Mill Rd. Whittier, Ca	LUST, SLIC, SWEEPS UST, HIST UST, CLEANERS	
207	Viking Freight System Inc; Milne Truck Lines Inc; Fedex Freight West	3200 Workman Mill Rd Whittier, Ca	UST, HIST UST, SWEEPS UST, LUST	Diesel, unleaded, waste oil
207	Pac-Tel Cellular; Rio Hondo Microwave Station	3300 Workman Mill Rd Whittier, Ca	LOS ANGELES CO. HMS, HIST UST	
208	Kilsby Roberts Co.	3700 Capitol Ave La Puente, Ca	HIST UST	unleaded
208	Moore Business Forms Inc; Alum A Fold Pacific	3730 Capitol Avenue Whittier, Ca	CA FID UST, LOS ANGELES CO. HMS, HIST UST, SWEEPS UST, LUST, SLIC, RCRA LQG	Drinking water aquifer affected
208, 209	Genuine Parts Distributors; Tomapur Engine Co.	3737 Capitol Ave Whittier, Ca	UST, LUST, SLIC, Cortese	Drinking water aquifer affected
210	Rio Hondo Community Dist	3600 Workman Mill Rd Whittier, Ca	RCRA LQG, CA FID UST, SWEEPS UST, UST	Diesel, oil
213	Nike Battery 14 - Silos	Skyline Fire Road, Whittier, Ca	FUDS	
258	Layne Western Co/Mccalla	13855 Central Ave Chino, Ca	LUST, Cortese	
278	SCE-Chino Substation	5766 Edison Ave Chino, Ca	HIST UST, CA FID UST, SWEEPS UST	unleaded
280	Davidson Pwp	5150 Edison Chino, Ca	CA FID UST, SWEEPS UST	
280	Trus Joist, A Weyerhaeuser Business	5088 Edison Avenue Chino, Ca	CA FID UST, HIST UST, SWEEPS UST	
285	Chino Sieroty Property	14312 Central Ave Chino, Ca	CA FID UST, SWEEPS UST	Diesel, unleaded

Table 3.6-7. Contaminated Sites within 0.25 mile of the Alignment Segment 8A

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
290	Sundance Spas	14525 Monte Vista Ave Chino, Ca	RCRA LQG	There is 1 violation record reported at this site:
292	Superior Metal Shapes Inc	4730 Eucalyptus Ave Chino, Ca	RCRA LQG	
297	Pacific Coast Warehouse Co. Clorox; Pepsi Cola Sales And Distribution	4340 Eucalyptus Ave Chino, Ca	RCRA LQG	
298	Chino Fire District #2	4040 Eucalyptus Ave Chino, Ca	CA FID UST, SWEEPS UST, HIST UST, Notify 65, Cortese, LUST	diesel
304	Chino Hills Cleaners	14564 Pipeline Ave Chino, Ca	CLEANERS	
304	Chino Hills Yard; Water Works 8	14575 Pipeline Ave Chino, Ca	LUST, Cortese, CA FID UST, SWEEPS UST, HIST UST	
304, 311	Chino Hills Car Wash	14694 Pipeline Ave Chino Hills, Ca	UST, LUST	
305	Jacuzzi Whirlpool Bath	14880 Monte Vista Ave Chino, Ca	RCRA LQG	
307	Proctor And Gamble Distributing Co	14701 Yorba Ave Chino, Ca	RCRA LQG	
311	Marketplace Cleaners	4200 Chino Hills Pkwy 168 Chino, Ca	CLEANERS	
311	Circle K #5728	4200 Chino Hills Parkway #205 Chino Hills, Ca	LUST, UST	MTBE Detected.
311	Arco #1923	4080 Chino Hills Pkwy Chino, Ca	LUST, Cortese	Drinking water aquifer affected
311	Arco #5656	4123 Chino Hills Parkway Chino Hills, Ca	LUST	MTBE Detected.
312	Ca Institute For Men Dairy Barn; Brine Pond	14901 Central Ave Chino, Ca	SLIC, LUST, WMUDS/SWAT	Drinking water aquifer affected
313	Dupree Property	14800 Rustic Dr Chino Hills, Ca	LUST, Cortese	
314	Qwt Rmlr Rcl	3421 Belle River Dr Whittier, Ca	CA FID UST, SWEEPS UST	Petroleum, one 500 gallon tank
316	Abbona Property	3150 Chino Hills Parkway Chino Hills, Ca	LUST	MTBE Detected.
319	McFarland Energy Reilly And Hearn	650 W Skyline Dr La Habra, Ca	HIST UST	Oil & Gas Production, 7 tanks on site
321	Fantastic Cleaners	2010 La Habra Blvd La Habra, Ca	CLEANERS	
321	Hanoco	1951 La Habra Blvd La Habra, Ca	LUST, Cortese	Gasoline spill. Soil only. Release date 2-11-1987. Case closed.
322	Rowland Water District	3021 Fullerton Rd Rowland Heights, Ca	UST	
324	Nike Battery 29	Brea, Ca	FUDS	Facility removed

Source: EDR, 2007a.

[1] EDR Environmental Information Data Site I.D. Number.

FEDERAL RECORDS

FUDS: Formerly Used Defense Sites, locations of Formerly Used Defense Sites properties where the U.S. Army Corps of Engineers is actively working or will take necessary cleanup actions.

RCRA-LQG: Resource Conservation and Recovery Act Information, Large Quantity Generator

STATE AND LOCAL RECORDS
CA FID UST: Facility Inventory Database of Underground Storage Tank locations
CHMIRS: California Hazardous Material Incident Report System
CLEANERS: Cleaner Facilities, a list of drycleaner related facilities that have EPA ID numbers.
CORTESE: "Cortese" Hazardous Waste & Substances Sites List.
ENVIROSTOR: EnviroStor Database
HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.
LF: Active, closed and inactive landfills
LUST: Leaking Underground Storage Tank report
NOTIFY 65: Proposition 65 Records, facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.
SLIC: Spills, Leaks, Investigations, Cleanups cases
SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.
UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies
WMUDS/SWAT: Waste Management Unit Database System
COUNTY RECORDS
LOS ANGELES CO. HMS: Street number list of industrial waste and underground storage tank sites

Table 3.6-8. Contaminated Sites within 0.25 mile of the Alignment Segment 8B

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
216	Worm Farm	8271 Chino Avenue Ontario, Ca	LUST, WMUDS/SWAT	
219	Artesia Sawdust Products	13434 South Ontario Avenue Ontario, Ca	LF	Chipping and grinding of agricultural and wood waste for compost
220	Joe Heim & Sons Dairy	13456 S Walker Ave Ontario, Ca	HIST UST, CA FID UST, SWEEPS UST	regular
221	Mira Loma Substation	13568 Milliken Ave. Mira Loma, Ca	HIST UST	Fuel tank on site
226	Vanderham Bros Dairy	13575 Walker Ontario, Ca	CA FID UST, SWEEPS UST, HIST UST	unleaded
233	Ag-Kamstra Dairy	8921 Schaefer Ave Ontario, Ca	UST	
234	Composting Plant, Ontario	8605 Schaefer Avenue Ontario, Ca	WMUDS/SWAT	
237, 238	Vander Schaaf Dairy	7849 Schaefer Ontario, Ca	CA FID UST, SWEEPS UST, HIST UST, UST	unleaded
240	Ag-Rodgriguez, Antonio	7416 Schaefer Ave Chino, Ca	UST, HIST UST, CA FID UST, SWEEPS UST	
244	Fikse & Co	13710 So Euclid Ontario, Ca	LUST, Cortese	
253	RMS Finishing Inc	5777 Soestern Ct Chino, Ca	RCRA LQG	
253	American Eagle Wheel Corp	5780 Soestern Court Chino, Ca	RCRA LQG	
253	M Company	13925 Benson Ave Chino, Ca	HIST UST, SWEEPS UST	
253	Edison/Chino; SCE-Chino Substation	14005 Benson Ave. Chino, Ca	VCP, ENVIROSTOR	Voluntary Clean-up Agreement
254	Penske Truck Leasing Co; California Milk Producers	13980 Magnolia Ave Chino, Ca	UST, LUST, Cortese	
254	Mission Landscape Services, Inc.	14025 Magnolia Avenue Chino, Ca	LF	greenwaste composting facility

Table 3.6-8. Contaminated Sites within 0.25 mile of the Alignment Segment 8B

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
256	K & W Dairy #2	13844 San Antonio Ave Chino, Ca	HIST UST, CA FID UST, SWEEPS UST	
260	Savannah Corp.;	13818 Oaks Ave Chino, Ca	CA FID UST, SWEEPS UST, HIST UST	unleaded
260	Sunshine Metal Prods; Reed Manufacturing; Chino Valley Galvanizing Co, Inc.	13822 Oaks Ave Chino, Ca	CERCLIS-NFRAP, HIST UST, ENVIROSTOR	

Source: EDR, 2007a.

[1] EDR Environmental Information Data Site I.D. Number.

FEDERAL RECORDS

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

RCRA-LQG: Resource Conservation and Recovery Act Information, Large Quantity Generator

STATE AND LOCAL RECORDS

CA FID UST: Facility Inventory Database of Underground Storage Tank locations

CORTESE: "Cortese" Hazardous Waste & Substances Sites List.

ENVIROSTOR: EnviroStor Database

HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.

LF: Active, closed and inactive landfills

LUST: Leaking Underground Storage Tank report

SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.

UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies

VCP: Voluntary Cleanup Program Properties

WMUDS/SWAT: Waste Management Unit Database System

Table 3.6-9. Contaminated Sites within 0.25 mile of the Alignment Segment 8C

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
229	Johnson Bros. Egg Ranches, Inc	13610 S Archibald Ave Ontario, Ca	CA FID UST, SWEEPS UST, HIST UST	3 fuel tanks on site
231	C. Vander Eyk Jr.	13661 Haven Ontario, Ca	CA FID UST, SWEEPS UST, HIST UST, UST	Fuel tanks on site. Dairy farm.
245, 251	Dick Dykstra Dairy	10129 Schaefer Ontario, Ca	CA FID UST, SWEEPS UST, HIST UST	Fuel tanks on site
246	Standard Feeding Co.	13751 S Haven Ave Ontario, Ca	HIST UST, CA FID UST, SWEEPS UST	Fuel tank on site
246	Oord Dairy, Inc.	13750 S Haven Ave Ontario, Ca	HIST UST, CA FID UST, SWEEPS UST	
246	Ag-Standard Feeding Co-On	13751 S Haven Ave Ontario, Ca	UST	
261	Cabot Investments	13926 Euclid Ave Chino, Ca	LUST, Cortese	MTBE Detected.
267	Robert Ford Trucking; Valley Hay Company	14042 Euclid Ave Chino, Ca	UST, LUST, Cortese	
267	Germania Dairy Center; Veterinarian's Outlet	14058 Euclid Ave Chino, Ca	CA FID UST, SWEEPS UST, LUST, Cortese	

Table 3.6-9. Contaminated Sites within 0.25 mile of the Alignment Segment 8C

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
267	Dora Pickering	14080 Euclid Ave Chino, Ca	HIST UST	Regular
267	Dora Pickering	7050 Edison Ave. Chino, Ca	HIST UST	
267	Euclid Pump Station	7152 Euclid Ave. Chino, Ca	HIST UST	
267	Charlie Tadema Inc.	7145 Edison Ave Chino, Ca	UST	
267	Mars Market	14107 Euclid Ave Chino, Ca	CA FID UST, SWEEPS UST, LUST, Cortese, HIST UST	Premium, regular
268	Struikmans & Sons Dairy	8535 Edison Ave Chino, Ca	HIST UST, UST, CA FID UST, SWEEPS UST	Regular
271	Jack Alewyn Dairy	8185 Edison Chino, Ca	CA FID UST, SWEEPS UST, HIST UST, UST	Diesel
274	Ag-Twin Palm Dairy	7587 Edison Ave Chino, Ca	UST	
277	Koetsier Bros. Dairy	6555 Edison Ave Chino, Ca	HIST UST	
277	Tino Usle Sales	6577 Edison Ave Chino, Ca	HIST UST, CA FID UST, SWEEPS UST	
284	J.P. Loubet	14211 Euclid Ave Chino, Ca	LUST, Cortese, SWEEPS UST	Unleaded, diesel

Source: EDR, 2007a.
[1] EDR Environmental Information Data Site I.D. Number.
STATE AND LOCAL RECORDS
CA FID UST: Facility Inventory Database of Underground Storage Tank locations
CORTESE: "Cortese" Hazardous Waste & Substances Sites List.
HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.
LUST: Leaking Underground Storage Tank report
SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.
UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies

Segment 9

Segment 9 involves the construction, operation, and maintenance of the substation improvements. The proposed Whirlwind Substation sites are currently utilized either as open space or for agricultural use. The proposed 18-acre expansion to the existing Antelope Substation is currently exclusively under an undeveloped open space use. The proposed expansion to the existing Vincent Substation is land owned by SCE except for 0.2 acre to be acquired, which is currently an undeveloped open space use. Existing land uses within the 0.5-mile buffer include vacant, electrical power facilities, and some scattered residential uses.

Land use designation and zoning for the Gould Substation are Open Space (Public). Existing land uses within the site are identified as electrical power facilities, and existing uses within the 0.5-mile buffer also include residential, vacant, golf course, and electrical power facility uses.

Land use designation for the Mesa Substation is General Commercial. Existing land uses within the site are identified as electrical power facilities, and existing uses within the 0.5-mile buffer also include commercial, utilities, vacant, and residential uses.

Land use designation for the Mira Loma Substation is Agriculture and the zoning is Specific Plan. Existing land uses within the site are identified as agriculture/vacant and existing uses within the 0.5-mile buffer also include commercial, water, and school.

Twenty-two contaminated sites with potential to impact the Project have been identified within 0.25 mile of Segment 9 substation construction (EDR, 2007a). These sites are summarized below in Table 3.6-10.

Table 3.6-10. Contaminated Sites within 0.25 mile of Segment 9 Substations

EDR Map ID [1]	Site Name	Site Address	Database Lists	Comments
0	Operating Industries Inc Landfill	2550 Greenwood Ave. Monterey Park, CA 91755	NPL, CERCLIS RCRA-LQG CORRACTS CONSENT ROD	Designated Superfund site located at Mesa Substation, 900 Potrero Grande Drive, Monterey Park, CA, totaling 190 acres. Also listed in Segment 11 (Site 170, 174).
2	Antelope Substation	9364 W Avenue J Lancaster, Ca	HIST UST	Unleaded fuel, no leak detected
10	Gould Substation	5858 Angeles Crest Hwy La Canada, Ca	RCRA-LQG	No violations found.
160	San Gabriel Nursery	2015 Potrero Grande Dr Monterey Park, Ca	UST	
163	Union Bank Operations Center	1980 Saturn St Monterey Park, Ca	SWEEPS UST, UST, LOS ANGELES CO. HMS	
163	Sanwa Bank California	1977 Saturn St Monterey Park, Ca	LOS ANGELES CO. HMS, SWEEPS UST, UST	
166	Alpha Photonics	2019 Saturn St Monterey Park, Ca	RCRA, LQG	
167, 174	SCE - Montebello Service Center	1000 Potrero Grande Dr Monterey Park, Ca	UST, LOS ANGELES CO. HMS, LA Co. Site Mitigation, HIST UST, CA FID UST, SWEEPS UST, LUST, Cortese	Unleaded, waste oil
170, 174	Operating Industries, Inc. OII Landfill	900 Potrero Grande Drive Monterey Park, Ca	LF, LUST, WMUDS/SWAT CA BOND EXP. PLAN, HIST UST, ENVIROSTOR, HISTORICAL CAL-SITES, Cortese	Unleaded, diesel. Designated in Segment 7 as Superfund site (site 0).
171	Ecology Auto Wrecking	2200 Greenwood Ave Monterey Park, Ca	SWEEPS UST	
174	Resurrection Cemetery	966 Potrero Grande Dr Rosemead, Ca	HIST UST	Unleaded, diesel
184	Southern California Edison; Mesa Substation	700 Potrero Grande Dr Monterey Park, Ca	LUST, LOS ANGELES CO. HMS, CA FID UST, SWEEPS UST, HIST UST	MTBE Detected.
184	Shell 4 U	430 Potrero Grande Dr Monterey Park, Ca	UST	

Table 3.6-10. Contaminated Sites within 0.25 mile of Segment 9 Substations

EDR Map ID [1]	Site Name	Site Address	Database Lists	Comments
221	Mira Loma Substation	13568 Milliken Ave. Mira Loma, Ca	HIST UST	Fuel tank on site
229	Johnson Bros. Egg Ranches, Inc	13610 S Archibald Ave Ontario, Ca	CA FID UST, SWEEPS UST, HIST UST	3 fuel tanks on site
231	C. Vander Eyk Jr.	13661 Haven Ontario, Ca	CA FID UST, SWEEPS UST, HIST UST, UST	Fuel tanks on site. Dairy farm.
245, 251	Dick Dykstra Dairy	10129 Schaefer Ontario, Ca	CA FID UST, SWEEPS UST, HIST UST	Fuel tanks on site
246	Standard Feeding Co.	13751 S Haven Ave Ontario, Ca	HIST UST, CA FID UST, SWEEPS UST	Fuel tank on site
246	Oord Dairy, Inc.	13750 S Haven Ave Ontario, Ca	HIST UST, CA FID UST, SWEEPS UST	
246	Ag-Standard Feeding Co-On	13751 S Haven Ave Ontario, Ca	UST	

Source: EDR, 2007a.
[1] EDR Environmental Information Data Site I.D. Number.
FEDERAL RECORDS
CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
CONSENT: Superfund (CERCLA) Consent Decrees
CORRACTS: Corrective Action Report
NPL: National Priority List (Superfund)
RCRA-LQG: Resource Conservation and Recovery Act Information, Large Quantity Generator
ROD: Records of Decision
STATE AND LOCAL RECORDS
CA BOND EXP. PLAN: Bond Expenditure Plan
CA FID UST: Facility Inventory Database of Underground Storage Tank locations
CORTESE: "Cortese" Hazardous Waste & Substances Sites List.
ENVIROSTOR: EnviroStor Database
HISTORICAL CAL-SITES: Calsites Database; potential or confirmed hazardous substance release properties
HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.
LF: Active, closed and inactive landfills
LUST: Leaking Underground Storage Tank report
SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.
UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies
WMUDS/SWAT: Waste Management Unit Database System
COUNTY RECORDS
LOS ANGELES CO. HMS: Street number list of industrial waste and underground storage tank sites

3.6.2.3 Alternative 3: West Lancaster Alternative

Alternative 3 is identical to the proposed Project, except for one deviation. It would re-route the new 500-kV T/L in Segment 4 along 115th Street West rather than 110th Street West. This alternative would deviate from the proposed route at approximately S4 MP 14.9,where the new 500-kV T/L would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route traverses through undeveloped land with scattered residential use along West Avenue I and J and would increase the overall distance of Segment 4 by approximately 0.4 mile. There are no additional listed hazard sites within the re-routed section of Segment 4 (EDR, 2007a).

3.6.2.4 Alternative 4: Chino Hills Route Alternatives

Alternative 4, which includes Routes A, B, C, C Modified, and D, is identical to the proposed Project, except for a portion of Segment 8~~–2~~. These routes deviate from the proposed Project beginning at approximately S8A MP 19.2 and head southeast towards Chino Hills State Park (CHSP), terminating at a new switching station. The proposed upgrades for Segment 8B of Alternative 2 between Chino and Mira Loma Substations are also required for Alternative 4. Environmental setting information relative to these re-routes that differ from Alternative 2 (SCE's Proposed Project) is detailed below.

Route A

The proposed switching station at the east end of Route A is located about one mile southeast of the Chino-Soquel oil field and two miles west of the Mahala oil field. These small fields were discovered pre-1900 and 1921, respectively, with modest production continuing into the late 1950s (Durham and Yerkes, 1964). There are no oil wells near the switching station site or along the Route A alignment in the Chino Hills. There are no hazardous material sites listed within 0.25 mile of the Alternative 4 Route A alignment (EDR, 2007b).

Route B

The proposed switching station is located about one mile northeast of the Mahala oil field and the nearest dry hole is more than 500 feet east; there are no oil wells within 1,000 feet of the switching station site. The proposed Route B alignment continues west avoiding the area oil fields. There are no hazardous material sites listed within 0.25 mile of the Alternative 4 Route B alignment (EDR, 2007b).

Route C

The proposed switching station and the transmission line re-route alignments of Route C are located about one mile south of the Chino-Soquel oil field. The Aerojet Chino Hills Facility is located immediately west of the oil field and the 800-acre munitions assembly and test facility extends south toward the Route C transmission line. The Aerojet facility is a designated RCRA Corrective Action Site and is actively undergoing cleanup (DTSC, 2008a). The Aerojet facility operated from 1954 until it was closed in November 1995 (DTSC, 2008a). The site closure investigation field work and site clean up began in 1994 with field work completed in fall 2007. Although significant clean up was required at 10 of the 29 solid waste management units, all of these are located more than 0.25 mile from the Alternative Route C alignment and the proposed switching station. Solid waste management unit (SWMU) #9 is located about 0.7 mile west of the proposed switching station but only 100 feet north of the Route C alignment (McLaren/Hart, 1999a). SWMU #9 was a relatively small unlined burn pit (approximately 500 cubic feet) used from 1954 to 1977 to burn CS (tear gas) (McLaren/Hart 1999b). Soil testing results at SWMU #9 identified very low levels of dioxin/furan, CS, and semi-volatile organic compounds (SVOCs). The low levels of residual chemicals detected in the soil were determined to not pose a risk to human health, including carcinogenic risk (Mclaren/Hart 1999a). Subsequent to the soil testing, a work plan outlined procedures to excavate the soil and CS canisters from the former burn pit, remove the CS canisters by screening, dispose of the recovered CS canisters off site, and use the screened soil to backfill the excavation (McLaren/Hart, 1999b); DTSC assigned a status of "no further action" to SWMU #9 (DTSC, 2009). Following approval of the cleanup method in November 2000, cleanup actions for chemicals in the other 10 sites was completed and no further action is required (DTSC, 2008b). ~~However, at the time of publication of this document, no reports to verify that this work was completed, if the integrity of the CS~~

~~canisters was compromised, or if confirmation soil testing was performed, have been made available to the authors.~~

There is one hazardous material site listed within 0.25-mile of the Alternative 4, Route C, alignment; one option for the proposed permanent all-weather access road to the switching station passes through the active RCRA facility (EDR, 2007b), as presented below in Table 3.6-11.

Table 3.6-11. Contaminated Sites within 0.25 mile of the Alternative 4 - Route C Alignment

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
None (Orphan List Only)	Aerojet Chino Hills Facility	End of Woodview Road Chino Hills, Ca	CORRACTS, ENVIROSTOR	Facility is a designated RCRA corrective action site and is actively undergoing clean-up. Solid Waste Management Unit #9 located about 100 feet north of the proposed re-routed 220-kV line. Soil testing indicated no risk for human health prior to site clean. ~~No records of site remediation.~~No Further Action required.

Source: EDR, 2007b.
[1] EDR Environmental Information Data Site I.D. Number.
FEDERAL RECORDS
CORRACTS: Corrective Action Report
STATE AND LOCAL RECORDS
ENVIROSTOR: EnviroStor Database

Route C Modified

The proposed Route C Modified is very similar to the original Route C, described above, with the exception that the switching station would be situated approximately 2,500 feet northwest of the location proposed under the original Route 4C. The new Route C Modified switching station location is within the Aerojet Chinos Hills RCRA site. In addition, the T/L configurations proposed under Route C Modified would place towers closer to former disposal areas within the RCRA facility. The re-routing of the Serrano-Lugo/Mira Loma 500-kV single-circuit T/Ls and the Mira Loma/Walnut-Olinda 220-kV single-circuit T/L included under Route C Modified would also move towers within the RCRA site boundary. In addition, new access roads (permanent and temporary construction) would be constructed in the Aerojet RCRA facility. Consequently, there is one hazardous material site listed within 0.25-mile of the Alternative 4, Route C Modified alignment; one option for the proposed permanent all-weather access road to the switching station passes through the active RCRA facility (EDR, 2007b), as presented below in Table 3.6-12.

Table 3.6-12. Contaminated Sites within 0.25 mile of the Alternative 4 - Route C Modified Alignment

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
None (Orphan List Only)	Aerojet Chino Hills Facility	End of Woodview Road Chino Hills, CA	CORRACTS, ENVIROSTOR	Facility is a designated RCRA corrective action site and is actively undergoing clean-up. Solid Waste Management Unit #9 located about 100 feet north of the proposed re-routed 220-kV line. Soil testing indicated no risk for human health prior to site clean. No Further Action required.

Source: EDR, 2007b.

[1] EDR Environmental Information Data Site I.D. Number.
FEDERAL RECORDS
CORRACTS: Corrective Action Report
STATE AND LOCAL RECORDS
ENVIROSTOR: EnviroStor Database

Route D

The proposed switching station is less than 500 feet from the nearest dry drill hole, but more than 1,000 feet from oil wells of the Mahala oil field. The Route D Alternative alignment passes near the southeast part of the Chino-Soquel oil field. The proposed alignment passes very near dry drill holes but remains more than 1,000 feet from the completed oil wells. Route D Alternative transmission line passes through the southern end of the 800-acre Aerojet Chino Hills Facility munitions assembly and test facility. The Aerojet facility operated from 1954 until it was closed in November 1995 (DTSC, 2008a) and a former burn pit (SWMU #9) is located about 200 feet north of the Route D alignment (McLaren/Hart, 1999a). Ordnance has been discovered during geophysical sweeps of CHSP lands adjacent to the Aerojet property.

There is one hazardous material site listed within 0.25-mile of the Alternative 4, Route D, alignment (EDR, 2007b) as presented below in Table 3.6-13~~12~~.

Table 3.6-13~~12~~. Contaminated Sites within 0.25 mile of the Alternative 4 - Route D Alignment

EDR Map ID[1]	Site Name	Site Address	Database Lists	Comments
None (Orphan)	Aerojet Chino Hills Facility	End of Woodview Road Chino Hills, Ca	CORRACTS, ENVIROSTOR	Solid Waste Management Unit #9 located about 200 feet north of the proposed Route D alignment. Soil testing indicated no risk for human health prior to site clean. No records of site remediation.

Source: EDR, 2007a
[1] EDR Environmental Information Data Site I.D. Number.
FEDERAL RECORDS
CORRACTS: Corrective Action Report
STATE AND LOCAL RECORDS
ENVIROSTOR: EnviroStor Database

3.6.2.5 Alternative 5: Partial Underground Alternative

This alternative would utilize underground construction in place of the proposed overhead line construction following generally the same routes as the proposed Project from MP 8A-21.9 to MP 8A-25.4. New underground facilities would not replace existing aboveground facilities, and transition stations would be required at each end of an underground segment to transfer the transmission lines from overheard to underground and vice versa. Three access/ventilation shafts would be constructed at approximately one mile intervals. Therefore, the affected environmental for Alternative 5 would be identical to that of Alternative 2, as presented above in Section 3.6.2.2.

3.6.2.6 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Implementation of this alternative would result in the grading of ~~eleven~~ thirteen helicopter staging areas within or near Angeles National Forest lands near Segment 6 (between MP 3.0 and 19.6) and Segment 11 (MP 3.7 and 14.5). No other additional routing alternatives or work areas are included in Alternative 6. Therefore, please refer to Section 3.6.2.2 for listed hazardous materials sites along the proposed alignment. Helicopter Site #7 – Barley Flat is a former U.S. Air Force Nike Missile site and is currently operated as a helipad by the Los Angeles County Sheriff Department. The Nike missile site included

mission control and mission launch facilities completed in 1955; the facility was deactivated in 1961 and only the administration buildings remain in serviceable condition. There are no known contamination issues at the site (GeoTracker, 2008). Use of the existing helipad for the proposed Project will not require significant grading, use, or demolition of any existing structures. Due to the age of the facilities there is potential for asbestos containing materials and lead-based paint within the existing structures. There are no known active contamination sites within 0.25-mile of helicopter Sites #1 through #13~~11~~ (EDR, 2007a; Geotracker, 2008).

3.6.2.7 Alternative 7: 66-kV Subtransmission Alternative

This alternative consists of four~~three~~ 66-kV subtransmission line elements including two underground sections along Segment 7 and an overhead route along Segment 8A. The two Segment 7 underground 66-kV routes are located on the east bank of the San Gabriel River west of El Monte to reduce viewshed impacts in a proposed park (S7 MP 8.9 to MP 9.9) and northwest of the San Gabriel River (S7 MP 11.4 to 12.0) to avoid the Whittier Narrows Recreation Area. There are no contaminated sites on the east side of the river that would impact underground construction between S7 MP 8.9 and 9.9. However, due to the urban and commercial land uses along S7 MP 11.4 to 12.0, including two leaking underground fuel tank sites within 0.25-miles of the north and south ends of this subtransmission line, there is a low potential for the shallow trench excavation to encounter contaminated soil beneath the existing roadways because the alignment is separated from the adjacent commercial facilities and fuel tank sites.

The overhead section of two 66-kV alignment options (Option 1 and Option 2) along Segment 8A (S8A MP 2.2 to 3.8) passes through the southeast corner of the Montebello Oil Field for a distance of about one mile that extends across Rosemead Boulevard into the Whittier Narrows Recreation Area where several wildcat and dry test holes were drilled (DOGGR, 2003 and 2006). There are no contaminated sites within 0.25-miles of this overhead alignment (EDR, 2007a) although oil field waste and inactive or abandoned oil wells may occur in the Montebello Oil Field. A description of the Montebello Oil Field is provided in Section 3.6.2.2.

3.6.3 Applicable Laws, Regulations, and Standards

3.6.3.1 Federal

Angeles National Forest Land Management Plan (FLMP), 2005

At the time of this analysis, the USDA Forest Service had completed its update of the 1987 Land and Resources Management Plan. The 2005 Angeles National Forest Land Management Plan (FLMP) was approved through a Record of Decision signed September 20, 2005. Due to a technical error in the Record of Decision, the USDA Forest Service reissued it on April 21, 2006, and provided a second 90-day appeal period on the Forest Plan in accordance with the provision of 36 CFR 217.

The FLMP consists of three Parts which respectively examine the Forest Service's Vision (Part 1), Management Strategy (Part 2), and Design Criteria (Part 3) for the ANF, as summarized below:

- Part 1 of the Plan includes a Forest vision of serving as an open space, visual backdrop, recreation destination, and natural environment for a diverse urban population.
- Part 2 of the FLMP includes the ANF program emphasis and objectives and strategic management direction, which allows the USDA Forest Service to make progress towards its vision presented in Part 1 of the FLMP.
- Part 3 of the FLMP provides design criteria for managers to operate within in order to realize the Forest vision described in Part 1.

The Forest Service Vision, as presented in Part 1 of the FLMP, is organized by identified Goals and Objectives. The only Goal or Objective from Part 1 that is relevant to this Environmental Contamination and Hazards analysis for the proposed Project is Goal 5.1 (Improve watershed conditions through cooperative management) which requires that Forest management activities are planned and implemented in a manner that minimizes the risk to forest ecosystems from hazardous materials.

Part 2 of the FLMP describes the Management Strategies, or the trends and expectations as well as anticipated resource improvements planned over the next three to five years in the Forest. The program emphasis and objectives for non-recreation special uses is to manage infrastructure needs to support communities while preserving open space and natural settings. Special uses are authorized only when they cannot be reasonably accommodated on non-NFS lands. Maintaining open space is given priority over accommodating urban needs. In addition, Appendix B of Part 2 includes a list of program strategies that the ANF may choose to emphasize to progress toward achieving the desired conditions and goals of the FLMP. The following Strategy from the FLMP is applicable to the proposed Project:

- **WAT 3: Hazardous Materials**. The goal of this strategy is to manage known hazardous materials risks by:
  - Maintaining a written Hazardous Materials Response Plan that addresses risk and standard cleanup procedures.
  - Coordinate with federal, tribal, state, city and county agencies, and local landowners to develop emergency response guidelines for hazardous spills on National Forest System land or on adjacent land with the potential to affect threatened, endangered, proposed, candidate, and sensitive fish and amphibian habitat. In the event of hazardous material spills in known habitat on National Forest System land, the Forest Service will contact the USFWS within 24 hours.
  - Quickly contact resource personnel and use them as consultants to minimize impacts to habitat and to initiate emergency consultation with the USFWS if necessary.
  - Provide habitat maps to response personnel for hazardous spills.

U.S. Environmental Protection Agency (USEPA)

The USEPA was established in 1970 in response to the growing public demand for cleaner water, air and land. The USEPA was established to consolidate in one agency a variety of federal research, monitoring, standard-setting and enforcement activities to ensure environmental protection. USEPA's mission is to protect human health and to safeguard the natural environment — air, water, and land — upon which life depends. USEPA works to develop and enforce regulations that implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. Where national standards are not met, USEPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality.

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law (US Code Title 42, Chapter 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes

requirements concerning closed and abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enables the revision of the National Contingency Plan (NCP). The NCP (Title 40, Code of Federal Regulation [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List (NPL). CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

As part of the Clean Water Act, the USEPA oversees and enforces the Oil Pollution Prevention regulation contained in Title 40 of the CFR, Part 112 (Title 40 CFR, Part 112) which is often referred to as the "SPCC rule" because the regulations describe the requirements for facilities to prepare, amend and implement Spill Prevention, Control and Countermeasure (SPCC) Plans. A facility is subject to SPCC regulations if a single oil storage tank has a capacity greater than 660 gallons, or the total above ground oil storage capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the facility could reasonably be expected to discharge oil into or upon the “Navigable Waters” of the United States.

Other federal regulations overseen by the USEPA relevant to hazardous materials and environmental contamination include Title 40, CFR, Chapter I, Subchapter D – Water Programs and Subchapter I – Solid Wastes. Title 40, CFR, Chapter I, Subchapter D Parts 116 and 117 designate hazardous substances under the Federal Water Pollution Control Act and set forth a determination of the reportable quantity for each substance that is designated as hazardous in Title 40, CFR, Part 116. Title 40, CFR, 117 applies to quantities of designated substances equal to or greater than the reportable quantities that may be discharged into waters of the United States.

Occupational Safety and Health Administration (OSHA), U.S. Department of Labor

OSHA’s mission is to assure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. OSHA staff establishes protective standards, enforce those standards, and reaches out to employers and employees through technical assistance and consultation programs. OSHA standards are listed in Title 29 CFR Part 1910.

~~Bureau of Land Management (BLM)~~

~~The BLM engages in hazardous material emergency response actions, site evaluations, and prioritization of cleanups in accordance with laws and regulations. This involves working with the USEPA, State environmental quality departments, counties, and responsible parties (both public and private) to fund and expedite the cleanup of hazardous sites within their jurisdictions. Those sites that are an imminent threat to public health and safety, as well as those sites that are under a consent order and can therefore generate penalties and fines, are a BLM priority. Under the BLM 1703 – Hazard Management and Resource Restoration Manual (BLM, 2006) the following policies have been set:~~

- ~~Protect public health and safety and environmental resources by minimizing environmental contamination and hazards on public land and BLM owned or operated facilities.~~
- ~~Comply with federal and state hazardous materials management laws and regulations and laws and regulations dealing with other hazards.~~
- ~~Maintain the health of ecosystems through assessment, cleanup, correction, and restoration of contaminated sites and other hazards.~~

- ~~Manage hazards and hazardous materials related risks, costs and liabilities.~~
- ~~Integrate environmental protection and compliance with all environmental statutes into all BLM activities.~~

3.6.3.2 State

California Environmental Protection Agency (Cal-EPA)

The Cal-EPA was created in 1991. It centralized California's environmental authority, consolidating Air Resources Board (ARB), State Water Resources Control Board (SWRCB), Integrated Waste Management Board (IWMB), Department of Toxic Substance Control (DTSC), Office of Environmental Health Hazard Assessment (OEHHA), and Department of Pesticide Regulation under one agency. These agencies were placed within the Cal-EPA "umbrella" to create a cabinet-level advocate for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Its mission is to restore, protect and enhance the environment, and to ensure public health, environmental quality, and economic vitality. The DPR, DTSC, IWMB, and SWRCB regulate hazardous materials and hazardous waste that have the potential to cause soil, water, and groundwater contamination, and their missions are summarized below.

- **Department of Pesticide Regulation.** The Department of Pesticide Regulation has the primary responsibility for regulating all aspects of pesticide sales and use to protect the public health and the environment. The Department's mission is to evaluate and mitigate impacts of pesticide use, maintain the safety of the pesticide workplace, ensure product effectiveness, and encourage the development and use of reduced risk pest control practices while recognizing the need for pest management in a healthy economy.
- **Department of Toxic Substances Control.** The DTSC mission is to restore, protect, and enhance the environment, and to ensure public health, environmental quality and economic vitality by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.
- **Integrated Waste Management Board.** The mission of the IWMB is to protect the public health and safety and the environment through waste prevention, waste diversion, and safe waste processing and disposal.
- **State Water Resources Control Board.** The SWRCB mission is to preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.

Department of Toxic Substances Control

DTSC is a department of Cal-EPA and is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of the federal Resource Conservation and Recovery Act of 1976 (RCRA) and, the California Health and Safety Code -, primarily Division 20, Chapters 6.5 through 10.6, and Title 22 (Social Security), Division 4.5. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Government Code §65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites, California Department of Public Health (CDPH) lists of contaminated drinking water wells, sites listed by the SWRCB as having UST leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater, and lists form local regulatory agencies of sites that have had a known migration of hazardous waste/material.

California Office of Emergency Services (OES)

In order to protect the public health and safety and the environment, the OES is in charge of establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on the location, type, quantity, and the health risks of hazardous materials handled, used, stored, or disposed of in the state, which could be accidentally released into the environment, needs to be available to firefighters, health officials, planners, public safety officers, health care providers, regulatory agencies, and other interested parties. The information provided by business and area plans is necessary in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of hazardous materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1 - Hazardous Materials Release Response and Inventory Program (Sections 25500-25520) and Article 2 - Hazardous Materials Management (Sections 25531-25543.3).

CCR Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4 - Hazardous Material Release Reporting, Inventory, And Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum statewide standards for Hazardous Materials Business Plans (HMBPs). These plans shall include the following: 1) a hazardous material inventory in accordance with Sections 2729.2 - 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the state. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance
- 55 gallons of a liquid
- 200 cubic feet of compressed gas
- hazardous compressed gas in any amount
- hazardous waste in any quantity

California Occupational Safety and Health Administration (Cal-OSHA)

The California Occupational Safety and Health Administration (Cal-OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal-OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (Title 8, Code of California Regulations [CCR], Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

Title 8 CCR, Chapter 4, Subchapter 7, Group 14 and 15, and Group 16, Articles 107, 109, and 110 sets forth the Permissible exposure limit (PEL), the exposure, inhalation or dermal permissible exposure limit for numerous chemicals. Included are chemicals, mixture of chemicals, or pathogens for which there is statistically significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed employees.

It is the responsibility of the Division of Occupational Safety and Health to ensure that compliance with the provisions of the Hazard Communication Standard. California Labor Code Sections 6360 through 6399.7 and Title 8 California Code of Regulations Sections 5191 and 5194 are intended to ensure that both employers and employees understand how to identify potentially hazardous substances in the

workplace, understand the health hazards associated with these chemicals, and follow safe work practices. This is accomplished by preparation of a Hazard Communication Plan.

Office of Environmental Health Hazard Assessment (OEHHA)

Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative in November 1986. The Proposition was intended by its authors to protect California citizens and the State's drinking water sources from chemicals known to cause cancer, birth defects, or other reproductive harm, and to inform citizens about exposures to such chemicals. Proposition 65 requires the Governor to publish, at least annually, a list of chemicals known to the State to cause cancer or reproductive toxicity. OEHHA has established safe harbor levels (levels of exposure that trigger the warning requirement) for some, but not all, listed chemicals. Businesses that cause exposures greater than the safe harbor level must provide Proposition 65 warnings. These safe harbor levels are available in the October 2007 Status Report available at http://www.oehha.ca.gov/prop65/pdf/October2007StatusRpt.pdf. If there is no safe harbor level for a chemical, businesses that knowingly expose individuals to that chemical would generally be required to provide a Proposition 65 warning, unless the business could show that risks of cancer or reproductive harm resulting from the exposure would be below levels specified in Proposition 65 and its accompanying regulations.

Division of Oil, Gas and Geothermal Resources (DOGGR)

The abandonment requirements of oil wells and dry test holes are specified by DOGGR. Following discovery of inactive oil wells, the abandonment operations must be witnessed by DOGGR staff. DOGGR is also charged with implementing Section 3208.1 of the Public Resource Code (PRC). As a result, the Construction-Site Plan Review Program was developed to assist local permitting agencies in identifying and reviewing the status of oil or gas wells located near or beneath structures. Before issuing building or grading permits, local agencies review and implement the DOGGR preconstruction well requirements. Interaction between local permitting agencies and the DOGGR helps resolve land use issues and allows for responsible development in oil and gas fields.

3.6.3.3 Local

Los Angeles County

The County of Los Angeles Fire Department, Health Hazardous Materials Division is the agency responsible for regulating and monitoring hazardous material use and storage in unincorporated and most incorporated areas of Los Angeles County. Its mission is to protect the public health and the environment throughout Los Angeles County from accidental releases and improper handling, storage, transportation, and disposal of hazardous materials and wastes through coordinated efforts of inspections, emergency response, enforcement, and site mitigation oversight (LACFD, 2005).

The County of Los Angeles Department of Public Works, Environmental Programs Division oversees permitting and inspection of underground storage tanks and regulates all unauthorized releases from underground storage tanks. The Los Angeles County Underground Storage Tank Program was established in 1983, and its goal is to protect the public, the environment, and UST owners and operators by ensuring the UST facilities are permitted, designed/installed/modified, operating, and eventually closed in compliance with local, State, and federal requirements.

Kern County

The County of Kern Environmental Health Services Department, Hazardous and Solid Waste Division oversees businesses generating, storing, and transporting hazardous waste. to protect the public health and the environment. The Division provides surveillance and enforcement for hazardous waste, radiological health, vector control, solid waste and infectious waste. The program also provides emergency response to chemical events to furnish substance identification; health and environmental risk assessment; air, soil, water and waste sample collection; incident mitigation and cleanup feasibility options; and on-scene coordination for state superfund incidents. The program also provides for the oversight, investigation, and remediation of unauthorized releases from underground tanks.

San Bernardino County

The San Bernardino County Fire Department (SBCFD), Hazardous Materials Division (HMD) is the certified unified program agency (CUPA) responsible for administering the hazardous materials program within San Bernardino County.

3.6.4 Impact Analysis Approach

3.6.4.1 Criteria for Determining Impact Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that would result from the proposed Project and alternatives. Appropriate criteria have been identified and utilized to make these significance conclusions. The following significance criteria for environmental contamination and hazards were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). Impacts of the proposed Project or alternatives would be considered significant and would require mitigation if they would:

- Criterion ECH1: Result in soil contamination, including flammable or toxic gases, at levels exceeding federal, State, or local hazardous waste limits established by 40 CFR Part 261 and Title 22 CCR 66261.21, 66261.22, 66261.23, and 66261.24.
- Criterion ECH2: Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors. Contaminants may include leaking munitions and explosives of concern (MEC) and the ordnance itself.
- Criterion ECH3: Cause contamination of soils or groundwater within the Project area during operation of the Project, resulting in exposure of workers and/or the public to contaminated or hazardous materials at levels in excess of those permitted by California Occupational Safety and Health Administration (Cal-OSHA) in CCR Title 8 and the Federal Occupational Safety and Health Administration (OSHA) in Title 29 CFR Part 1910.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.6.4.2 Applicant-Proposed Measures (APMs)

APMs were identified by SCE in the PEA. Table 3.6-14~~13~~ presents the APMs that are relevant to the issue area of environmental contamination and hazards. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. Therefore, the following discussions of impact analysis assume that all APMs will be implemented as defined in the table. Additional mitigation measures are recommended in this section if it is determined that APMs do not fully mitigate the impacts for which they are presented.

Table 3.6-14~~13~~. Applicant-Proposed Measures – Environmental Contamination and Hazards	
APM HAZ-1	Phase I Environmental Site Assessment (ESA). A Phase I ESA would be performed at each new or expanded substation location and along newly acquired transmission line rights-of-way (ROWs). The Phase I ESAs would include an electronic records search of federal, state, and local databases. The electronic records search would be contracted to Environmental Data Resources (EDR), a company which specializes in this type of work and who would produce a comprehensive report for the entire TRTP ROW. The EDR Report is used to identify sites located on federal, state, and local government agency databases which may have the potential to impact the proposed Project. The EDR report would be reviewed and, based on such review, any potential areas of concern along the ROW would be identified for further assessment. In addition, a Phase I ESA, which is compliant with ASTM 1927-05 (ASTM, 2005) would be performed on all property to be acquired. Based on the results of the Phase I ESAs, additional assessment, characterization, and remediation of potential or known subsurface impacts may be conducted prior to construction activities. Such remediation could include the relocation of T/L structures as necessary to avoid impacted areas, or the removal and disposal of impacted soils and/or groundwater according to applicable regulations.
APM HAZ-2	Hazardous Materials and Waste Handling Management. Hazardous materials used and stored on site for the proposed construction activities – as well as hazardous wastes generated on site as a result of the proposed construction activities – would be managed according to the specifications outlined below. • Hazardous Materials and Hazardous Waste Handling: A Project-specific hazardous materials management and hazardous waste management program would be developed prior to initiation of the Project. The program would outline proper hazardous materials use, storage and disposal requirements as well as hazardous waste management procedures. The program would identify types of hazardous materials to be used during the Project and the types of wastes that would be generated. All Project personnel would be provided with Project-specific training. This program would be developed to ensure that all hazardous materials and wastes were handled in a safe and environmentally sound manner. Hazardous wastes would be handled and disposed of according to applicable rules and regulations. Employees handling wastes would receive hazardous materials training and shall be trained in hazardous waste procedures, spill contingencies, waste minimization procedures and treatment, storage and disposal facility (TSDF) training in accordance with OSHA Hazard Communication Standard and 22 CCR. SCE would use landfill facilities that are authorized to accept treated wood pole waste in accordance with HSC 25143.1.4(b). • Construction Stormwater Pollution Prevention Plan (SWPPP): A Project-specific construction SWPPP would be prepared and implemented prior to the start of construction of the transmission line and substations. The SWPPP would utilize Best Management Practices (BMPs) to address the storage and handling of hazardous materials and sediment runoff during construction activities (California Stormwater Quality Association, 2004). • Transport of Hazardous Materials: Hazardous materials that would be transported by truck include fuel (diesel fuel and gasoline) and oil and lubricants for equipment. Containers used to stored hazardous materials would be properly labeled and kept in good condition. Written procedures for the transport of hazardous materials used would be established in accordance with U.S. Department of Transportation and Caltrans regulations. A qualified transporter would be selected to comply with U.S. Department of Transportation and Caltrans regulations. • Fueling and Maintenance of Construction Equipment: Written procedures for fueling and maintenance of construction equipment would be prepared prior to construction. Vehicles and equipment would be refueled on site or by tanker trucks. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling stations would be located in designated areas where absorbent pad and trays would be available. The fuel tanks would also contain a lined area to ensure that accidental spillage does not occur. Drip pans or other collection devices would be placed under the equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet. • Fueling and Maintenance of Helicopters: Written procedures for fueling and maintenance of helicopters would be prepared prior to construction. Helicopters would be refueled at helicopter staging areas or local airports. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling areas would be located in designated areas where absorbent pad and trays are available. • Emergency Release Response Procedures: An Emergency Response Plan detailing responses to releases of hazardous materials would be developed prior to construction activities. It would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. All hazardous materials spills or threatened release, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of the quantity spilled would be immediately reported if the spill has entered a navigable water,

Table 3.6-14~~13~~. Applicant-Proposed Measures – Environmental Contamination and Hazards	
	stream, lake, wetland, or storm drain, if the spill impacted any sensitive area including conservation areas and wildlife preserved, or if the spill caused injury to a person or threatens injury to public health. All construction personnel, including environmental monitors, would be aware of state and federal emergency response reporting guidelines.
APM HAZ-3	Soil Management Plan. A Soil Management Plan would be developed and implemented for construction of the proposed Project. The objective of the Soil Management Plan is to provide guidance for the proper handling, onsite management, and disposal of impacted soil that might be encountered during construction activities. The plan would include practices that are consistent with the California Title 8, Occupational Safety and Health Administration (Cal-OSHA) regulations, as well as appropriate remediation standards that are protective of the planned use. Appropriately trained professionals would be on site during preparation, grading, and related earthwork activities to monitor soil conditions encountered. The Soil Management Plan would provide guidelines for the following: • Identifying impacted soil • Assessing impacted soil • Soil excavation • Impacted soil storage • Verification sampling • Impacted soil characterization and disposal In the event that potentially contaminated soils were encountered within the footprint of construction, soils would be tested and stockpiled. The appropriate CUPA would determine whether further assessment is warranted.
APM HAZ-5	Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan • Spill Prevention, Countermeasure, and Control Plan (SPCC Plan). In accordance with Title 40 of the CFR, Part 112, SCE would prepare a SPCC for proposed and/or expanded substations. The plans would include engineered and operational methods for preventing, containing, and controlling potential releases, and provisions for quick and safe cleanup. • Hazardous Materials Business Plans (HMBPs). Prior to operation of new or expanded substations, SCE would prepare or update and submit, in accordance with Chapter 6.95 of the CHSD, and Title 22 CCR, an HMBP. The required documentation would be submitted to the CUPA. The HMBPs would include hazardous materials and hazardous waste management procedures and emergency response procedures including emergency spill cleanup supplies and equipment.

3.6.4.3 Impact Assessment Methodology

The environmental contamination and hazards impacts of the proposed Project are discussed below under subheadings corresponding to each of the significance criterion presented in the preceding section. The analysis describes the impacts of the proposed Project related to environmental contamination and, for each criterion, determines whether implementation of the proposed Project would result in significant impacts by evaluating effects of construction and operation of the proposed Project against the affected environment described above in Section 3.6.2.

For the purposes of satisfying CEQA requirements, the significance of each impact is also identified according to the following classifications: Class I: Significant impact; cannot be mitigated to a level that is less than significant; Class II: Significant impact; can be mitigated to a level that is less than significant; Class III: Adverse impact; less than significant; and Class IV: Beneficial impact. Sections 3.6.5 through 3.6.11, below, provide a detailed discussion of the impacts identified for the proposed Project and alternatives.

3.6.5 Alternative 1: No Project/Action

Selection of the No Project/Action Alternative would mean that the TRTP, as proposed, would not be implemented. As such, the environmental impacts associated with the Project, as described in Sections

3.6.6 through 3.6.11, would not occur. However, in the absence of the proposed Project or an alternative to the Project, the purposes and need for the power transmission capabilities that would be met by the proposed Project (or an alternative) would not be achieved. As a result, it is possible that another, similar transmission line project would be constructed in the future to meet the power transmission needs of developing wind farms in the Tehachapi Wind Resource Area. Such a project would likely introduce similar environmental contamination or hazardous impacts that would be introduced through the proposed TRTP or an alternative.

Environmental conditions in the Project Area are expected to naturally change or evolve over time and therefore, independently of the proposed Project or an alternative to the Project (including the No Project/Action Alternative), the regional setting and baseline conditions in the Project Area which are discussed in Section 3.6.2.1 (Regional Setting) would not remain static. If the No Project/Action Alternative is implemented, soil and groundwater conditions within the Project Area will continue to naturally evolve over time, independently of the potential impacts associated with the proposed TRTP.

Because the potential impacts of the proposed Project would not occur under the No Project/Action Alternative, the significance criteria described in Section 3.6.4.1 (Impact Analysis Approach) are not used for analysis of the No Project/Action Alternative. The continued development of lands within the Counties of Kern, Los Angeles, and San Bernardino will result in the continued potential for public health and safety risk factors as former contaminated sites undergo cleanup or are developed for new uses. However, sites with known environmental contamination will be required by law to be investigated and remediated in accordance with regulatory agency standards prior to redevelopment. In addition, areas with previously unknown contamination will likely be discovered during planning, followed by the required reporting and cleanup.

3.6.6 Alternative 2: SCE's Proposed Project

3.6.6.1 Direct and Indirect Effects Analysis

Result in soil contamination, including flammable or toxic gases, during construction (Criterion ECH1)

Impact E -1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities.

During construction operations, hazardous materials such as vehicle fuels, oil, hydraulic fluid, and other vehicle maintenance fluids would be used and stored in construction staging yards. Gasoline, diesel fuel, oil, hydraulic fluid, lubricants paints, solvents, adhesives, and cleaning chemicals used in construction activities, equipment, and vehicles can be released during construction as a result of accidents, and/or leaking equipment or vehicles. Spills and leaks of hazardous materials during construction activities could result in soil or groundwater contamination.

An accidental release of a potentially harmful or hazardous material into a dry stream bed or wash would not directly impact water quality. Similarly, an accidental spill or release of hazardous materials outside of a stream channel would not directly impact water quality. However, accidental spills or releases of hazardous materials into a dry stream bed or wash, or on the banks of a stream channel, could indirectly impact water quality through runoff during a subsequent storm event, when the spilled material would be washed into a stream or waterbody. Analysis of spills and leaks of hazardous materials in stream channels is presented in Section 3.8 (Hydrology and Water Quality).

Accidental spills or releases of hazardous materials could indirectly impact groundwater through leaching. Hazardous material spills that are left on the ground surface for an extended period or that are followed quickly by a storm event could leach through the soil and into the groundwater, thereby resulting in the degradation of groundwater quality. In the event of a spill, if sensitive fish species are present, direct impacts could include mortality due to the spill. Indirect impacts could include loss of suitable breeding and spawning habitat (see Section 3.8, Hydrology and Water Quality).

SCE's APM HAZ-2 (Hazardous Materials and Waste Handling Management Program) would be included as part of the Project in order to reduce the likelihood of spills through implementation of several measures including: proper storage and handling procedures; standard hazardous waste transport; Project-specific training for personnel; procedures for fueling and maintaining construction equipment and helicopters; and an emergency response program to ensure quick and safe cleanup of accidental spills (SCE, 2007). The measures provided in APM HAZ-2 would reduce the potential for spills to occur through implementation of protocols for storage, transport, and handling of hazardous materials on site for the proposed construction activities. In addition, any hazardous waste generated on site would be managed according to specified procedures for storing, labeling and transporting the material. Fueling and maintenance of equipment, including helicopters, would be performed according to written procedures prepared prior to any construction activities. Refueling stations would be located in designated areas to guard against accidental spills, and equipment would be inspected daily for any potential leakage.

APM HAZ-2 would also require that an Emergency Response Plan be in place in the event of an accidental spill. Such a plan would enable workers to respond to any potential release of hazardous materials and ensure quick and safe cleanup. Any hazardous materials spill or threatened release, regardless of quantity, would be reported immediately to the appropriate agency per state and federal emergency response reporting guidelines if the spill reaches a navigable water, stream, lake, wetland, or storm drain, if the spill impacts any sensitive area, or if the spill causes injury to a person or threatens injury to public health. Implementation of APM HAZ-2 would reduce the potential for a spill to occur. Furthermore, this measure and would reduce the potential for contamination and exposure of workers or the public to hazardous materials in the event of an accidental spill, by providing various measures to ensure that any spilled material and any resulting surficial contaminated soil would be quickly and correctly cleaned up and disposed of.

Additionally, as discussed in detail in Section 3.8 Hydrology and Water Quality, the following APMs would reduce the likelihood that an accidental spill or release of hazardous materials to soil or water would directly or indirectly impact water quality: HYD-1 (Construction SWPPP), HYD-2 (Environmental Training Program), HYD-3 (Accidental Spill Control), and HYD-4 (Non-storm Water and Waste Management Pollution Controls).

~~Although APMs APM HYD-1 through APM HYD-4 and APM HAZ-2 would reduce the potential for accidental releases of hazardous materials to occur as well as the potential for such releases to adversely affect soil and groundwater, these adverse effects could still occur. In order to further reduce the potential for degradation of water quality through accidental release of potentially harmful or hazardous materials, implementation of Mitigation Measures H-1a and H-1b, described under the discussion for Impact H-1 in Section 3.8 Hydrology and Water Quality, would be required.~~

CEQA Significance Conclusion

Implementation of APM HAZ-2 would reduce the potential for accidental releases of hazardous materials to occur. If a spill were to occur, APM HAZ-2 would reduce the potential for contamination by ensuring

that that any spilled material and any resulting surficial contaminated soil would be quickly and correctly cleaned up and disposed of, resulting in limited to no exposure of hazardous materials to the environment and workers. This would result in a less than significant impact with no mitigation required (Class III).

Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors (Criterion ECH2)

The proposed Project and alternatives do not traverse areas of intensive agricultural use where pesticides and herbicides would be applied regularly. Consequently, there is no potential to expose construction workers to residual pesticides and herbicides in the soil and no impact would occur.

Impact E- 2: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites.

Depth to groundwater throughout the Project area is generally at least 75 feet bgs, although shallow and perched groundwater may be present locally near Whittier Narrows and Chino Valley. The maximum construction-related excavation depth is approximately 40 feet bgs and therefore, direct contact with groundwater (or contaminated groundwater) would be expected to occur only locally during construction of the proposed Project. Many areas of the proposed Project, such as the undeveloped lands along Segments 4, 5, 6, 10 and 11, are unlikely to have existing soil or groundwater contamination. However, in developed urban areas along Segments 7, 8, and 11 (south of S11 MP26), environmental contamination may be present at each new or expanded substation location and along newly acquired transmission line rights-of-way (ROWs). There are several sites with existing contamination along this portion of the route. Such contamination includes leaking underground storage tanks (LUST), landfills, industrial and manufacturing sites, and former defense sites. SCE has committed to implementation of Phase I ESAs under APM HAZ-1, which would further investigate the potential for existing contamination at these sites. However, contamination may also be present along *existing* transmission line ROWs due to the nature of the industrial/commercial setting of adjacent sites along some segments of the proposed alignment. Any potential areas of concern, such as LUST and industrial sites with on-going investigation and clean up, landfills, and oil fields, would need to be evaluated for possible further assessment. These areas are listed in Mitigation Measure E-3a, below.

Mitigation Measures for Impact E-2

E-2a **Perform Phase I ESAs along existing transmission line ROWs.** SCE shall conduct Phase I Environmental Site Assessments (ESAs) within a 0.25-mile corridor along the segments identified below to determine whether there is a record of hazardous material contamination which would affect construction activities. This investigation will determine the likelihood of on-site contamination and shall identify the need for further investigation and/or remediation of soil or groundwater within areas of ground disturbance for the Project. For example, if there would be little or no human contact with contaminated materials by avoidance of the area or because no excavation is required during construction, no further mitigation would be required. However, if Project construction activities would involve human contact with contaminated materials that could potentially affect the health or safety of workers or the public during construction of the Project, then Mitigation Measure E-2b (Perform Phase II Investigations for potentially contaminated sites) shall be implemented.

- Segment 7 from S7 MP 1.8 to MP 15.8
- Segment 8A from S8A MP 2.2 to MP 7.0, S8A MP 15.2 to MP 15.5, S8A MP 24 to 35.2
- Segment 8B from S8B MP 0.0 to MP 6.8

- Segment 8C from S8C MP 0.0 to MP 6.4
- Segment 11 from S11 MP 26 to MP 36.2

E-2b **Perform Phase II Investigations for potentially contaminated sites.** Phase II Environmental Site Investigations (ESIs) shall be performed on sites that have been determined by the Phase I ESAs performed under APM HAZ-1 and Mitigation Measure E-2a (Perform Phase I ESAs along existing transmission line ROWs) to be potentially contaminated. If it is determined that disturbance or excavation of contaminated soils or groundwater would occur during construction at a given site, SCE would undertake a Phase II ESI involving sampling and further characterization of potentially contaminated areas within the Project ROW or reroute the line away from the contamination area. Should further investigation reveal high levels of hazardous materials, SCE would mitigate health and safety risk according to Los Angeles County Certified Unified Program Agency (CUPA) or Regional Water Quality Control Board (RWQCB) regulations or requirements. This would include site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.

Environmental Effects of Mitigation Measure E-2b

While Mitigation Measure E-2b is recommended to reduce impacts from potentially contaminated sites, this measure may adversely affect other issue areas. A transmission line reroute would potentially disturb sensitive biological resources or would possibly damage any cultural resources that may be located along a proposed reroute. Such potential impacts are similar to the effects of other Project activities, and would require the implementation of mitigation measures presented in Section 3.4 (Biological Resources) and Section 3.5 (Cultural Resources).

CEQA Significance Conclusion

Implementation of Mitigation Measures E-2a and E-2b would reduce the potential for excavation or grading to result in mobilization of existing soil or groundwater contamination to a less-than-significant level (Class II).

Impact E-3: Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases.

Methane and other toxic gases are produced as a result of decomposition of waste in landfills. Natural gas (methane) commonly occurs at oil wells. Methane gas from landfills, improperly sealed active oil wells, or improperly destroyed oil wells can migrate through natural geologic formations and soil and accumulate in depressions, utility vaults and excavations. The proximity of the proposed alignment to designated landfill areas represents a potential risk of encountering methane gas during construction. Toxic and inflammable gases that have migrated from a landfill or oil well could accumulate in excavations or depressions at construction sites and could result in explosions or exposure of workers to these toxic gases.

The proposed Segment 7 alignment extending east from the Mesa substation traverses very near the North Parcel of the Operating Industries Landfill (EDR Site No. 0 in Table 3.6-6 presented above in Section 3.6.2.2) from approximately S7 MP 14.8 to S7 15.8, a 190-acre designated Superfund site. In addition, Segment 7 nears EDR Sites 35 (S7 MP 2), 47 (S7 MP 4.2), 50, 51, 52, 56 (S7 MP 4.3-4.4), 62, 64 (S7 MP 4.7-4.9), 165 (S7 MP 10.8), and 185/193 (S7 MP 14.2-14.5), which are all noted as landfill operations, located along the San Gabriel River northeast of the Mesa Substation. Segment 8 nears landfill areas (EDR Sites 207, 219 and 254), located at approximately S8A MP 4.8 to 6.0, S8B MP 4.4 and S8B

MP 0.3, respectively. Segment 11 approaches EDR identified landfill Sites 20, 170 and 174, located at S11 MP 26, and at the Mesa Substation, respectively. EDR Site 33 is a designated USEPA and Cal EPA Brownfield with Deed Restriction, located at mile marker S11 MP 28 in the City of Pasadena. These sites pose a low but potential risk of encountering methane gas or toxic fumes during excavation or grading.

Additionally, the proximity of the proposed alignment to active, inactive, and abandoned oil wells may expose workers to natural gas leaking leaks from improperly sealed wells. According to oil field maps (DOGGR, 2003, 2004a, 2004b, 2005, and 2006), portions of Segments 7, 8, and 11 are located within 200 to 500 feet of plugged and abandoned wells, dry holes, or active oil wells. Considering the proximity of the proposed Project to these oil wells, there is potential for contacting natural gas pocket during construction. Oil wells within 500 feet of the Project are located at S7 MP 13.6 to 14.6, S8A MP 2.2 to 4.0, S8A MP 4.7 to 5.5, and S11 MP 35.1 to 35.4.

Mitigation Measures for Impact E-3

E-3a **Determine if landfill gases are present.** To assess the likelihood that contamination from identified landfills could be present in the Project alignment construction zone, SCE shall complete a search of landfill records, plans, maps and gas monitoring to determine the limits of landfill waste and landfill gas plume for all landfills listed below. For all locations at which the records review cannot confirm a gas-free landfill perimeter adjacent to the Project construction zone, a soil vapor survey shall be conducted. The soil vapor survey shall consist of driving probes in areas of proposed excavation and grading activities along the transmission line corridors and substation sites. Vapor samples shall be tested for methane, other flammable gases, and volatile organic compounds. Laboratory test results shall be reported to the Department of Toxic Substances Control (DTSC) or the appropriate County Environmental Health Division and shall include an assessment of the contamination potential in the excavation area. Documentation of all site research and a copy of the Los Angeles CUPA approval letter shall be provided to the CPUC at least 30 days prior to the start of construction within the appropriate Project segment.

Landfill Sites Near the Project Alignment

Segment	Milepost	Corresponding EDR Site ID Nos.
Segment 7	MP 2	35
Segment 7	MP 4.2	47
Segment 7	MP 4.3-4.4	50-52, 56
Segment 7	MP 4.7-4.9	62, 64
Segment 7	MP 10.8	165
Segment 7	MP 14.2-14.5	185, 193
Segment 7	MP 14.8-15.8	0
Segment 8A	MP 4.8-6.0	207
Segment 8B	MP 0.3	254
Segment 8B	MP 4.4	219

Source: EDR, 2007a.

E-3b **Implement personnel safety and monitoring measures.** If laboratory tests indicate the presence of landfill gases in the construction areas, a Health and Safety Plan shall be developed by a licensed industrial hygienist and a gas monitoring program shall be implemented by SCE or its contractors. A Health and Safety Plan shall also be developed for work in areas within 500 feet of active, inactive or abandoned oil wells that includes requirements for gas monitoring of excavations. A copy of the Health and Safety Plan and monitoring program shall be submitted to the appropriate CUPA agency and the CPUC at least 30 days prior to the start of construction within the appropriate Project segment.

E-3c **Verify location and status of abandoned oil and natural gas wells.** Prior to excavation and construction activities, SCE shall contact the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) for specific information on wells located within 500 feet of the transmission line route, including location and abandonment details. SCE shall avoid construction near (within 50 feet) abandoned oil or gas wells. If a tower or trench is located within 50 feet of a plugged or abandoned well, SCE shall coordinate with DOGGR and provide written confirmation to the CPUC that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system. If an unrecorded well is encountered during construction, SCE shall stop construction and notify DOGGR immediately. Although SCE would not be responsible to properly abandon oil wells in the vicinity of the Project, ~~C~~construction at the location will resume only after SCE provides the CPUC with written confirmation that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system.

CEQA Significance Conclusion

Implementation of Mitigation Measures E-3a, E-3b and E-3c would reduce the potential for encountering toxic gas or natural gas located near landfills or active, inactive or abandoned oil wells to a less-than-significant level (Class II).

Impact E-4: Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading.

Depth to groundwater throughout the Project area is generally greater than 75 feet bgs, and the maximum construction-related excavation depth is approximately 40 feet bgs and therefore, direct contact with groundwater (or contaminated groundwater) would be expected to occur only locally during construction of the proposed Project. However, unanticipated soil and/or groundwater contamination could exist along the proposed alignment due to illegal dumping or other historical activities (e.g., mining). Possible types of contamination include gasoline and diesel fuel residuals, heavy metals, and/or other hazardous materials. While SCE's Soil Management Plan developed under APM HAZ-3 would be incorporated into the Project in order to identify and dispose of potentially impacted soil (by assigning appropriately trained professionals to monitor soil conditions, identifying and assessing any impacted soil, performing soil excavation, and/or verifying sampling and disposal), these measures do not specify how or who would determine if regulatory limits are exceeded. If laboratory data are not properly interpreted, environmentally contaminated soil or groundwater could be improperly handled and disposed of, resulting in additional environmental contamination or exposure of workers to contaminated materials.

In addition, this measure does not include requirements for documentation and reporting of incidents of encountered contaminants, such as documenting locations of occurrence, sampling results, and reporting actions taken to remediate contaminated materials to the CPUC and Forest Service (if on NFS lands).

Mitigation Measures for Impact E-4

E-4a **Appoint individuals with correct training for sampling, data review, and regulatory coordination.** In the event that potential contaminated soil or groundwater is encountered during construction activities, samples shall be collected by an Occupational Safety and Health Administration (OSHA) trained individual with a minimum of 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) worker training. Laboratory data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer and/or SCE's Field Environmental Representative and they shall coordinate with the appropriate

regulatory agency (RWQCB or local CUPA agency) if contamination is confirmed, to determine the suitable level of worker protection and the necessary handling and/or disposal requirements.

E-4b **Document compliance with APM HAZ-3.** If the visual or olfactory evidence of contamination in the exposed soil is observed during grading or excavation work, the location and the potential contamination, results of laboratory testing, recommended remediation (if contamination is verified), and actions taken shall be documented in a report and submitted to the CPUC and FS (for NFS lands) for each event. This report shall be submitted within 30 days of receipt of laboratory data.

CEQA Significance Conclusion

Implementation of Mitigation Measures E-4a and E-4b are required to ensure that laboratory data is properly interpreted by trained personnel regarding contamination levels for reporting to the appropriate regulatory agency and documentation that these measures are properly implemented, which would reduce the impact from encountering unknown contamination to less than significant (Class II).

Cause contamination of soils or groundwater within the Project area during operation of the Project, resulting in exposure of workers and/or the public to contaminated or hazardous materials (Criterion ECH3)

Impact E-5: Soil or groundwater contamination could result from an accidental spill during operation.

Soil or groundwater contamination could result from accidental spill or release of hazardous materials at the substations during facility operation or along the transmission line during maintenance operations. This could potentially result in exposure of facility workers and the public to hazardous materials. According to APM HAZ-5, SCE plans to minimize and/or avoid unforeseen spills of hazardous materials during operation at the substations by updating and utilizing the Spill Prevention, Countermeasure, and Control (SPCC) plan and Hazardous Materials Business Plans (HMBPs) for the upgraded substations (Antelope, Vincent, Rio Hondo, Mesa, Gould, Chino, and Mira Loma) and by preparing and utilizing SPCC and HMBP plans for the new Whirlwind substation. In the event of a spill, APM HAZ-5 would reduce the potential for contamination and exposure of workers or the public to hazardous materials by ensuring that any spilled material and any resulting surficial contaminated soil would be quickly and correctly cleaned up and disposed of, resulting in limited to no exposure of hazardous materials to the environment and workers.

CEQA Significance Conclusion

Implementation of APM HAZ-5 would reduce the potential for contamination and hazardous exposure from an accidental spill and would ensure that that any spilled material and any resulting surficial contaminated soil would be cleaned up quickly and correctly and disposed of, resulting in limited to no exposure of hazardous materials to the environment and workers. Impacts would therefore be less than significant with no mitigation required (Class III).

3.6.6.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to environmental contamination is limited to the Project site and the immediate vicinity surrounding Project substations, laydown areas, and

the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the current and past land uses on the Project site and directly adjacent to the Project site are the most significant factors to evaluate the potential for environmental contamination at a project site. Impacts would have the potential to occur during construction and operation and would be limited to the areas where concurrent construction or maintenance is occurring.

Existing Cumulative Conditions

The area along the route of the proposed Project alignment consists of undeveloped land, open space land, scattered rural residences, residential developments, as well as agricultural, commercial and industrial properties. The Project alignment passes near oil fields and landfills with ongoing activities related to operation and expansion. Within the undeveloped and open space land and residential areas there is little likelihood of significant soil or groundwater contamination, based on a lack of uses that would involve hazardous materials. However, within the commercial and industrial land use areas, many sites, historic and current, have soil or groundwater contaminated by hazardous substances such as heavy metals and vehicle fuels. Refer to Section 3.6.2 for a detailed discussion of existing conditions and lists of potential hazardous material sites along the proposed alignment, which includes a variety of hazardous waste sources such as landfills, gas stations, industrial sites, and oil fields. The continued development of lands within the Counties of Kern, Los Angeles, and San Bernardino will result in the continued potential for public health and safety risk factors as former contaminated sites undergo cleanup or developed for new uses. However, sites with known environmental contamination will be required by law to be investigated and remediated in accordance with regulatory agency standards prior redevelopment. In addition, areas with previously unknown contamination will likely be discovered during planning, followed by the required reporting and cleanup.

Reasonably Foreseeable Future Projects and Changes

Foreseeable future projects identified for this analysis include major energy and transmission projects, as well as numerous commercial and residential development projects throughout the jurisdictions traversed by the proposed Project. The list was reviewed to identify cumulative projects that are planned in areas with known significant soil or groundwater contamination based on prior land use. Although localized areas of soil contamination could be encountered by some of these projects, most are new developments in open areas or expansions of existing commercial areas. The Walnut Creek Energy Park Power Plant is located in a recently developed (past 20 years) commercial warehouse and light industrial area that is unlikely to have contaminated soil. Also, the schedule to have this plant on-line by October 2008 suggests that if any soil cleanup was necessary it has already been completed, since it would have to have been completed prior to construction. Major rail projects (California High Speed Train, Orangeline Maglev Project, and Metro Gold Line Extension) cross Segments 7 and 8A and may locally encounter contaminated soil in former commercial and industrial areas. However these projects are in early stages of planning, design and funding, therefore construction of these projects would most likely begin after the proposed Project would begin. Consequently, reasonably foreseeable cumulative projects with significant excavation, transport, and treatment of contaminated soil were not identified.

Cumulative Impact Analysis

With regard to cumulative environmental contamination impacts, the proposed Project's contribution to a cumulative impact would only be considered significant if it combined with other projects to result in

substantial volumes of contaminated soil that require off-site treatment and that, as a combined volume, exceeded the capacity of available treatment facilities or resulted in substantial exposure of hazardous materials to the public. For the reasons discussed below, the proposed Project's contribution to cumulative impacts would not be cumulatively considerable.

Impact E-1 (Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities) could occur through accidental releases of hazardous materials used during construction. However, APM HAZ-2 would be implemented as part of the proposed Project to decrease the potential for accidental releases to occur and to clean up potentially harmful materials in the unlikely event of a release. Therefore, since any spills of contaminated material would be cleaned, soil or groundwater contamination would not occur and Impact E-1 would not have the potential to combine with impacts of other projects and would not be cumulatively considerable (Class III).

Impact E-2 (Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites) could occur if preexisting soil and groundwater contamination is encountered during proposed Project construction, which would result in exposure of construction workers to potential health hazards. Such exposure would be hazardous to people in the immediate vicinity of the contamination since the contaminant would either be limited to the medium in which it is discovered or would volatilize and become airborne. If fumes from potential contamination volatilized, risk of exposure would decrease as distance from the source of contamination increased due to dispersal of the fumes. Additionally, the proposed Project includes APM HAZ-1 and Mitigation Measures E-2a and E-2b, which would require investigation of potentially contaminated sites along the proposed transmission line route as well as clean up of any contamination identified. Therefore, because any contamination encountered would be removed and/or remediated prior to construction, Impact E-2 would not have the potential to combine with impacts of other projects and would not be cumulatively considerable (Class III).

Impact E-3 (Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases) could occur along portions of the Project alignment that are in close proximity to landfills and active, inactive, and abandoned oil wells. Although, Mitigation Measures E-3a (Determine if landfill gases are present), E-3b (Implement personnel safety and monitoring measures), and E-3c Verify location and status of abandoned oil and natural gas wells) would reduce the potential for encountering methane and other natural gases, the potential for encountering natural gases would still exist. For a cumulative impact to occur, natural gas encountered by the proposed Project would have to combine with gas encountered during concurrent construction activities of a project located in very close proximity to the proposed Project. No concurrent projects located immediately adjacent to the portions of the route located near landfills or oil wells have been identified. Therefore, Impact E-3 would not have the potential to combine with impacts of other projects and would not be cumulatively considerable (Class III).

Impact E-4 (Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading) could occur if preexisting soil and groundwater contamination is encountered during proposed Project construction, which would result in exposure of construction workers to potential health hazards. Such exposure would be hazardous to people in the immediate vicinity of the contamination since the contaminant would either be limited to the medium in which it is discovered or would volatilize and become airborne. If fumes from potential contamination volatilized, risk of exposure would decrease as distance from the source of contamination increased due to dispersal of the fumes.

Additionally, the proposed Project includes APM HAZ-3 and Mitigation Measures E-4a (Appoint individuals with correct training for sampling, data review, and regulatory coordination) and E-4b (Document compliance with APM HAZ-3) which require identification and disposal of potentially impacted soil. Therefore, because any contamination encountered would be removed and/or remediated prior to construction, Impact E-4 would not have the potential to combine with impacts of other projects and would not be cumulatively considerable (Class III).

Impact E-5 (Soil or groundwater contamination could result from an accidental spill during operation) could result at the substations during facility operation or along the transmission line during maintenance operations. However, APM HAZ-5 would require measures to minimize and/or avoid unforeseen spills of hazardous materials during operations as well as to clean up potentially harmful materials in the unlikely event of a release. These measures would greatly reduce the likelihood of a release as well as the potentially harmful effect of a release. Since measures would be in place to greatly reduce the likelihood of a release as a result of proposed Project activities, Impact E-5 would not be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

There are no significant cumulative effects related to environmental contamination and no mitigation is needed.

3.6.7 Alternative 3 (West Lancaster)

3.6.7.1 Direct and Indirect Effects Analysis

Result in soil contamination, including flammable or toxic gases, during construction (Criterion ECH1)

Impacts associated with Criterion ECH1 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, construction activities and methods would be identical to those of the proposed Project and there would be no substantial increase in the potential for Impact E-1 (Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities) to occur. Additionally, APM HAZ-2 (Hazardous Materials and Waste Handling Management Program) would be included as part of the Project in order to reduce the likelihood of spills, develop proper storage and handling procedures, outline hazardous waste transport, provide Project-specific training for personnel, develop procedures for fueling and maintaining construction equipment and helicopters, and include an emergency response program to ensure quick and safe cleanup of accidental spills (SCE, 2007). With implementation of APM HAZ-2, as described in Section 3.6.6.1, and APMs HYD-1 through HYD-4, as described in Section 3.8 Hydrology and Water Quality, Impact E-1 of Alternative 3 would be less than significant (Class III).

Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors (Criterion ECH2)

Impacts associated with Criterion ECH2 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of Segment 4 of the proposed Project, the re-route would not cross through or adjacent to any areas with known or suspected contamination, landfills or oil wells. Therefore, the Environmental Contamination impacts of Alternative

3 would be the same as the proposed Project. These impacts and their associated mitigation measures that fall under Criterion ECH2 are summarized in the following paragraphs. Please see Section 3.6.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are the same as the proposed Project.

Alternative 3 does not traverse areas of intensive agricultural use where pesticides and herbicides would be applied regularly. Consequently, there is no potential to expose workers during construction to residual pesticides and herbicides in the soil and no impact would occur.

Impact E-2 (Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.6.6.1). The rerouted portion of Alternative 3 is located in an undeveloped area with scattered residences and there are no industrial or commercial areas or known contaminated sites. Therefore there is little potential for contamination to exist along the proposed new ROW. Additionally, SCE proposes to complete Phase I ESAs (APM HAZ-1) to verify the potential for contamination for newly acquired ROW, and if necessary, complete Phase II investigations. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for encountering and mobilizing existing soil contamination is the same as presented in Section 3.6.6.1, and would require implementation of Mitigation Measures E-2a (Perform Phase I ESAs along existing transmission line ROWs) and E-2b (Based on Phase I ESAs, perform Phase II Investigations for potentially contaminated sites). With implementation of these measures, as described in Section 3.6.6.1, Impact E-2 of Alternative 3 would be less than significant (Class II).

Impact E-3 (Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.6.6.1). Similar to the portion of Segment 4 it would replace, the rerouted portion would not be located near any landfills or oil wells and construction in this area would therefore not be expected to encounter methane or natural gas. The remaining portion of Alternative 3 is identical to Alternative 2 and would have same potential for Impact E-3 as the proposed Project, as presented in Section 3.6.6.1. Impact E-3 for Alternative 3 would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-3a (Determine if landfill gases are present), E-3b (Implement Personnel Safety and Monitoring Measures), and E-3c (Verify location and status of abandoned natural oil and gas wells). With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 3 would be less than significant (Class II).

Impact E-4 (Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.6.6.1) and would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-4a (Appoint individuals with correct training for sampling, data review, and regulatory coordination) and E-4b (Document compliance with APM HAZ-3). With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-4 of Alternative 3 would be less than significant (Class II).

Cause contamination of soils or groundwater within the Project area during operation of the Project (Criterion ECH3)

Impacts associated with Criterion ECH3 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Alternative 3 is identical to the proposed Project with respect to the

operational use of hazardous materials at substations and the transmission line. Accidental spills during operation and maintenance of the Project could cause soil contamination and expose workers or the public to hazardous materials (Impact E-5). According to APM HAZ-5, SCE plans to minimize and/or avoid unforeseen spills of hazardous materials during operation at the substations by utilizing Spill Prevention, Countermeasure, and Control (SPCC) plans and Hazardous Materials Business Plans (HMBPs) for the substations.

Impact E-5 (Soil or groundwater contamination could result from an accidental spill during operation) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.6.6.1) and would require implementation of APM HAZ-5 (Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan). With implementation of APM HAZ-5, as described in Section 3.6.6.1, Impact E-5 of Alternative 3 would be less than significant (Class III).

3.6.7.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to environmental contamination is limited to the Project site and the immediate vicinity surrounding Project substations, laydown areas, and the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the current and past land uses on the Project site and directly adjacent to the Project site are the most significant factors to evaluate the potential for environmental contamination at a project site. Impacts would have the potential to occur during construction and operation and would be limited to the areas where concurrent construction is occurring. The geographic extent is identical to the proposed Project, as presented in Section 3.6.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 3 are identical to the proposed Project as discussed in Section 3.6.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 3 would be exactly the same as Alternative 2, described in Section 3.6.6.2.

Cumulative Impact Analysis

Impacts of Alternative 3 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.6.6.2. Therefore, Impacts E-1 through E-5 for Alternative 3 would not be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

There are no impacts or significant cumulative effects of Alternative 3 related to environmental contamination and no additional mitigation is needed.

3.6.8 Alternative 4 (Chino Hills Routes)

3.6.8.1 Direct and Indirect Effects Analysis

Result in soil contamination, including flammable or toxic gases, during construction (Criterion ECH1)

Impacts associated with Criterion ECH1 for Alternative 4 would be the same as impacts associated with this criterion for the proposed Project. The shorter length of all ~~four~~ five routes of this alternative compared to the proposed Project, would result in incrementally decreased opportunity for Impact E-1 (Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities) to occur. However, construction activities and methods for ~~this~~ the transmission line elements of this alternative would be identical to those of the proposed Project, resulting in the same potential for soil contamination to occur. The construction activities and methods required for the Alternative 4 switching station, such as site grading and foundation excavation, are comparable to grading pads and excavating foundations for towers, resulting in the same potential for soil contamination to occur as the proposed Project. APM HAZ-2 (Hazardous Materials and Waste Handling Management Program) would be included as part of the Project in order to reduce the likelihood of spills, develop proper storage and handling procedures, outline hazardous waste transport, provide Project-specific training for personnel, develop procedures for fueling and maintaining construction equipment and helicopters, and include an emergency response program to ensure quick and safe cleanup of accidental spills (SCE, 2007). With implementation of APM HAZ-2, as described in Section 3.6.6.1, and APMs HYD-1 through HYD-4, as described in Section 3.8 Hydrology and Water Quality, Impact E-1 of Alternative 4 (Routes A through D, including C Modified) would be less than significant (Class III).

Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors (Criterion ECH2)

Impacts associated with Criterion ECH2 for Alternative 4 would be similar to impacts associated with this criterion for the proposed Project. However, this alternative would introduce reroutes to the proposed Project that would result in avoiding the industrial/commercial areas located in Chino and Ontario along Segments 8A and 8C with ~~59~~ 54 known contaminated sites. ~~, as well as nearby landfill and oil field areas.~~ Alternative 4 would continue to be located near two landfill sites and three leaking underground fuel tank sites in Chino and Ontario along Segment 8B. Environmental Contamination impacts of Alternative 4 and their associated mitigation measures that fall under Criterion ECH2 are summarized in the following paragraphs.

Alternative 4 Routes A, B, C, C Modified, and ~~through~~ D do not traverse areas of intensive agricultural use where pesticides and herbicides would be applied regularly. Consequently, there is no potential to expose workers during construction to residual pesticides and herbicides in the soil and no impact would occur.

Impact E-2 (Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.6.6.1), with the exception of the ~~four~~ five routing options which are described below. There are several sites with existing contamination along different portions of the route. Such contamination could be encountered and mobilized through ground disturbing construction activities. SCE has committed to implementation of Phase I ESAs under APM HAZ-1, which would further investigate the potential for existing contamination at these sites. However, contamination may also be

present along existing transmission line ROWs due to the nature of the industrial/commercial setting of adjacent sites along some segments of the proposed alignment. Impact E-2 for Alternative 4 would require implementation of Mitigation Measures E-2a (Perform Phase I ESAs along existing transmission line ROWs) and E-2b (Based on Phase I ESAs, perform Phase II Investigations for potentially contaminated sites), which are fully described in Section 3.6.6.

Route A. Route A would be located near ~~59~~ 54 fewer sites with known contamination than the proposed Project. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-2 of Alternative 4, Route A, would be less than significant (Class II).

Route B. Impacts of Route B would be identical to impacts of Route A. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-2 of Alternative 4, Route B, would be less than significant (Class II).

Route C. Route C would also avoid the ~~59~~ 54 contaminated sites located in Chino and Ontario near which the proposed Project would be located. However, Route C would traverse within approximately 100 to 400 feet (re-routed 220-kV and new 500-kV lines, respectively) of the former ~~burn area #18~~SWMU #9 at the Aerojet Chino Hills munitions testing facility (McLaren/Hart, 1999a), a RCRA corrective action site actively undergoing clean-up (DTSC, 2008a) with "no further action" status assigned to SWMU #9 and several other areas recently (DTSC, 2009). Furthermore, one of the proposed alignments for the permanent all-weather access road to the new switching station would use existing paved and unpaved roads within the Aerojet facility, as well as require segments of new road. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-2 of Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. Route C Modified would also avoid the 54 contaminated sites located in Chino and Ontario near which the proposed Project would be located. However, Route C Modified would traverse directly through the southern part of the Aerojet Chino Hills RCRA facility and within approximately 100 feet of the former SWMU #9 (McLaren/Hart, 1999a). The Route C Modified switching station would also be located within the RCRA site boundaries. The Aerojet Chino Hills facility is a RCRA corrective action site that is actively undergoing clean-up (DTSC, 2008a) resulting in a status of "no further action" being assigned by DTSC to SWMU#9 and several other areas of the site (DTSC, 2009). Furthermore, one of the proposed alignments for the permanent all-weather access road to the new switching station would use existing paved and unpaved roads within the Aerojet facility, as well as require segments of new road. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-2 of Alternative 4, Route C, would be less than significant (Class II).

Route D. Route D of Alternative 4 would also traverse within approximately 100 to 400 feet of the former ~~burn area #18~~SWMU #9 at the Aerojet Chino Hills facility. Impacts of Route D would be identical to impacts of Route C. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-2 of Alternative 4, Route D, would be less than significant (Class II).

Impact E-3 (Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.6.6.1),

with the exception of the ~~four~~ five routing options which are described below. The portions of this alternative route that are identical to that of Alternative 2 would be located in close proximity to landfills and oil wells. This proximity could result in methane and natural gas accumulation in excavations or depressions at construction sites and could result in explosions or exposure of workers to these toxic gases. Impact E-3 for Alternative 4 would require implementation of Mitigation Measures E-3a (Determine if landfill gases are present), E-3b (Implement Personnel Safety and Monitoring Measures), and E-3c (Verify location and status of abandoned natural oil and gas wells), which are fully described in Section 3.6.6.

Route A. Route A would be identical to Alternative 2 with respect to passing near oil field and ~~avoid~~ landfill sites. ~~located near Segments 8B-MP 0.3 and 8B-MP 4.4 of Alternative 2.~~ With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 4, Route A, would be less than significant (Class II).

Route B. Impacts of Route B would be identical to impacts of Route A. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 4, Route B, would be less than significant (Class II).

Route C. Impacts of Route C would be identical to impacts of Route A. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. Impacts of Route C Modified would be identical to impacts of Route A. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 4, Route C, would be less than significant (Class II).

Route D. With respect to proximity to landfill sites, Route D would be identical to Route A. However, according to oil field maps (DOGGR, 2005), portions of Route D approach either plugged and abandoned wells or dry holes, or active oil wells. There is potential for encountering natural gas during construction. With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 4, Route D, would be less than significant (Class II).

With regard to Impact E-4 (Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading), the shorter length of all ~~four~~ five routes of Alternative 4 and the rural character of the areas traversed by each route, compared to the proposed Project, would result in incrementally decreased opportunity and likelihood for unknown contamination to exist along Routes A through D. However, the potential to encounter unknown contamination would still exist and Impact E-4 for this alternative would be the same as the proposed Project (please see Section 3.6.6.1). Impact E-4 would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-4a (Appoint individuals with correct training for sampling, data review, and regulatory coordination) and E-4b (Document compliance with APM HAZ-3). With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-4 of Alternative 4 would be less than significant (Class II).

Impact E- 6: Excavation or grading could result in mobilization of existing soil contamination or encountering ordnance from known munitions testing and disposal sites.

Soil testing within the Aerojet Facility identified very low levels of dioxin/furan, tear gas, and semi-volatile organic compounds (SVOCs) about 100 feet north of and 100 feet below the proposed Alternative

4 (Route C, Route C Modified, and Route D) alignments. The low levels of residual chemicals detected in the soil were determined to not pose a risk to human health, including carcinogenic risk (Mclaren/Hart 1999a) and the site was assigned a "no further action" status (DTSC, 2009). However, regarding munitions and explosives of concern (MEC), although the risk is considered to be low, the potential remains for ordnance and, possibly associated soil contamination, to be present along this portion of Route C, Route C Modified, and Route D and the permanent all-weather switching station access road alignment (DTSC, 2008a). The potential for munitions and explosives of concern (MEC) cannot be ruled out along Route C, Route C Modified, and Route D or along the permanent access roads passing through or near the Aerojet Facility. Encountering ordnance or contaminated soil could expose workers and the public to hazardous chemicals or explosion hazard.

Mitigation Measures for Impact E-6

E-6a **Provide ordnance recognition training.** SCE shall conduct training of all site personnel assigned to Alternative 4, Route C, Route C Modified, or Route D to recognize ordnance and, if possible, associated soil contamination. The training program shall be developed in consultation with Aerojet General and Cal EPA (DTSC). In addition, construction superintendents shall observe and direct all grading and excavation work along Alternative 4, Route C, Route C Modified, and Route D.

E-6b **Detect and remove MEC from access roads.** SCE shall develop plans of access roads required to construct Alternative 4, Route C, Route C Modified, or Route D, and the permanent all-weather switching station access road. The plans shall be reviewed with the DTSC conceptual model of areas having or potentially having munitions and explosives of concern (MEC). All access roads with potential to encounter MEC shall be evaluated by trained munitions specialists to detect and remove any MEC within existing or proposed access roads. MEC removal and disposal is under the jurisdiction of DTSC and, if required, shall be coordinated with DTSC and Aerojet General.

CEQA Significance Conclusion

Implementation of Mitigation Measures E-6a and E-6b would reduce the potential for construction to result in ~~mobilization of existing soil contamination or~~ encountering ordnance and associated soil contamination from known munitions testing and disposal sites along Alternative 4 Route C, Route C Modified, and Route D to a less-than-significant level (Class II). Alternative 4 Route A and Route B do not traverse the areas of known munitions testing and disposal, and would therefore not result in impacts related to mobilization of existing soil contamination or encountering ordnance from known munitions testing and disposal sites (Impact E-6).

Cause contamination of soils or groundwater within the Project area during operation of the Project (Criterion ECH3)

Impacts associated with Criterion ECH3 for all ~~four~~ five routes of Alternative 4 would be identical to impacts associated with this criterion for the proposed Project. Alternative 4 is identical to the proposed Project with respect to the operational use of hazardous materials at substations and the transmission line and would result in the same potential for Impact E-5 (Soil or groundwater contamination could result from an accidental spill during operation) to occur and would require implementation of APM HAZ-5 (Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan). With implementation of APM HAZ-5, as described in Section 3.6.4.2, Impact E-5 of Alternative 4 would be less than significant (Class III).

3.6.8.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to environmental contamination is limited to the immediate vicinity surrounding the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the current and past land use are the most significant factor to evaluate the potential for environmental contamination at a project site. The geographic extent is identical to the proposed Project, as presented in Section 3.6.6.2.

Existing Cumulative Conditions

Each of the ~~four~~ five routes of Alternative 4 are shorter than the proposed Project and avoid approximately ~~14~~ 8 miles of commercial and industrial areas with numerous known environmental contamination sites that would be crossed by the proposed Project. This would result in less opportunity to encounter contaminated soil or release hazardous substances during construction and any associated transport and treatment that would be cumulatively considered.

Reasonably Foreseeable Future Projects and Changes

The future conditions related to Alternative 4 are similar to the proposed Project as discussed in Section 3.6.6.2 because there are no reasonably foreseeable future projects near Alternative 4 where contaminated soil is expected.

Cumulative Impact Analysis

Impacts of Alternative 4 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.6.6.2. Therefore, Impacts E-1 through E-5 for Alternative 4 would not be cumulatively considerable (Class III).

Soil testing and mitigation required for Impact E-6 would also be required for any past, present or reasonably foreseeable projects. Therefore, impacts resulting from ~~mobilization of existing soil contamination or~~ encountering ordnance from known munitions testing and disposal sites would not be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

There are no impacts or significant cumulative effects of Alternative 4 related to environmental contamination and no additional mitigation is needed.

3.6.9 Alternative 5 (Partial Underground)

3.6.9.1 Direct and Indirect Effects Analysis

Result in soil contamination during construction (Criterion ECH1)

Although the construction activities and methods required for the underground tunnel portion of this Alternative are different than the proposed Project, the overall i~~I~~mpacts associated with Criterion ECH1 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project. The identical length of this alternative compared to the proposed Project, would result in the same potential for Impact E-1 (Soil or groundwater contamination results due to improper handling and/or storage of

hazardous materials during construction activities) to occur. APM HAZ-2 (Hazardous Materials and Waste Handling Management Program) would be included as part of the Project in order to reduce the likelihood of spills, develop proper storage and handling procedures, outline hazardous waste transport, provide Project-specific training for personnel, develop procedures for fueling and maintaining construction equipment and helicopters, and include an emergency response program to ensure quick and safe cleanup of accidental spills (SCE, 2007). Although the more extensive amount of ground disturbance and increased duration of construction activities associated with underground installation would incrementally increase the potential for this to occur, compared to the proposed Project, with implementation of APM HAZ-2, as described in Section 3.6.6.1, and APMs HYD-1 through HYD-4, as described in Section 3.8 (Hydrology and Water Quality), Impact E-1 of Alternative 5 would be less than significant (Class III).

Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors (Criterion ECH2)

Impacts associated with Criterion ECH2 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project. Although portions of this alternative would be installed underground, including deep shafts and tunnel sections, the transmission line route would be identical to that of the proposed Project and would not cross through or adjacent to any new areas with known or suspected contamination, landfills or oil wells. Therefore, the Environmental Contamination impacts of Alternative 5 would be the same as the proposed Project. These impacts and their associated mitigation measures that fall under Criterion ECH2 are summarized in the following paragraphs. Please see Section 3.6.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are identical to the proposed Project.

Alternative 5 does not traverse areas of intensive agricultural use where pesticides and herbicides would be applied regularly. Consequently, there is no potential to expose workers during construction to residual pesticides and herbicides in the soil and no impact would occur.

Impact E-2 (Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.6.6.1). Although portions of this alternative would be installed underground, the transmission line route would be identical to that of the proposed Project and would traverse through or near the same sites with known contamination as the proposed Project. Although Alternative 5 includes the excavation and construction of the deep access shaft and transition station in a urban area, the potential for encountering and mobilizing existing soil contamination is the same as presented in Section 3.6.6.1, and would require implementation of Mitigation Measures E-2a (Perform Phase I ESAs along existing transmission line ROWs) and E-2b (Based on Phase I ESAs, perform Phase II Investigations for potentially contaminated sites). Although the more extensive amount of ground disturbance and increased duration of construction activities associated with underground installation would incrementally increase the potential for this to occur, compared to the proposed Project, with implementation of these measures, as described in Section 3.6.6.1, Impact E-2 of Alternative 5 would be less than significant (Class II).

Impact E-3 (Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.6.6.1). Although portions of this alternative would be installed underground, the transmission line route would be identical to that of the proposed Project and would have the same potential for Impact E-3 as the proposed Project, as presented in Section 3.6.6.1. The underground section of Alternative 5 is not located near

landfills or oil fields. Impact E-3 for Alternative 5 would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-3a (Determine if landfill gases are present), E-3b (Implement Personnel Safety and Monitoring Measures), and E-3c (Verify location and status of abandoned natural oil and gas wells). Although the more extensive amount of ground disturbance and increased duration of construction activities associated with underground installation would incrementally increase the potential for this to occur, compared to the proposed Project, with implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 5 would be less than significant (Class II).

Impact E-4 (Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading) would be the same under Alternative 5 as it would for the proposed Project. Although portions of this alternative would be installed underground, the transmission line route would be identical to that of the proposed Project and would have the same potential for encountering unknown contamination as the proposed Project (please see Section 3.6.6.1). Most of the underground section is located in residential areas with limited potential for unanticipated preexisting soil or groundwater contamination. Impact E-4 would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-4a (Appoint individuals with correct training for sampling, data review, and regulatory coordination) and E-4b (Document compliance with APM HAZ-3). Although the more extensive amount of ground disturbance and increased duration of construction activities associated with underground installation would incrementally increase the potential for this to occur, compared to the proposed Project, with implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-4 of Alternative 5 would be less than significant (Class II).

Cause contamination of soils or groundwater within the Project area during operation of the Project (Criterion ECH3)

Impacts associated with Criterion ECH3 for Alternative 5 would be identical to impacts associated with this criterion for the proposed Project. Alternative 5 is identical to the proposed Project with respect to the operational use of hazardous materials at substations, transition stations, and the transmission line and would result in the same potential for Impact E-5 (Soil or groundwater contamination could result from an accidental spill during operation) to occur and would require implementation of APM HAZ-5 (Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan). The sulfur hexafluoride insulating gas (SF_6) is potentially a suffocation hazard, it is not considered to be hazardous (toxic) with potential to contaminate the soil or groundwater. With implementation of APM HAZ-5, as described in Section 3.6.6.1, Impact E-5 of Alternative 5 would be less than significant (Class III).

3.6.9.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to environmental contamination is limited to the immediate vicinity surrounding the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the current and past land use are the most significant factor to evaluate the potential for environmental contamination at a project site. The geographic extent is identical to the proposed Project as presented in Section 3.6.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 5 are identical to the proposed Project as discussed in Section 3.6.6.2.

Reasonably Foreseeable Future Projects and Changes

The future conditions related to Alternative 5 are identical to the proposed Project as discussed in Section 3.6.6.2.

Cumulative Impact Analysis

Impacts of Alternative 5 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.6.6.2. Therefore, Impacts E-1 through E-5 for Alternative 5 would not be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

There are no impacts or significant cumulative effects of Alternative 5 related to environmental contamination and no additional mitigation is needed.

3.6.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

3.6.10.1 Direct and Indirect Effects Analysis

Result in soil contamination during construction (Criterion ECH1)

Impacts associated with Criterion ECH1 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project. However, because Alternative 6 would require greater use of helicopters and increased fueling and maintenance in the field along Segment 6 and Segment 11 than the proposed Project, this alternative would result in an incrementally increased potential for soil contamination resulting from spills and leaks (Impact E-1) to occur. APM HAZ-2 (Hazardous Materials and Waste Handling Management Program) would be included as part of the Project in order to reduce the likelihood of spills, develop proper storage and handling procedures, outline hazardous waste transport, provide Project-specific training for personnel, develop procedures for fueling and maintaining construction equipment and helicopters, and include an emergency response program to ensure quick and safe cleanup of accidental spills (SCE, 2007). Although the increased amount of helicopter use and associated fueling and maintenance in undeveloped areas of this alternative would incrementally increase the potential for this to occur compared to the proposed Project, with implementation of APM HAZ-2, as described in Section 3.6.6.1, and APMs HYD-1 through HYD-4, as described in Section 3.8 - Hydrology and Water Quality, Impact E-1 of Alternative 6 would be less than significant (Class III).

Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors (Criterion ECH2)

Impacts associated with Criterion ECH2 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project. Although less ground disturbance would occur under this alternative than the proposed Project as a result of the decreased amount of road construction that would be required along Segment 6 and Segment 11 for this alternative, the transmission line route would be identical to that of the proposed Project and would not cross through or adjacent to any new areas with

known or suspected contamination, landfills or oil wells. Therefore, the Environmental Contamination impacts of Alternative 6 would be the same as the proposed Project. These impacts and their associated mitigation measures that fall under Criterion ECH2 are summarized in the following paragraphs. Please see Section 3.6.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are identical to the proposed Project.

Alternative 6 does not traverse areas of intensive agricultural use where pesticides and herbicides would be applied regularly. Consequently, there is no potential to expose workers during construction to residual pesticides and herbicides in the soil and no impact would occur.

Impact E-2 (Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites) would be the same under Alternative 6 as it would for the proposed Project (please see Section 3.6.6.1). Although portions of this alternative include grading of 10 new helicopters staging sites, the transmission line route would be identical to that of the proposed Project and would traverse through or near the same sites with known contamination as the proposed Project. Although Alternative 6 includes grading of level pads in hillside areas in undeveloped areas of the ANF, the potential for encountering and mobilizing existing soil contamination is the same as presented in Section 3.6.6.1, and would require implementation of Mitigation Measures E-2a (Perform Phase I ESAs along existing transmission line ROWs) and E-2b (Based on Phase I ESAs, perform Phase II Investigations for potentially contaminated sites). Alternative 6 has comparable ground disturbance and duration of construction activities as the proposed Project. With implementation of these measures, as described in Section 3.6.6.1, Impact E-2 of Alternative 6 would be less than significant (Class II).

Impact E-3 (Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases) would be the same under Alternative 6 as it would for the proposed Project (please see Section 3.6.6.1). None of the helicopter staging areas is located near oil fields or landfills and the transmission line route would be identical to that of the proposed Project and would have the same potential for Impact E-3 as the proposed Project, as presented in Section 3.6.6.1. Impact E-3 for Alternative 6 would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-3a (Determine if landfill gases are present), E-3b (Implement Personnel Safety and Monitoring Measures), and E-3c (Verify location and status of abandoned natural oil and gas wells). With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 6 would be less than significant (Class II).

Impact E-4 (Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading) would be the same under Alternative 6 as it would for the proposed Project. Although portions of this alternative include grading of level areas within hillside terrain, the transmission line route would be identical to that of the proposed Project and would have the same potential for encountering unknown contamination as the proposed Project (please see Section 3.6.6.1). Although Alternative 6 would require more grading locally along Segment 6 and Segment 11 than the proposed Project and would result in an incrementally increased area of ground disturbance, this ground disturbance would occur in undeveloped areas of ANF and construction activities would have no potential to encounter unanticipated preexisting soil or groundwater contamination. Impact E-4 would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-4a (Appoint individuals with correct training for sampling, data review, and regulatory coordination) and E-4b (Document compliance with APM HAZ-3). With implementation of the mitigation measures listed

above and described in detail in Section 3.6.6.1, Impact E-4 of Alternative 6 would be less than significant (Class II).

Cause contamination of soils or groundwater within the Project area during operation of the Project (Criterion ECH3)

Impacts associated with Criterion ECH3 for Alternative 6 would be identical to impacts associated with this criterion for the proposed Project. Alternative 6 is identical to the proposed Project with respect to the operational use of hazardous materials at substations and along the transmission line and would result in the same potential for Impact E-5 (Soil or groundwater contamination could result from an accidental spill during operation) to occur and would require implementation of APM HAZ-5 (Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan). With implementation of APM HAZ-5, as described in Section 3.6.6.1, Impact E-5 of Alternative 6 would be less than significant (Class III).

3.6.10.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to environmental contamination is limited to the immediate vicinity surrounding the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the current and past land use are the most significant factor to evaluate the potential for environmental contamination at a project site. The geographic extent is identical to the proposed Project as presented in Section 3.6.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 6 are identical to the proposed Project as discussed in Section 3.6.6.2.

Reasonably Foreseeable Future Projects and Changes

The future conditions related to Alternative 6 are identical to the proposed Project as discussed in Section 3.6.6.2.

Cumulative Impact Analysis

Impacts of Alternative 6 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.6.6.2. Therefore, Impacts E-1 through E-5 for Alternative 6 would not be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

There are no impacts or significant cumulative effects of Alternative 6 related to environmental contamination and no additional mitigation is needed.

3.6.11 Alternative 7: 66-kV Subtransmission Alternative

3.6.11.1 Direct and Indirect Effects Analysis

Result in soil contamination during construction (Criterion ECH1)

Impacts associated with Criterion ECH1 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project. However, because Alternative 7 would require a minor increase in overall construction effort (underground versus overhead construction), this alternative would result in an incrementally increased potential for soil contamination resulting from spills and leaks (Impact E-1) to occur. APM HAZ-2 (Hazardous Materials and Waste Handling Management Program) would be included as part of the Project in order to reduce the likelihood of spills, develop proper storage and handling procedures, outline hazardous waste transport, provide Project-specific training for personnel, develop procedures for fueling and maintaining construction equipment, and include an emergency response program to ensure quick and safe cleanup of accidental spills (SCE, 2007). Although the increased amount of construction effort and associated fueling and maintenance of equipment for this alternative would incrementally increase the potential for this to occur compared to the proposed Project, with implementation of APM HAZ-2, as described in Section 3.6.6.1, and APMs HYD-1 through HYD-4, as described in Section 3.8 Hydrology and Water Quality, Impact E-1 of Alternative 7 would be less than significant (Class III).

Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors (Criterion ECH2)

Impacts associated with Criterion ECH2 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project. Although more underground construction would occur under this alternative than the proposed Project, only 0.6 mile of underground construction occurs in areas of commercial land use activities. The three subtransmission alignments do not pass through or adjacent to any new areas with known or suspected contamination, landfills or oil wells. Therefore, the Environmental Contamination impacts of Alternative 7 would be the same as the proposed Project. These impacts and their associated mitigation measures that fall under Criterion ECH2 are summarized in the following paragraphs. Please see Section 3.6.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are identical to the proposed Project.

Alternative 7 does not traverse areas of intensive agricultural use where pesticides and herbicides would be applied regularly. Consequently, there is no potential to expose construction workers to residual pesticides and herbicides in the soil and no impact would occur.

Impact E-2 (Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites) would be the same under Alternative 7 as it would for the proposed Project (please see Section 3.6.6.1). Although portions of this alternative include a 0.6 mile underground 66-kV subtransmission line, the transmission line route would be nearly identical to that of the proposed Project and would traverse through or near the same sites with known contamination as the proposed Project. Although Alternative 7 includes underground construction for 0.6 mile, the potential for encountering and mobilizing existing soil contamination beneath the existing paved roadways is the same as presented in Section 3.6.6.1, and would require implementation of Mitigation Measures E-2a (Perform Phase I ESAs along transmission line ROWs) and E-2b (Based on Phase I ESAs, perform Phase II Investigations for potentially contaminated sites). With implementation of these measures, as described in Section 3.6.6.1, Impact E-2 of Alternative 7 would be less than significant (Class II).

Impact E-3 (Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases) would be the same under Alternative 7 as it would for the proposed Project (please see Section 3.6.6.1). None of the underground alignments of Alternative 7 are located within oil fields or near landfills. The Whittier Narrows overhead alignment options pass~~es~~ through the Montebello Oil Field and would have the same potential for Impact E-3 as the proposed Project, as presented in Section 3.6.6.1. Impact E-3 for Alternative 7 would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-3a (Determine if landfill gases are present), E-3b (Implement Personnel Safety and Monitoring Measures), and E-3c (Verify location and status of abandoned natural oil and gas wells). With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-3 of Alternative 7 would be less than significant (Class II).

Impact E-4 (Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading) would be the same under Alternative 7 as it would for the proposed Project. Although portions of this alternative include underground construction in commercial land use areas, the transmission line routes would be nearly identical to that of the proposed Project and would have the same potential for encountering unknown contamination as the proposed Project (please see Section 3.6.6.1). Although Alternative 7 would require more underground construction in commercial areas locally along Segment 7 than the proposed Project and would result in an incrementally increased potential to encounter unanticipated preexisting soil or groundwater contamination. Impact E-4 would require implementation of the following mitigation measures, which are fully described in Section 3.6.6.1: E-4a (Appoint individuals with correct training for sampling, data review, and regulatory coordination) and E-4b (Document compliance with APM HAZ-3). With implementation of the mitigation measures listed above and described in detail in Section 3.6.6.1, Impact E-4 of Alternative 7 would be less than significant (Class II).

Cause contamination of soils or groundwater within the Project area during operation of the Project (Criterion ECH3)

Impacts associated with Criterion ECH3 for Alternative 7 would be identical to impacts associated with this criterion for the proposed Project. Alternative 7 is identical to the proposed Project with respect to the operational use of hazardous materials at substations and along the transmission line and would result in the same potential for Impact E-5 (Soil or groundwater contamination could result from an accidental spill during operation) to occur and would require implementation of APM HAZ-5 (Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan). With implementation of APM HAZ-5, as described in Section 3.6.6.1, Impact E-5 of Alternative 7 would be less than significant (Class III).

3.6.11.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to environmental contamination is limited to the immediate vicinity surrounding the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the current and past land use are the most significant factor to evaluate the potential for environmental contamination at a project site. The geographic extent is identical to the proposed Project as presented in Section 3.6.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 7 are identical to the proposed Project as discussed in Section 3.6.6.2.

Reasonably Foreseeable Future Projects and Changes

The future conditions related to Alternative 7 are identical to the proposed Project as discussed in Section 3.6.6.2.

Cumulative Impact Analysis

Impacts of Alternative 7 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.6.6.2. Therefore, Impacts E-1 through E-5 for Alternative 7 would not be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

There are no impacts or significant cumulative effects of Alternative 7 related to environmental contamination and no additional mitigation is needed.

3.6.12 Impact Significance Summary

Table 3.6-15~~14~~ summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives related to environmental contamination and hazards. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.6.6 through 3.6.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.6.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in ~~the table on the following page~~Table 3.6-15.

Table 3.6-15~~14~~. Summary of Impacts and Mitigation Measures – Environmental Contamination & Hazards

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
E-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended.
E-2: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	E-2a: Perform Phase I ESAs along existing transmission line ROWs. E-2b: Perform Phase II Investigations for potentially contaminated sites.
E-3: Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	E-3a: Determine if landfill gases are present. E-3b: Implement Personnel Safety and Monitoring Measures. E-3c: Verify location and status of abandoned oil and natural gas wells.

Table 3.6-15~~14~~. Summary of Impacts and Mitigation Measures – Environmental Contamination & Hazards

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
E-4: Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	E-4a: Appoint individuals with correct training for sampling, data review, and regulatory coordination. E-4b: Document compliance with APM HAZ-3.
E-5: Soil or groundwater contamination could result from an accidental spill during operation.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended.
E-6: Excavation or grading could result in mobilization of existing soil contamination or encountering ordnance ~~associated with~~from known munitions testing and disposal ~~explosives from known~~ sites	N/A	No Impact	No Impact	Class III	No Impact	No Impact	No Impact	No	E-6a: Conduct ordnance recognition training E-6b: Detect and remove MEC from access roads

N/A = Not Available

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.

3.7 Geology, Soils, and Paleontology

3.7.1 Introduction

This section describes effects related to geology, soils, and paleontology that would be caused by implementation of the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to geology, soils, and paleontology are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

The information and analysis that is presented in this section has been derived from the *Tehachapi Renewable Transmission Project Geology, Soils, and Paleontology Specialist Report*, prepared by Geotechnical Consultants, Inc. (2009~~8~~). While this section presents the findings of the *Geology, Soils, and Paleontology Specialist Report*, please refer to that report for more detailed information on Project effects related to geology, soils, and paleontology.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following issues related to geology, soils, and paleontology that were raised during scoping are addressed in this section:

- Natural disasters could cause towers to fall (address soil stability and/or seismic fault proximity).
- Necessity for liquefaction studies/analysis, including recent research data on local faults such as the Whittier, Puente Hills Blind Thrust, and the Elysian Park Blind Thrust.

Summary and Comparison of Alternatives

Table 3.7-1 on the following page presents some key factors related to geology, soils, and paleontology for each alternative, including a summary of the direct and indirect effects of the TRTP alternatives related to geology, soils, and paleontology. These impacts are further described in Sections 3.7.5 through 3.7.11.

3.7.2 Affected Environment

Baseline geologic, seismic, soils, and paleontological information were collected from published and unpublished literature, GIS data, and online sources for the proposed Project and the surrounding area. The literature and data review was supplemented by field reconnaissance. The literature review and field reconnaissance focused on the identification of specific geologic hazards and paleontologic resources along and adjacent to the Project ROW.

3.7.2.1 Regional Setting

The Tehachapi Renewable Transmission Project is located within the Mojave Desert and Transverse Ranges geomorphic provinces of southern California, which is characterized by a complex series of mountain ranges and valleys with dominant east-west trends. The TRTP traverses six distinct geographic

Table 3.7-1. Summary Comparison of Environmental Issues/Impacts – Geology, Soils, and Paleontology

Environmental Issues / Impacts	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Project activities could interfere with access to known energy resources (Impact G-1)	Construction of new T/Ls of comparable length and new/ upgraded/expanded substations in lieu of the Project would have the same impacts where near active oil fields.	Construct 853 new transmission structures across 172.5~~9~~ miles near 2 active oil fields.	Construct 852 new transmission structures across 172.9~~3.3~~ miles near 2 active oil fields.	Construct 762 (4A), ~~to~~ 802 (4C), and 791 (4C Mod) new transmission structures across 157 (4A) to 159 (4C) miles near 2 active oil fields.	Construct 838 new transmission structures across 172.5~~9~~ miles near 2 active oil fields.	Same as Alternative 2.	Same as Alternative 2.
Erosion could be triggered or accelerated due to construction activities (Impact G-2)	Construction of new T/Ls in areas with comparable soils in lieu of the Project would have the same impacts.	Soil erosion could occur due to grading and excavation at new and modified access and spur roads, storage yards, 853 tower locations, ~~12~~ 13 helicopter staging areas, one new substation, and expansion at five existing substations.	Construct approx. 2 miles of new access road; two additional towers and spur roads.	Despite shorter length and fewer towers compared to other alternatives, the potential for erosion is increased due to the need for access/spur roads and graded pads for new switching stations in the Chino Hills State Park (CHSP) and other previously undisturbed areas underlain by erodible soils. Approx. miles of additional roads: Alts 4A & 4B – 6.5 mi; Alts 4C & 4D – 9.5 mi; Alt 4C Mod – 2.6 mi.	Construction of large transition stations would disturb more soil resulting in increased potential to trigger or accelerate erosion.	Use of helicopter construction results in less grading of access and spur roads ~~and one less helicopter staging area that would potentially need to be graded~~ compared to Alternative 2. The overall ground disturbance during construction would be reduced by approximately ~~82~~ 86 acres compared to Alternative 2, resulting in a decreased potential to trigger or accelerate erosion.	Construction of underground 66-kV re-routes and installation of new poles for the overhead 66-kV routes would require additional excavation and trenching resulting in slightly more disturbance of soil resulting in incrementally increased potential to trigger or accelerate erosion.
Excavation and grading during construction activities could cause slope instability or trigger landslides (Impact G-3)	New T/Ls in hillside areas may or may not encounter areas of landslides and unstable slopes.	Slope failures could be triggered by construction related excavation and grading of access and spur roads, helicopter staging areas, and new towers through approximately 77 miles of hillside and mountain areas with known landslides and	Same as Alternative 2.	Greater risk of slope instability due to increased length of alignment in landslide prone Puente formation which would result in increased ground disturbance ~~in the landslide-prone Puente Formation~~in areas prone to landslides and slope instability as	Incrementally less than Alternative 2 because construction bypasses some towers along hillsides in the landslide prone Puente Formation.	Reduced construction and grading of access and spur roads in steep mountainous terrain (approximately 60 less acres of ground disturbance during construction than Alternative 2) resulting in a decreased potential to trigger landslides or slope	Same as Alternative 2.

Table 3.7-1. Summary Comparison of Environmental Issues/Impacts – Geology, Soils, and Paleontology

Environmental Issues / Impacts	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
		unstable slopes.		compared to Alternative 2. Approx. mileage of new roads and towers in hillside area with known landslide potential: Alts 4A & 4B – 2.7 mi.; Alts 4C/4C Mod & 4D – 9.5 mi.		instability during construction.	
Project structure damage from surface fault rupture at crossings of active faults exposing people or structures to hazards (Impact G-4)	Construction of new T/Ls may or may not cross active faults with surface rupture potential.	New T/Ls cross or parallel 10 active faults and one potentially active fault~~ in 9 locations~~.	Same as Alternative 2.	Minor decrease for Alternatives 4A~~ and~~ , 4C, and 4C Mod. due to ~~one less~~ two fewer fault crossings (the northward projection of Chino fault~~-~~ and the potentially active Central Ave faults along Segment 8A~~, which is not a large significantly active fault~~). Otherwise the same as Alternative 2 for these three routes. Slightly increased potential for fault rupture for Alternative 4B and 4D due ~~to the~~ to the location of the switching station adjacent to or on the mapped trace of the Alquist-Priolo zoned Chino Fault, despite these routes not crossing the potentially active Central Avenue fault.	Incrementally increased due to underground construction proposed across the projected trend of the active ~~of~~ Chino fault at the eastern end of tunnel and at the eastern transition station.	Same as Alternative 2.	Incrementally increased due to proposed construction of two of the 66-kV re-routes for this alternative, the Segment 7 and the Segment 8A (both Options 1 and 2) Whittier Narrows 66-kV OH re-routes, across the southward projection of the East Montebello Hills fault ~~Same~~ Otherwise the same as Alternative 2.

Table 3.7-1. Summary Comparison of Environmental Issues/Impacts – Geology, Soils, and Paleontology

Environmental Issues / Impacts	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Project structure damage from seismically induced groundshaking and/or ground failure exposing people or structures to hazards (Impact G-5)	New T/Ls throughout the southern California will be exposed to seismic groundshaking; may or may not be located in areas susceptible to ground failure (liquefaction, landslides, unstable slopes).	New T/Ls, and new or expanded substations would be exposed to strong to severe groundshaking, and local areas of low to ~~moderate~~ high liquefaction potential, seismically induced landslides and slope failure.	Same as Alternative 2.	Slightly greater risk of earthquake-induced landslides due to the increased length of the alignment and placement of new switching stations and associated access roads in areas underlain by landslide prone Puente Formation. Approx. number of additional towers placed in landslide-prone areas: Alternative 4A - 15; Alternative 4B - 23; Alts 4C/4C Mod & 4D - 28. Liquefaction hazard is slightly decreased due to the decreased length of alignment crossing potentially liquefiable sediments and avoidance of young alluvial sediments of the western Chino Basin.	Incrementally less than Alternative 2 because construction bypasses some towers along hillsides in the landslide-prone Puente Formation, resulting in less potential for earthquake induced landslide damage.	Same as Alternative 2.	Same as Alternative 2.
Project structure damage from problematic soils exposing people or structures to hazards (Impact G-6)	Construction of new T/Ls and substations may or may not be in areas of unsuitable soil.	New T/Ls, new substation, and expanded substations are located locally in areas of unsuitable soils.	Same as Alternative 2.	Slightly less potential for damage to Project structures due to unsuitable soils because the shorter length would require fewer towers. Approx. reduction in towers: Alternative 4A – 91; Alternative 4B – 72;	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

Table 3.7-1. Summary Comparison of Environmental Issues/Impacts – Geology, Soils, and Paleontology

Environmental Issues / Impacts	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
				Alternative 4C/4C Mod – 51; Alternative 4D – 62.			
Transmission line structure damage from landslides, earth flows, or debris slides, during operation (Impact G-7)	Construction of new T/Ls and substations may or may not be in hillside areas with landslides or other types of slope failures.	Approximately 360 new towers would be constructed through 77 miles of hillside and mountain areas with known landslides and unstable slopes.	Same as Alternative 2.	Greater risk of slope instability due to increased length of alignment and placement of new switching stations and associated access roads in areas underlain by the ~~in landslide~~landslide-prone Puente Formation. Approx. number of additional towers in landslide-prone areas: Alternative 4A - 15; Alternative 4B - 23; Alts 4C/4C Mod & 4D - 28.	Incrementally less than Alternative 2 because construction bypasses some towers along hillsides in the landslide-prone Puente Formation.	Same as Alternative 2	Same as Alternative 2
Grading and excavation could destroy paleontologic resources (Impact G-8)	Construction of comparably-sized substations and length of T/L would have the same impacts as the Project.	Ground disturbance due to construction of new transmission structures and access and spur roads across approximately 66.4 miles of geologic units with moderate to high paleontologic sensitivity.	Same as Alternative 2.	Increased grading and excavation in geologic unit having high paleontologic sensitivity. Approximate miles of additional roads: Alternatives 4A and 4B – 6.5 miles; Alternatives 4C and 4D – 9.5 miles; Alternative 4C Mod – 2.6 miles. Approximate reduction in towers: Alternative 4A – 91; Alternative 4B - 72; Alternative 4C/4C Mod	Incrementally increased due to the greater ground disturbance required for tunneling and construction of the transition stations in units with moderate to high paleontologic sensitivity.	Same as Alternative 2.	Slightly increased due to the greater ground disturbance required for trenching and excavation for underground 66-kV re-routes in units with moderate paleontologic sensitivity.

Table 3.7-1. Summary Comparison of Environmental Issues/Impacts – Geology, Soils, and Paleontology

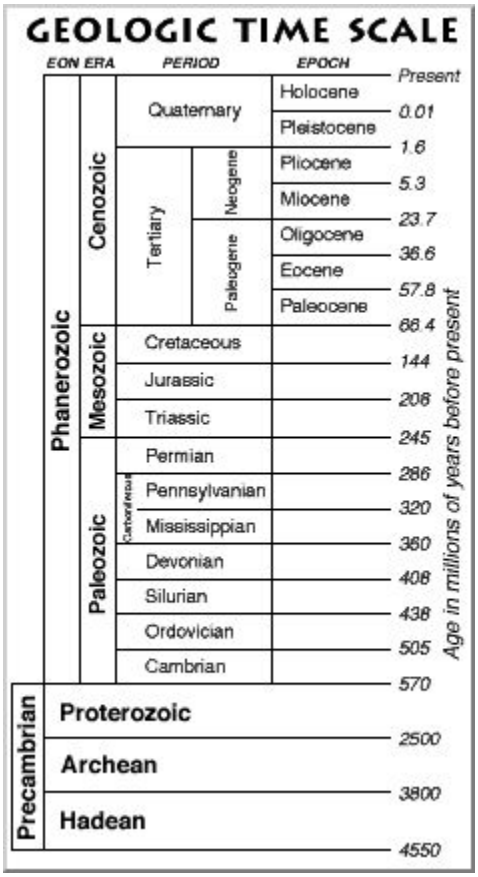
Environmental Issues / Impacts	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
				- 51; Alternative 4D - 62.			
Existing structures could be damaged by ground settlement along the tunnel exposing people or structures to hazards (Impact G-9)	Construction of new T/Ls may or may not include underground construction and tunneling.	Would not occur because no tunnels would be constructed.	Same as Alternative 2.	Same as Alternative 2.	Short-term (days) and long-term (years) settlement of the ground surface could occur during construction and operation of the tunnel and shafts (underground portion only).	Same as Alternative 2.	Same as Alternative 2.

areas, the Antelope Valley, the Leona Valley (the San Andreas Rift Zone), the Liebre-Sierra Pelona Mountains, the San Gabriel Mountains, San Gabriel Valley, the Montebello and Puente and Chino Hills, and the Chino Valley. The Antelope Valley consists of approximately 1200 square miles of elevated desert terrain, located along the western edge of the Mojave Desert. The Leona Valley is a small, northwest-southeast trending longitudinal valley formed by movement on multiple overlapping strands of the San Andreas Fault in the San Andreas Rift Zone, and in the Project area is bounded on the northeast by the Portal Hills and on the southwest by foothills of the Sierra Pelona. The Liebre-Sierra Pelona Mountains are a small northwest-southeast trending mountain range within the central Transverse Ranges. The San Gabriel Mountains are comprised of Precambrian to Cretaceous igneous and metamorphic rock. The San Gabriel and Chino Valleys are deep structural basins predominantly filled with semi- to unconsolidated Quaternary alluvial deposits. The Montebello Hills consist predominantly of Pliocene marine and nonmarine sedimentary rock, whereas the Puente and Chino Hills are composed of older (Miocene and Pliocene) marine sedimentary rock units.

This section presents a discussion of the regional geology, seismicity, soils, mineral resources, and paleontology in the Project area. Section 3.7.2.2 presents more specific discussions of each of these issues along the proposed route, broken up into three areas based on the general geologic character the various Project segments cross.

Geologic Setting

Exhibit 1. Geologic Time Scale



The Tehachapi Renewable Transmission Project segments cross five areas of distinctive geologic character and province, the Antelope Valley, the San Andreas Rift Zone, the Liebre-Sierra Pelona Mountains, the San Gabriel Mountains, and the Los Angeles Basin. The proposed TRTP route is underlain in various areas by sedimentary, volcanic, igneous, and metamorphic units ranging in age from Quaternary (approximately the last 1.6 million years) to Pre-Cenozoic (greater than 65 million years). Exhibit 1 (Geologic Time Scale) shows the geologic time scale indicating the breakdown of geologic time units and corresponding ages.

The proposed route crosses lacustrine deposits, alluvial plains and valleys, alluvial fans and pediments, mountain passes, and hills. In addition to data provided in the PEA, geologic maps from the California Geological Survey (CGS) Geologic Map Sheet Series (Bakersfield Sheet, 1965; Los Angeles Sheet, 1969; Long Beach Sheet, 1962; the Santa Ana Sheet, 1966; and the San Bernardino Sheet, 1986), scale 1:250,000, and 7-5 Minute Geologic Quadrangle maps (Dibblee 1989, 1996, 1997, 1998, 1999, 2001a, 2001b, 2001c, 2002a, 2002b, and 2002c), were reviewed to determine location of faults and location and type of geologic units crossed by the Project route. Approximate locations (milepost locations) of geologic units, descriptions, and general characteristics along the Project ROWs are presented in Section 3.7.2.2 by segment.

Antelope Valley. The Antelope Valley is primarily an alluviated desert plain containing bedrock hills and low mountains. Western Antelope Valley is characterized by relatively flat-lying topography and valley fill deposits. In the Project area and vicinity, the western Antelope Valley is covered primarily by alluvial deposits of Quaternary age: Holocene Alluvium and Pleistocene Older Alluvium. The Holocene alluvial deposits consist of slightly dissected alluvial fan deposits of gravel, sand and clay. The Older Alluvium is located primarily near the margins of the Antelope Valley at the flanks of Portal Ridge and consists of weakly consolidated, uplifted and moderately to severely dissected alluvial fan and terrace deposits composed primarily of sand and gravel (Dibblee, 2001c). The ridges are comprised of crystalline rocks of igneous and metamorphic composition. The west-trending Hitchbrook Fault, which diverges from the San Andreas Fault northwest of the Project area, separates Portal Ridge, with Pelona Schist on the southeast from granitic rocks on the northwest. Beyond the ridge, the Project alignment crosses into the San Andreas Rift Zone in Leona Valley (Norris and Web, 1990).

San Andreas Rift Zone. In the Project area, the San Andreas Fault lies within a linear, trough-like valley called the San Andreas Rift Zone. The Rift Zone in the Project area consists of several anastomosing fault segments (i.e. interlacing faults), which along with erosion by Amargosa Creek, has widened the zone into a valley, the Leona Valley. Holocene Alluvium, Pleistocene Older Alluvium, and the non-marine Pliocene Anaverde Formation underlie the Leona Valley. Exposed among interlacing fault strands within the San Andreas Fault Zone are several members of the Anaverde Formation: the sandstone, clay shale, and breccia members (CGS, 2003e; Dibblee, 2001c). The sandstone member is a medium-to thick-bedded, locally massive, fine to coarse-grained, locally pebbly, with local thin silty interbeds. The clay shale member is thin-bedded, sandy, silty, locally very gypsiferous clay shale with interbedded siltstone and sandstone layers. The breccia member is distinctive, reddish to dark gray, massive, pervasively sheared sedimentary breccia with angular clasts of hornblende diorite. Bedding within the Anaverde Formation strikes mostly parallel to the bounding faults, and has steep to vertical dips (CGS, 2003e).

Liebre-Sierra Pelona Mountains. The Liebre-Sierra Pelona Mountains are composed of late Mesozoic or older granitic and metamorphic rocks north of the Clearwater Fault, Paleocene (early Tertiary) San Francisquito Formation between the Clearwater and San Francisquito Faults, and Mesozoic Pelona Schist south of the San Francisquito Fault (Norris and Web, 1990). The granitic and metamorphic rocks consist of a complex mixture of biotite-rich, closely-fractured quartz diorite and gneiss with local inclusions of diorite and amphibolite. San Francisquito Formation is a layered marine clastic, lithified sedimentary rock formation comprised of thick-bedded arkosic sandstone, cobble and pebble conglomerate, and clay shale and siltstone. The Pelona Schist is primarily composed of distinctive bluish-gray schist that was metamorphosed from clastic and pryoclastic sedimentary rocks.

San Gabriel Mountains. The San Gabriel Mountains, part of the Transverse Ranges, are a 35 km-wide by 110 km-long, WNW-trending uplift bounded by the right-lateral San Andreas Fault on the north and the reverse San Fernando-Sierra Madre-Cucamonga faults on the south. The range is mainly composed of a complex of igneous and metamorphic rocks of Precambrian to early Cenozoic age. These igneous rocks include a diverse assemblage of Precambrian anorthosite-gabbro and Mesozoic granitic rocks (granodiorite, quartz monzonite, quartz diorite, gabbro) which complexly intrude various metamorphic rocks (gneiss, schist, and mylonite) of Precambrian to Mesozoic age. Sedimentary rocks (sandstone, shale, siltstone, and conglomerate) of Cenozoic age locally overlie the crystalline rocks mostly in the westernmost part of the range and occur extensively in the Santa Susana Mountains and unnamed hills to the north (McCalpin & Hart, 2002).

In the San Gabriel Mountains, slopes are very steep, ridge tops are narrow, local relief ranges from several hundred to several thousand feet, rocks are dominantly intrusive or gneissic rocks, and local shearing and hydrothermal alteration zones are abundant and control local physiography. The San Gabriel Mountains rise abruptly from the San Fernando and San Gabriel Valleys (with approximate elevations of 900 to 1800 feet at the base of the range front) to an elevation of up to 10,065 feet at Mount San Antonio in the far eastern part of the range. In the range itself major canyons are incised approximately 900 to 1800 feet into a rugged topography where slopes are near the angle of repose, and ridge crests reach relatively uniform heights of 4500 to 6300 feet. Higher elevations are found only in the southeastern part of the range around Mt. San Antonio.

Los Angeles Basin. The Project crosses through the northeastern block of the Los Angeles basin, which is a northwest to southeast triangular wedge about 35 miles and is about 18 miles wide at its widest point. The northeastern block of the Los Angeles basin includes the Repetto, Puente, and San Jose Hills, the San Gabriel Valley, and the Chino basin. The Los Angeles basin developed in the Neogene (Miocene and Pliocene) as a result of regional crustal extension associated with the clockwise rotation of the Transverse Ranges during a crustal upheaval caused by a shift in the surrounding mountains. The underlying crustal weakening resulted in the formation of a large synclinal basin in which sediment from the sea and rivers accumulated, building up in thick layers. Since the early Pliocene, the basin has been deformed by numerous strike-slip, reverse, and blind-thrust faults that accommodate the oblique convergence between the Pacific and North American plates. This tectonic history has resulted in a complex physiographic and geologic structure in the Los Angeles basin (Komatitsch et. al, 2004).

The Los Angeles Basin is divided into four crustal blocks by significant northwest-trending faults. These are informally designated the southwestern, northwestern, central and northeastern blocks. Main faults involved in this division are: the Newport-Inglewood Fault Zone separating the central from the southwestern block, the Whittier Fault Zone separating the central from the northwestern block, and the east–west trending Santa Monica Fault Zone separating the northwestern from all other blocks. The TRTP alignment in the Los Angeles Basin crosses geographic features of the northeastern block, including the San Gabriel Valley, Puente Hills, Chino Hills, and Chino Basin.

Geologic Hazards

Slope Stability

Important factors that affect the slope stability of an area include the steepness of the slope, the relative strength of the underlying rock material, and the thickness and cohesion of the overlying colluvium. The steeper the slope and/or the less strong the rock, the more likely the area is susceptible to landslides. The steeper the slope and the thicker the colluvium, the more likely the area is susceptible to debris flows. Another indication of unstable slopes is the presence of old or recent landslides or debris flows.

Most of the proposed route does not cross any areas mapped as identified existing landslides; however, where the alignments cross mountainous and hilly areas they are partially underlain by landslide prone metamorphic (Pelona Schist and weathered gneiss), sheared igneous and metamorphic (along the San Gabriel fault), and sedimentary (Puente Formation) rocks that are susceptible to slope failures in areas with moderate to steep slopes and unfavorable bedding dip directions. Mapped landslides are present along and near the Project alignments where they cross these units. Unmapped landslides and areas of localized slope instability may also be encountered in the hills and mountains traversed by the proposed

Project route. Areas underlain by granitic rocks are generally only susceptible to surficial soil creep, or to rockfall in over-steepened areas.

Soils

The soils along the proposed route reflect the underlying rock type, the extent of weathering of the rock, the degree of slope, and the degree of human modification. The route crosses undeveloped desert and forest land, agricultural and rural residential land, light industrial and commercial areas, and suburban residential areas. The TRTP segment routes cross areas included in multiple National Resource Conservation Service (NRCS) soil surveys including the Kern County, Southeastern Part – CA670 (2/2006); Antelope Valley Area – CA675 (3/2004); and the Angeles National Forest Area – CA776 (12/2004). The STATSGO databases for California (1994 and 2006) were reviewed for areas not covered by more detailed surveys. More than 50 soil units/type are located along the Project alignment, and a summary of the major soil units traversed by the proposed TRTP segment routes, including the Project segments these units are mapped along, a general description, and select physical characteristics of hazard of erosion, shrink/swell potential, and corrosion potential, is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). These units are mapped along the various segments as individual soil series and as associations, families and complexes of multiple soil series. General locations and characteristics of the soil series, associations, families, and complexes along the TRTP segment routes are discussed below in Section 3.7.2.2 under the appropriate segment.

Potential soil erosion hazards vary depending on the use, conditions, and textures of the soils. For the purposes of this Project, erosion hazard potential was extracted from the Hazard of Erosion and Suitability for Roads tables from the National Resource Conservation Service (NRCS) GIS SSURGO soil databases and the GIS STATSGO databases for California (in areas not covered by more detailed surveys). Two types of potential erosion hazards are presented in this document: (1) hazard of erosion on roads and trails and (2) hazard of erosion off-road and off-trail. These two types of hazards represent the potential for soil erosion along the Project from ground disturbance due to Project construction.

Erosion hazard ratings for "Roads and Trails" apply to the potential for erosion on unsurfaced roads and trails and are ranked as follows:

- Slight – little or no erosion is likely;
- Moderate – some erosion is likely and simple erosion-control measures are needed;
- Severe – significant erosion is expected and major erosion control measures may be needed.

"Off-Road and Off-Trail" erosion hazard ratings apply to the potential for sheet or rill erosion in areas where 50 to 75 percent of the areas has been exposed by ground disturbance (i.e., grading) and are ranked as follows:

- Slight – erosion is unlikely under ordinary climate conditions;
- Moderate – some erosion is likely and erosion-control measures may be needed;
- Severe – erosion is very likely and erosion-control measures are advised; and
- Very severe – significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion control measures would generally be costly and impractical.

The properties of soil which influence erosion by rainfall and runoff are ones that affect the infiltration capacity of a soil, and those which affect the resistance of a soil to detachment and being carried away by falling or flowing water. Additionally, soils on steeper slopes would be more susceptible to erosion due to

the effects of increased surface flow (runoff) on slopes where there is little time for water to infiltrate before runoff occurs.

Soils containing high percentages of fine sands and silt and that are low in density, are generally the most erodible. These soil types generally coincide with soils such as young alluvium and other surficial deposits, which likely occur in areas throughout the Project area. As the clay and organic matter content of these soils increases, the potential for erosion decreases. Clays act as a binder to soil particles, thus reducing the potential for erosion. However, while clays have a tendency to resist erosion, once eroded, they are easily transported by water. Clean, well-drained, and well-graded gravels and gravel-sand mixtures are usually the least erodible soils. Soils with high infiltration rates and permeabilities reduce the amount of runoff.

Corrosivity of soils is generally related to the following key parameters: soil resistivity; presence of chlorides and sulfates; oxygen content; and pH. Typically, the most corrosive soils are those with the lowest pH and highest concentration of chlorides and sulfates. High sulfate soils are corrosive to concrete and may prevent complete curing, reducing its strength considerably. Low pH and/or low resistivity soils could corrode buried or partially buried metal structures.

Expansive soils are characterized by their ability to undergo significant volume change (shrink and swell) due to variation in soil moisture content. Changes in soil moisture could result from a number of factors, including rainfall, landscape irrigation, utility leakage, and/or perched groundwater. Expansive soils are typically very fine grained with a high to very high percentage of clay. Linear extensibility is the method used by the NRCS to determine the shrink-swell potential of soils. Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. The volume change is reported as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed in areas with expansive soils.

Mineral Resources

Metallic and non-metallic mineral deposits occur within the study area. Metallic mineral deposits are restricted primarily to the areas of exposed igneous and metamorphic bedrock in mountain areas. Gold, copper, and iron are the predominant metallic minerals mined in California; however, no active metallic-mineral deposits mines are located in the Project vicinity. Non-metallic mineral resources consisting of sand, clay, gravel, rock products, and petroleum are important mineral resources in California and are still activity mined in the Project vicinity (Kohler, 2002).

Both metallic and non-metallic mineral resources are located in the vicinity of the proposed Project ROW. Mineral resources in the area of Kern County near the Project ROWs consist primarily of limestone and dolomite deposits, primarily being quarried for production of cement (CGS, 1962). In Los Angeles County the principal mineral commodities in the Project area are sand, gravel, and crushed and broken stone. Metallic mineral deposits are present in both counties in varying amounts and are primarily restricted to bedrock areas in the mountainous regions; gold, copper, and tungsten were the predominant metallic minerals (ores) mined in these counties (CGS, 1987b). However, no active metallic mines are currently located in the vicinity of the Project ROWs.

GIS data from the U.S. Geological Service (USGS) Mineral Resource Data System (MRDS) for the Project area was reviewed to determine the potential for mine or quarries along the Project ROWs (USGS, 2006). To be conservative, mining locations within 1,000 feet of either side of the route were researched to allow for identification of mineral resource sites that may be within or infringing on the Project ROWs. Additionally, a 1,000-foot buffer was used because mapped locations commonly represent only one point at a mineral resource site which actually may be a much larger site. Further, the location and presence of mineral resource sites were verified using aerial photos.

Ten sites with either mineral occurrences or past or current mining activities are identified in the MRDS within 1,000 feet of the proposed TRTP route, which include six sites along Segment 6, two sites along Segment 7, and two sites along Segment 11. No mineral resource sites were identified by the MRDS along the remaining segments. The sites along Segments 6, 7, and 11 are discussed in further detail below in Section 3.7.2.2.

The geology and structure of the Los Angeles basin has resulted in numerous oil and gas fields; currently there are over 30 active oil and/or gas fields in operation and many small abandoned oil/gas fields in the Los Angeles area. A review of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) online maps indicates that several active and abandoned oil or gas fields are located in the vicinity of the TRTP alignments (DOGGR, 2008). The Montebello oil field is located immediately adjacent to Segment 7 and 11 near Mesa Substation. Segment 8A and Alternative 4 traverse near the Brea-Olinda and Chino-Soquel oil fields.

Seismic Hazards

Faults and Seismicity

The seismicity of southern California is dominated by the intersection of the north-northwest trending San Andreas Fault system and the east-west trending Transverse Ranges fault system. Both systems are responding to strain produced by the relative motions of the Pacific and North American Tectonic Plates. This strain is relieved by right-lateral strike-slip faulting on the San Andreas and related faults, left-lateral strike slip on the Garlock fault, and by vertical, reverse-slip or left-lateral strike-slip displacement on faults in the Transverse Ranges. The effects of this deformation include mountain building, basin development, deformation of Quaternary marine terraces, widespread regional uplift, and generation of earthquakes. Both the Transverse Ranges and northern Los Angeles County area are characterized by numerous geologically young faults. These faults can be classified as historically active, active, potentially active, or inactive, based on the following criteria (CGS, 1999a):

- Faults that have generated earthquakes accompanied by surface rupture during historic time (approximately the last 200 years) and faults that exhibit aseismic fault creep are defined as Historically Active.
- Faults that show geologic evidence of movement within Holocene time (approximately the last 11,000 years) are defined as Active.
- Faults that show geologic evidence of movement during the Quaternary time (approximately the last 1.6 million years) are defined as Potentially Active.
- Faults that show direct geologic evidence of inactivity during all of Quaternary time or longer are classified as Inactive.

Although it is difficult to quantify the probability that an earthquake will occur on a specific fault, this classification is based on the assumption that if a fault has moved during the Holocene epoch, it is likely to produce earthquakes in the future. Blind thrust faults do not intersect the ground surface, and thus they are not classified as active or potentially active in the same manner as faults that are present at the earth's

surface. Blind thrust faults are seismogenic structures with no surface expression and thus the activity classification of these faults is predominantly based on geologic data from deep oil wells, geophysical profiles, historic earthquakes, and microseismic activity along the fault.

Since periodic earthquakes accompanied by surface displacement can be expected to continue in the study area through the lifetime of the proposed Project, the effects of strong groundshaking and fault rupture are of primary concern to safe operation of the proposed transmission line and associated facilities.

The Project area will be subject to ground shaking associated with earthquakes on faults of the San Andreas, Garlock, and Transverse Ranges fault systems. Active faults of the San Andreas system are predominantly strike-slip faults accommodating translational movement. Active reverse or thrust faults in the Transverse Ranges include blind thrust faults responsible for the 1987 Whittier Narrows Earthquake and 1994 Northridge Earthquake, and the range-front faults responsible for uplift of the Santa Susana and San Gabriel Mountains. The Transverse Ranges fault system consists primarily of blind, reverse, and thrust faults accommodating tectonic compressional stresses in the region. Blind faults have no surface expression and have been located using subsurface geologic and geophysical methods. This combination of translational and compressional stresses gives rise to diffuse seismicity across the region.

Figure 3.7-1 (Regional Active Faults and Historic Earthquakes) shows locations of active and potentially active faults (representing possible seismic sources) and earthquakes in the region surrounding the Project area. Active and potentially active faults within 50 miles of the Project alignments that are significant potential seismic sources are presented in Table 3.7-2.

Table 3.7-2. Significant Active and Potentially Active Faults in the Project Area

Name	Closest Distance to TRTP (miles)[1]	Closest Segment(s)	Estimated Max. Earthquake Magnitude[2,~~3~~]	Fault Type and Dip Direction[3]	Slip Rate (mm/yr)[3, 4]
Anacapa-Dume	33.4	Segment 11	~~7.5~~7.2	Reverse Left Lateral Oblique, 45° N	3.0
Big Pine	30.1	Segment 4	6.9[3]	Left Lateral Strike Slip, 90°	0.8
Chino~~-Central Ave~~	0	Segment 8A	6.7	Right Lateral Reverse Oblique, 65° SW	1.0
Clamshell-Sawpit	0	Segment 6	~~6.5~~6.7	Reverse, 45° NW	0.5
Cucamonga	9.6	Segment 8B	~~6.9~~6.7	Reverse, 45° N	5.0
Elsinore - Glen Ivy Segment	8.1	Segment 8A	~~6.8~~6.9	Right Lateral Strike Slip, 90°	5.0
Garlock	4.7	Segment 10	7.3	Left Lateral Strike Slip, 90°	6.0
Helendale	36.7	Segment 10	~~7.3~~7.4	Right Lateral Strike Slip, 90°	0.6
Hollywood	8.7	Segment 11	~~6.4~~6.7	Left Lateral Reverse Oblique, 70° N	1.0
Lenwood-Lockhart-Old Woman Springs	31.1	Segment 10	7.5	Right Lateral Strike Slip, 90°	0.6
Malibu Coast	29.7	Segment 11	6.7	Left Lateral Reverse Oblique, 75° N	0.3
Newport-Inglewood	12.3	Segment 11	~~7.1~~7.2	Right Lateral Strike Slip, 90°	1.0
Northridge	12.8	Segment 11	~~7.0~~6.9	Blind Thrust, 42° S	1.5
Oak Ridge	29.8	Segment 5	~~7.0~~7.2	Reverse, 65° S	4.0
Palos Verdes	20.5	Segment 11	7.3	Right Lateral Strike Slip, 90°	3.0

Table 3.7-2. Significant Active and Potentially Active Faults in the Project Area

Name	Closest Distance to TRTP (miles)[1]	Closest Segment(s)	Estimated Max. Earthquake Magnitude[2, 3]	Fault Type and Dip Direction[3]	Slip Rate (mm/yr)[3, 4]
Plieto Thrust	23.2	Segment 10	~~7.0~~7.1	Reverse, 45° S	2.0
Puente Hills Blind Thrust	0	Segments 7, 11 and 8A	7.1	Blind Thrust, 25° N	0.7
Raymond	0	Segment 11	~~6.5~~6.8	Left Lateral Reverse Oblique, 75° N	1.5
San Andreas – Carrizo Segment	12.4	Segment 4	~~7.4~~7.2	Right Lateral Strike Slip, 90°	34.0
San Andreas – Mojave Segment	0	Segment 5	7.4	Right Lateral Strike Slip, 90°	30.0
San Andreas – San Bernardino Segment	17.7	Segment 8A	~~7.5~~7.2	Right Lateral Strike Slip, 90°	24.0
San Cayetano	30.3	Segment 5	~~7.0~~7.2	Reverse, 60° N	6.0
San Gabriel	0	Segments 6 and 11	~~7.2~~7.3	Right Lateral Strike Slip, 90°	1.0
San Jacinto	11.3	Segment 8A	~~6.7~~7.1	Right Lateral Strike Slip, 90°	12.0
San Jose	5.2	Segment 8A	~~6.4~~6.7	Left Lateral Reverse Oblique, 75° NW	0.5
Santa Monica	16.9	Segment 11	6.6	Left Lateral Reverse Oblique, 75° N	1.0
Santa Susana	14.7	Segment 11	~~6.7~~6.9	Reverse, 55° N	5.0
Santa Ynez	32.3	Segment 4	7.1[3]	Left Lateral Strike Slip, 90°	2.0
Sierra Madre	0	Segments 7 and 11	7.2	Reverse, 45° N	2.0
San Fernando	6.3	Segment 11	6.7	Reverse, 45° N	2.0
Simi-Santa Rosa	25.3	Segment 11	~~7.0~~6.9	Left Lateral Reverse Oblique, 60° N	1.0
Upper Elysian Park Thrust	0.8	Segment 11	~~6.4~~6.7	Blind Thrust, 50° NE	1.3
Verdugo	5.0	Segment 11	6.9	Reverse, 45° NE	0.5
White Wolf	24.1	Segment 10	~~7.3~~7.2	Reverse Left Lateral Oblique, 60° S	2.0
Whittier	0	Segment 8A	~~6.8~~7.0	Right Lateral Strike Slip, 90°	2.5

Notes:

1 Fault distances obtained from CGS GIS data.

2 Maximum Earthquake Magnitude – the maximum earthquake that appears capable of occurring under the presently known tectonic framework, ~~using the Richter scale~~magnitude listed is "Ellsworth-B" magnitude from USGS OF08-1128 (Documentation for the 2008 Update of the United States National Seismic Hazard Maps) unless otherwise noted.

3 Fault parameters from the CGS Revised 2002 California Probabilistic Seismic Hazard Maps report, Appendix A - 2002 California Fault Parameters (CGS, 2002b).

4 References to fault slip rates are traditionally presented in millimeters per year.

Strong Groundshaking

An earthquake is classified by the amount of energy released, which traditionally has been quantified using the Richter scale. Recently, seismologists have begun using a Moment Magnitude (M) scale because it provides a more accurate measurement of the size of major and great earthquakes. For earthquakes of less than M 7.0, the Moment and Richter Magnitude scales are nearly identical. For earthquake magnitudes greater than M 7.0, readings on the Moment Magnitude scale are slightly greater than a corresponding Richter Magnitude.

The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the Project area and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the Project area. Earthquakes occurring on faults closest to the Project area would most likely generate the largest ground motion.

The intensity of earthquake induced ground motions can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g). GIS data based on the ~~CGS Probabilistic Seismic Hazard Assessment (PSHA)~~ USGS National Seismic Hazard Maps was used to estimate peak ground accelerations (PGAs) along the Project alignment (USGS, 2009). The ~~PSHA Maps~~ maps used depict peak ground accelerations with a ~~10~~ 2 percent probability of exceedance in 50 years, this corresponds to a return interval of 2,475 years for a maximum considered earthquake. Peak ground acceleration is the maximum acceleration experienced by a particle on the Earth's surface during the course of an earthquake, and the units of acceleration are most commonly measured in terms of fractions of g, the acceleration due to gravity (980 cm/sec^2). Peak ground accelerations along the TRTP alignment range from ~~0.3~~0.5 to ~~0.8~~1.6 g (~~CGS, 2003a~~USGS, 2009), the PGA ranges for each transmission Segment and for the substation locations in Segment 9 of the proposed Project are presented in Table 3.7-3.

Table 3.7-3. Peak Ground Accelerations along Project Segments

Segment	Total Length of Segment (miles)	Range of Peak Ground Accelerations along Segment
Segment 10	16.9	~~0.3 – 0.4~~ 0.5 – 0.8 g
Segment 4	19.6	~~0.3 – 0.7~~0.6 – 1.2 g
Segment 5	14.3	~~0.6 - 0.8~~0.8 – 1.6 g
Segment 11	36.2	~~0.4 – 0.7~~0.6 – 1.2 g
Segment 6	26.9	~~0.4 – 0.7~~0.6 – 1.2 g
Segment 7	15.8	~~0.4 – 0.7~~0.6 – 1.2 g
Segment 8A	33	~~0.4 – 0.5~~0.5 – 1.2 g
Segment 8B	6.8	~~0.4 – 0.5~~0.5 – 0.8 g
Segment 8C	1.2	~~0.4 – 0.5~~0.5 – 0.8 g
Segment 9	Substation Name Whirlwind Antelope Vincent Gould Mesa Mira Loma	Approximate PGA ~~0.4~~ 0.6 g ~~0.6~~ 0.9 g ~~0.6~~0.9 g ~~0.6~~1.0 g ~~0.5~~ 0.9 g ~~0.4~~ 0.6 g

A review of historic earthquake activity from 1800 to 2005 indicates that ten earthquakes that resulted in substantial damage have occurred within 50 miles (80 kilometers) of the proposed Project alignment (CGS, 2006). Included in the table is the 1857 Fort Tejon Earthquake. The location of this earthquake is uncertain due to lack of seismic instrumentation at the time and due to the widespread damage and long rupture length; however, this very large earthquake produced surface rupture on the local strands of the San Andreas Fault. A summary of each of these earthquake events is presented in Table 3.7-4.

Table 3.7-4. Significant Historic Earthquakes

Date	Approximate Closest Distance (miles) and Closest Project Segment	Earthquake Magnitude[1]	Name, Location, or Region Affected	Comments[2]
December 8, 1812	Uncertain, epicenter assumed on the San Andreas Fault near Wrightwood	7.5?	Wrightwood Earthquake	Resulted in as much as 106 miles of surface rupture near Wrightwood. Sometimes referred to as the San Juan Capistrano Earthquake because it resulted in the collapse of the Mission at San Juan Capistrano resulting in the death of 40 people.
July 11, 1855	1 mile west of Segment 11	6.0	Los Angles Region	The bells at San Gabriel Mission Church were thrown down and twenty-six buildings in Los Angeles were damaged.
January 9, 1857	Unknown, epicenter currently assumed in the San Luis Obispo area.	Estimated from 7.9 to 8.25	Fort Tejon Earthquake	One of the largest earthquakes ever reported in the US. This earthquake caused damage from Monterey to San Bernardino and caused a surface rupture of greater than 220 miles in length. Due to sparse population of the time in it only resulted in 2 deaths. Average displacement along the fault was 15 feet, with a maximum displacement of 30 feet in the Carrizo Plain area.
July 29, 1894	20 miles north of Segments 8A & 8C and 21 miles east of Segment 6	6.2	Lytle Creek region	Felt from Bakersfield to San Diego. Minor damage in the Mojave and Los Angeles areas.
March 10, 1933	19 miles south of Segment 8A	6.3	Long Beach Earthquake	This earthquake resulted in 120 deaths and more than $50 million in property damage. Many school buildings were destroyed, which led to the passage of the Field Act, which gave the State Division of Architecture authority and responsibility for approving design and supervising construction of schools. Building codes were also improved as a result of this earthquake.
July 21,1952	31 miles northwest of the northern end of Segment 4	7.3	Kern County Earthquake	Resulted in the death of 12 people and over $50 million in property damage. It was responsible for damaging hundreds of buildings in Kern County. Felt as far away as Reno and San Diego.
February 9, 1971	14.5 miles west of Segment 11	6.6	San Fernando (Sylmar) Earthquake	This earthquake caused over $500 million in damage and resulted in 65 deaths. As A result of the damage from this earthquake, building codes were strengthened and the Alquist-Priolo Special Studies Zone Act of 1972 was passed.
October 1, 1987	Less than 0.1 mile east of Segment 11	5.9	Whittier Narrows Earthquake	Resulted in eight deaths and $358 million in property damage. This earthquake occurred on a previously unknown blind thrust fault, the Puente Hills Fault.
June 28, 1991	1.6 miles east of Segment 6	5.8	Sierra Madre Earthquake	Occurred on the Clamshell-Sawpit fault and triggered numerous rockslides and landslides in the nearby mountains. Two deaths resulted from the earthquake and approximately $40 million in property damage in the San Gabriel Valley.
January 17, 1994	20 miles west of Segment 11	6.7	Northridge Earthquake	Resulted in 60 deaths and approximately $15 billion in property damage. Damage was substantial and widespread, including collapsed freeway overpasses and more than 40,000 damaged buildings in Los Angeles, Ventura, Orange, and San Bernardino Counties.

Notes:

[1] Earthquake magnitudes and locations before 1932 are estimated based on reports of damage and felt effects.

[2] Earthquake damage information compiled from the Southern California Data Center (SCEDC, 2007a and 2007b) and National Earthquake Information Center (NEIC, 2007) websites.

Many of these earthquakes also had numerous aftershocks, some measuring greater than M6.0, which caused further damage in the affected areas. Figure 3.7-1 (at the end of this section) shows locations of historic earthquakes in the Project area and surrounding region.

Another commonly used measure of earthquake intensity is the Modified Mercalli Scale, which is a subjective measure of the strength of an earthquake at a particular place as determined by its effects on persons, structures, and earth materials. The Modified Mercalli Scale for Earthquake Intensity is presented in Table 3.7-5, along with a range of approximate average peak accelerations associated with each intensity value.

Table 3.7-5. Modified Mercalli Scale For Earthquake Intensity

Intensity Value	Intensity Description	Average Peak Acceleration
I	Not felt except by a very few persons under especially favorable circumstances.	<0.0017 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	0.0017-0.014 g
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly, vibration similar to a passing truck. Duration estimated.	
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation is like a heavy truck striking building. Standing motor cars rocked noticeably.	0.014-0.039 g
V	Felt by nearly everyone, many awakened. Some dishes and windows broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles may be noticed. Pendulum clocks may stop.	0.039–0.092 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; and fallen plaster or damaged chimneys. Damage slight.	0.092–0.18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.18–0.34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.34–0.65 g
IX	Damage considerable in specially designed structures; well designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.65–1.24 g
X	Some well built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	>1.24 g
XI	Few, if any, masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	

Source: Bolt, 1988; Wald, 1999 (from USGS website: http://pasadena.wr.usgs.gov/shake/pubs/regress/node3.html).

Fault Rupture

Perhaps the most important single factor to be considered in the seismic design of electric transmission lines and underground cables crossing active faults is the amount and type of potential ground surface displacement. The Project alignments cross several known significant active faults, including the: San

Andreas, San Gabriel, Sierra Madre, Raymond, and Whittier faults. All of these faults have mapped Alquist-Priolo zones. Although the Project will not be subject to the regulations and guidelines related to the Alquist-Priolo Special Studies Zones Act because there will be no occupied structures constructed in the Earthquake Fault Zones as part of this Project, the presence of these mapped zones indicates substantial potential for fault rupture in the areas the Project crosses the "zones".

Fault rupture has occurred historically within the Project area. The 1857 Fort Tejon Earthquake caused rupture of the Leona Valley strands of the San Andreas Fault measuring greater than 8 feet and the 1971 Sylmar Earthquake which caused 6 feet of displacement along approximately 12 miles of surface rupture on the nearby San Fernando fault. Although future earthquakes could occur anywhere along the length of the San Andreas and Transverse Range faults, only regional strike-slip earthquakes of magnitude 6.0 or greater are likely to be associated with surface fault rupture and offset (CGS, 1996). It is also important to note that earthquake activity and resulting ground rupture from unmapped subsurface faults is a possibility that is currently not predictable.

Liquefaction

Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong groundshaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects (Youd and Perkins, 1978). In addition, densification of the soil resulting in vertical settlement of the ground can also occur.

In order to determine liquefaction susceptibility of a region, three major factors must be analyzed. These include: (a) the density and textural characteristics of the alluvial sediments; (b) the intensity and duration of groundshaking; and (c) the depth to groundwater. Portions of the TRTP ROW would meet the criteria for liquefaction in areas underlain by young alluvial deposits, including areas in the Leona Valley, and San Gabriel Valley, and in the alluvial and creek deposits of intervening drainages. Locations of these potentially liquefiable alluvial materials are described in more detail in Tables 2-6, 2-8, 2-9, and 2-10 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). Older consolidated sedimentary deposits, fine or coarse grained deposits, and/or well-drained sedimentary materials are less susceptible to liquefaction. Alluvial deposits underlying the portions of Segments 10, 4, and 5 that cross the Antelope Valley areas are not expected to be liquefiable due to deep groundwater levels in these areas.

Seismic Slope Instability

Other forms of seismically-induced ground failures which may affect the Project area include ground cracking, shattered ridgetops, and seismically-induced landslides. Landslides triggered by earthquakes have been a considerable cause of earthquake damage; in southern California large earthquakes such as the 1971 San Fernando and 1994 Northridge earthquakes triggered landslides that were responsible for destroying or damaging numerous structures, blocking major transportation corridors, and damaging life-line infrastructure. Areas that are most susceptible to earthquake-induced landslides are steep slopes in poorly cemented or highly fractured rocks, areas underlain by loose, weak soils, and areas on or adjacent to existing landslide deposits. Areas that are underlain by landslide prone units, such as the Pelona schist and Puente Formation (located along Segments 5 and 8A, respectively), with moderate to steep slopes, and previously existing landslides, both mapped and unmapped, are particularly susceptible to this type of

ground failure. Shattered ridgetop features consist of fractures, fissures, and minor slumps that are concentrated on narrow ridgelines. Studies suggest that amplification of ground motion at ridge tops is frequency dependent, potentially leading to differential motion at the top of the ridge, which produces cracks and fissures at the crest.

Paleontology

Significant California fossils consist of fossils ~~are typically vertebrate fossils~~ of late Quaternary and Tertiary age and include invertebrate , vertebrate, and plant fossils. Older fossils are also found in the southern California area but are not as prevalent. The age of the geologic units, their terrestrial origin, and the discovery of vertebrates in late Quaternary and Tertiary-aged units in the region indicates that there is a likelihood that significant fossils may be found during excavation for new tower footings in locations along the Project route. Locations where metamorphic or crystalline rocks occur have no potential for paleontological resources (Zero sensitivity).

A paleontologic resource inventory for the Tehachapi Renewable Transmission Project was conducted for SCE by Dr. E. Bruce Lander, Dr, C. Thomas Williams, and Dr. Hugh M. Wagner (Paleo Environmental Associates, Inc. (PEAI), 2007). This report indicates that late Tertiary to late Pleistocene (Ice Age) marine vertebrates and invertebrates, land mammals, and land plants are present throughout the northern (Segments 4, 5. and 10) and southern (Segments 7, 8 and 11) parts of the Project. Although several known fossil localities are located in the western Antelope Valley, San Gabriel Valley, Chino Valley and Chino Hills, all are located more than 1,000 feet from the proposed Project. Segment 6 is located within the igneous and metamorphic rock terrene of the San Gabriel Mountains where no paleontological resources occur.

Segment 5 crosses small outcrops of the late Miocene-Pliocene lacustrine Anaverde Formation in the San Andreas Rift zone. The paleontologic resource inventory indicates that there is a high potential for scientifically highly important plant fossil remains being encountered in the Upper Member of the Anaverde Formation and this unit is considered paleontologically highly important (PEAI, 2007).

The Miocene age marine Puente Formation , which underlies a large portion of Segment 8A, contains marine microfossils (benthic foraminifers); fossilized fish scales; the fossilized remains of extinct species of marine algae, clams, crabs, fishes, sharks, and mammals (whales, desmostylids); the fossilized wood and leaves of land plants; fossilized coral remains; fragments of mollusk shells and marine vertebrate bones; and shark teeth and fish scales in the Chino Hills. The Pliocene age Fernando Formation in Chino Hills, Puente Hills, and Montebello Hills contains marine snails, clams, and brachiopods; and at least eight species of marine fishes; and baleen whales. The Fernando Formation underlies portions of the southern ends of Segments 11 and 7, and the western end of Segment 8A; see Tables 2-10, 2-11, and 2-12 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~), respectively for detailed locations of these units along these segments. Both the Puente Formation and the Fernando Formation are~~The Upper Member of the Fernando Formation is~~ considered paleontologically highly ~~important~~sensitive (PEAI, 2007).

Along the San Andreas Fault at the southern margin of the western Antelope Valley, Older Alluvium includes the Harold Formation where several known fossil sites are reported northeast of Segment 5 (PEAI, 2007). These sites yielded fossilized bones and teeth representing a taxonomically diverse faunal assemblage that includes mostly extinct species of Pleistocene land mammals including a jackrabbit, a cottontail, a deermouse, the California vole, a harvest mouse, possibly the dire wolf, the American mastodon, a mammoth, possibly the western horse, and the western camel (PEAI, 2007). Older Alluvium

along the western edge of Antelope Valley area (Segment 5) is considered paleontologically highly important (PEAI, 2007). Older Alluvium mantles the lower slopes of Antelopes Buttes, the San Gabriel and Tehachapi Mountains, and the Montebello, Puente, and Chino Hills. A fossil site in the Older Alluvium of the San Gabriel Valley yielded the fossilized bones and teeth of a Pleistocene mammoth and ground sloth. The occurrence of only two recorded fossil sites near the Project area suggests that the Older Alluvium in these areas (Segments 10, 4, 5, 7, 11, and 8A) is considered to be of undetermined (but no more than moderate) paleontological importance locally (PEAI, 2007).

Holocene age Younger Alluvium underlies the floors of the western Antelope, San Gabriel, and Chino Valleys, and occurs along major drainages in the San Gabriel Mountains and the Puente and Chino Hills. At and very near the surface (e.g., less than 3 to 5 feet below present ground surface), the Younger Alluvium probably is too young to contain remains old enough to be considered fossilized. Correspondingly, there probably is only a low potential for scientifically important fossil remains being encountered by very shallow ground-disturbing activities in the Antelope, San Gabriel, and Chino Valleys where the Project area is underlain by Younger Alluvium (PEAI, 2007). The Younger Alluvium in the western Antelope Valley and San Gabriel Valley is considered to be of undetermined (but probably no more than moderate) paleontologic importance locally. The Younger Alluvium in the Puente and Chino Hills is considered to be of undetermined (but possibly high) importance locally. The Younger Alluvium in the Chino Valley (Segment 8) is considered paleontologically highly important locally due to the discovery of mammoth remains at a depth of 5 feet less than 2 miles from the Segment 8 terminus (Mira Loma Substation) (PEAI, 2007).

3.7.2.2 Alternative 2: SCE's Proposed Project

Previous Geotechnical Studies

Geotechnical investigations, including associated reports and memos, which were previously prepared for the existing Midway–Vincent No. 3 500-kV Transmission Line, were reviewed for the purpose of assessing the existing geotechnical conditions in the proposed Project area. The proposed Project would run generally parallel and/or adjacent to the existing Midway-Vincent No. 3 transmission line from S4 MP 0 to S4 MP 15.8, past the Antelope Substation, and parallel to Segment 5 from S5 MP 0 to approximately S5 MP 9.8. As such, findings of geotechnical investigations conducted for the Midway-Vincent No. 3 transmission line are directly relevant to the portions of the proposed Project which parallel this line. Geotechnical investigations prepared for the existing Antelope and Vincent Substations were also reviewed for the purpose of assessing existing geotechnical conditions in the proposed Project area. Geotechnical studies conducted for the proposed Segments 2 and 3A of the TRTP were reviewed as the proposed alignments of these transmission lines parallel portions of the current Project: Segment 3A parallels Segment 10 from S10 MP 0 to S10 MP 8 and Segment 4 from approximately S4 MP 15.5 to MP 19.6, and Segment 2 parallels Segment 5 for its entire length except between S5 MP 8 to MP 11. These studies (Midway-Vincent No. 3 500-kV Transmission Line, Antelope Substation, ~~and~~ Vincent Substation, and Tehachapi Renewable Transmission Project Segments 2 and 3A) are discussed in detail below, as they relate to the proposed Project.

Midway – Vincent No. 3 500-kV Transmission Line

- Design Report: No. 3 Midway – Vincent 500-kV Transmission Line, Tower Foundation Design Data, Report No. 232; Engineering Department, Southern California Edison, Rosemead, California, November 18, 1971.

This report summarizes the findings of a soil condition investigation conducted for the construction of the No. 3 Midway – Vincent 500-kV Transmission Line and includes soil boring data for approximately 46 soil borings along its alignment at sporadic locations adjacent to planned tower locations. These borings, depths ranging from 20 to 35 feet, are along the portion of the alignment that is parallel to Segment 4 and a portion of Segment 5, from the southern edge of the Tehachapi Mountains to the southwestern edge of the San Andreas Rift Zone. Soil materials in these borings correlate with the mapped geology. Near surface and subsurface materials encountered in the borings located in the Antelope Valley consisted primarily of alluvium of loose to dense silty sands with varying amounts of gravel and silt. Borings across Portal and Ritter Ridges revealed igneous (granitic) and metamorphic (Pelona Schist) rocks which were weathered at the surface and moderately hard at depth, with a thin layer of alluvium/colluvium on the surface in some areas. On the west side of the Leona Valley, within and along the base of the Sierra Pelona, Pelona Schist in varying stages of weathering and schist derived colluvium were encountered in the borings. Groundwater was not noted in any of the borings along this segment except for one boring within the Anaverde Creek drainage, which had perched groundwater at about 16 feet below ground surface (bgs).

Antelope Substation

- Letter Report: Antelope Substation – Pile Design Data; T.M. Leps, Chief Civil Engineer, April 25, 1952
- Memorandum: Antelope Substation, Foundation Investigation; E.E. Chandler, Assistant Civil Engineer, July 19, 1957
- Antelope Substation Boring Logs and Soil Test Results; December 1996
- Letter Report: Foundation Design Recommendations, Antelope Substation Additions, Los Angeles County, California; Engineering and Technical Services Geotechnical Group, January 9, 1997

The reports and data reviewed for the Antelope Substation indicate that the materials underlying the site consist of Recent Alluvium, composed primarily of loose to medium dense silty sand with gravel, with local gravelly, cobbly, and clayey layers. No groundwater was encountered in any of the borings conducted for these investigations; the borings were conducted to a maximum depth of 40 feet.

Vincent Substation

- Geotechnical Report: Report of Foundation Investigation, Proposed Vincent Substation, Angeles Forest Highway, Vincent, California, August 28, 1963; by LeRoy Crandall & Associates.

This report indicates that materials underlying the Vincent Substation site consist of alluvial deposits, composed of medium dense to dense interbedded silty sand and sand, with local lenses of gravelly and clayey sand and sandy silt. Groundwater was not encountered in any of the borings to a total depth of 35 feet below ground surface.

Tehachapi Renewable Transmission Project, Segments 2 and 3A

- Geotechnical Engineering Report, Tehachapi Renewable Project (TRTP), Segment 2, Lancaster Vicinity, Los Angeles County, California, April 18, 2008; by Terracon Consultants, Inc.
- Geologic Fault Evaluation Report, Southern California Edison Tehachapi Renewable Transmission Project, Segment 2, Leona Valley, California, June 30, 2008; by Zeiser Kling Consultants, Inc.
- Geotechnical Engineering Report, Tehachapi Renewable Project (TRTP), Segment 3A, Mojave Vicinity, California, May 2, 2008; by Terracon Consultants, Inc.

The geotechnical report for the Segment 2 transmission line, located between Antelope and Vincent Substations, presents findings and recommendations of a subsurface investigation conducted for the construction of TRTP Segment 2 Transmission Line and includes soil boring data for approximately 39

soil borings along its alignment at sporadic locations adjacent to planned tower locations with depths ranging from 15 to 50.5 feet. TRTP Segment 2 is parallel to the Segment 5 alignment for its full length, except between S5 MP 8 to MP 11, where Segment 2 deviates to the west. Soil materials in these borings correlate with the mapped geology. Near surface and subsurface materials encountered in the borings located in the Antelope Valley consisted primarily of alluvium and older surficial deposits of loose to dense silty sands with varying amounts of gravel and silt. Borings across Portal and Ritter Ridges revealed igneous (granitic) and metamorphic (Pelona Schist) rocks which were weathered at the surface and moderately hard at depth, with a thin layer of alluvium/colluvium on the surface in some areas. Groundwater was not noted in any of the borings along this segment to a total depth of 50 feet. Landslide surveys conducted for the portions of the Segment 2 alignment crossing moderately to steeply sloping terrain identified landslides at or near to several proposed tower sites within the San Andreas Fault zone that are underlain by Anaverde Formation or Pelona Schist.

A fault evaluation investigation was conducted for six tower locations for Segment 2 proposed to be located in the Andreas Fault Zone where the alignment crosses Ritter Ridge and Leona Valley. This investigation consisted of six trenches excavated to depths ranging from 12 to 26.5 feet deep and 120 to 171 feet long. Material encountered in the trenches consisted of topsoil, colluvium, older alluvium, Anaverde Formation, and Pelona Schist. Based on data from these trenches, it was recommended that one of the tower locations be moved due to the presence of a fault splay in the trench and footing on two towers be deepened due to close proximity to fault splays.

The geotechnical report for Segment 3A presents findings and recommendations of a subsurface investigation conducted for the construction of TRTP Segment 3A Transmission Line and includes soil boring data for approximately 36 soil borings along its alignment at sporadic locations adjacent to planned tower locations with depths ranging from 25.5 to 51.5 feet. TRTP Segment 3A is parallel to Segment 10 from S10 MP 0 to MP 8 on its north end and Segment 4 from approximately S4 MP 15.5 to MP 19.6 along its southern end. Soil materials in these borings correlate with the mapped geology and consisted primarily of alluvium of medium dense to very dense silty sands with varying amounts of gravel, sand, silt, and clay.

Windhub Substation to Vincent Substation (Segments 10, 4, and 5)

Geology

The proposed Segment 10, 4, and 5 routes primarily traverse alluvial fans/terraces and plains of the Antelope Valley. The southern end of Segment 5 traverses the San Andreas Fault Zone, and hills, mountains, and valleys of the southern Sierra Pelona and the northern San Gabriel Mountains. Geologic units crossed by these segments of the Project are younger alluvium, older alluvium, nonmarine terrace deposits, nonmarine sandstone of the Anaverde Formation, granitic, and metamorphic. Figure 3.7-2 (Regional Geologic Map A) presents the geology along Segments 10, 4, and 5.

Geologic conditions likely to be encountered during construction of Segments 10, 4, and 5 of the proposed Tehachapi Renewable Transmission Project are summarized in below in Table 3.7-6. The table includes: the geologic symbol for the formation; the feature or formation's name; a description and comments about the geologic features and the formation's general rock type, lithology, and susceptibility to specific geologic hazards as appropriate; and general excavation characteristics of the unit related to excavation or drilling for tower and structure foundations. Locations of the geologic units and significant geologic structures along Segments 10, 4, and 5, are listed in Tables 2-6, 2-7, and 2-8, respectively, of

the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).Descriptions of geologic units in the Project area are based on published geologic maps by the CGS (1964 and 1969), Dibblee (1967, 1996, 1997, 2001c), and Dibblee and Louke (1970).

Table 3.7-6. Geologic Units along Segments 10, 4, and 5 of Proposed Project Route

Geologic Symbol[1]	Formation/ Feature Name[1]	Description/Comments[1]	Excavation Characteristics[2]
Qa	Alluvium	Alluvial gravels, sand and silt	Easy
Qc	Pleistocene nonmarine	Unconsolidated alluvial gravels, sand and silt	Easy
Qoa, Qos	Older Alluvium	Sand and gravel fan deposits	Easy
Tas	Anaverde Formation	Pliocene nonmarine sandstone, claystone, shale, and conglomerate.	Easy to Moderate
psp, psq, ps	Pelona Schist	Mica schist, out-of-slope dipping foliation; landslide hazard potential	Difficult
gr	Granitic Rocks	Granitic rocks; fractured, variably weathered crystalline rock	Difficult
sy	Syenite	Granitic rocks, variable weathering profile	Difficult
lgbd	Lowe Granodiorite	Granitic rocks; fractured, variably weathered crystalline rock	Difficult
di	Dioritic Rocks	Mafic granitic rocks; fractured, variably weathered crystalline rock	Difficult
gnb	Gneiss	Banded gneiss	Difficult

Notes:

1 Information in these columns is primarily derived from Table 4.7-23 of the PEA (SCE, 2007).

2 Excavation characteristics are defined as "easy," "moderate," or "difficult" based on estimates of rock strength of the each unit. Excavation characteristic definitions are general in nature and the actual ease of excavation may vary widely depending on site-specific subsurface conditions.

Slope Stability

The Project ROW through the Antelope Valley crosses flat to gently sloping terrain and is not likely to experience landslides or other slope failures. Most of the proposed Segment 10, 4, and 5 alignments do not cross any areas identified as an existing landslide, except along Segment 5 where it crosses the landslide prone Pelona Schist between S5 MP 4.4 to 7.6 and MP 7.9 to 12.5. A large landslide is mapped immediately south of Lake Elizabeth Road beneath the Project alignment between S5 MP 7.9 to 8.5 (CGS, 2003e). East of the proposed alignment the Pelona Schist is characterized by numerous, large landslides (CGS, 2003e; Dibblee, 1997). Unmapped landslides and areas of localized slope instability may also be encountered in the hills traversed by the proposed Project alignment, principally in Segment 5.

Soils

Segment 10. Five main soil units/associations are mapped along the Segment 10 Project route (Garlock, Cajon, Adelanto, Hesperia, and Hanford), listed in order of approximate first occurrence along the alignment from north to south. Each soil unit/association may occur numerous times along the Segment 10 alignment. Soil associations with only small or limited occurrences along the alignment are not discussed. A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). These soils are all formed in areas underlain by alluvium and colluvium on alluvial plains and fans. Locations of the soil associations along Segment 10 are listed in Appendix A of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).

Hazard of erosion for these soils for off-road or off-trail is slight and for on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential varies from low to moderate. The corrosive potential of soils along Segment 10 ranges from low to high for uncoated steel and from low to moderate for concrete.

Segment 4. Seven main soil units/associations are mapped along the Segment 4 Project route (Ramona, Cajon, Hesperia, Rosamond, Hanford, Greenfield, and Vista), listed in order of approximate first occurrence along the alignment from north to south. Each soil unit/association occurs numerous times along the Segment 4 alignment. Soil associations with only small or limited occurrences along the alignment are not discussed. A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). All of these soils, except the Vista soils, are formed in alluvium and colluvium on alluvial fans, plains, and terraces. The Vista soils are formed in material weathered from underlying and nearby granitic rocks. Locations of the soil associations along Segment 4 are listed in Appendix A of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).

Hazard of erosion for these soils for off-road or off-trail ranges from slight to very severe and for on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential of the soils varies from low to moderate. The corrosive potential of soils along Segment 4 ranges from low to high for uncoated steel and from low to moderate for concrete.

Segment 5. Ten main soil units/associations are mapped along the Segment 5 Project route (Greenfield, Hanford, Vista, Amargosa, Godde, Wyman, Anaverde, Las Posas-Toomes, Ramona, and Las Posas), listed in order of approximate first occurrence along the alignment from north to south. Each soil unit/association occurs numerous times along the Segment 5 alignment. Soil associations with only small or limited occurrences along the alignment are not discussed. A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). Greenfield and Hanford soils are formed in alluvium derived primarily from granitic sources, with the Greenfield soils mapped primarily along the northern end of the alignment and the Hanford mapped numerous placed along the entire alignment. Ramona soils are also formed in primarily alluvium derived primarily from granitic sources, but are only mapped along the southern end of the alignment. The remaining soil types, Vista, Amargosa, Godde, Wyman, Anaverde, Las Posas-Toomes, and Las Posas, are formed in material weathered from the underlying or nearby bedrock units consisting of miscellaneous granitic, volcanic, and schist rock types and are mapped in various locations along the southern three-fourths of the alignment. Locations of the soil associations along Segment 5 are summarized in Appendix A of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).

Hazard of erosion for these soils for off-road or off-trail ranges from slight to very severe and for on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential of the soils varies from low to high. The corrosive potential of soils along Segment 5 ranges from low to high for uncoated steel and from low to moderate for concrete.

Seismic Hazards

Fault Rupture. Segments 10 and 4 do not cross any active faults and would not be subject to primary fault-related ground surface rupture. Segment 5, however, crosses several strands of the San Andreas Fault. All of the fault strands are within the Alquist-Priolo zone for the San Andreas Fault where the proposed Segment 5 Project route crosses the fault, as shown in Figure 3.7-3 (Segment 5 Active Fault Crossing). There is a substantial potential for surface rupture where Segment 5 crosses the State-designated Earthquake Fault Zone between MPs S5-7.4 and S5-8.6. This portion of the fault ruptured in the 1857 earthquake and had reported mean and maximum displacement along the fault of 15 and 30 feet, respectively (SCEC web site). General characteristics of the fault are presented in above in Table 3.7-2.

Groundshaking. As shown in Table 3.7-2, Segments 10, 4, and 5 are in close proximity to the Garlock Fault Zone (about 5 miles from Segment 10) and the San Andreas Fault Zone (crossed by the proposed Segment 5 route) for most of its length. Moderate to strong groundshaking from an earthquake on any of the faults in the vicinity of these segments should be expected. Very strong to severe groundshaking may be experienced near where Segment 5 crosses the San Andreas Fault Zone. The expected ranges of peak horizontal ground accelerations for these segments are presented in Table 3.7-3.

Liquefaction. Potential for liquefaction in the areas crossed by Segments 10, 4, and the northern portion of Segment 5 is low due to anticipated depths of groundwater in the Antelope Valley area of greater than 100 feet (CGS, 2003c). Where Segment 5 crosses the Leona Valley, it crosses potentially liquefiable alluvial deposits between S5 MP 7.6 to 7.9 (CGS, 2003d). There is little to no potential for liquefaction for most of the remaining portion of Segment 5, where it crosses the Sierra Pelona and upper Soledad basin, as these areas are primarily underlain by granitic and metamorphic rocks. However, during large storms or a wet season, sections of the proposed segments that are underlain by alluvium near to and/or crossing active river washes and streams may become susceptible to liquefaction if a strong earthquake were to occur while these sediments are saturated due to a temporary/seasonal water table rise.

Earthquake-Induced Landslides. The topography along Segments 10 and 4 is relatively flat and not likely to experience landsliding or slope failures due to earthquakes. Portions of Segment 5 that cross or are in the vicinity of the landslide prone Pelona Schist, primarily between S5 MPs 4.9 to 7.6 and S5 MPs 7.9 to 12.5, could experience earthquake induced slope failures and landslides. Additionally portions of Segment 5 that cross moderate to steep hill slopes could experience minor slope failures in areas with over-steepened slopes or weathered geologic materials.

Mineral Resources

No mineral resource sites were identified by the MRDS within 1,000 feet of the proposed route segments.

Paleontology

The proposed Project alignment in the western Antelope Valley and near the Vincent Substation is underlain mostly by Holocene Younger alluvium underlying the valley floor and Pleistocene Older Alluvium mantling the lower slopes of the Tehachapi and San Gabriel Mountains, and Antelopes Buttes, which border the valley. The Younger Alluvium is generally considered to have low sensitivity and the Older Alluvium has primarily low sensitivity, with local high sensitivity along the San Andreas Fault Zone. The late Miocene - Pliocene Anaverde Formation continental deposits occur along the southern margin of the western Antelope Valley in Leona Valley and have high to moderate sensitivity. The metamorphic Pelona Schist underlying Portal Ridge and the Sierra Pelona and the igneous rocks of the Antelope Buttes are non-fossil bearing and have zero sensitivity.

The Upper Member (Clay Shale) of the Anaverde Formation has yielded fossilized leaves representing a taxonomically diverse floral assemblage consisting of twenty-one extinct species of late Miocene land plants (PEAI, 2007). The species represented include pine, palm, poplar, willow, oak, avocado, sycamore, sumac, and California lilac. The leaves from the Anaverde Formation are scientifically important because their respective species have allowed the paleoenvironmental and paleoclimatic reconstructions of the western Antelope Valley and vicinity during the late Miocene Epoch (PEAI, 2007).

Older Alluvium along the San Andreas Fault Zone includes the Harold Formation, along Segment 5, which locally contains fossilized bones and teeth representing a taxonomically diverse faunal assemblage that includes mostly extinct species of Pleistocene land mammals. These species include a jackrabbit, a

cottontail, a deermouse, the California vole, a harvest mouse, possibly the dire wolf, the American mastodon, a mammoth, possibly the western horse, and the western camel (PEAI, 2007). Based on the presence of the packrat (Neotoma Teanopus "prefuscipes") the assemblages from the Harold Formation are considered to be late Irvingtonian (early Pleistocene) and approximately 800,000 years in age (PEAI, 2007). Elsewhere in the Antelope Valley area, Older Alluvium adjacent to exposures of granitic and metamorphic (basement) rocks of the San Gabriel and Tehachapi Mountains and Antelope Buttes (Segments 10 and 4) and is probably too coarse grained to contain identifiable fossil specimens. In these areas, there probably is no more than a low potential for any identifiable and, therefore, scientifically important fossil remains being encountered locally by ground-disturbing activities, although locally finer grained facies may contain scientifically important fossil specimens (PEAI, 2007).

Vincent Substation to Mesa Substation (Segments 6, 7, and 11)

Geology

Segment 6 and the northern portion of Segment 11 traverse moderate to steep slopes of the mountains, hills, and valleys of the San Gabriel Mountains. The southern end of Segment 11 and Segment 7 primarily traverse alluvial fans, plains, and terraces of the San Gabriel Valley. Geologic units crossed by these segments of the Project are younger alluvium, older alluvium, nonmarine sandstone and conglomerate of the Fernando Formation, mixed igneous rocks, and metamorphic rocks. Figure 3.7-4 (Regional Geologic Map B) presents the geology along Segment 6, 7, and 11.

Geologic conditions likely to be encountered during construction of the transmission lines for the proposed Tehachapi Renewable Transmission Project, Segments 6, 7, and 11, are summarized below in Table 3.7-7. The table includes: name of the geologic formation or feature; the geologic symbol for the formation; the feature or formations name; a description and comments about the geologic features and the formation's general rock type, lithology, and susceptibility to specific geologic hazards as appropriate; and general excavation characteristics of the unit related to excavation or drilling of tower and structure foundations. Locations of the geologic units and significant geologic structures along Segments 6, 7, and 11 are listed in Tables 2-9, 2-10, and 2-11, respectively, of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). Descriptions of geologic units in the Project area are based on published geologic maps by Dibblee (1989, 1996, 1998, 1999, 2001c. 2002a, and 2002c).

Table 3.7-7. Geologic Units along Segments 6, 7, and 11 of Proposed Project Route

Geologic Symbol[1]	Formation/ Feature Name[1]	Description/Comments[1]	Excavation Characteristics[2]
af	Artificial Fill	Artificial fill	Easy
Qls	Landslide	Landslide(s)	Moderate to Difficult
Qg	Alluvial fan/Channel alluvium	Stream channel deposits of gravel, sand and silt	Easy
Qa	Alluvium	Alluvial gravels, sand and silt	Easy
Qc	Pleistocene nonmarine	Unconsolidated alluvial gravels, sand and silt	Easy
Qoa, Qos	Older Alluvium	Sand and gravel fan deposits	Easy
Qof	Older Alluvium	Uplifted remnants of alluvial gravel	Easy
Qog	Old alluvium/Older gravels	Older alluvial gravel, sand and silt, or older fan, channel and colluvial gravels with sand and silt.	Difficult
Tfsc, Tfp	Fernando Formation	Nonmarine sandstone and conglomerate; light gray to tan, crudely bedded; claystone; and gray micaceous silty claystone or siltstone.	Easy to Moderate
gr	Granitic Rocks	Granitic rocks; fractured, variably weathered crystalline rock	Difficult
grd	Granitic Rock	Leucocratic plutonic rock; nearly white; massive.	

Table 3.7-7. Geologic Units along Segments 6, 7, and 11 of Proposed Project Route

Geologic Symbol[1]	Formation/ Feature Name[1]	Description/Comments[1]	Excavation Characteristics[2]
qd	Quartz Diorite	Plutonic rock; gray, medium-grained, incoherent where weathered	Difficult
hd	Hornblende Diorite	Mafic plutonic rock; dark gray to black	Difficult
hdg	Hornblende Diorite Gabbro	Mafic plutonic and gneissic rock, dark gray to nearly black; hard, but fractured, massive to slightly gneissoid	Difficult
lgbd, lgd, lgdp, lgdh, lgdd	Lowe Granodiorite	Plutonic igneous rock, grey	Difficult
di	Dioritic Rocks	Mafic granitic rocks; fractured, variably weathered crystalline rock	Difficult
an, agb	Anorthosite Gabbro complex	Plutonic complex of plagioclase feldspar enriched rock; Light steel gray, but weathered white	Difficult
dgn	Dioritic Gneiss	Gneissic rock metamorphosed from igneous sources	Difficult
gnb	Gneissic Rock	Rock metamorphosed from sedimentary or igneous sources	Difficult

Notes:

1 Information in these columns is primarily derived from Table 4.7-23 of the PEA (SCE, 2007).

2 Excavation characteristics are defined as "easy," "moderate," or "difficult" based on estimates of rock strength of the each unit. Excavation characteristic definitions are general in nature and the actual ease of excavation may vary widely depending on site-specific subsurface conditions.

Helicopter construction techniques will be use for construction of portions of Segment 6 (17 towers) and Segment 11 (16 towers). ~~Twelve~~ Thirteen helicopter staging areas would be constructed along these segments to facilitate construction activities for these 33 towers. Each of these ~~12~~ 13 helicopter staging areas is located within the San Gabriel Mountains proper or within the adjacent foothills/alluvial slopes, and the sites are primarily underlain by igneous and metamorphic bedrock. Geologic units expected to be encountered at the helicopter staging areas are listed below (see Table 3.7-7 for summary descriptions of these units):

- SCE#0 - Older alluvium over Lowe Granodiorite
- SCE#1 - Lowe Granodiorite
- SCE#2 – Anorthosite Gabbro Complex, primarily anorthosite and gabbro diorite
- SCE#3 - Anorthosite Gabbro Complex, primarily anothosite
- SCE#3B - Artificial fill from dredging of Big Tujunga Reservoir of unknown depth over granitic rocks
- SCE#4 and SCE#5 – Quartz Diorite
- SCE#6 - Gneiss and intrusive granitic rocks
- SCE#6B - Gneiss
- SCE#7 - Granitic rocks
- SCE#8 - Gneissic rocks
- SCE#9 – Stream channel deposits of sand, gravel, and cobbles
- SCE#10 - Artificial fill from dredging of Cogswell Reservoir of unknown depth over granitic rocks

Slope Stability

The Project alignment along Segments 6, 7, and 11 traverses the San Gabriel Mountains and is characterized by steep to very steep terrain underlain by igneous and metamorphic bedrock before reaching the gently sloping alluvial plain of San Gabriel Valley. Small to large landslides are mapped in the steep mountain terrain along most of the mountainous portions of the proposed Segment 6, 7, and 11 alignments. Landslides underlie the proposed alignments at several locations as identified in Tables 2-9, 2-

10, and 2-11 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). Several landslides are mapped along Segment 6 from MP 7.4 to 26.9. One small landslide is mapped along Segment 7 at MP 0.1. Large landslide complexes in sheared granitic and metamorphic rock along the Sierra Madre fault underlie Segment 11at MP 20.5 to 21.6 (CGS, 1998c) and at MP 24.0 to 25.3 (CGS, 1998a), and although no new towers would be constructed along Segment 11 south of MP 19, ground disturbance would occur for grading and/or regrading of access roads and work areas. Unmapped landslides and areas of localized slope instability may also be encountered throughout the San Gabriel Mountains, which are traversed by the proposed Project alignment, at the proposed helicopter staging areas, and adjacent to the proposed helicopter staging sites. Portions of Segments 7 and 11 located in the San Gabriel Valley (south of approximately S7 MP 1 and S11 MP 26) are relatively flat and would not be subject to slope stability issues.

Helicopter staging areas SCE #0, SCE#5, and SCE#9 are located along flat to gently sloping stream terraces along the edges of the San Gabriel Mountains and are not subject to slope stability issues. Sites SCE #4, SCE#6 and SCE#7, although located in hilly terrain of the San Gabriel Mountains, are located at preexisting, gently sloping, graded sites. Sites SCE#4 and SCE#7 are on graded gently sloping ridge/hill top sites and would likely not require additional grading for use as staging areas. Site SCE #6 is located at the existing facilities at Barton Flats, which already includes a helicopter landing area and would not require further grading for use as a helicopter staging area.

Helicopter staging areas SCE#1, SCE#2, SCE#3, SCE#6B, and SCE#8 are located on or along ridges, hilltops, and in saddles of the San Gabriel Mountains with sloping terrain which would require moderate to extensive grading (cut and fill) to create suitable, relatively flat sites for helicopter landings and staging of construction supplies and equipment. Site SCE#3B is located in Maple Canyon southeast of Big Tujunga Reservoir on terraced fill slopes created from material dredged from the reservoir. The SCE#3B helicopter staging area is located near the top of the terraced fill in the canyon with moderately sloping hills above and on either side of the site and would require moderate grading to create a suitable staging area. Site SCE#10 is located near Cogswell Reservoir on terraced fill slopes created from material dredged from the reservoir and placed in an adjacent canyon. The SCE#10 helicopter staging area consists of two adjacent graded sites located near the top of the terraced fill in the canyon with moderately sloping hills above and on either side of the site. Although no landslides are mapped at these staging sites, small to large landslides and debris slides are mapped along the steep mountain terrain near to the staging sites indicating potential slope stability issues in the area.

Soils

Segment 6. Eighteen main soil associations/complexes are mapped along the Segment 6 Project route (Hanford, Vista, Greenfield, Pismo-Trigo-Exchequer, Pacifico, Pacifico-Preston, Olete-Kilburn-Etsel, Chilao, Pismo-Chilao-Shortcut, Trigo-Modjeska, Green Bluff-Hohmann, Trigo-Green Bluff-Supan, Caperton-Trigo, Stukel-Sur-Wintrop, Stukel-Olete, Trigo-Exchequer-Rock Outcrop, Trigo, and Vista-Trigo-Modesto; listed in order of approximate first occurrence along the segment from north to south). Each soil association/complex may occur numerous times along the Segment 6 alignment. Soil associations with only small or limited occurrences along the alignment are not discussed. A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). These soils are primarily either formed in alluvium or colluvium weathered from granitic or metamorphic bedrock, or formed in material weathered from the underlying bedrock (primarily granitic, metamorphic, and volcanic rocks in the Project area). Locations of the soil

associations along Segment 6 are listed in Appendix A of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).

Hazard of erosion for soils along the Segment 6 alignment for off-road or off-trail is slight to very severe and for on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential varies primarily from low to moderate with some high potential in areas underlain by the Trigo-Modesto complex. The corrosive potential of soils along Segment 6 ranges from low to high for uncoated steel and from low to moderate for concrete.

Segment 7. Three main soil units/associations are mapped along the Segment 7 Project route (Cieneba-Exchequer-Sobrante, Urban Land-Ramona-Zamora, and Urban Land-Hanford-Sorrento), listed in order of approximate first occurrence along the alignment from north to south. Each soil unit/association may occur numerous times along the Segment 7 alignment. Soil associations with only small or limited occurrences along the alignment are not discussed. A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). The Cieneba-Exchequer-Sobrante soils are primarily formed in material weathered from the underlying igneous and metamorphic bedrock. The Urban Land-Ramona-Zamora and Urban Land-Hanford-Sorrento soils are formed in alluvium and colluvium on alluvial fans, plains, and terraces. Locations of the soil associations along Segment 7 are listed in Appendix A of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).

Hazard of erosion for these soils for off-road or off-trail ranges from slight to very severe and for on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential of the soils varies from low to moderate. The corrosive potential of soils along Segment 7 ranges from low to high for uncoated steel and from low to moderate for concrete.

Segment 11. Segment 11 has numerous soil units/associations mapped along its alignment, sixteen total, with the largest number of soil types where the alignment crosses the San Gabriel Mountains. The main soil associations along the Segment 11 Project route, listed in order of approximate first occurrence along the alignment, from north to south, are: Hanford, Vista, Pismo-Trigo-Exchequer, Tollhouse-Stukel-Wrentham, Tollhouse-Knutsen-Stukel, Pismo-Chilao-Shortcut, Rock Outcrop-Chilao, Olete-Kilburn-Etsel, Trigo-Modjeska, Stukel-Sur-Winthrop, Chilao-Trigo, Trigo, Caperton-Trigo, Cienba-Exchequer-Sobrante, Urban Land-Ramona-Zamora, and Urban Land-Hanford-Sorrento. Each soil unit/association may occur numerous times along the Segment 11 alignment. Soil associations with only small or limited occurrences along the alignment are not discussed. A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). These soils are primarily either formed in alluvium or colluvium weathered from granitic or metamorphic bedrock, or formed in material weathered from the underlying bedrock (primarily granitic, metamorphic, and volcanic rocks in the Project area). The Hanford, Vista, Trigo-Modjeska, TrigoUrban Land-Ramona-Zamora and Urban Land-Hanford-Sorrento soils are formed in alluvium and colluvium on alluvial fans, plains, and terraces. The remaining soil types are primarily either formed in alluvium or colluvium weathered from the adjacent bedrock, or formed in material weathered from the underlying bedrock (primarily igneous, metamorphic, and volcanic rocks in the Project area). Locations of the soil associations along Segment 11 are summarized in Appendix A of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).

Hazard of erosion for these soils for off-road or off-trail ranges from slight to very severe and for on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential of the soils varies from

low to high. The corrosive potential of soils along Segment 11 ranges from low to high for uncoated steel and from low to moderate for concrete.

Helicopter Staging Areas. The soils associations located at the helicopter staging areas are the same or similar to soils located along the nearby Segments 6 and 11 routes. Soil associations mapped at the helicopter staging sites are as follows:

- SCE#0 - Hanford
- SCE#1 – Tollhouse-Stukel-Wrentham
- SCE#2 and SCE#3 –Pismo-Chilao-Shortcut
- SCE#3B – this site is mapped as underlain by Chilao soils, however because this site is on dredged fill the 'soil characteristics' of the material of the site is dependent on the type and grain size of the fill material.
- SCE#4 and SCE#5–Cienba-Exchequer-Sobrante
- SCE#6 and SCE#6B – Trigo-Green Bluff-Supan
- SCE#7 – Stukel-Sur-Winthrop
- SCE#8 and SCE#9 – Ramona-Zamora
- SCE#10 - site is mapped as underlain by Stukel-Olete soils, however because this site is on dredged fill the 'soil characteristics' of the material at the site is dependent on the type and grain size of the fill material.

These soils are primarily either formed in alluvium or colluvium weathered from granitic or metamorphic bedrock, or formed in material weathered from the underlying bedrock (primarily granitic and metamorphic, rocks in this part of the Project area). A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). Hazard of erosion for soils at the helicopter staging areas for off-road or off-trail is slight to very severe; this hazard ranges from slight to severe for on roads and trails. Shrink/swell (expansive) potential of the soils varies primarily from low to high. The corrosive potential of soils for the helicopter staging sites ranges from low to high for uncoated steel and from low to moderate for concrete.

Mineral Resources

Ten sites with either mineral occurrences or past or current mining activities are identified in the MRDS within 1,000 feet of the proposed TRTP route, six sites along Segment 6, two sites along Segment 7, and two sites along Segment 11. The sites consist of three metallic mineral (ore) mines, one mapped ore occurrences, two ore prospects, three sand and gravel quarries, and one crushed/broken stone quarry. The six sites along Segment 6 are all inactive and range from approximately 50 to 850 feet from the Project ROW; the sites consist of one ore occurrence, two ore prospects, and three past ore (gold) producers. The two sites along Segment 11 are also inactive, ranging from 250 to 500 feet from the Project ROW, consist of a past gravel quarry and a past crushed/broken rock quarry, both of which have been reclaimed and the sites are currently occupied by buildings and parking lots. None of these sites is listed by the CGS (CGS, 1999f) as an active mine.

The two mapped MRDS sites along Segment 7 consist of sand and gravel quarries located in the Irwindale area, ranging from 0 to 50 feet from the Project ROW and are identified as the Duarte and Irwindale Pits. The Irwindale Pit consists of three adjacent pits (commonly known as Irwindale Pits #1, #2, and #3), owned by the United Rock Products Corp, and of which two are currently in operation (CGS, 2004). The Project ROW crosses a portion of the eastern most pit; however, based on aerial photo review the towers for the existing transmission line are located outside of the existing quarry boundaries and it is assumed that any new towers would be at similar tower spacing.

Given the distance of these sites from the ROW and the ability of mining-related equipment and vehicles to cross the ROW if necessary, construction and operation of the TRTP transmission line is not expected to interfere with future access to any mineral resources. If any of the inactive mine or mineral resource sites were to be mined in the future during the Project's construction or operation, the height and spacing of the transmission lines would provide adequate clearance for vehicles and equipment to cross the ROW under the lines, if necessary.

Mineral resources in the vicinity of the helicopter staging areas consist primarily of metallic minerals (ores) such as gold and titanium and no active mines are located at or adjacent to any of the staging sites. This results in no potential for inference with access to known mineral resources from construction and use of these sites for helicopter staging activities associated with construction of towers along Segments 6 and 11.

Seismic Hazards

Fault Rupture. Segments 6, 7, and 11 cross several active faults: the San Gabriel fault, Clamshell-Sawpit fault, Sierra Madre fault, Raymond fault, and East Montebello Hills fault. All of these faults, with the exception of the East Montebello fault are part of the Transverse Ranges Southern Boundary fault system, a west-trending system of reverse, oblique-slip, and strike-slip faults that extends for >200 km along the southern edge of the Transverse Ranges. One additional fault crossed by the Project alignment, the southern portions of Segments 7 and 11, is the Puente Hills Blind Thrust. Although this fault underlies several miles of these segments, as shown in Figure 3.7-1, it is a buried blind thrust fault and is not expected to generate primary surface fault rupture; however, ~~minor~~ surface cracking could be associated with an earthquake on this fault. None of the helicopter staging areas are crossed by or immediately adjacent to any active faults with the exception of Site SCE#4, which is crossed by a segment of the Sierra-Madre fault. However, because this site is temporary and will only be in use for a short duration during helicopter construction along Segment 11, the potential for an earthquake resulting in ground rupture to occur at this site during this time is remote.

The general physical characteristics of these faults are summarized below and seismic characteristics of these faults are presented above in Table 3.7-2.

- The San Gabriel Fault is approximately 87 miles long (140 kilometers) and traverses the southwestern boundary of the San Gabriel Mountains. The fault is primarily right-lateral strike-slip but transitions to oblique right reverse slip to the east, and has varying slip rates and recurrence intervals along its length, with the northwestern end being the most recently active (Holocene). In the vicinity of the proposed Project, where the San Gabriel fault is traversing the San Gabriel Mountains, it is considered less active.
- The Clamshell-Sawpit fault is an approximately 11-mile-long (18 kilometer) reverse fault along the southern edge of the San Gabriel Mountains. The Clamshell-Sawpit fault is postulated as the source of the Sierra Madre earthquake of 1991, and although it was a sizable earthquake, the depth of this quake prevented the rupture from reaching the surface (SCEDC, 2007a).
- The Sierra Madre fault is a 34-mile-long, complex reverse fault structure that extends east-west across the range front of the San Gabriel Mountains in the Project area. The zone is often divided into five main segments, with each segment also consisting of complex systems of parallel and branching fault strands. Trenching performed in Altadena area revealed evidence for two large earthquake events in the last 15,000 years with displacements on the order of 15 to 20 feet or greater and magnitude Mw 7.2 to 7.6 earthquakes (Rubin, et al, 1998).
- The Raymond fault is a 20-km-long, north dipping left-lateral strike-slip fault that extends east-northeastward through the San Gabriel Valley, northeast of downtown Los Angeles. The Raymond fault is part of east-west fault system (also including the Anacapa-Dume, Malibu Coast, Santa Monica, and Hollywood faults) that formed to accommodate the clockwise rotation of the western Transverse Ranges and forms the northern limit

of the Los Angeles Basin. D Trenching studies conducted on the Raymond fault indicate that the most recent fault surface rupture occurred approximately on to two thousand years ago (ka) (Weaver and Dolan, 2000).

- The East Montebello Hills Fault is a northwest trending, north dipping right-lateral strike-slip fault with an apparent substantial reverse component that is considered to be the northern most extension of the Whittier Fault zone (Yeats, 2004). The East Montebello Hills Fault is approximately 4 miles long and generally traverses the northern edge of the Montebello Hills. Activity along this fault is considered less than that of the other portions of the Whittier fault, approximately only 0.2 mm/year, as slip/strain in this area is being distributed to the underlying blind thrusts and folds.
- The Puente Hills Blind Thrust is approximately 25 miles long, and extends in a northwest-southeast direction in the Los Angeles Basin underlying downtown Los Angeles and east to Brea in northern Orange County (see Figure 3.7-1). Geophysical research conducted on this fault indicate that it is divided into three segments and that single segment earthquakes of M6.5 could occur about every 400 to 1300 years and multiple segment earthquakes of M7.1 could have recurrence intervals of 780 to 2600 years. This fault was responsible for the Whittier Narrows M6.0 earthquake which caused substantial damage in the Los Angeles area. (Shaw et. al., 2002).

The Segment 6 Project route crosses both the San Gabriel and Clamshell-Sawpit faults, at approximate S6 MP 18.9 and 24.5, respectively. Neither one of these faults are within the Alquist-Priolo zones where the alignment crosses them, however these faults are known seismic sources, resulting in a potential for surface rupture in the event of a large earthquake on the corresponding fault. Locations of these fault crossings along segment are shown in Figure 3.7-5 (Segment 6 Active Fault Crossings).

Segment 7 crosses five fault strands associated with the active Sierra Madre fault zone, three strands between S7 MP 1 to 1.1, and at approximately S7 MP 1.3 and 1.7. The Sierra Madre fault zone is active through this region and capable of large magnitude earthquakes with large displacements and could cause significant surface rupture in the Project area. The Segment 7 route passes approximately 650 feet south of the southern end of the Alquist-Priolo zone for the East Montebello Hills fault, with the projection of the fault crossing the route at approximately S7 MP 13.6. Because of the short length of this fault and the very low slip rate, significant primary surface fault rupture would not be expected along the projection of this fault. Locations of these fault crossings along segment are shown in Figure 3.7-6 (Segment 7 Active Fault Crossings).

Segment 11 crosses four active faults along its route between S11 MP 14 and 35, the San Gabriel fault, the Sierra Madre fault zone, the Raymond fault, and the East Montebello Hills fault. The alignment crosses the San Gabriel fault at approximately S11 MP 14.9. The Segment 11 route traverses parallel to and across the active Sierra Madre fault, crossing several fault strands associated with the zone: one strand is crossed three times between S11 MP 18.4 and 18.6, and five strands between S11 MP 24.7 to 24.4, at approximately S11 MP 24.7, 25.1, 25.2, and two strands between S11 MP 25.35 and 25.4. The alignment crosses two strands of the Alquist-Priolo zoned Raymond fault between S11 MP 28.9 and S11 MP 29.1 and crosses the Alquist-Priolo zoned East Montebello Hills fault at approximately S11 MP 34.15. However, construction along Segment 11 south of S11 MP 19, where the majority of these fault crossings occur, would not include construction of any new towers, only restringing a vacant position on existing towers, therefore fault rupture impacts would not be relevant along this portion of Segment 11. ~~The Sierra Madre fault zone and Raymond fault are capable of large magnitude earthquakes with large displacements and could cause significant surface rupture in the Project area.~~ Locations of these fault crossings along segment are shown in Figures 3.7-7a and 3.7-7b (Segment 11 Active Fault Crossings).

Groundshaking. As shown in Table 3.7-2, Segments 6, 7, and 11 are in close proximity to numerous active faults of the Transverse Ranges, and cross several significant large active faults. Additionally, the southern portions of Segments 7 and 11 overlie and are in close proximity to the Puente Hills Blind Thrust

and the Upper Elysian Park Thrust, respectively, as shown in Figure 3.7-1. These blind thrust faults are capable of producing large earthquakes and very strong groundshaking, as demonstrated by the Whittier Narrows M6.0 earthquake which occurred on the Puente Hills Blind Thrust and caused substantial damage in the Los Angeles area. Moderate to very strong groundshaking should be expected from an earthquake on any of the faults in the vicinity of Segments 6, 11, and 7, and at the nearby associated helicopter staging areas. The expected ranges of peak horizontal accelerations for these segments are presented in Table 3.7-3. Expected peak horizontal accelerations at the helicopter staging areas is similar to the nearby Project segments, Segments 6 and 11, ranging from 0.6 to 1.2g~~0.4 to 0.7g~~.

Liquefaction. Potential for liquefaction in the mountainous areas crossed by Segments 6 and 11 is low to nonexistent due to the presence of non-liquefiable bedrock underlying the alignments in this area. Where Segment 11 and Segment 7 cross young alluvial deposits of the San Gabriel Valley, near the Rio Hondo and San Gabriel Rivers, and in the Whittier Narrows area the underlying sediments are potentially liquefiable (CGS, 1999b, 1999c, 1999d, 1999e). Additionally, during large storms or a wet season, other sections of the proposed segments that are underlain by alluvium near to and/or crossing smaller river washes and streams may become susceptible to liquefaction if a strong earthquake were to occur while these sediments are saturated due to a temporary/seasonal water table rise.

Liquefaction potential at all of the helicopter staging areas is low to nonexistent. ~~Ten~~ Eleven of the helicopter staging areas have no liquefaction potential due to the presence of non-liquefiable underlying granitic and metamorphic bedrock. Site SCE#0 is underlain by older alluvium near to a stream channel, and although the area is mapped as potentially liquefiable by the CGS (2003b), potential for liquefaction is low at this site due to the expected coarse nature of the deposits and shallow depth to bedrock. Site SCE#9 is underlain by stream channel deposits of sand, gravel, and cobbles and although the area is mapped as potentially liquefiable by the CGS (1999b), the coarse nature of the deposits and shallow depth to bedrock near the mountain front reduces the potential for liquefaction at this site to low.

Earthquake-Induced Landslides. The topography along Segments 6, 7, and 11 in the San Gabriel Mountains is steep and is likely to experience landsliding or slope failures due to earthquakes. The CGS has mapped much of the mountainous and hillside terrain crossed by these Segments and the associated helicopter staging areas as having potential for earthquake-induced landslides (CGS, 1999b, 1999c, 1999d, 1999e). Historic earthquake induced ground failures are known to have occurred in the mountains of near the Project alignments due to the 1971 San Fernando Earthquake, 1991 Sierra Madre Earthquake, and the 1994 Northridge Earthquake. The steep mountain slopes could experience slope failures in areas with over-steepened slopes or with weathered and sheared bedrock.

Paleontology

In the San Gabriel Mountains the proposed Project alignment is underlain mostly by igneous and metamorphic rocks, with Quaternary alluvial rock units occurring along the major drainages, where they underlie the valley and canyon floors. Older Alluvium occurs at the base of the mountains and near the Montebello Hills (Mesa Substation). Course alluvial fans dominate Segment 7 in the Duarte area. Younger Alluvium blankets the floor of the San Gabriel Valley and underlies much of Segment 7 south of Duarte and underlies Segment 11 from east Pasadena to Rosemead. The igneous and metamorphic rocks of the San Gabriel Mountains are non-fossil bearing due to origin of the rock.

Generally the Older Alluvium and alluvial fan deposits at the base of the San Gabriel Mountains are too coarse grained to contain identifiable fossil specimens. Any such remains would have been destroyed or heavily damaged by deposition of the cobbles and boulders that comprise this rock unit (PEAI, 2007).

Two fossil sites in the Older Alluvium of the San Gabriel Valley (San Dimas and West Covina) have yielded teeth of a Pleistocene mammoth and ground sloth remains (PEAI, 2007). The occurrence of only two recorded fossil site near the Project area suggests that there is an undetermined (but probably no more than a moderate) potential for additional, similar, scientifically important fossil remains being encountered locally by ground-disturbing activities in the San Gabriel Valley (PEAI, 2007).

The Younger Alluvium in the San Gabriel Valley has locally yielded late Pleistocene mammoth (Pasadena and Eagle Rock) and fossilized bones and teeth of late Pleistocene land mammals (downtown Los Angeles) (PEAI, 2007). These occurrences indicate that there is an undetermined (but probably no more than a moderate) potential for additional, similar, scientifically important fossil remains being encountered locally in Younger Alluvium in the San Gabriel Valley. The alluvial deposits along streams and valleys within the San Gabriel Mountains are unlikely to contain identifiable fossil specimens due to the high energy depositional environment that would damage the specimens.

Mesa Substation to Mira Loma Substation (Segments 8A, 8B, and 8C)

Geology

Segment 8A primarily traverses moderate to steep slopes of the Puente and Chino Hills, the western and eastern ends of Segment 8A cross alluvial deposits in the Whittier Narrows area and the Chino Basin, respectively. Segments 8B and 8C traverse alluvial fans, plains, and terraces of the Chino Basin. Geologic units crossed by these segments of the Project are younger alluvium, older alluvium, sandstone and conglomerate of the Fernando Formation, and sandstone, shale, siltstone, and conglomerate of the Puente Formation. Figure 3.7-8 (Regional Geologic Map C) presents the geology along Segment 8A, 8B, and 8C.

Geologic conditions likely to be encountered during construction of the proposed Tehachapi Renewable Transmission Project, Segments 8A, 8B, and 8C are summarized below in Table 3.7-8. The table includes: name of the geologic formation or feature; the geologic symbol for the formation; the feature or formations name; a description and comments about the geologic features and the formation's general rock type, lithology, and susceptibility to specific geologic hazards as appropriate; and general excavation characteristics of the unit related to excavation or drilling of tower and structure foundations. Locations of the geologic units and significant geologic structures along Segments 8A, 8B, and 8C are listed in Tables 2-12, 2-13, and 2-14, respectively, of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). Descriptions of geologic units in the Project area are based on published geologic maps by the CGS (1997, 1998b, 1999d, 2000b, 2005), Dibblee (1999, 2001a, 2001b), Durham and Yerkes, 1964, and Yerkes (1972).

Table 3.7-8. Geologic Units along Segments 8A, 8B, and 8C of Proposed Project Route

Geologic Symbol[1]	Formation/ Feature Name[1]	Description/Comments[1]	Excavation Characteristics[2]
Qls	Landslide	Landslide(s)	Moderate to Difficult
Qa, Qye	Young Alluvium/Alluvium	Gravels, sands, and silts	Easy
Qf	Very Young Alluvium	Gravels, sands, and silts	Easy
Qg	Surficial Sediment	Stream channel deposits of gravel, sand and silt.	Easy
Qoa	Older Alluvium	Sand and gravel fan deposits	Easy
Tfp, Tfs, Tfr	Fernando Formation	Fine grained sedimentary rock from fine-medium grained sand to claystone or siltstone; gray, weathers brown.	Easy to Moderate
Tfsc	Fernando Formation	Nonmarine sandstone and conglomerate; light gray to tan, crudely bedded; conglomerate composed of pebbles and cobbles	Easy to Moderate

Table 3.7-8. Geologic Units along Segments 8A, 8B, and 8C of Proposed Project Route

Geologic Symbol[1]	Formation/ Feature Name[1]	Description/Comments[1]	Excavation Characteristics[2]
Tscg, Tsc	Puente Formation	Sycamore Canyon Member conglomerate sandstone unit (Tscg), and gray silty clay shale (Tsc)	Easy to Moderate
Tplv	Puente Formation	La Vida Shale Member; white, weathered; thin bedded, siliceous shale, clay shale, and siltstone	Easy to Moderate
Tps, Tpss	Puente Formation	Soquel Sandstone Member; Bedded sandstone, light gray, weather tan, medium grained could have coarser grains to pebbles	Easy to Moderate
Tpy	Puente Formation	Yorba shale member; light gray, thin bedded, semi-siliceous to clay shale, siltstone, minor sandstone; fish scales	Easy to Moderate
Tp	Puente Formation	Unassigned Member (Tp), fine-medium sedimentary unit from sand, clay to siltstone shale	Easy to Moderate

Notes:

1 Information in these columns is primarily derived from Table 4.7-23 of the PEA (SCE, 2007).

2 Excavation characteristics are defined as "easy," "moderate," or "difficult" based on estimates of rock strength of the each unit. Excavation characteristic definitions are general in nature and the actual ease of excavation may vary widely depending on site-specific subsurface conditions.

Slope Stability

The Project alignment along Segment 8A traverses the ~~northern Montebello Hills and~~ Puente Hills where moderate to locally steep slopes are underlain by Tertiary marine and nonmarine sedimentary rock. Segments 8B and 8C cross the nearly flat Chino Valley underlain by alluvial deposits where no landslides occur. Numerous small to large landslides are mapped in the hillside areas of the Puente Hills where the Puente Formation is distinctly prone to landslides and slope failure. Mapped landslides underlie the proposed Segment 8A alignment from MP 5.6 to 23.5 at several locations as identified in Table 2-12 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). Several landslides are mapped as complexes consisting of several slides and underlie 0.3 to 0.8 mile long portions of the proposed alignment. Unmapped landslides and areas of slope instability may be encountered throughout the Puente Hills traversed by the proposed Project alignment.

Soils

Segment 8A. Segment 8A has numerous soil units/associations mapped along its alignment, thirteen in total. The main soil associations along the Segment ~~11~~ 8A Project route, listed in order of approximate first occurrence along the alignment, from west to east, are: Urban Land-Ramona-Zamora, Urban Land-Hanford-Sorrento, Anaheim-Soper-Fontana, Gaviota-Rock Outcrop, Fontana, Chualar, Sorrento, Chino, Grangeville, Merrill, Hilmar, Tujunga, and Dehli. Each soil unit/association may occur numerous times along the Segment 8A alignment. Soil associations with only small or limited occurrences along the alignment are not discussed. A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). The Urban Land-Ramona-Zamora, Urban Land-Hanford-Sorrento, Anaheim-Soper-Fontana, Gaviota-Rock Outcrop, Fontana, Chualar, and Sorrento soils are primarily formed on hills or sloping terrain in material weathered from the sedimentary bedrock of the Puente and Chino Hills. The Sorrento, Chino, Grangeville, Merrill, Hilmar, Tujunga, and Dehli soils are along the portion of the alignment in the Chino Basin, and are formed in alluvium and colluvium on alluvial fans, plains, and terraces derived primarily from granitic sources. Milepost locations of the soil associations along Segment 8A are summarized in Appendix A of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).

Hazard of erosion for these soils for off-road or off-trail ranges from slight to very severe and for on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential of the soils varies from low to moderate. The corrosive potential of soils along Segment 8A ranges from low to high for uncoated steel and from low to moderate for concrete.

Segments 8B and 8C. Both of these segments are underlain by the same five main soil associations along their Project routes. The soil associations listed in order of approximate first occurrence along the alignments, from west to east, are: Chino, Grangeville, Hilmar, Tujunga, and Dehli. Each soil unit/association may occur numerous times along the Segment 8B and 8C alignments. Soil associations with only small or limited occurrences along the alignment are not discussed. A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). These soils are formed in alluvium and colluvium on alluvial fans, plains, and terraces in the Chino Basin which are derived primarily from granitic sources. Milepost locations of the soil associations along Segment 8B and Segment 8C are summarized in Appendix A of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~).

Hazard of erosion for these soils for off-road or off-trail is slight and for on roads and trails ranges from slight to moderate. Shrink/swell (expansive) potential of the soils varies from low to moderate. The corrosive potential of soils along Segment 8C ranges from low to high for uncoated steel and from low to moderate for concrete.

Seismic Hazards

Fault Rupture. The Segment 8A route traverses parallel to and across the Alquist-Priolo zoned Whittier fault between S8A MP 8.9 and 10.3. In addition, the projected traces of the Alquist-Priolo zoned East Montebello and Chino faults cross Segment 8A. Segment 8A is located less that 0.25 mile south of the mapped active trace of the Montebello Hills fault and its associated Alquist-Priolo zone, which projects south crossing the Segment 8A alignment between S8A MP 2.3 and 2.4, as shown in Figure 3.7-6. The mapped active trace of the Chino fault and its associated Alquist-Priolo zone are located just less than a mile south of the alignment, with the fault projecting northwest towards S8A MP 25.5. Segment 8A also crosses the potentially active Central Avenue segment of the Chino fault zone between S8A MP 26.8 and 26.9. The locations of these faults relevant to Segment 8A are shown in Figure 3.7-9 (Segment 8A Fault Crossings). Segments 8B and 8C do not cross any active faults and thus would not be subject to surface fault rupture. The Whittier fault is capable of large magnitude earthquakes with moderate to large displacements and could cause significant surface rupture in the Project area. ~~Segment 8A also crosses the potentially active Central Avenue segment of the Chino Central Avenue fault between S8A MP 26.8 and 26.9. Although the Segment 8A route does not cross the currently mapped trace of the active Chino segment of the Chino Central Avenue fault, the mapped active, Alquist-Priolo zoned trace of the fault is located just less than a mile south of the alignment, trending northwest towards S8A MP 25.5. The locations of these faults relevant to Segment 8A are shown in Figure 3.7-9 (Segment 8A Fault Crossings).~~

The general physical characteristics of these faults are summarized below and seismic characteristics of the faults listed above are presented in above in Table 3.7-2.

- The East Montebello Hills Fault is a northwest trending, north dipping right-lateral strike-slip fault with an apparent substantial reverse component that is considered to be the northern most extension of the Whittier Fault zone (Yeats, 2004). The East Montebello Hills Fault is approximately 4 miles long and generally traverses the northern edge of the Montebello Hills. Activity along this fault is considered less than that of the other portions of the Whittier fault, approximately only 0.2 mm/year, as slip/strain in this area is being distributed to the underlying blind thrusts and folds.

- The Whittier fault is a primarily right-lateral strike-slip north dipping fault at the northern end of the Elsinore fault system and is approximately 25 miles (40 kilometers) long extending through the Chino Hills to Whittier. This fault is an active Alquist-Priolo zoned fault which is considered capable of producing moderate to large earthquakes of up to magnitude M 7.0~~6.8~~ (~~CGS, 2002b~~USGS, 2008).
- The Chino fault is also a primarily right-lateral strike-slip fault at the northern end of the Elsinore fault system and extends approximately 13 miles (21 kilometers) from Chino Hills to Corona. A magnitude M4.1 earthquake in February, 1989, had an epicenter located southwest of the surface trace of the fault, consistent with fault plane solutions for the Chino fault (SCEC, 2001). This fault is an active Alquist-Priolo zoned fault, and is considered capable of producing earthquakes of up to magnitude M 6.7.
- The Central Avenue Fault is a potentially active strand of the Chino-Central Avenue fault zone. This fault is primarily located based the presence of groundwater barriers and vegetation lineaments and limited oil well data.

One additional fault crossed by the Segment 8A alignment is the Puente Hills Blind Thrust. Although this fault underlies many miles of this segment, as shown in Figure 3.7-1, it is a buried blind thrust fault and is not expected to generate primary surface fault rupture, however ~~minor~~ surface cracking could be associated with an earthquake on this fault. This fault is described in more detail above under the Fault Rupture section for Segments 6, 7, and 11.

Groundshaking. As shown in Table 3.7-2, Segments 8A, 8B, and 8C are in close proximity to numerous active faults of the southern Transverse Ranges and San Andreas Fault system, and cross significant active faults of the Elsinore Fault system (Whittier and Chino ~~Central Ave~~ faults). Additionally, the eastern portion of Segment 8A overlies and is in close proximity to the Puente Hills Blind Thrust and the Upper Elysian Park Thrust, respectively, as shown in Figure 3.7-1. These blind thrust faults are capable of producing large earthquakes and very strong groundshaking, as demonstrated by the Whittier Narrows M6.0 earthquake which occurred on the Puente Hills Blind Thrust and caused substantial damage in the Los Angeles area. Moderate to very strong groundshaking should be expected from an earthquake on any of the faults in the vicinity of these segments. The expected ranges of peak horizontal accelerations for these segments are presented in Table 3.7-3.

Liquefaction. Potential for liquefaction in the Puente and Chino Hills area crossed by Segment 8A is low to nonexistent due to the presence of non-liquefiable bedrock underlying the alignment in this area. Where Segment 8A crosses young alluvial deposits in the Whittier Narrows area, the underlying sediments are potentially liquefiable (CGS, 1999d). Alluvial sediments located where Segment 8A crosses alluvial fan deposits near the confluence of Little Chino Creek and an unnamed creek from the northwest that are located along the eastern edge of the Chino Hills/western edge of the Chino Basin are mapped as having high liquefaction susceptibility (City of Chino Hills,1994). Although Segments 8A, 8B, and 8C cross potentially liquefiable young alluvial sediments in the main portion of the Chino Basin, ~~however~~ anticipated depths to groundwater are greater than 70 feet (CBWM, 2008) resulting in a generally low liquefaction potential; areas with localized shallow seasonal and perched groundwater may have greater liquefaction susceptibility.

Earthquake-Induced Landslides. The topography along Segment 8A in the Puente and Chino Hills is locally steep and is likely to experience landsliding or slope failures due to earthquakes. Historic earthquake induced ground and slope failures are known to have occurred in the mountains and hills of southern California. Moderate to steep slopes throughout the Puente and Chino Hills could experience slope failures in areas with over-steepened slopes or with bedding planes oriented in the downslope direction.

Mineral Resources

No mineral resource sites are identified in the MRDS within 1,000 feet of the proposed TRTP Segment 8 route. Segment 8 does traverses near the Brea-Olinda oil field near Brea and Tonner Canyons north of the City of Brea, and Segment 8 about three miles north of the small Chino-Soquel oil field (DOGGR, 2008). However, the alignments do not cross through active oil well/field areas.

Paleontology

The proposed Project alignment in the Puente, Chino, and Montebello Hills traverses mostly late Tertiary marine sedimentary rock of the Puente Formation and Fernando Formation that form the hills. Quaternary Older and Younger Alluvium comprise the valley areas at San Gabriel River, Chino Valley and small stream channels within the Puente and Chino Hills.

The Miocene age Puente Formation is subdivided into four members: the La Vida Shale Member, the Soquel Sandstone Member, the Yorba Shale Member, and the Sycamore Canyon Member. Each member is known to contain scientifically important fossil assemblages and specimens (PEAI, 2007). The La Vida Shale Member has yielded the tests of marine microfossils (benthic foraminifers) of the late Miocene, lower Mohnian Stage, and fossilized fish scales; the fossilized remains of extinct species of marine algae, clams, crabs, fishes, sharks, and mammals (whales, desmostylids); and the fossilized wood and leaves of land plants (PEAI, 2007). These occurrences indicate that there is a high potential for additional, similar, scientifically important fossil remains being encountered by ground-disturbing activities where the Project area is underlain by the La Vida Shale Member. Moreover, there is a potential that some of the remains might represent new species or species previously not recorded from the member. For these reasons, the La Vida Shale Member is considered paleontologically highly important PEAI, 2007).

The Soquel Sandstone Member has yielded the tests of marine microfossil (benthic foraminifera) species of the late Miocene, upper Mohnian Stage; fossilized coral remains; fragments of mollusk shells and marine vertebrate bones; and shark teeth and fish scales in the Chino Hills (PEAI, 2007). In the Chino Hills at Laband Village, the member yielded fossilized remains representing at least fourteen species of marine and land plants and marine mollusks and vertebrates, including fishes and mammals, and additional such remains representing 19 species were recovered from the transitional zone between the Soquel Sandstone and Yorba Shale Members. Fossil localities also in the Chino Hills have yielded fossil fish and porpoise remains. These occurrences indicate that there is a high potential for similar scientifically highly important fossil remains being encountered in the Soquel Sandstone Member and there is a potential that some of the remains might represent new species or species previously not recorded from the member. For these reasons, the Soquel Sandstone Member is considered paleontologically highly important (PEAI, 2007).

The Yorba Shale Member has yielded the tests of marine microfossil (benthic foraminiferal) species of the late Miocene, upper Mohnian Stage in the Chino Hills, including the very rare, fossil remains of the paper nautilus, and 50 species of marine algae, land plants, and marine invertebrates and vertebrates at Laband Village (PEAI, 2007). The benthic foraminiferal species from Laband Village are characteristic of the late Miocene to early Pliocene lower Delmontian Stage, an age assignment that is slightly younger than previously reported for the Yorba Shale Member. These occurrences indicate that there is a high potential for additional, similar, scientifically highly important fossil remains being encountered by ground-disturbing activities where the Project area is underlain by the Yorba Shale Member and this unit is also considered paleontologically highly important (PEAI, 2007).

The Sycamore Canyon Member has yielded the tests of marine microfossil (benthic foraminiferal) species of the late Miocene to early Pliocene, upper Mohnian and lower Delmontian Stages in the Chino Hills (PEAI, 2007). Fossilized remains representing over 40 species, including marine and land plants, sea turtles, sharks, marine fishes, birds, and baleen whales, from a number of localities in this formation at the Robert O. Townsend Junior High School site in the Chino Hills. Numerous localities in the Puente Hills near Segment 8 yielded specimens representing six species of marine snails, clams, crabs, and echinoids; fossilized remains of baleen whales, sharks, fishes, porpoises, and sea lions from the Sycamore Canyon Member (PEAI, 2007). These occurrences indicate that there is a high potential for additional, similar, scientifically highly important fossil remains being encountered by ground-disturbing activities where the Project area is underlain by the Sycamore Canyon Member and this unit is considered paleontologically highly important (PEAI, 2007).

The Fernando Formation in the Puente, Chino, and Montebello Hills is subdivided into two members: the Lower or "Repetto" Member and the Upper or "Pico" Member. The Lower Member of the Fernando Formation has yielded the fossilized remains of Pliocene marine snails, clams, brachiopods, barnacles, crabs, sand dollars, heart urchins, sharks, marine fishes, and baleen whales at a fossil site in the Chino Hills and the Puente Hills (PEAI, 2007). These occurrences indicate that there is a high potential for additional, similar, scientifically highly important fossil remains being encountered by ground-disturbing activities where the Project area is underlain by the Lower Member of the Fernando Formation and this unit is considered paleontologically highly important (PEAI, 2007).

The Upper Member of the Fernando Formation has yielded fossil remains representing approximately 50 species of marine invertebrates, including snails, clams, scaphopods (tusk shells), and sand dollars, at 40 fossil sites in the Chino Hills PEAI, 2007. Whale remains were found in the Puente Hills approximately 1 mile from Segments 7 and 8 (PEAI, 2007). These occurrences indicate that there is a high potential for additional, similar, scientifically highly important fossil remains being encountered by ground-disturbing activities where the Project area is underlain by the Upper Member of the Fernando Formation and this formation is considered paleontologically highly important (PEAI, 2007).

Continental deposits at the top of the Fernando Formation have yielded the fossilized remains of a horse in Monterey Park (PEAI, 2007). In part because of the limited aerial extent of this unit, the latter occurrence indicates that there is an undetermined (but probably no more than a moderate) potential for additional, similar, scientifically highly important fossil remains being encountered locally by ground-disturbing activities in the Montebello Hills, where Segments 7, 8, and 11 and the Mesa Substation site are underlain by nonmarine unit of the Upper Member (PEAI, 2007).

In the Puente and Chino Hills, Segment 8 crosses canyons whose floors are underlain by Younger Alluvium. This rock unit yielded the fossilized remains of a late Pleistocene bison in Tonner Canyon (PEAI, 2007). There is an undetermined (but possibly high) potential for additional, similar, scientifically highly important fossil remains being encountered locally by ground-disturbing activities in the Chino and Puente Hills (Segment 8) where the Project area is underlain by Younger Alluvium and this unit is considered to be of undetermined (but possibly high) importance locally (PEAI, 2007).

Younger Alluvium 1.5 miles east of Mira Loma Substation in the Chino Valley yielded late Pleistocene ground sloth and camel remains and depths of 11 to 15 feet below the present ground surface, and mammoth remains at a depth of 5 feet (PEAI, 2007). Numerous other localities, mostly unpublished, occur in the Chino Valley where shallow depths (about 3 feet) have yielded additional remains representing a taxonomic diversity of late Pleistocene land mammal species (PEAI, 2007). The remains

Younger Alluvium in the Chino Valley are scientifically highly important because of their taxonomic diversity and because they have demonstrated that Pleistocene land mammal remains can occur at very shallow depths in areas underlain by younger alluvium. These occurrences indicate that there is a high potential for additional, similar, scientifically highly important fossil remains being encountered locally by ground-disturbing activities in the Chino Valley (Segment 8) where the Project area is underlain by Younger Alluvium and this unit is considered locally paleontologically highly important (PEAI, 2007).

Segment 9 – Substations

Whirlwind Substation

Geology

The proposed Whirlwind Substation site is entirely underlain by Quaternary alluvial fan deposits formed by streams transporting sand and gravel east from the Tehachapi Mountains.

Slope Stability

The proposed Whirlwind Substation is located on a flat to gently sloping alluvial fan, and would not be subject slope failures.

Soils

The site is underlain by the Hesperia soil association which consists primarily of fine sandy loam with calcareous layers at depth. Hazard of erosion for these soils for off-road or off-trail is slight and for on roads and trails ranges from slight to moderate. Shrink/swell (expansive) potential of the soil is low, and the corrosive potential is high for uncoated steel and low for concrete.

Mineral Resources

Although potential sand and gravel and limestone resources exist in the substation area, no active mineral resource sites were identified by the MRDS within 1,000 feet of the proposed site. This results in no potential for construction of the Whirlwind Substation to interfere with access to known mineral resources.

Seismicity

Fault Rupture. The Whirlwind Substation site is not crossed by any active faults and therefore would not be subject to surface fault rupture.

Groundshaking. The Whirlwind Substation is near the Garlock Fault Zone (about 10 miles northwest) and the San Andreas Fault Zone (about 11 miles southwest). Moderate to strong groundshaking from an earthquake on any of the faults in the vicinity of the Whirlwind Substation should be expected. The expected range of peak horizontal accelerations for the Whirlwind Substation is ~~0.4~~0.6g (Table 3.7-3).

Liquefaction. Liquefaction potential at Whirlwind Substation is low due to groundwater depth greater than 100 feet in western Antelope Valley.

Earthquake-Induced Landslides. The topography at Whirlwind Substation is very gently sloping and will not experience landslides or slope failures due to earthquakes.

Paleontology

The proposed Whirlwind Substation is underlain by Holocene Younger alluvium. The Younger Alluvium is generally considered to have low sensitivity for paleontological resources.

Antelope Substation

Geology

The proposed Antelope Substation improvements site is underlain by Quaternary alluvium and alluvial fan deposits transported northeast from Portal Ridge.

Slope Stability

The proposed improvements at the Antelope Substation are located on a nearly flat alluvial plain, and would not be subject slope failures.

Soils

The Antelope Substation site is underlain by the Greenfield soil association which consists of sandy to coarse sandy loam. Hazard of erosion for these soils is slight to severe for on roads and trail use. Shrink/swell (expansive) potential of the soil is low, and the corrosive potential is low to high for uncoated steel and low for concrete.

Mineral Resources

Although potential sand and gravel resources exist in the substation area, no active mineral resource sites were identified by the MRDS within 1,000 feet of the proposed site. There is no potential for construction at the Antelope Substation to interfere with access to known mineral resources.

Seismicity

Fault Rupture. The Antelope Substation site is not crossed by any active faults and therefore would not be subject to surface fault rupture.

Groundshaking. The Antelope Substation is about 3.8 miles northwest of the San Andreas Fault Zone and moderate to strong groundshaking from an earthquake on this fault or any of the faults in the vicinity should be expected. The expected range of peak horizontal accelerations for the Antelope Substation is ~~0.6~~0.9g (Table 3.7-3).

Liquefaction. Liquefaction potential at Antelope Substation is low due to groundwater depth greater than 100 feet in western Antelope Valley.

Earthquake-Induced Landslides. The topography at Antelope Substation is nearly flat and will not experience landslides or slope failures due to earthquakes.

Paleontology

The proposed Antelope Substation expansion area is underlain by Holocene Younger alluvium. The Younger Alluvium is generally considered to have low sensitivity for paleontological resources.

Vincent Substation

Geology

The proposed expansion area at the Vincent Substation is underlain by Quaternary Older Alluvium comprised of sand and gravel deposits.

Slope Stability

The Vincent Substation is located on a level graded pad that is about 10 to 20 feet above dry stream washes on the north and south sides. The Older Alluvium is generally stable at moderate slope inclinations but the poorly consolidated materials are susceptible to erosion.

Soils

The Hanford soil association underlies the Vincent Substation site. These soils consist of fine sandy to sandy loam. Hazard of erosion for these soils is moderate to severe for on roads and trail use. Shrink/swell (expansive) potential of the soil is low, and the corrosion potential is low to moderate for uncoated steel and for concrete.

Mineral Resources

Although potential sand and gravel resources exist in the substation area, no active mineral resource sites were identified by the MRDS within 1,000 feet of the proposed substation improvements. There is no potential for construction at the Antelope Substation to interfere with access to known mineral resources.

Seismicity

Fault Rupture. The Vincent Substation site is not crossed by any active faults and therefore would not be subject to surface fault rupture.

Groundshaking. The Vincent Substation is about 3.6 miles southwest of the San Andreas Fault Zone and moderate to very strong groundshaking from an earthquake on this fault or any of the faults in the vicinity should be expected. The expected range of peak horizontal accelerations for the Vincent Substation is ~~0.6~~0.9g (Table 3.7-3).

Liquefaction. Liquefaction potential at Vincent Substation is low due to estimated groundwater depths greater than 50 feet in the area and the alluvium is generally medium dense to dense (Leroy Crandall, 1963).

Earthquake-Induced Landslides. The topography at Vincent Substation consists of a graded flat ridge elevated about 20 feet above wide, west-draining, flat-floored dry stream beds and will not experience landslides or slope failures due to earthquakes.

Paleontology

The proposed Vincent Substation expansion area is underlain by Quaternary Older alluvium. The Older Alluvium is generally considered to have high sensitivity for paleontological resources.

Mesa Substation

Geology

The proposed expansion area at the Mesa Substation is underlain by Older Alluvium composed of unconsolidated silt, sand and gravel, and Pleistocene Fernando Formation comprised of semi-consolidated sandstone, conglomerate, siltstone and claystone.

Slope Stability

Terrain at Mesa Substation is nearly flat to gently sloping and would not be subject slope failures.

Soils

The site is underlain by Urban Land-Ramona-Zamora soils, which are formed on alluvium and colluvium on alluvial fans, plains, and terraces. Hazard of erosion for these soils is slight to moderate for off roads and trails and moderate to severe for on roads and trails. Shrink/swell (expansive) potential of the soil is low and the corrosion potential is moderate to high for uncoated steel and moderate for concrete.

Mineral Resources

There is limited potential for sand and gravel resources at the substation area, and the Mea Substation is about 0.7-mile northwest of the active Montebello Hills oil field. There are no other active mineral resource sites identified by the MRDS within 1,000 feet of the proposed site. There is no potential for construction at the Mesa Substation to interfere with access to known mineral resources.

Seismicity

Fault Rupture. The Mesa Substation site is located only 1.7 miles southwest of the East Montebello Hills fault but is not crossed by any active faults and therefore would not be subject to surface fault rupture.

Groundshaking. The Mesa Substation is about 4 miles west of the Whittier fault, 2 miles southeast of the Upper Elysian Park blind thrust, and lies directly above the north-dipping thrust plane of the Puente Hills blind thrust fault. Moderate to strong groundshaking from an earthquake on any of the faults in the vicinity should be expected. The expected range of peak horizontal accelerations for the Mesa Substation is ~~0.5~~0.9g (Table 3.7-3).

Liquefaction. Liquefaction potential at Mesa Substation is low due to estimated groundwater depths greater than 50 feet and the older alluvium and underlying Fernando Formation is medium dense to dense.

Earthquake-Induced Landslides. The topography at Mesa Substation is flat to gentle slopes and will not experience landslides or slope failures due to earthquakes.

Paleontology

The proposed Mesa Substation expansion area is underlain by older alluvium and nonmarine Fernando Formation. Both of these units are generally considered to have moderate sensitivity for paleontological resources.

Gould Substation

Geology

The proposed expansion area at the Gould Substation is underlain by artificial fill and quartz diorite.

Slope Stability

Terrain at Gould Substation consists of the nearly flat graded area at the facility and in the immediate vicinity surrounded by moderately inclined slopes. The natural slopes are underlain by quartz diorite and generally would not be subject slope failures.

Soils

The Gould Substation is underlain by the Cienba-Exchequer-Sobrante soil complex, which is formed on mafic and felsic weathered igneous rock, and are comprised of coarse sandy loam, gravelly sandy loam, gravelly loam, and loam. Hazard of erosion for these soils is severe for on roads and trail use. Shrink/swell (expansive) potential of the soil is low and the corrosion potential is low to moderate for uncoated steel and for concrete.

Mineral Resources

There are no active mineral resource sites identified by the MRDS within 1,000 feet of the proposed site. There is no potential for construction at the Gould Substation to interfere with access to known mineral resources.

Seismicity

Fault Rupture. The Gould Substation site is located 3.5 miles south of the San Gabriel fault and is within the Sierra Madre fault zone only 0.2 and 0.5 miles from two mapped traces. The Gould Substation is not crossed by any active faults and therefore would not be subject to surface fault rupture.

Groundshaking. The Gould Substation is near the right-lateral strike slip San Gabriel fault and the reverse dip-slip Sierra Madre fault. Both faults are capable of large earthquakes. Moderate to strong groundshaking from an earthquake on these faults or any of the faults in the vicinity should be expected. The expected range of peak horizontal accelerations for the Gould Substation is ~~0.6~~1.0g (Table 3.7-3).

Liquefaction. There is no liquefaction potential at Gould Substation due to the underlying consolidated igneous bedrock.

Earthquake-Induced Landslides. The moderately inclined slopes immediately surrounding Gould Substation are composed of thin colluvium over quartz diorite bedrock resulting in a low to moderate potential for earthquake-triggered landslides or slope failures. However, nearby steep slopes and locally sheared bedrock in the San Gabriel Mountains are likely to experience landslides or slope failures due to earthquakes.

Paleontology

The proposed Gould Substation expansion area is underlain by igneous rock with no potential for paleontological resources.

Mira Loma Substation

Geology

The proposed Mira Loma Substation improvements site is underlain by Quaternary alluvium deposited on a very broad alluvial plain.

Slope Stability

The Mira Loma Substation is located on a flat plain with no potential for landslides or slope failures.

Soils

Soil at the Mira Loma Substation belong to the Delhi soil series, are very deep soils formed in wind-modified alluvial deposits, and are comprised of sand, fine sand, loamy fine sand, or loamy sand. Hazard of erosion for these soils is slight to moderate for on roads and trail use. Shrink/swell (expansive) potential of the soil is low and the corrosion potential is low to moderate for uncoated steel and for concrete.

Mineral Resources

Although potential sand and gravel resources exist in the substation area, no active mineral resource sites were identified by the MRDS within 1,000 feet of the proposed site. There is no potential for construction at the Mira Loma Substation to interfere with access to known mineral resources.

Seismicity

Fault Rupture. The Mira Loma Substation site is not crossed by any active faults and therefore would not be subject to surface fault rupture.

Groundshaking. The Mira Loma Substation is about 7 miles east of Central Avenue fault and 11.3 miles southwest of the San Jacinto fault. Moderate to strong groundshaking from an earthquake on any of the faults in the vicinity should be expected. The expected range of peak horizontal accelerations for the Mira Loma Substation is ~~0.4~~0.6g (Table 3.7-3).

Liquefaction. Liquefaction potential at Mira Loma Substation is low due to estimated groundwater depths greater than 50 feet.

Earthquake-Induced Landslides. The topography at Mira Loma Substation is almost level and will not experience landslides or slope failures due to earthquakes.

Paleontology

Younger Alluvium 1.5 miles east of Mira Loma Substation yielded late Pleistocene ground sloth and camel remains at depths of 11 to 15 feet below the present ground surface, and mammoth remains at a depth of 5 feet (PEAI, 2007). Numerous other localities, mostly unpublished, occur in the Chino Valley where shallow depths (about 3 feet) have yielded additional remains representing a taxonomic diversity of late Pleistocene land mammal species (PEAI, 2007). The remains in Younger Alluvium in the Chino Valley are scientifically highly important because of their taxonomic diversity and because they have demonstrated that Pleistocene land mammal remains can occur at very shallow depths in areas underlain by younger alluvium and these units are generally considered to have moderate sensitivity for paleontological resources.

3.7.2.3 Alternative 3: West Lancaster Alternative

Alternative 3 is identical to the proposed Project, except for one deviation. It would re-route the new 500-kV T/L in Segment 4 along 115th Street West rather than 110th Street West. This Alternative would deviate from the proposed route at approximately S4 MP 14.9,where the new 500-kV T/L would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route traverses through undeveloped land with scattered residential

use along West Avenue I and J and would increase the overall distance of Segment 4 by approximately 0.4 mile.

Geology

The minor reroute of the West Lancaster Alternative traverses Younger Alluvium like the equivalent portion of Segment 4 of the proposed Project.

Slope Stability

The proposed Alternative 3 alignment is located on a nearly flat alluvial plain and would not be subject to slope failures.

Soils

Soils units encountered along Alternative 3 are the same as for the proposed Project, and thus have the same characteristics.

Mineral Resources

There are no known quarries along the minor reroute of Alternative 3 alignment, although the alluvial deposits contain sand and gravel resources. The mineral resources along the remainder of the Alternative 3 alignment are identical to the proposed Project.

Seismic Hazards

Fault Rupture. The proposed Alternative 3 reroute is not crossed by any active faults and therefore would not be subject to surface fault rupture.

Groundshaking. The proposed Alternative 3 reroute does not pass across or nearer to major faults and the level of groundshaking would be identical to the proposed Project.

Liquefaction. Liquefaction potential along the Alternative 3 reroute is low due to groundwater depth greater than 100 feet in western Antelope Valley. The liquefaction hazard along the remainder of Alternative 3 is identical to the proposed Project.

Earthquake-Induced Landslides. The minor reroute of the West Lancaster Alternative traverses relatively level to gently sloping alluvial plains like the equivalent portion of Segment 4 of the proposed Project and has no potential for earthquake-induced slope failure. The remainder of Alternative 3 is identical to the proposed Project and has low to high potential to encounter areas of known or potential landslides and unstable slopes (as described in Section 3.7.2.2).

Paleontology

The minor reroute of the West Lancaster Alternative traverses Younger Alluvium like the proposed Project. The Younger Alluvium to shallow depths of three to five feet is probably too young to contain remains old enough to be considered fossilized. Correspondingly, there probably is only a low potential for scientifically important fossil remains being encountered (PEAI, 2007) along the reroute portion of Alternative 3. The remainder of Alternative 3 is identical to the proposed Project and has low to high potential to encounter scientifically important fossil remains.

3.7.2.4 Alternative 4: Chino Hills Route Alternatives

Alternative 4 consist of ~~four~~ five route options (designated Route A, Route B, Route C, Route C Modified, and Route D) passing through and around Chino Hills State Park. Alternative 4 is identical to the proposed Project, except for the eastern end of the alignment where it deviates from Segment 8. Therefore the environmental setting is identical except where it deviates from the proposed Project alignment, therefore only the setting for the portion of Alternative 4 that deviates from the proposed Project is discussed below. Environmental setting of the proposed Project is discussed in Section 3.7.2.2.

Geology

Where Alternative 4 deviates from the proposed Project route, it is entirely underlain by the Puente Formation (Soquel and Yorba members).

Slope Stability

All of the Alternative 4 route options (Route A, Route B, Route C, Route C Modified, and Route D) pass through moderate to steep terrain with mapped landslides, potentially unstable slopes, and narrow alluvium-filled valleys. Alternative 4 would reduce the total length of the Project and not pass through the Chino Valley/Basin. Within the Chino Hills (eastern Puente Hills) each of the ~~four~~ five route options traverses Miocene age Puente Formation which is prone to landslides. Alternative 4 diverges from the proposed Project 0.5 miles east of Tonner Canyon, at approximately MP S8A-19.2, where additional landslides are mapped and continue along the proposed Project alignment to the east in the Puente Hills. Unmapped landslides and areas of slope instability may be encountered throughout the Alternative 4 alignment in the eastern Puente Hills. Alternative 4 has similar impacts for potential landslides and unstable slopes as the comparable portion of Segment 8A as they both cross hillside areas underlain by the landslide prone Puente Formation. However, all of the Alternative 4 routes cross a slightly longer length through the Puente Formation than the proposed Project (ranging from 6.2 to 12.4 miles versus 5.9 miles for the comparable portion of Segment 8A), resulting in a slightly increased potential for impacts from landslides and unstable slopes along Alternative 4 compared to the proposed Project.

Soils

All of the Alternative 4 routes are underlain by one soil association, the Anaheim-Soper-Fontana association. This soil association is formed in material weathered from sandstone, shale, and conglomerate on moderate to steep hills. Hazard of erosion for these soils is moderate to very severe for off road or trail and severe for on roads and trails. Shrink/swell (expansive) potential of the soil is low to moderate and the corrosion potential is moderate to high for uncoated steel and low to moderate for concrete.

Mineral Resources

There are no known mines or quarries along the Alternative 4 alignment. The Alternative 4~~,~~ portions of the Route C Modified switching station and the portions of associated connecting and nearby transmission lines near the switching station are located within the southern boundary of the Chino-Soquel oil field, but are not located in or near any active oil field areas. Route D alignment traverses adjacent and east of the Chino-Soquel oil field boundary, but does not cross the active field. The Alternative 4, Route C Raptor Ridge Reroute of the existing 500-kV and 220-kV transmission lines would pass approximately 1800 feet south and southeast of the Chino-Soquel oil field, but is not near any mapped active or inactive oil wells.

The proposed switching station for Alternative 4 Route B and Route D is located only about 800 feet north of the inactive Mahala oil field but is not in the vicinity of any mapped inactive oil wells.

Seismic Hazards

Fault Rupture. Neither Route A ~~nor~~, Route C, or Route C Modified of Alternative 4 cross active or potentially active faults, resulting in no potential for surface fault rupture along these routes. However, both the eastern ends of Routes B and D and their associated new switching station would cross and be located on the Alquist-Priolo zoned Chino Fault, as shown in Figure 3.7-10, which results a potential for damage from surface fault rupture.

Groundshaking. Moderate to strong ground shaking of ~~0.4 to 0.6g~~0.8 – 1.2g is anticipated in the eastern Puente and Chino Hills. The closest active faults to the Alternative 4 routes are the Whittier and Chino faults. The Whittier fault approximately parallels the Alternative 4 alignments 2 miles to the southwest, and the Chino fault is located approximately 3, 2.5, and 1.5 miles east of the eastern end of Alternative 4 Routes A, C Modified, and C, respectively, and ~~crosses~~ underlies the eastern end and switching station of Alternative 4 Routes B and C.

Liquefaction. The Alternative 4 routes are all underlain by Puente Formation bedrock, which is not susceptible to liquefaction.

Earthquake-Induced Landslides. The topography along Alternative 4 in the Chino Hills is locally steep and is likely to experience landsliding or slope failures due to earthquakes. Historic earthquake induced ground and slope failures are known to occur in the mountains and hills of southern California. Moderate to steep slopes throughout the Chino Hills could experience slope failures in areas with over-steepened slopes or with bedding planes oriented in the downslope direction.

Paleontology

Alternative 4 would reduce the total length of the Project and not pass through the Chino Valley/Basin. Within Chino Hills each of the ~~four~~ five route options traverses Miocene age Yorba and Soquel Members of the Puente Formation; Routes B and D extend east into areas underlain by the late Miocene – early Pliocene age Sycamore Canyon Member of the Puente Formation. Alternative 4 joins the proposed Project 0.5 miles east of Tonner Canyon where the Soquel Member of the Puente Formation forms the hillsides. Alternative 4 crosses through the same units with the same paleontologic sensitivity as the equivalent portion of Segment 8A, therefore the same types of paleontologic resources may be found along the Alternative 4 alignment as these geologic units have several known fossil locations that have yielded scientifically important fossil remains. However, each of the Alternative 4 route options is within the paleontologic-rich Puente Formation (high sensitivity) and is longer than the comparable portion of the proposed Project within these same formations (0.3 to 6.5 miles longer). Despite these longer lengths of alignment in Puente Formation, the shorter overall lengths results in the following: Alternative 4 would eliminate approximately 3.6 to 9.2 miles of paleontologically sensitive Puente Formation and alluvium along Segment 8A, and ~~6.8 and~~ 6.4 miles of paleontologically sensitive alluvium along Segment~~s~~ ~~8B and~~ 8C~~, respectively~~.

3.7.2.5 Alternative 5: Partial Underground Alternative

This alternative would utilize underground construction in place of the proposed overhead line construction following the same routes as the proposed Project. The transmission line route for Alternative 5 would be the same as the proposed Project, with the exception that the line would be

installed underground in a tunnel for approximately four miles through Chino Hills along Segment 8A. Under this alternative, the proposed transmission line would shift from overhead to underground at approximately MP 21.9 of Segment 8A and would continue underground through the City of Chino Hills to approximately MP 25.8 of Segment 8A, where the underground line would shift back to overhead. New underground facilities would replace the proposed aboveground facilities along the four miles through the Chino Hills, and transition stations would be required at each end of the underground segment to transfer the transmission lines from overheard to underground and vice versa. The geologic, seismic, and paleontologic setting along Alternative 5 would be identical to the proposed Project; therefore refer to Section 3.7.2.2 for discussions of setting along the proposed Project alignment.

3.7.2.6 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Alternative 6 is identical to the proposed Project (Alternative 2), except along Segment 6 and Segment 11 where helicopter construction would be used to the maximum extent feasible in the ANF portion of the route. This alternative would include construction of ~~11~~ 13 helicopter staging areas in the ANF, several of which would require extensive grading (cut and fill). As a result of helicopter construction, some access and most spur roads would not be created and/or upgraded for ground access to towers along these portions of Segment 6 and Segment 11. However, many unpaved access roads would still require some upgrading and or regrading for access by construction personnel. This alternative would result in approximately 72~~69~~ fewer acres of temporary ground disturbance in the ANF, 86~~2~~ fewer acres of temporary ground disturbance total, and approximately 46~~7~~ fewer acres of permanent ground disturbance than Alternative 2. Despite the increased use of helicopter construction techniques for the ANF portions of Segment 6 and Segment 11, the transmission line route traversed by Alternative 6 would be identical to that of Alternative 2 and thus the geologic, seismic, and paleontologic setting along the Alternative 6 transmission line route would be identical to the proposed Project (Alternative 2); therefore please refer to Section 3.7.2.2 for discussions of setting along the proposed Project alignment.

However, most of the helicopter staging areas to be used for Alternative 6 would be at locations not included or analyzed in any of the other alternatives and the geologic, seismic, and paleontologic settings for these sites are discussed below. Although four of the helicopter staging areas are located at approximately the same locations as those identified for Alternative 2, they are discussed below to include a full setting description for the helicopter staging areas. The sites that are the same in both alternatives are as follows:

- Alternative 6 Site #7 = Alternative 2 Site SCE#6B,
- Alternative 6 Site #8 = Alternative Site SCE#3B,
- Alternative 6 Site #9 = Alternative 2 Site SCE#7, and
- Alternative 6 Site #11 = Alternative 2 Site SCE#8.

Geology

Each of the 11 helicopter staging areas is located in the San Gabriel Mountains. The sites are primarily underlain by igneous and metamorphic bedrock. Geologic units expected to be encountered at the helicopter staging areas are listed below (see Table 3.7-7 for summary descriptions of these units):

- Older alluvium over Hornblende Diorite Gabbro – Site #1
- Older alluvium over Lowe Granodiorite – Sites #2 and #3
- Anorthosite gabbro, primarily hornblende gabbro – Site #4
- Landslide and anorthosite gabbro complex – Site #5

- Lowe Granodiorite and gneiss – Site #6
- Gneiss – Site #7 (same as Alternative 2 Site SCE#6B)
- Artificial fill from dredging of Big Tujunga Reservoir of unknown depth over granitic rocks – Site #8 (same as Alternative 2 Site SCE#3B)
- Granitic rocks – Site #9 (same as Alternative 2 Site SCE#7)
- Granitic rocks – primarily quartz monzonite – Site #10
- Gneiss – Site #11 (same as Alternative 2 Site SCE#8)
- Lowe Granodiorite – Sites #12 and #13

Slope Stability

Sites ~~SCE~~#1,# 2, and #3 are located along flat to gently sloping stream terraces along the northern edge of the San Gabriel Mountains and are not subject to slope stability issues. Site #7, although located in hilly terrain of the San Gabriel Mountains, is located at preexisting, gently sloping, graded facilities at Barton Flats, which already includes a helicopter landing area, and would not require further grading for use as a helicopter staging area. Site ~~SCE~~#8 is located in Maple Canyon southeast of Big Tujunga Reservoir on terraced fill slopes created from material dredged from the reservoir. The Site ~~SCE~~#8 helicopter staging area is located near the top of the terraced fill in the canyon with moderately sloping hills above and on either side of the site and would likely require moderate grading to create a suitable staging area. Site #12, although located in hillside terrain of the San Gabriel Mountains along a side canyon of Tie Canyon, is located at an existing graded roadside turnout along Angeles Forest Highway, and would not require further grading for use as a helicopter staging area. Helicopter staging Site #13 is located at an existing small helicopter landing area along Angeles Forest Highway southeast of Mill Creek Summit Station along a small ridge in hillside terrain of the San Gabriel Mountains, however as the site is an existing graded helicopter landing site, it would likely not require much if any grading to create a suitable staging area.

The remaining five helicopter staging areas (Sites ~~SCE~~#4, #5, #6, #9, and #10) are located on or along ridges, hilltops, and in saddles of the San Gabriel Mountains with sloping terrain which would require moderate to extensive grading (cut and fill) to create suitable, relatively flat sites for helicopter landings and staging of construction supplies and equipment. Small to large landslides and debris slides are mapped along the steep mountain terrain adjacent to the staging sites in the Project vicinity. Helicopter staging Site ~~SCE~~#5 is located on a mapped landslide near the top of the landslide. Although many of the helicopter staging areas may be subject to construction triggered landslides, the need for fewer access roads in the steep terrain would result in less grading in steep, potentially landslide prone terrain than Alternative 2, thereby reducing the overall potential for construction triggered landslides as compared to the proposed Project.

Soils

The Alternative 6 helicopter staging areas are underlain by similar soil associations as the nearby Segment 6 and Segment 11 transmission line corridors. Soil associations mapped at the helicopter staging areas are as follows:

- Sites #1 and 2 - Hanford
- Site #3 – Pismo-Trigo-Exchequer
- Site #4 – Pismo-Chilao-Shortcut
- Site #5 – Vista

- Site #6 – Trigo-Modjeska
- Site #7 – Trigo-Green Bluff-Supan
- Site #8 – This site is mapped as underlain by Chilao soils, however because this site is on dredged fill the 'soil characteristics' of the material of the site is dependent on the type and grain size of the fill material.
- Site #9 – Stukel-Winthrop
- Site #10 – Rock Outcrop-Chilao
- Site #11 – Ramona-Zamora
- Site #12 - Pacifico-Xerothents complex
- Site #13 - Pacifico-Preston

These soils are primarily either formed in alluvium or colluvium weathered from granitic or metamorphic bedrock, or formed in material weathered from the underlying bedrock (primarily granitic and metamorphic, rocks in this part of the Project area). A summary of the basic characteristics of these soils is presented in Table 2-1 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~). These soils are primarily either formed in alluvium or colluvium weathered from granitic or metamorphic bedrock, or formed in material weathered from the underlying metamorphic and igneous bedrock. The hazard of erosion for these soils for off-road or off-trail ranges from slight to very severe. The hazard of erosion for these soils on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential of the soils varies from low to moderate. The corrosive potential of soils at the staging sites ranges from low to high for uncoated steel and from low to moderate for concrete.

Mineral Resources

Mineral resources in the vicinity of the helicopter staging areas consist primarily of metallic minerals (ores) such as gold and titanium and no active mines are located at or adjacent to any of the staging sites. This results in no change in potential for inference with access to known mineral resources along the ANF portion of Alternative 6 compared to the equivalent portion of Alternative 2.

Seismic Hazards

Fault Rupture. None of the helicopter staging areas is crossed by active or potentially active faults, resulting in no potential for surface fault rupture at these sites. This results in no change in potential for fault rupture along the ANF portion of Alternative 6 compared to the equivalent portion of Alternative 2.

Groundshaking. Moderate to very strong ground shaking of 0.6 to 1.2g ~~0.4g to 0.7g~~ is anticipated in the San Gabriel Mountains near the helicopter staging areas.

Liquefaction. Although Sites 1, 2, and 3 are underlain by older alluvium near to stream channels, the potential for liquefaction is low at these sites due to the expected coarse nature of the deposits and shallow depth to bedrock. Liquefaction potential is low to nonexistent at the remaining staging sites due to the presence of the non-liquefiable underlying granitic and metamorphic bedrock at these helicopter staging areas.

Earthquake-Induced Landslides. The topography at and near the helicopter staging areas is locally steep and is likely to experience landsliding or slope failures due to earthquakes. Historic earthquake induced ground and slope failures have occurred in the San Gabriel Mountains due to large regional earthquakes. The steep mountain slopes could experience slope failures in areas with over-steepened slopes or with weathered and sheared bedrock.

Paleontology

In the San Gabriel Mountains the helicopter staging areas are underlain mostly by non-fossiliferous igneous and metamorphic rocks. At Sites 1, 2, and 3, which are underlain by alluvial deposits along streams and valleys of the San Gabriel Mountains, the deposits are unlikely to contain identifiable fossil specimens due to the high energy depositional environment that would have destroyed or damaged any fossil specimens (PEAI, 2007).

3.7.2.7 Alternative 7 : 66-kV Subtransmission Alternative

Alternative 7 is identical to the proposed Project (Alternative 2), except along Segments 7 and 8A where ~~three~~ four 66-kV subtransmission line elements would be undergrounded or relocated. The ~~three~~ four 66-kV subtransmission line elements include the following: (1) Undergrounding the 66-kV subtransmission line in Segment 7 through the River Commons or Duck Farm Project (between Valley Boulevard – S7 MP 8.9 and S7 MP 9.9); (2) Re-routing and undergrounding the 66-kV subtransmission line around the Whittier Narrows Recreation area in Segment 7 (S7 MP 11.4 to 12.025); (3) Re-routing the 66-kV subtransmission line through the Whittier Narrows Recreation area in Segment 7 (S7 MP 12 to 13.6) and (~~3~~4) 2 options for ~~R~~re-routing the 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8, Option 1 includes re-routing the line down Siphon road and Option 2 would instead continue the line along Durfee Avenue. Other than the minor 66-kV re-routes and underground construction described above for the ~~three~~ four elements of Alternative 7, this alternative would be identical to the proposed Project (Alternative 2) as discussed in Sections 2.2.3 through 2.2.9. All substation and information technology facilities would also be identical to the proposed Project as discussed in Sections 2.2.10 and 2.2.11, respectively. Therefore, with the exception of the minor differences in alignment for the ~~three~~ four 66-kV re-routes, the transmission line route traversed by Alternative 7 would be identical to that of Alternative 2 and thus the geologic, seismic, and paleontologic setting along the Alternative 7 transmission line route would be identical to the proposed Project (Alternative 2); therefore refer to Section 3.7.2.2 for discussions of setting along the proposed Project alignment. The geologic setting along the three 66-kV re-routes has slight differences than that of the proposed Project and is discussed below.

Geology

The geology of the 66-kV re-routes is nearly identical to the corresponding nearby portion of the proposed Project alignment. Geologic units expected to be encountered along the 66-kV re-route alignments are listed below (see Table 3.7-7 for summary descriptions of these units) (Dibblee, 1999):

- Duck Farm 66-kV Underground – entirely underlain by channel deposits (Qg)
- Whittier Narrows 66-kV Underground Re-Route – underlain by alluvium (Qa) and channel deposits (Qg)
- Whittier Narrows 66-kV Overhead Re-Route (Segment 7) – underlain by Fernando Formation for the first half-mile and then by alluvium (Qa) and channel deposits (Qg)
- Whittier Narrows 66-kV Overhead Re-Route (Segment 8A) – Options 1 and 2: underlain by Fernando Formation for the first half-mile and then by alluvium (Qa) and channel deposits (Qg)

Slope Stability

The Duck Farm and Whittier Narrows Underground re-routes are both located on flat alluvial channel and valley topography and would not be subject to slope stability issues. The western end of all of the Whittier Narrows Overhead re-routes ~~is~~ are located along the moderate to gently sloping eastern slopes of the Montebello Hills, and although the moderately sloping areas may be subject to minor landslides or debris

slides, the area is developed and graded for roads and oil field work areas and is unlikely to experience significant slope stability issues. The remaining portions of the Whittier Narrows Overhead re-routes cross~~es~~ flat alluvial channel and valley topography and would not be subject to slope stability issues.

Soils

The 66-kV re-route alignments are underlain by similar soils as the nearby Segments 7 and 8A transmission line corridors, primarily the Urban Land-Hanford-Sorrento soil association. These soils are mainly formed either in alluvium or colluvium weathered from the underlying sedimentary formations, or in alluvium and colluvium on alluvial fans, plains, and terraces. Hazard of erosion for these soils for off-road or off-trail is slight and for on roads and trails ranges from slight to severe. Shrink/swell (expansive) potential of the soils varies from low to moderate. The corrosive potential of soils along the 66-kV re-routes ranges from low to high for uncoated steel and from low to moderate for concrete.

Mineral Resources

Mineral resources in the vicinity of the 66-kV re-routes consist primarily of aggregate resources near the San Gabriel River and oil and gas near the Montebello Hills. No active sand or gravel quarries are located in the vicinity of the re-routes; however, ~~a~~ portions of the Whittier Narrows 66-kV Overhead Re-Route (Segment 8A) Options 1 and 2 crosses the northern edge of the Montebello oil field. Although ~~this~~ the alignment for these Options cross~~es~~ the edge of the oil field, it does not cross through any active oil well fields and construction within the existing ROW in this area is not expected to impact access to this resource. This results in no change in potential for inference with access to known mineral resources along Alternative 7 as compared to Alternative 2.

Seismic Hazards

Fault Rupture. Two of the four re-routes are crossed by the southward projection of the East Montebello Hills fault, resulting in an additional potential for fault rupture damage along these new and re-routed subtransmission lines, as shown in Figure 3.7-11**.** The Whittier Narrows 66-kV Overhead Re-Route (Segment 7) passes approximately 650 feet south of the southern end of the Alquist-Priolo zone for the East Montebello Hills fault with the projection of the fault crossing the route at a location approximately equivalent to S7 MP 13.6. Both Options 1 and 2 of the Whittier Narrows 66-kV Overhead Re-Route (Segment 8A) are crossed by the southward projection of the East Montebello Hills fault passes approximately 0.8 miles south of the southern end of the Alquist-Priolo zone at a location approximately equivalent to the intersection of Siphon Road and Durfee Avenue. ~~None~~ Neither the Duck Farm 66-kV Underground nor the Whittier Narrows 66-kV Underground Re-Routes (both along Segment 7) ~~of the 66-kV re-routes~~ are crossed by active or potentially active faults, resulting in no potential for surface fault rupture along these alignments. This results in ~~no~~ only a minor increase~~change~~ in potential for fault rupture along Alternative 7 as compared to Alternative 2 as the associated portions of Segments 7 and 8A are also crossed by the projections of this fault.

Groundshaking. Moderate to strong ground shaking of ~~0.4g to 0.5g~~0.6 to 1.2g is anticipated in the San Gabriel Valley, Montebello Hills, and Whittier Narrows areas along and near the 66-kV re-route alignments. This is the same range anticipated for the associated portions of Segments 7 and 8A, and thus results in no change in potential for damage from strong groundshaking.

Liquefaction. Where the re-route alignments cross young alluvial and channel deposits of the San Gabriel Valley, near the Rio Hondo and San Gabriel Rivers, and in the Whittier Narrows area, the underlying

sediments are potentially liquefiable (CGS, 1999d). Liquefaction potential is low to nonexistent along the portions of the both Options 1 and 2 of the Whittier Narrows 66-kV Overhead ~~re-route~~ Re-Route (Segment 8 A) in the Montebello Hills (the western end) due to the presence of the non-liquefiable underlying consolidated sedimentary bedrock (Fernando Formation).

Earthquake-Induced Landslides. Only the portions of the Whittier Narrows 66-kV Overhead ~~re-route~~ Re-Route (Segment 8A) Options 1 and 2 located within the gently to moderately sloping hills of the Montebello Hills ~~is~~ are likely to experience landsliding or slope failures due to earthquakes. The remaining portion of ~~this~~ these alignments and the other re-routes are located on flat topography and would not be subject to earthquake-induced landslides or other slope failures.

Paleontology

Where the 66-kV re-routes cross the Younger Alluvium in the San Gabriel Valley, which has locally yielded fossils of late Pleistocene mammoth (Pasadena and Eagle Rock) and land mammals (downtown Los Angeles), there is an undetermined (but probably no more than a moderate) potential for additional, similar, scientifically important fossil remains to be encountered locally by ground-disturbing activities in Younger Alluvium in the San Gabriel Valley (PEAI, 2007). In the area where the Whittier Narrows 66-kV Overhead ~~re-route~~ Re-Route (Segment 8A) Options 1 and 2 cross~~es~~ the Montebello Hills, the alignments cross~~es~~ the Fernando Formation, which has yielded the fossilized remains of Pliocene marine fossils at a fossil site in the Chino Hills and the Puente Hills (PEAI, 2007). This indicates that there is a high potential for additional, similar, scientifically highly important fossil remains being encountered by ground-disturbing activities where the Project area is underlain by the Fernando Formation (PEAI, 2007). These units are also crossed by the corresponding portions of Segments 7 and 8A, however the small increase in ground disturbance for the excavation for new poles and for excavation for the underground re-routes would result in a slight increase in potential to encounter significant fossil remains for this alternative.

3.7.3 Applicable Laws, Regulations, and Standards

3.7.3.1 Federal

Geology and Mineral Resources

Institute of Electrical and Electronics Engineers (IEEE) 693 "Recommended Practices for Seismic Design of Substations"

The Institute of Electrical and Electronics Engineers (IEEE) 693 "Recommended Practices for Seismic Design of Substations" was developed by the Substations Committee of the IEEE Power Engineering Society, and approved by the American National Standards Institute and the IEEE-SA Standards Board. This document provides seismic design recommendations for substations and equipment consisting of seismic criteria, qualification methods and levels, structural capacities, performance requirements for equipment operation, installation methods, and documentation. This recommended practice emphasizes the qualification of electrical equipment.

IEEE 693 is intended to establish standard methods of providing and validating the seismic withstand capability of electrical substation equipment. However, the seismic recommendations for foundation design should comply with the appropriate current building code. IEEE 693 ~~It~~ provides detailed test and analysis methods for each type of major equipment or component found in electrical substations. This recommended practice is intended to assist the substation user or operator in providing substation

equipment that will have a high probability of withstanding seismic events to predefined ground acceleration levels. It establishes standard methods of verifying seismic withstand capability, which gives the substation designer the ability to select equipment from various manufacturers, knowing that the seismic withstand rating of each manufacturer's equipment is an equivalent measure. ~~Although most damaging seismic activity occurs in limited areas, many additional areas could experience an earthquake with forces capable of causing great damage.~~ This recommended practice should be used in all areas that may experience earthquakes.

Environmental Protection Agency – Clean Water Act

Stormwater runoff from construction activities can have a significant impact on water quality. As stormwater flows over a construction site, it picks up pollutants like sediment, debris, and chemicals. Polluted stormwater runoff can harm or kill fish and other wildlife. Sedimentation can destroy aquatic habitat and high volumes of runoff can cause stream bank erosion. Under the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Stormwater program requires operators of construction sites one acre or larger (including smaller sites that are part of a larger common plan of development) to obtain authorization to discharge stormwater under an NPDES construction stormwater permit and the development and implementation of stormwater pollution prevention plans (SWPPP) is the focus of NPDES stormwater permits for regulated construction activities.

Most states are authorized to implement the Stormwater NPDES permitting program. EPA remains the permitting authority in a few states, territories, and on most land in Indian Country. For construction (and other land disturbing activities) in areas where EPA is the permitting authority, operators must meet the requirements of the EPA Construction General Permit (CGP). In California, Stormwater NPDES permits on non-tribal and non-federal land are overseen by the State of California EPA (CalEPA).

A SWPPP must include a site description, including a map that identifies sources of storm water discharges on the site, anticipated drainage patterns after major grading, areas where major structural and nonstructural measures will be employed, surface waters, including wetlands, and locations of discharge points to surface waters. The SWPPP also describes measures that will be employed, including at least protection of existing vegetation wherever possible, plus stabilization of disturbed areas of site as quickly as practicable, but no more than 14 days after construction activity has ceased.

~~Uniform~~ International Building Code

Published by the International Code-Council (ICC), the scope of this code covers major aspects of construction and design of structures and buildings, except for 3-story one- and two-family dwellings and town homes. The 2006 International Building Code replaces the 1997 Uniform Building Code and contains provisions for structural engineering design. Published by the International Conference of Building Officials, the 2006 International Building Code addresses (IBC) addresses the design and installation of structures and building systems through requirements that emphasize performance. The IBC includes codes governing structural as well as fire- and life-safety provisions covering seismic, wind, accessibility, egress, occupancy, and roofs. ~~Published by the International Conference of Building Officials, the Uniform Building Code (UBC) provides complete regulations covering all major aspects of building design and construction relating to fire and life safety and structural safety. This is the code adopted by most western states. The provisions of the 1997 Uniform Building Code, Volume 1, contain the administrative, fire and life safety, and field inspection provisions, including all nonstructural provisions and those structural provisions necessary for field inspections. Volume 2 contains provisions for structural engineering design, including those design provisions formerly in the UBC Standards.~~

~~Volume 3 contains the remaining material, testing and installation standards previously published in the UBC Standards.~~

Paleontology

USDA Forest Service

The Forest Service issues permits authorizing both Project-related identification and mitigation efforts in addition to research-related investigations based on the provisions of the Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701 1782) and the Antiquities Act of 1906. Regulations promulgated under 36 CFR 261 state that each Regional Forester has jurisdiction over "Protection of objects or places of historical, archaeological, geological or paleontological interest" (36 CFR 261.70(a)(5)), and that the following are prohibited: "Excavating, damaging, or removing any vertebrate fossil or removing any paleontological resource for commercial purposes without a special use permit" (36 CFR 261.9 (g)). FSM Chapter 2880 - Geologic Resources, Hazards, and Services contains policies and regulations related to paleontologic resource management and preservation. Forest Service policy makes the salvage of known paleontological resources a standard condition of their Special Use Permits. Treatment standards are specific to each forest and rely heavily upon implementation of a mitigation plan developed under the auspices of professional paleontologists at regional museums and universities.

3.7.3.2 State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (formerly the Special Studies Zoning Act) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. While this Act does not specifically regulate overhead transmission lines, it does help define areas where fault rupture is most likely to occur. This Act groups faults into categories of active, potentially active, and inactive. Historic and Holocene age faults are considered active, late Quaternary and Quaternary age faults are considered potentially active, and pre-Quaternary age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations in order to determine whether building setbacks should be established.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (the Act) of 1990 (Public Resources Code, Chapter7.8, Division 2) directs the California Department of Conservation, Division of Mines and Geology [now called California Geological Survey (CGS)] to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, counties, and state agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.

California Building Code

The California Building Code, Title 24, Part 2 (CBC, 2007) provides building codes and standards for design and construction of structures in California. The 2007 CBC is based on the 2006 International Building Code with the addition of more extensive structural seismic provisions. As the proposed Project

lies within Seismic Zone 4, provisions for design should follow the requirements of Chapter 16 of the CBC, which contains definitions of seismic sources and the procedure used to calculate seismic forces on structures. Chapter 33 of the CBC contains requirements relevant to the construction of underground transmission lines. ~~The California Building Code (CBC, 2001) is based on the 1997 Uniform Building Code, with the addition of more extensive structural seismic provisions. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures. As the proposed Project route lies within UBC Seismic Zone 34, provisions for design should follow the requirements of Chapter 16. Chapter 33 of the CBC contains requirements relevant to the construction of underground transmission lines.~~

3.7.3.3 Local

Elements of the General Plans for Kern, Los Angeles and San Bernardino Counties contain policies for the avoidance of geologic hazards and/or the protection of unique geologic features, as well as for the preservation of paleontologic resources.

Kern County

The Safety Element (Chapter 4) of the Kern County General Plan (2004) provides policies and measures to minimize injuries and loss of life and reduce property damage from seismic and geologic hazards. The main policy relevant to the Project is "The County shall encourage extra precautions be taken for the design of major lifeline installations, such as highways, utilities, and petrochemical pipelines". Proper design of the Project facilities, including all APMs and mitigation measures outlined in this document, would comply with this policy and would be consistent with the Safety Element.

The Land Use, Open Space, and Conservation Element (Chapter 1) of the Kern County General Plan (2004) provides the following policy related to preservation of paleontologic resources: the County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors. Measures to minimize impacts in the plan include preservation of paleontologic resources in areas with known paleontologic resources, where feasible. The Project would be consistent with general plan policy for protection of paleontologic resources through implementation of the APMs and the mitigation measures outlined in this document.

Los Angeles County

The Safety Element of the Los Angeles County General Plan (1990) provides goals and policies to reduce impacts from seismic and geologic hazards and provide a safer environment. The two main policies relevant to the Project are: minimize injury and loss of life, damage, and social, cultural, and economic impacts caused by earthquake hazards; and protect public safety and minimize the social and economic impacts from geologic hazards. Proper design of the Project facilities, including all APMs and mitigation measures outlined in this document, would meet these goals and would be consistent with the Safety Element.

The Conservation, Open Space, and Recreation Element (1986) of the Los Angeles County General Plan provides the following goal related to preservation of paleontologic resources: to preserve and protect sites of historical, archeological, scenic, and scientific value. The Project would be consistent with general plan policy for protection of paleontologic resources through implementation of the APMs and the mitigation measures outlined in this document.

Antelope Valley Areawide General Plan. The Antelope Valley Areawide General Plan (1986) is a component of the Los Angeles County General Plan and provides policies related to public planning in the Antelope Valley area, including policies related to seismic and geologic hazards. These policies generally include enforcing standards and criteria to reduce impacts from seismic and geologic hazards, advocating detailed site evaluations and improved seismic design and construction standards for critical linear system facilities, and programs and practices for dealing with erosion, settlement, and other soil-related hazards. The Project would be consistent with these policies through implementation of the Project APMs and the mitigation measures outlined in this document.

San Bernardino County

The Natural Hazards section of the San Bernardino County General Plan (2002) provides for mitigation of geologic hazards through a combination of engineering, construction, land use and development standards. The Plan addresses the geologic hazards present within the county, including fault rupture, ground shaking, liquefaction, seismically-generated subsidence, seiche and dam inundation, landslides/mudslides, non-seismic subsidence, erosion and volcanic activity. The county has prepared Hazard Overlay Maps to address fault rupture, liquefaction hazards and landslide hazards. Special consideration, including possible engineering/geologic evaluation, is required for development of sites designated on the maps.

The Natural Resources section of the San Bernardino County General Plan (2002) provides for recognizing and protecting mineral resources through permitting. The Plan requires buffer zones between resources and other land uses, and existing mining access routes generally have priority over proposed alterations.

3.7.4 Impact Analysis Approach

3.7.4.1 Criteria for Determining Impact Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that would result from the proposed Project and alternatives. Appropriate criteria have been identified and utilized to make these significance conclusions. The following significance criteria for geology, soils, and paleontology were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). An impact would be considered significant and require additional mitigation if Project construction or if maintenance of Project facilities during Project operations would result in any of the following criteria being met.

Geology and Soils

- Criterion GEO1: Results in disturbance or otherwise adverse effects on unique geologic features or geologic features of unusual scientific value for study or interpretation.
- Criterion GEO2: Results in known mineral and/or energy resources being rendered inaccessible.
- Criterion GEO3: Results in triggering or acceleration of geologic processes, such as landslides, substantial soil erosion, or loss of topsoil during construction.
- Criterion GEO4: Expose people or structures to potential risk of loss or injury where there is high potential for earthquake-related ground rupture in the vicinity of major fault crossings.
- Criterion GEO5: Expose people or structures to potential risk of loss or injury where there is high potential for seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, and/or surface cracking.

- Criterion GEO6: Expose people or structures to potential risk of loss or injury where corrosive soils or other unsuitable soils are present.
- Criterion GEO7: Results in damage to Project structures where there is potential for future slope failures on existing unstable slopes.

Paleontology

- Criterion GEO8: Results in the destruction of scientifically important paleontological resources.

Determination of the "significance" of a fossil can only occur after a fossil has been found and identified by a qualified paleontologist. Until then, the actual significance is unknown. The most useful designation for paleontological resources in an EIR document is the "sensitivity" of a particular geologic unit. Sensitivity refers to the likelihood of finding significant fossils within a geologic unit. Categories of "sensitivity" are defined in Section 3.7.2.1. Fossils are considered to be scientifically significant if they meet or potentially meet any one or more of the following criteria:

- Taxonomy – fossils that are scientifically judged to be important for representing rare or unknown taxa, such as defining a new species
- Evolution – fossils that are scientifically judged to represent important stages or links in evolutionary relationships, or fill gaps or enhance under-represented intervals in the stratigraphic record
- Biostratigraphy – fossils that are scientifically judged to be important for determining or constraining relative geologic (stratigraphic) age, or for use in regional to interregional stratigraphic correlation problems
- Paleoecology – fossils that are scientifically judged to be important for reconstructing ancient organism community structure and interpretation of ancient sedimentary environments
- Taphonomy – fossils that are scientifically judged to be exceptionally well or unusually or uniquely preserved, or are relatively rare in the stratigraphy.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.7.4.2 Applicant-Proposed Measures (APMs)

APMs were identified by SCE in the PEA. Table 3.7-9 presents the APMs that are relevant to geology, soils, and paleontology. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. Therefore, the following discussions of impact analysis assume that all APMs will be implemented as defined in the table. Additional mitigation measures are recommended in this section if it is determined that APMs do not fully mitigate the impacts for which they are presented.

Table 3.7-9. Applicant-Proposed Measures – Geology, Soils, and Paleontology

APM GEO-1	Seismic Design. For new substation construction, specific requirements for seismic design would be followed based on the Institute of Electrical and Electronic Engineers' 693 "Recommended Practices for Seismic Design of Substation." Other Project elements would be designed and constructed in accordance with the appropriate industry standards, and good engineering and construction practices and methods, as applicable.
APM GEO-2	Perform Geotechnical Studies. Prior to final design of substation facilities and T/L tower foundations, a geotechnical study would be performed to identify site-specific geologic conditions and potential geologic hazards in enough detail to support good engineering practice. The geotechnical study would be performed by professional civil or geotechnical engineers and engineering geologists licensed in the State of California and would provide design and construction recommendations, as appropriate, to reduce potential impacts from geologic hazards or soil conditions.
APM GEO-3	Construction SWPPP. T/L and substation construction activities would be performed in accordance with the soil erosion/water quality protection measures to be specified in the Construction Storm Water Pollution Prevention Plan (SWPPP) for the TRTP.

Table 3.7-9. Applicant-Proposed Measures – Geology, Soils, and Paleontology	
APM HYD-1	Construction SWPPP. A Construction SWPPP would be developed for the Project. Notices of Intent (NOIs) would be filed with the SWRCB and/or the RWQCBs, and a Waste Discharge Identification Number (WDID) would be obtained prior to construction. The SWPPP would be stored at the construction site for reference or inspection review. In addition, grading permit applications would be submitted, as applicable, to local jurisdictions. Implementation of the SWPPP would help stabilize graded areas and waterways, and reduce erosion and sedimentation. The plan would designate BMPs that would be adhered to during construction activities. Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) would be installed before clearing and grading begins. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities. During construction activities, measures would be in place to ensure that contaminates are not discharged from the construction sites. The SWPPP would define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. Erosion control during grading of the construction sites and during subsequent construction would be in place and monitored as specified by the SWPPP. A silting basin(s) would be established, as necessary, to capture silt and other materials, which might otherwise be carried from the site by rainwater surface runoff.
APM HYD-8	Operation Storm Water Management Plan. The post-construction (Operation) Storm Water Management Plan (SWMP) for Vincent Substation would be updated. The SWMP identifies potential pollutants based on the activities that take place at the site, and discusses the appropriate Best Management Practices that should be used to prevent pollutants from entering the storm water and non-storm water runoff from the site. The SWMP also includes requirements for periodic site training for employees and inspections by onsite personnel.
APM PALEO-1	Retention of Paleontologist. Prior to construction, a certified paleontologist would be retained by SCE to supervise monitoring of construction excavations and to produce a PRMP for the proposed Project. Paleontological monitoring would include inspection of exposed rock units and microscopic examination of matrix to determine if fossils are present. The monitor would have authority to temporarily divert grading away from exposed fossils in order to recover the fossil specimens. More specific guidelines for paleontological resource monitoring can be found in the PRMP.
APM PALEO-2	Conduct a Pre-construction Paleontological Field Survey. The paleontologist and/or his designated representative will conduct a pre-construction field survey of the Project area underlain by Tertiary rock units and older alluvium. Results of the field inventory and associated recommendations would be incorporated into the PRMP.
APM PALEO-3	Prepare and Implement a Paleontological Resource Management Plan (PRMP). This plan would be prepared and implemented under the direction of a qualified paleontologist and would address and incorporate the following APMs:
APM PALEO-4	Environmental Training. Training would be provided to construction supervisors and crew with environmental awareness training regarding the protection of paleontological resources and procedures to be implemented in the event fossil remains are encountered by ground-disturbing activities.
APM PALEO-5	Construction Monitoring. Ground-disturbing activities would be monitored on a part-time or full-time basis by a paleontological construction monitor only in those parts of the Project area where these activities will disturb previously undisturbed strata in rock units of moderate and high sensitivity. Quaternary Alluvium, colluvium, and Quaternary Landslide Deposits have a low paleontological sensitivity level and would be spot-checked on a periodic basis to insure that older underlying sediments are not being penetrated. Monitoring would not be implemented in areas underlain by younger alluvium unless these activities have reached a depth 5 feet below the present ground surface and fine grained strata are present. Ground-disturbing activities in areas underlain by rock units of low sensitivity would be monitored on a quarter-time basis or spot checked if fine grained strata are present.
APM PALEO-6	Recovery and Testing. If fossils are encountered during construction, construction activities would be temporarily diverted from the discovery and the monitor would notify all concerned parties and collect matrix for testing and processing as directed by the Project Paleontologist. In order to expedite removal of fossil-bearing matrix, the monitor may request heavy machinery to assist in moving large quantities of matrix out of the path of construction to designated stockpile areas. Construction would resume at the discovery location once the all necessary matrix was stockpiled, as determined by the paleontological monitor. Testing of stockpiles would consist of screen washing small samples to determine if important fossils are present. If such fossils were present, the additional matrix from the stockpiles would be water screened to ensure recovery of a scientifically significant sample. Samples collected would be limited to a maximum of 6,000 pounds per locality.

Table 3.7-9. Applicant-Proposed Measures – Geology, Soils, and Paleontology	
APM PALEO-7	Prepare Monthly Progress Reports. The Project Paleontologist would document interim results of the construction monitoring program with monthly progress reports. As well, at each fossil locality, field data forms would record the locality, stratigraphic columns would be measured, and appropriate scientific samples submitted for analysis.
APM PALEO-8	Analysis and Prepare Final Paleontological Resource Recovery Report. The Project Paleontologist would direct identification, laboratory processing, cataloguing, analysis, and documentation of the fossil collections. When appropriate, and in consultation with SCE, splits of rock or sediment samples would be submitted to commercial laboratories for microfossil, pollen, or radiometric dating analysis. After analysis, the collections would be prepared for curation (see APM PALEO-9, below). A final technical report would be prepared to summarize construction monitoring and present the results of the fossil recovery program. The report would be prepared in accordance with SCE, Society of Vertebrate Paleontology guidelines, and lead agency requirements. The final report would be submitted to SCE, the lead agency, and the curation repository (see below).
APM PALEO-9	Curation. Prior to construction, SCE would enter into a formal agreement with a recognized museum repository and would curate the fossil collections, appropriate field and laboratory documentation, and the final Paleontological Resource Recovery Report in a timely manner following construction.

3.7.4.3 Impact Assessment Methodology

The geology, soils and paleontology impacts of the proposed Project are discussed below under subheadings corresponding to each of the significance criterion presented in the preceding section. The analysis describes the impacts of the proposed Project related to geologic and seismic hazards and mineral and paleontologic resources for each criterion, and determines whether implementation of the proposed Project would result in significant impacts by evaluating effects of construction and operation of the proposed Project against the affected environment described above in Section 3.7.2.

For the purposes of satisfying CEQA requirements, the significance of each impact is also identified according to the following classifications: Class I: Significant impact; cannot be mitigated to a level that is less than significant; Class II: Significant impact; can be mitigated to a level that is less than significant; Class III: Adverse impact; less than significant; and Class IV: Beneficial impact. Sections 3.7.5 through 3.7.11, below, provide a detailed discussion of the impacts identified for the proposed Project and alternatives.

3.7.5 Alternative 1: No Project/Action

Selection of the No Project/Action Alternative would mean that the Tehachapi Renewable Transmission Project, as proposed, would not be implemented. As such, the environmental impacts associated with the Project, as described in Section 3.7.6, would not occur. However, in the absence of the proposed Project or an alternative to the Project, the purposes and need for the power transmission capabilities that would be met by the proposed Project (or an alternative) would not be achieved. As a result, it is possible that another, similar transmission line project would be constructed in the future to meet the power transmission needs of developing wind farms in the Tehachapi Wind Resource Area. Such a project would likely introduce similar impacts to Geology, Soils, and Paleontology that would be introduced through the proposed TRTP or an alternative.

Environmental conditions in the Project Area are expected to naturally change or evolve over time and therefore, independently of the proposed Project or an alternative to the Project (including the No Project/Action Alternative), the regional setting and baseline conditions in the Project Area which are discussed in Section 3.7.2.1 (Regional Setting) would not remain static. If the No Project/Action Alternative is implemented, geologic and soil conditions as well as paleontologic resources preserved in

the natural formation within the Project Area will remain unchanged over a short geologic time period, and will be independent of the potential impacts associated with the proposed TRTP.

Because the potential impacts of the proposed Project would not occur under the No Project/Action Alternative, the significance criteria described in Section 3.7.4.1 (Impact Analysis Approach) are not used for analysis of the No Project/Action Alternative. The continued development of lands within the Counties of Kern, Los Angeles, and San Bernardino will result in the continued potential for development in areas with geologic risk factors such as hillside areas with potential slope stability issues. However, new developments will be subject to existing and new building codes that restrict development in geologically unstable areas. In addition, areas with previously unknown geologic hazards and unsuitable soil will likely be discovered during planning, followed by the required analysis, implementation of the required design and construction standards, or avoidance of these areas.

3.7.6 Alternative 2: SCE's Proposed Project

3.7.6.1 Direct and Indirect Effects Analysis

The geologic, seismic, and paleontologic impacts of the proposed Project are discussed below under subheadings corresponding to each of the significance criterion presented in the preceding section. The analysis describes the impacts of the proposed Project related to geologic and seismic hazards, mineral resources, and paleontology and, for each criterion, determines whether implementation of the proposed Project would result in significant impacts.

~~The geologic, seismic, and paleontologic impacts of the proposed Project are discussed below under subheadings corresponding to each of the significance criterion presented in the preceding section. The analysis describes the impacts of the proposed Project related to geologic and seismic hazards, mineral resources, and paleontology and, for each criterion, determines whether implementation of the proposed Project would result in significant impacts.~~

Unique geologic features (Criterion GEO1)

No unique geologic features or geologic features of unusual scientific value for study or interpretation would be disturbed or otherwise adversely affected by the proposed Project Segments. No impact would occur.

Known mineral and/or energy resources (Criterion GEO2)

Although known sand and gravel resources, limestone and dolomite, and stone quarries are located within the general Project area, only Segment 7 is located within or adjacent to areas of active production of these resources. The Segment 7 alignment traverses adjacent to and across several active gravel quarries in the Irwindale area; the Irwindale Pit consists of three adjacent pits (commonly known as Irwindale Pits #1, #2, and #3), owned by the United Rock Products Corp, and of which two are currently in operation (CGS, 2004). The Project ROW crosses a portion of the easternmost pit; however the towers for the existing transmission line are located outside of the existing quarry boundaries and it is assumed that any new towers would be at similar tower spacing. Given the distance of these sites from the ROW and the ability of mining-related equipment and vehicles to cross the ROW if necessary, construction and operation of the TRTP transmission line is not expected to interfere with future access to any metallic or non-metallic mineral resources.

Impact G-1: Project activities could interfere with access to known energy resources.

The Segment 7, 11, and 8A ROWs cross the Montebello oil and gas field and the Segment 8A ROW also crosses the northern edge of the Brea-Olinda oil and gas field. These alignments do not traverse through the active well fields; however they do pass adjacent to several active well fields and traverse along and cross access roads for the fields. Because these alignments do not cross within the active well fields, operation of the Project in the existing ROWs is not expected to interfere in access to or operation of these existing oil fields. However, construction activities for the segments, which would include construction vehicle traffic such as excavators and haulers for fill and spoils, cranes and trucks for transportation and construction of towers and transmission lines, and traveling and working along oil field access roads, could interfere with ongoing operation with the oil fields. Implementation of Mitigation Measure G-1 (Coordination with oil field operations) is recommended.

Mitigation Measure for Impact G-1

G-1 **Coordination with oil field operations.** Operations and management personnel for the oil fields shall be consulted regarding access requirements, and SCE and its contractors shall coordinate construction activities across and along necessary oil field access roads in a manner to limit interference with oil field operations. A plan to avoid or minimize interference with oil field operations shall be prepared in conjunction with oil field operators prior to construction. SCE shall document compliance with this measure by submitting the plan to the CPUC for review 30 days prior to the start of construction in the affected Project segments.

CEQA Significance Conclusion

Construction traffic and work areas for the proposed Project (Segments 7, 11, and 8A) along oil field access roads could interfere with daily operation of the oil field, including but not limited to impeding access to oil field structures and facilities by temporarily blocking access roads during construction. Implementation of Mitigation Measure G-1 (Coordination with oil field operations) would reduce potential impacts to less than significant (Class II) by requiring coordination with the oil field operators to identify and minimize potential areas of interference.

Triggering or acceleration of geologic processes, such as landslides, soil erosion, or loss of topsoil, during construction (Criterion GEO3)

Impact G-2: Erosion could be triggered or accelerated due to construction activities.

Soils along all of the proposed segments (Segments 4, 5, 6, 7, 8, 9, 10, and 11) of the proposed Project alignment have potential hazards of erosion for off-road/off-trail ranging from slight to very severe and on-road/on-trail ranging from slight to severe. Excavation and grading for tower, substation, and switching station foundations, staging and work areas, access roads, and spur roads would loosen soil and trigger or accelerate erosion. Implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) which is fully described in Section 3.8.6.1 (Hydrology and Water Quality), is also relevant to issues related to soil erosion and is recommended.

CEQA Significance Conclusion

The proposed Project would result in significant impacts if erosion were triggered or accelerated by Project construction. Soil loosened by Project construction could migrate by wind or water to nearby waterways potentially causing damage to aquatic habitat, or could add to particulate air pollution if picked up by the wind or disturbed by vehicles. Erosion could cause rutting and loss of topsoil. SCE's APM

GEO-3 and APM HYD-1 (Construction SWPPP, see Table 3.7-9) would partially reduce the amount of erosion that would result from construction by developing and implementing a Project-specific SWPPP as required in accordance with the Clean Water Act. Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) would require that pre-construction plans be developed to identify and properly implement any necessary BMPs to control erosion and/or sedimentation, and for the identification and mitigation of any disturbances to drainages and/or riparian areas. Implementation of this measure would ensure impacts from soil erosion due to Project construction would be less than significant (Class II).

Impact G-3: Excavation and grading during construction activities could cause slope instability or trigger landslides.

Portions of Segments 5, 6, 11, and 8A traverse moderate to steep mountains and hills underlain by landslide prone sedimentary and metamorphic rocks (primarily Pelona Schist, gneisses, and Puente Formation). The alignments also cross numerous mapped landslides (see Tables 2-8, 2-9, 2-11, and 2-12 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009~~8~~)). Destabilization of the natural or constructed slopes could occur as a result of construction activities due to excavation and/or grading operations. Excavation operations associated with tower foundation construction and grading operations for temporary and permanent access roads and staging and work areas could result in slope instability, resulting in landslides, soil creep, or debris flows. Implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) is recommended.

Mitigation Measure for Impact G-3

G-3 **Conduct geological surveys for landslides and protect against slope instability.** Design-level geotechnical investigations performed by SCE shall include geological surveys for landslides that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and in other areas of ground disturbance, such as access and spur roads and staging and work areas. The geotechnical investigations shall evaluate subsurface conditions, identify potential hazards, and provide information for development of excavation plans and procedures. If the results of the geotechnical survey indicate the presence of unstable slopes at or adjacent to Project structures, appropriate support and protection measures shall be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access and spur roads, work areas, and Project structures during and after construction, and to minimize potential for damage to Project facilities. These design measures shall include, but are not limited to, retaining walls, visqueen, removal of unstable materials, and avoidance of highly unstable areas. Appropriate construction methods and procedures, in accordance with State and federal health and safety codes, shall be followed to protect the safety of workers and the public during drilling and excavation operations. SCE shall document compliance with this measure by submitting a report to the CPUC and FS (for NFS lands) for review at least 30 days prior to ~~the start of construction~~final Project design. The report shall document the investigations and detail the specific support and protection measures that will be implemented. Additionally, along Segment 8A (between approximately S8A MPs 5.4 and 6.6), where portions of the proposed project alignment and associated access roads are located adjacent to the Puente Hills Landfill in an area where known slope stability issues and landslides are present, SCE shall coordinate with the County Sanitation Districts of Los Angeles County (LACSD) regarding known landslides and landslide repairs along the southwestern boundary of the landfill and shall submit the geological survey and slope stability reports, including recommended support and protection measures for Segment 8 to the LACSD for review at least 30 days prior to final project design.

CEQA Significance Conclusion

The proposed Project would result in significant impacts if unidentified unstable slopes or areas of potentially unstable slopes were disturbed or undercut by construction activities resulting in slope failures. Slope failures could cause damage to the environment, to Project or other nearby structures, and could cause injury or death to workers and/or the public, a significant impact. Prior to final design of substation facilities and transmission line tower foundations, SCE plans to perform geotechnical studies to identify site-specific geologic conditions (APM GEO-2). However, this measure does not identify items to be completed as part of the geotechnical study to identify areas of unstable slopes. Implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) adds specific requirements to the planned geotechnical investigations to be completed prior to final Project design, ensuring that slope instability impacts would be reduced to less than significant (Class II). Implementation of Mitigation Measure G-3 is required along the hill and mountain portions of Segments 5, 6, 11, and 8A to delineate potential areas of unstable slopes near and within work areas and minimize the potential from construction triggered slope failures by avoidance or implementation of slope stabilizing design measures.

Exposure to potential risk of loss or injury due to earthquake-related ground rupture (Criterion GEO4)

Impact G-4: Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards.

Project facilities would be subject to hazards of surface fault rupture at crossings of the active San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), Whittier (Segment 8A), Chino (Segment 8A), and Central Ave (Segment 8A) faults~~San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and 11), Raymond (Segment 11), East Montebello Hills (Segment 11), Whittier (Segment 8A), and Chino-Central Ave (Segment 8A) faults~~. Implementation of Mitigation Measure~~s~~ G-~~4a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones) is recommended. Additionally, the portion~~s~~ of the ~~Segment 11 and~~ Segment 8A route~~s~~ that crosses and then runs parallel to and within the ~~Sierra Madre and~~ Whittier fault zone~~s, respectively,~~ ~~are~~ is at substantial risk of damage to multiple structures should an earthquake and ground rupture occur along ~~these~~ this portion~~s~~ of the ~~respective faults~~Whittier fault, however SCE's Event Response and Recovery Protocol manual, which include protocols to be implemented in response to catastrophic events including fault rupture, would allow for quick implementation of operations to repair transmission structures in the event fault surface rupture does cause damage to structures. ~~Implementation of Mitigation Measure G-4b is recommended for Segments 11 and 8A where they cross and run parallel to and within the Sierra Madre and Whittier fault zones, respectively, is also recommended.~~

Mitigation Measures for Impact G-4

G-~~4a~~ ~~**Minimize**~~ **Avoid placement of Project structures within active fault zones.** Prior to final Project design SCE shall perform a fault evaluation study to confirm the location of mapped traces of active and potentially active faults crossed by the Project route or other Project structures. For crossings of active faults, the Project design shall be planned so as not to locate towers or other Project structures on the traces of active faults; and in addition, Project components shall be placed as far as feasible outside the areas of mapped fault traces.

Compliance with this measure shall be documented to the CPUC and FS in a report submitted for review at least 60 days prior to the start of construction.

~~G-4b **Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines.** Operation and maintenance plans shall be prepared that outline measures to be implemented in the event of damage to transmission facilities due to fault rupture. These plans shall include contingencies for potential fault rupture scenarios that could result in damage to transmission lines and facilities that cross and run parallel to and within the Sierra Madre and Whittier fault zones, including, but not limited to, plans for facilitating temporary bypasses (of potentially several weeks to months, depending on the severity of fault rupture damage) of portions of the transmission lines damaged as a result of fault surface rupture. Compliance with this measure shall be documented to the CPUC and FS in a report submitted for review at least 60 days prior to the start of construction.~~

CEQA Significance Conclusion

Fault crossings, where multiple feet of displacement are expected along active faults, are best crossed as overhead lines with towers placed well outside the fault zone to allow for the flex in the conductor lines to absorb offset. ~~Collapse of~~ Damage to Project structures could result in power outages, damage to nearby roads of structures, and injury or death to people, a significant impact. SCE has committed to designing Project elements according to appropriate industry standards and in accordance with good engineering practices (APM GEO-1); prior to final design of substation facilities and transmission line tower foundations SCE would perform geotechnical studies to identify site-specific geologic conditions (APM GEO-2). However, APM GEO-1 and APM GEO-2 do not specify that fault studies will be performed to prevent placement of towers on active fault traces, nor do they address issues related to potential fault rupture damage to transmission line facilities where it is not feasible to locate towers outside of active fault zones. Mitigation Measure~~s~~ G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones) ~~and G-4b (Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines)~~ reduces impacts associated with overhead active fault crossings to less-than-significant levels (Class II). Proper placement of towers relative to active faults would allow the conductor to distribute fault displacements over a comparatively long span and towers would be less likely to ~~collapse~~ result in structural failure in the event of an earthquake if not placed directly on an active fault trace. ~~Appropriate planning and readily available repair equipment and parts would decrease repair time in the event fault surface rupture does cause damage to structures.~~

Exposure to potential risk of loss or injury due to seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, and/or surface cracking (Criterion GEO5)

Impact G-5: Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards.

Moderate to severe groundshaking should be expected in the event of an earthquake on the faults in the Project area and from other major faults in the region, with estimated PGAs ranging from ~~0.3~~ 0.5 to ~~0.8~~1.6 g (see Table 3.7-3). It is likely that the Project facilities would be subjected to at least one moderate or larger earthquake occurring close enough to produce local strong to severe groundshaking along portions of Segments 4, 5, 6, 7, 9, and 11. Local strong to severe groundshaking with vertical and horizontal ground accelerations that could exceed standard design stresses could result in damage ~~or~~

~~collapse of~~to Project structures. ~~Collapse of Project structures~~Structural damage could result in power outages, damage to nearby roads of structures, and injury or death to nearby people, a significant impact.

Severe to strong groundshaking could result in liquefaction-related phenomena along sections of the proposed Project segments (portions of Segments 5, 7, 11, 8A, 8B, and 8C) that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, eastern Chino Basin, and in active river washes and streams where lenses and pockets of loose seasonally saturated sand may be present. This could result in damage to Project structures should a large earthquake occur during the periods when these soils are saturated, a significant impact. Seismically induced slope failures such as landslides could occur in the event of a large earthquake along portions of the Project. Portions of Segments 5, 6, 11, and 8A are located along hillsides or ridgelines in geologic units of moderate to steep slopes, which are particularly susceptible to this type of ground failure. Some of these areas, which include the Pelona Schist, weathered gneissic bedrock, and Puente Formation, have a high possibility of seismic-induced ground failure in the form of landsliding or ground-cracking resulting in damage to ~~or collapse of~~ Project structures. Implementation of Mitigation Measures G-3 (Conduct geological surveys for landslides and protect against slope instability), G-5a (Reduce effects of groundshaking), and G-5b (Conduct geotechnical investigations for liquefaction) are recommended.

Mitigation Measures for Impact G-5

G-5a **Reduce effects of groundshaking.** The design-level geotechnical investigations performed by SCE shall include site-specific seismic analyses to evaluate ~~the peak~~ ground accelerations for design of Project components. Based on these findings, Project structure designs shall be modified/strengthened, as deemed appropriate by the Project engineer, if the anticipated seismic forces ~~(high calculated peak vertical and horizontal ground accelerations due to severe groundshaking)~~ are found to be greater than standard design load stresses on Project structures. Study results and proposed design modifications shall be provided to the CPUC and FS for review at least 60 days before final Project design.

G-5b **Conduct geotechnical investigations for liquefaction.** Because seismically induced liquefaction-related ground failure has the potential to damage or destroy Project components, the design-level geotechnical investigations to be performed by SCE shall include investigations designed to assess the potential for liquefaction to affect the approved Project and all associated facilities, specifically at tower locations in areas with potential liquefaction-related impacts (portions of Segments 5, 7, 11, 8A, 8B, and 8C underlain by alluvium with the potential for shallow groundwater). Where these hazards are found to exist, appropriate engineering design and construction measures shall be incorporated into the Project designs as deemed appropriate by the Project engineer. Design measures that would mitigate liquefaction-related impacts could include construction of pile foundations, ground improvement of liquefiable zones, installation of flexible bus connections, and incorporation of slack in cables to allow ground deformations without damage to structures. Study results and proposed solutions to mitigate liquefaction shall be provided to the CPUC and FS for review at least 60 days before final Project design.

CEQA Significance Conclusion

Prior to final design of substation facilities and transmission line tower foundations, SCE plans to perform geotechnical studies to identify site-specific geologic conditions (APM GEO-2). In addition, as part of the Project SCE plans to design new substations in accordance with seismic design requirements based on the IEEE 693 “Recommended Practices for Seismic Design of Substation” and design other Project elements according to appropriate industry standards and in accordance with good engineering practices (APM

GEO-1). However, these measures do not identify specific items to be completed as part of the geotechnical study to identify areas of severe groundshaking, potential seismically induced landslides, or potential liquefaction. Implementation of Mitigation Measures G-3 (Conduct geological surveys for landslides and protect against slope instability), G-5a (Reduce effects of groundshaking), and G-5b (Conduct geotechnical investigations for liquefaction) include these specific requirements to the planned geotechnical investigations to be completed prior to final Project design. These specific requirements would ensure that potentially significant impacts for seismically induced groundshaking and potential of seismically-related ground failure along the Project route are reduced to less-than-significant levels (Class II).

Exposure to potential risk of loss or injury where corrosive soils or other unsuitable soils are present (Criterion GEO6)

Impact G-6: Project structures could be damaged by problematic soils exposing people or structures to hazards.

Soils along the proposed Project Segments have a potential to corrode steel and concrete ranging from low to high. In areas where corrosive subsurface exist along the proposed route, the corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures. Expansion potential for the soils along the Project alignment ranges from low to high. Expansive soils can also cause problems to structures. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types identified along the Project have moderate to high clay contents and many have moderate to high shrink-swell potential. Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to structures and equipment. In addition, potential impacts associated with loose sands or other compressible soils include excessive settlement, low foundation-bearing capacity, and limitation of year-round access to Project facilities. Implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design) is recommended.

Mitigation Measure for Impact G-6

G-6 **Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design.** The design-level geotechnical studies to be performed by SCE shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of Project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and American Society for Testing and Materials (ASTM) standards for field and laboratory testing. Study results and proposed solutions shall be provided to the CPUC and FS, as appropriate, for review at least 60 days before final Project design.

CEQA Significance Conclusion

Application of APM GEO-2 (Perform Geotechnical Studies, see Table 3.7-9) would partially reduce the adverse effects of problematic soils by conducting a geotechnical study for the Project. However, this APM is lacking in detail and is inadequate to ensure that unsuitable soils would be properly identified and mitigated. Unidentified expansive and corrosive soils could damage Project structures and facilities ~~potentially resulting in collapse of Project structures~~, which could result in power outages, damage to nearby roads or structures, and injury or death to nearby people, a significant impact. Accordingly, implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design) provides additional detail to ensure that impacts associated with problematic soils are reduced to less-than-significant levels (Class II).

Damage to Project structures due to slope failure (Criterion GEO7)

Impact G-7: Transmission line structures could be damaged by landslides, earth flows, or debris slides, during operation.

Slope instability including landslides, earth flows, and debris flows has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy Project components. The southern part of Segment 5, Segment 6, the north end of Segment 7, Segment 8A, and the north half of Segment 11, are located in hill and mountain areas with steep slopes, mapped landslides, or geologic materials prone to landslide. Locating transmission line structures within landslides or on unstable slopes would result in result in damage to Project structures. Slope failures could cause ~~collapse of~~damage to Project structures resulting in power outages, damage to nearby roads or structures, and injury or death to nearby people. Implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) is recommended.

CEQA Significance Conclusion

SCE's APM GEO-2 (Perform Geotechnical Studies, see Table 3.7-9) would partially reduce impacts related to landslide hazards during operations of the Project. However this measure does not specify that surveys for unstable slope would be conducted as part of the planned geotechnical studies. Unidentified unstable slopes or areas of potentially unstable slopes along or nearby and upslope of Project components could fail during the lifetime of the proposed Project resulting in damage to these facilities. To ensure that landslide impacts to Project structures during operation would be reduced to less-than-significant levels (Class II), implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) is required prior to construction for the hill and mountain areas. This will aid in proper identification of areas of potential slope instability allowing for avoidance or stabilization of these areas, reducing potential for damage to structures during Project operation.

Destruction of unique paleontological resources (Criterion GEO8)

Impact G-8: Grading and excavation could destroy paleontologic resources.

Grading activities for new access and spur roads, and excavation for tower and substation building foundations could encounter potentially fossil-bearing deposits throughout nearly all of the proposed Project segments underlain by Quaternary alluvial deposits (Segments 4, 5, 7, 8, 9, 10, and 11) and Tertiary sedimentary rock in the Montebello, Puente, and Chino Hills (Segment 8). Construction activities could destroy the fossils contained in the earth materials and the opportunity to properly retrieve, study, catalog, and archive them would be lost.

CEQA Significance Conclusion

The Applicant will implement APMs PALEO-1 through PALEO-9 which would reduce the potential to destroy scientifically important fossils and would provide for the systematic collection, analysis, and documentation of any such discoveries. SCE's APM PALEO-1 (Retention of Paleontologist), APM PALEO-2 (Conduct Pre-construction survey), and APM PALEO-3 (Prepare and implement a Paleontological Resource Management Plan [PRMP]) would be completed prior to construction to allow a certified paleontologist to plan for and supervise the pre-construction planning and field surveys. SCE's APM PALEO-4 (Environmental training), APM PALEO-5 (Construction monitoring), APM PALEO-6 (Recovery and testing), and APM PALEO-7 (Prepare monthly progress reports) would occur during construction. These activities would train construction supervisors and crews to be aware of paleontologic resources and provide procedures to follow in the event fossils are encountered during excavation. In addition the construction-related paleontology APMs would require a paleontologic monitor, under the supervision of the Project certified paleontologist, to monitor ground-disturbing activities on a part-time or full-time basis in areas with rock units of moderate to high sensitivity. At the conclusion of construction, SCE's APM PALEO-8 (Analysis and prepare final Paleontologic Resource Recovery Report) and APM PALEO-9 (Curation) would provide for documenting and preserving all of the paleontologic resources discovered during construction. The final report and fossil collections would be placed in a museum repository identified before the start of construction in the PRMP.

These measures would reduce the potential for paleontological resources to be destroyed to a less than significant level by ensuring any resources encountered would be identified, documented, and preserved. Impacts would be less than significant (Class III).

3.7.6.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of the proposed Tehachapi Renewable Transmission Project.

Geographic Extent

The geographic scope for considering cumulative impacts to geology, soils, and paleontology is the proposed Project corridor itself (including proposed substations). This is because geologic conditions, soils, and paleontologic resources occur at specific locales and are unaffected by activities not acting on them directly and any impacts of the proposed Project would be site-specific.

Existing Cumulative Conditions

Past and ongoing development throughout the proposed Project area has resulted in substantial alterations to the natural landscape. Past, existing, and future projects could contribute to the cumulative effects of geology, soils, and paleontologic resources creating any of the following conditions: triggering or acceleration of erosion or slope failures; loss of mineral resources, and damage or loss to paleontologic resources. These conditions would be limited to the areas within and adjacent to the boundaries of individual projects. In order to ~~be cumulatively considerable~~contribute to cumulative impacts, such conditions would have to occur at the same time and in the same location as the same or similar conditions of the proposed Project. Seismic impacts (groundshaking, earthquake-induced ground failure, and fault rupture) from the numerous local and regional faults comprise an impact of the geologic environment on individual projects and would not introduce cumulative~~ly considerable~~ impacts.

The actual number and type of resources that might be adversely affected by the cumulative scenario projects is unknowable without a comprehensive inventory of the area within the geographic scope of the cumulative analysis. Development of such an inventory is beyond the reasonable scope of this analysis. Typically, cultural and paleontological resources are identified as part of the permitting process for individual undertakings, and often are discovered only during ground disturbing activities. Applicable laws and regulations, as discussed in Section 3.7.3, afford specific protections to discovered resources.

Reasonably Foreseeable Future Projects and Changes

Foreseeable future projects identified for this analysis include major energy and transmission projects, transportation projects, and numerous commercial and residential development projects throughout the jurisdictions traversed by the proposed Project. In addition, projects within NFS lands were also identified. The list was reviewed to identify cumulative projects that would be located close to the proposed Project such that a geologic impact would affect both projects simultaneously. Cumulative geologic impacts could occur where future projects cross or closely parallel the proposed Project. Numerous small to large residential projects are planned along some of the proposed Project segments, including known fault zones (Leona Valley). Finally, projects within NFS lands related to fire fuel management and reduction and road management projects were considered. The passenger rail projects (California High Speed Train, Orangeline Maglev Project, and Metro Gold Line Extension) could experience cumulative impacts if earthquake shaking resulted in ~~collapse of~~structural damage to transmission line towers and closure or damage of the rail lines, trains, or stations. ANF projects to reduce fuel for brush fires and improve roads would not have cumulative impacts related to geologic hazards. Consequently, reasonably foreseeable cumulative projects with potential cumulative impacts related to geologic hazards is limited to parallel and crossing transmission lines, crossing of passenger rail lines, and local commercial/residential developments.

Cumulative Impact Analysis

Impacts of the proposed Project would be ~~cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. Table 3.7-10, below, identifies which impacts of the proposed Project would be cumulative in nature~~ly considerable~~ and, of those, what the cumulative significance of each impact would be. Impacts that are not found to be cumulative in nature~~ly considerable~~ would not have an incremental effect on the cumulative scenario. Impact classes for cumulative impacts are as follows:

- **No Impact:** Project would have no impacts or would otherwise not be cumulatively considerable.
- **Class III:** Project impacts would combine with impacts of other projects but cumulative effect is not significant.
- **Class II:** Project impacts would combine with impacts of other projects to create a cumulative effect, but the application of feasible mitigation measures would reduce the incremental effect of the Project to less than significant.
- **Class I:** Project impacts would combine with impacts of other projects to create a cumulative effect that is significant and unavoidable.

Table 3.7-10. Cumulative Impacts for Geology, Soils, and Paleontology– Alternative 2

Impact	Cumulatively Considerable?	Cumulative Significance
G-1: Project activities could interfere with access to known energy resources.	No	No Impact
G-2: Erosion could be triggered or accelerated due to construction activities.	No	No Impact
G-3: Excavation and grading during construction activities could cause slope instability or trigger landslides.	No	No Impact
G-4: Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards.	Yes	Class III
G-5: Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards.	Yes	Class III
G-6: Project structures could be damaged by problematic soils exposing people or structures to hazards.	Yes	Class III
G-7: Transmission line structures could be damaged by landslides, earth flows, or debris slides, during operation.	Yes	Class III
G-8: Grading and excavation could destroy paleontologic resources.	Yes	Class III

It has been determined that three impacts associated with the proposed Project, as identified in Section 3.7.6.1, would not ~~be cumulatively considerable and therefore would not~~ contribute to cumulative impacts. These impacts include: Impact G-1 (Project activities could interfere with access to known energy resources), Impact G-2 (Erosion could be triggered or accelerated due to construction activities), and Impact G-3 (Excavation and grading during construction activities could cause slope instability or trigger landslides) as described below.

Impact G-1 (Project activities could interfere with access to known energy resources) could occur if Project-related construction interfered with operation of the oil field that the Project traverses. As described in Section 3.7.6.1 (Direct and Indirect Effects Analysis), this impact would be less than significant for the proposed Project. The potential for this impact to combine with similar effects of other projects would only occur if other projects were implemented in the same area at the same time as the proposed Project. However, construction of the proposed Project would preclude other projects from being implemented concurrently in the same location. Furthermore, Mitigation Measure G-1 (Coordination with oil field operations) would be implemented to prevent interference with oil field operations. Therefore, proposed Project impacts would not have the potential to combine with similar effects from other projects and would not be cumulative in nature~~ly considerable~~.

Impact G-2 (Erosion could be triggered or accelerated due to construction activities) could occur during construction-related excavation and grading in areas underlain by soils with high erosion potential. As described in Section 3.7.6.1 (Direct and Indirect Effects Analysis), this impact would be less than significant for the proposed Project. The potential for this impact to combine with similar effects of other projects would only occur if other projects were implemented in the same area at the same time as the proposed Project. However, construction of the proposed Project would preclude other projects from being implemented concurrently in the same location. Furthermore Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) would be implemented to reduce or prevent erosion impacts during construction. Therefore proposed Project impacts would not have the potential to combine with similar effects from other projects and would not be cumulatively ~~considerable~~in nature.

Impact G-3 (Excavation or grading during construction activities could cause slope instability or trigger landslides) could occur if Project-related excavation and grading were to trigger slope failures. As

described in Section 3.7.6.1 (Direct and Indirect Effects Analysis), this impact would be less than significant for the proposed Project. The potential for this impact to combine with similar effects of other projects would only occur if other projects were implemented on the same slopes at the same time as the proposed Project. However, construction of the proposed Project would preclude other projects from being implemented concurrently in the same location. Furthermore Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) would be implemented to minimize the potential for construction triggered slope failures. Therefore, proposed Project impacts would not have the potential to combine with similar effects from other projects and would not be cumulative in nature~~ly considerable~~.

The potential for ~~cumulatively considerable~~ geology, soils, and paleontology impacts of the proposed Project to combine with similar impacts of other projects within the geographic scope of the cumulative analysis are described below.

- **Project structures could be damaged by surface fault rupture at crossings of active faults (Impact G-4).** As discussed in Section 3.7.6.1 (Direct and Indirect Effects Analysis), this impact could ~~result in collapse of~~ damage proposed Project structures in the event of surface fault rupture at crossings of active faults. ~~Collapse~~ Failure of Project structures could result in power outages, damage to nearby roads or structures, and injury or death to nearby people. Past and future projects located in close proximity to Project structures would be exposed to the same conditions and therefore the same impacts. ~~Collapse~~ Failure of Project structures and adjacent structures would combine to result in a significant impact where such structures are in close proximity to other structures or people, such as other parallel and crossing transmission lines and substations, and residential and commercial developments located adjacent to the Project route along Segments 5, 7, 8 and ~~the southern~~ portions of Segment 11 between S11 MP 18.5 to 19. However, implementation of Mitigation Measure G-4~~a~~, which requires Project structures be placed outside of active fault zones~~, and Mitigation Measure G-4b, which requires contingency plans be prepared to prepare the necessity to bypass or work around potential fault rupture damage where numerous tower structures are located within active fault zones~~, would minimize the proposed Project's contribution to this cumulative impact. Due to similar policies regarding construction within active fault zones that have been imposed on past projects and that will likely be imposed on reasonably foreseeable projects, this cumulative impact would be less than significant (Class III).
- **Project structures could be damaged by seismically induced groundshaking and/or ground failure (Impact G-5).** Large earthquakes on regional faults could result in strong to very strong seismically induced groundshaking, liquefaction, and earthquake induced slope failures, as discussed in Section 3.7.6.1. This impact could result in ~~collapse of~~damage to proposed Project structures which could result in power outages, damage to nearby roads or structures, and injury or death to nearby people. Past and future projects located in close proximity to Project structures would be exposed to the same conditions and therefore the same impacts. ~~Collapse~~ Failure of Project structures and adjacent structures would combine to result in a significant impact where such structures are in close proximity to other structures or people, such as other parallel and crossing transmission lines and substations, and residential and commercial developments located adjacent to the Project route along Segments 5, 7, 8, and the southern portion of Segment 11. However, implementation of Mitigation Measure G-5a, which requires site-specific seismic analyses ~~to evaluate the peak ground accelerations for design or modification of Project components~~ to avoid damage from seismic groundshaking, Mitigation Measure G-5b, which requires design-level geotechnical investigations designed to assess the potential for liquefaction and design of Project features to avoid damage liquefaction, and Mitigation Measure G-3, which requires identification of existing and potential unstable slopes to minimize the potential slope failures, would minimize the proposed Project's contribution to this cumulative impact. Due to similar policies regarding construction within areas of potentially substantial seismic shaking and seismically induced ground failures that have been imposed on past projects and that will likely be imposed on reasonably foreseeable projects, this cumulative impact would be less than significant (Class III).
- **Project structures could be damaged by problematic soils exposing people or structures to hazards (Impact G-6).** Unidentified expansive and corrosive soils could damage Project structures and facilities ~~potentially~~ and could comprise their structural integrity~~resulting in collapse of such structures~~, which could result in power outages, damage to nearby roads or structures, and injury or death to nearby people, as

described in Section 3.7.6.1 (Direct and Indirect Effects Analysis). Past and future projects located in close proximity to Project structures on the same soil types would be exposed to the same conditions and therefore the same impacts. ~~Collapse~~ Failure of Project structures and adjacent structures would combine to result in a significant impact where such structures are in close proximity to other structures or people, such as other parallel and crossing transmission lines and substations, and residential and commercial developments located adjacent to the Project route along Segments 5, 7, 8 and the southern portion of Segment 11. However, implementation of Mitigation Measure G-6, which would require studies to identify the presence of unsuitable soils and designing of Project features to avoid damage from problematic soils, would minimize the proposed Project's contribution to this cumulative impact. Due to similar policies regarding construction within areas of potentially unsuitable and damaging soils that have been imposed on past projects and that will likely be imposed on reasonably foreseeable projects, this cumulative impact would be less than significant (Class III).

- **Project structures could be damaged by landslides, earthflows, debris flows and/or rock fall (Impact G-7).** As discussed in Section 3.7.6.1, this impact could result in ~~collapse of~~damage to proposed Project structures in the event of landslides, earthflows, debris flows and/or rock fall. ~~Collapse~~ Failure of Project structures could result in power outages, damage to nearby roads or structures, and injury or death to nearby people. Past and future projects located in close proximity to Project structures would be exposed to the same conditions and therefore the same impacts. ~~Collapse~~ Failure of Project structures and adjacent structures would combine to result in a significant impact where such structures are in close proximity to other structures or people, such as other parallel and crossing transmission lines and substations, and residential and commercial developments located adjacent to the Project route along Segments 5, 7, 8 and the southern portion of Segment 11. However, implementation of Mitigation Measure G-3, which requires identification of existing and potential unstable slopes to minimize the potential slope failures, would minimize the proposed Project's contribution to this cumulative impact. Due to similar policies regarding construction within areas of unstable and potentially unstable slopes that have been imposed on past projects and that will likely be imposed on reasonably foreseeable projects, this cumulative impact would be less than significant (Class III).
- **Grading and excavation could destroy paleontologic resources (Impact G-8).** Unknown, unrecorded paleontological resources may be found at nearly any development site. As they are discovered, sites are recorded and information retrieved. If the nature of the resource requires it, the resource is protected. When discovered, paleontological resources are treated in accordance with applicable federal and State laws and regulations as well as the mitigation measures and permit requirements applicable to a project. It is not known what paleontological resources, if any, would be affected by development of all present and future projects along and near the proposed Project; however, given the density of past development in these areas and the large number of reasonably foreseeable projects in the area, it is reasonable to assume that paleontologic resources exist and would be expected to be uncovered in at least several of these sites. As with the proposed Project, Applicant-Proposed Measures (APMs PALEO-1 through PALEO-9) shall be employed during construction to reduce the potential that any scientifically important fossils would be destroyed and would provide for the systematic collection, analysis, and documentation of any such discoveries. Should resources be discovered during construction of current and future projects, they would be subject to legal requirements designed to protect them, thereby reducing the effect of impacts. Therefore proposed Project impacts, when combined with impacts from past, present and reasonably foreseeable projects would not be significant (Class III) and no additional mitigation measures are necessary.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.7.6.1 (Direct and Indirect Effects Analysis) would help to reduce the proposed Project's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for geologic, soils, and paleontologic resources.

3.7.7 Alternative 3: West Lancaster Alternative

The following section describes geology, soils, and paleontology impacts of Alternative 3 (West Lancaster Alternative), as determined by the significance criteria listed in Section 3.7.4. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels. As

described in Section 2.3, this alternative would deviate from the proposed route along Segment 4, at approximately S4 MP 14.9, where the new 500-kV transmission line would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route would increase the overall distance of Segment 4 by approximately 0.4 mile, but it would not have the potential to encounter or avoid any sources of contamination or hazards that would be affected or traversed by the proposed Project and would not introduce any new source of contamination or hazards to Project-related impacts.

3.7.7.1 Direct and Indirect Effects Analysis

The significance criteria used to identify geology, soils, and paleontology impacts are introduced in Section 3.7.4.1 (Criteria for Determining Impact Significance). Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, the short re-route has a nearly identical setting as Alternative 2 (the proposed Project), and thus impacts associated with Alternative 3 would be the same as impacts associated with the criteria for the proposed Project. Impacts associated with Alternative 3 are presented below under the applicable significance criterion.

Unique geologic features (Criterion GEO1)

No unique geologic features or geologic features of unusual scientific value for study or interpretation would be disturbed or otherwise adversely affected by Alternative 3. No impact would occur.

Known mineral and/or energy resources (Criterion GEO2)

Impacts associated with Criterion GEO2 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, as with the equivalent portion of Segment 4 there are no known mineral resource sites along the re-route and therefore the impacts related to Criterion GEO2 would be the same as for the proposed Project, as presented in Section 3.7.6.1, and summarized below.

Impact G-1 (Project activities could interfere with access to known energy resources) would be the same as for the proposed Project. Therefore where the portions of Alternative 3 equivalent to Segments 7, 11, and 8 would cross the Montebello oil and gas field and where the Segment 8 equivalent would cross the northern edge of the Brea-Olinda oil and gas field, there is a potential for Project construction activities to interfere with oil field operations. Impact G-1, as described in Section 3.7.6.1, for Alternative 3 would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Triggering or acceleration of geologic processes, such as landslides, soil erosion, or loss of topsoil, during construction (Criterion GEO3)

Impacts associated with Criterion GEO3 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, the geologic materials, soils, and very gentle slopes would be identical to those of the proposed Project and there would be no substantial increase in the potential for erosion triggered or accelerated due to construction activities. These impacts and their associated mitigation measures that fall under Criterion GEO3 are summarized in the following paragraphs. Please see Section 3.7.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are the same as the proposed Project.

Impact G-2 (Erosion could be triggered or accelerated due to construction activities) would be the same under Alternative 3 as it would be for the proposed Project (please see Section 3.7.6.1). The rerouted portion of Alternative 3 is only minimally longer than the proposed Project route and is located on the same soil types with the same potential for erosion. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential of erosion triggered or accelerated due to construction activities is the same as presented in Section 3.7.6.1, and would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of this mitigation measure, as described in Section 3.7.6.1, Impact G-2 of Alternative 3 would be less than significant (Class II).

Impact G-3 (Excavation and grading during construction activities could cause slope instability or trigger landslides) would be the same for Alternative 3 as it would be for the proposed Project (see Section 3.7.6.1). The rerouted portion of Alternative 3 is located in flat-lying terrain and there is no potential for slope failure. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential of slope failure or triggered landslides due to construction activities is the same as presented in Section 3.7.6.1, and would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability). With implementation of this mitigation measure, as described in Section 3.7.6.1, Impact G-3 of Alternative 3 would be less than significant (Class II).

Exposure to potential risk of loss or injury due to earthquake-related ground rupture (Criterion GEO4)

Impacts associated with Criterion GEO4 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, as with the equivalent portion of Segment 4 there are no fault crossings along the re-route and therefore the impacts related to Criterion GEO4 would be the same as for the proposed Project, as presented in Section 3.7.6.1, and summarized below.

Impact G-4 (Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards) would be the same for Alternative 3 as it would be for the proposed Project (see Section 3.7.6.1). The rerouted portion of Alternative 3 does not cross any active faults and therefore there is no potential for fault rupture along the reroute. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential of surface fault rupture is the same as presented in Section 3.7.6.1. Therefore the portions of Alternative 3 equivalent to Segments 5, 6, 7, 11, and 8A where it crosses the active San Andreas (Segment 5), San Gabriel (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), Whittier (Segment 8A), Chino (Segment 8A), and Central Ave (Segment 8A) faults~~San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and 11), Raymond (Segment 11), East Montebello Hills (Segment 11), Whittier (Segment 8A), and Chino Central Ave (Segment 8A) faults~~ would require implementation of Mitigation Measure~~s~~ G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones) ~~and G-4b (Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines)~~ to reduce potential impacts to less than significant (Class II).

Exposure to potential risk of loss or injury due to seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, and/or surface cracking (Criterion GEO5)

Impacts associated with Criterion GEO5 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. The minimally longer length of the reroute for this alternative compared to the proposed Project would result in incrementally increased opportunity for damage to Project structures from seismically induced groundshaking along the reroute. Therefore the impacts related to Criterion GEO5 would be the same as for the proposed Project, as presented in Section 3.7.6.1, and summarized below.

Impact G-5 (Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards) would be the same under Alternative 3 as it would be for the proposed Project (see Section 3.7.6.1). Potential earthquake-related groundshaking along the Alternative 3 reroute is the same as that for the equivalent portion of Segment 4. Local strong to severe groundshaking may occur along the Alternative 3 alignment equivalent to portions of Segments 4, 5, 6, 7, 9, and 11 and would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking). The potential for liquefaction and earthquake induced slope failures along Alternative 3 are identical to the proposed Project (see Section 3.7.6.1). Therefore, the portions of Alternative 3 equivalent to the portions of Segments 5, 7, 11, 8A, 8B, and 8C that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, and active river washes and streams where lenses and pockets of loose seasonally saturated sand may be present would require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction). Portions of Alternative 3 equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability). Implementation of these measures, as described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 3 to less than significant (Class II).

Exposure to potential risk of loss or injury where corrosive soils or other unsuitable soils are present (Criterion GEO6)

Impacts associated with Criterion GEO6 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, the soils underlying the alignment would be identical to those of the proposed Project and there would be no change in the potential for damage to Project structures due to unsuitable soils. These impacts and their associated mitigation measures that fall under Criterion GEO6 are summarized in the following paragraphs. Please see Section 3.7.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are the same as the proposed Project.

Impact G-6 (Project structures could be damaged by problematic soils exposing people or structures to hazards) would be the same for Alternative 3 as the alignment crosses the same soil types as the proposed Project alignment. Soils along the alignment have a potential to corrode steel and concrete ranging from low to high and expansion potential ranging from low to high. Corrosive and/or expansive soils can cause damage to structure foundations, potentially comprising the structural integrity ~~resulting in collapse~~ of the structure, a significant impact (see Section 3.7.6.1). Therefore, Alternative 3 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and

aid in appropriate foundation design), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Damage to Project structures due to slope failure (Criterion GEO7)

Impacts associated with Criterion GEO7 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, there is no potential for slope failure along the flat-lying terrain of the re-route. Therefore, there would be no substantial increase in the potential for slope failures to occur.

Impact G-7 (Transmission line structures could be damaged by landslides, earth flow, or debris flows, during operation) would be the same for Alternative 3 as it would be for the proposed Project (see Section 3.7.6.1). The rerouted portion of Alternative 3 is located in flat-lying terrain and there is no potential for slope failure. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for failure of existing unstable slope or landslides during operation is the same as presented in Section 3.7.6.1, and would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability). With implementation of this mitigation measure, as described in Section 3.7.6.1, Impact G-7 of Alternative 3 would be less than significant (Class II).

Destruction of unique paleontological resources (Criterion GEO8)

Impacts associated with Criterion GEO8 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, the geologic materials would be identical to those of the proposed Project and there would be no substantial increase in the potential for Impact G-8 (Grading and excavation could destroy paleontologic resources) to occur. Additionally, APM PALEO-1 through APM PALEO-9 (Paleontologic resource planning, construction monitoring and recovery, and final report and museum curation) would be included as part of the Project in order to reduce the likelihood of destroying unique paleontologic resources. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 3 would be less than significant (Class III). Please see Section 3.7.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are the same as the proposed Project.

3.7.7.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of the Alternative 3 route. This alternative consists of re-routing the new 500-kV T/L in Segment 4 along 115th Street West rather than 110th Street West. This alternative was developed to avoid the existing residences. The remainder of this alternative route (which totals approximately 150 miles) would be identical to that of the proposed Project and would, therefore, result in substantially similar or identical impacts as the proposed Project. The rerouted portion of the Alternative 3 route generally parallels the proposed Project route for approximately 3 miles, at a 0.5 mile distance from the proposed Project route. As a result, this alternative traverses the same geologic materials as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of Alternative 3 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project. See Section 3.7.6.2 for a detailed discussion of cumulative effects.

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to geology, soils, and paleontology is limited to the Project site and the immediate vicinity surrounding Project substations, laydown areas, and the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the geologic materials and terrain on the Project site and directly adjacent to the Project site are the most significant factors to evaluate the potential for geologic hazards, unsuitable soil and paleontologic resources at a project site. Impacts would have the potential to occur during construction and operation and would be limited to the areas where concurrent construction is occurring. The geographic extent for Alternative 3 is identical to that of the proposed Project, as presented in Section 3.7.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 3 are identical to the proposed Project as discussed in Section 3.7.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 3 would be exactly the same as Alternative 2, described in Section 3.7.6.2.

Cumulative Impact Analysis

As discussed for the proposed Project in Section 3.7.6.2, Impacts G-1 through G-3 of Alternative 3 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2. Impacts G-4 through G-8 for Alternative 3 would combine but not be cumulatively significant (Class III) with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.7.6.1 (Direct and Indirect Effects Analysis) would help to reduce Alternative 3's incremental contribution to cumulative impacts. However, there are no impacts or significant cumulative effects of Alternative 3 related to geology, soils, and paleontology and no additional mitigation is required.

3.7.8 Alternative 4: Chino Hills Route Alternatives

3.7.8.1 Direct and Indirect Effects Analysis

The significance criteria used to identify geology, soils, paleontology are introduced in Section 3.7.4.1 (Criteria for Determining Impact Significance). Impacts associated with Alternative 4 are presented below under the applicable significance criterion. As described in Section 3.7.2.4 (Affected Environment: Alternative 4), this alternative would follow the same route as the proposed Project with the exception that it would diverge from the proposed Project route along Segment 8A at S8A MP 19.2. Therefore, any impacts of the proposed Project that would occur between S8A MP 19.2 and 35.2 (16 miles) through Chino Hills, Chino, and Ontario would not occur under Alternative 4~~. In addition~~, although impacts associated with Segment~~s~~ 8B ~~and 8C~~ of the proposed Project, between the Chino and Mira Loma Substations, ~~also~~ would ~~not~~ still occur under Alternative 4. Where the proposed route for Alternative 4 diverges from the proposed Project route at S8A MP 19.2, it would turn to the southeast, crossing

through part of Orange County, San Bernardino County, and the CHSP. Therefore, Alternative 4 would introduce the potential to result in Geology, Soils, and Paleontology impacts in these areas which would not be affected by the proposed Project.

As described in Section 2.4, this alternative includes ~~four~~ five separate routing options: Route A, Route B, Route C, Route C Modified, and Route D. For the purposes of this impact analysis, the routing options for Alternative 4 are discussed in comparison to each other throughout the following section. As described, the alignment of Alternative 4 would be the same as the proposed Project north of S8A MP 19.2; as such, please see Section 3.7.6.1 for a summary of geology, soils, and paleontology impacts that could potentially affect resources along this portion of the Alternative 4 route which is identical to the proposed Project route.

Unique geologic features (Criterion GEO1)

No unique geologic features or geologic features of unusual scientific value for study or interpretation would be disturbed or otherwise adversely affected by Alternative 4. No impact would occur.

Known mineral and/or energy resources (Criterion GEO2)

Impacts associated with Criterion GEO2 for Alternative 4 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 8 of the proposed transmission line, as with the equivalent portion of Segment 8 the reroute and all associated facilities and access roads do- not cross any active energy resource sites and therefore the impacts related to Criterion GEO2 would be the same as for the proposed Project, as presented in Section 3.7.6.1, and summarized below.

Impact G-1 (Project activities would interfere with access to known energy resources) would be the same as for the proposed Project. Therefore where the portions of Alternative 4 equivalent to proposed Project Segments 7, 11, and 8 would cross the Montebello oil and gas field and where the Segment 8 equivalent would cross the northern edge of the Brea-Olinda oil and gas field, there is a potential for Project construction activities to interfere with oil field operations.

Route A. This impact would be exactly the same for Alternative 4, Route A, as it would be for the proposed Project (please see Section 3.7.6.1). Impact G-1, as described in Section 3.7.6.1, for Alternative 4, Route A, would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Route B. The Route B option would be exactly the same as Route A with regards to Impact G-1. Impact G-1, as described in Section 3.7.6.1, for Alternative 4, Route B, would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Route C. The Route C option would be exactly the same as Route A with regards to Impact G-1. Impact G-1, as described in Section 3.7.6.1, for Alternative 4, Route C, would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Route C Modified. The Route C Modified option would be exactly the same as Route A with regard to Impact G-1. Impact G-1, as described in Section 3.7.6.1, for Alternative 4, Route C Modified, would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Route D. The Route D option would be exactly the same as Route A with regards to Impact G-1. Impact G-1, as described in Section 3.7.6.1, for Alternative 4, Route D, would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Triggering or acceleration of geologic processes, such as landslides, soil erosion, or loss of topsoil, during construction (Criterion GEO3)

Impacts associated with Criterion GEO3 for Alternative 4 would be similar to impacts associated with this criterion for the proposed Project. The shorter length of all ~~four~~ five routes of this alternative compared to the proposed Project would result in incrementally decreased opportunity to cause construction triggered erosion. However, the increased length of the Alternative 4 routes through the Puente Formation than the proposed Project (ranging from 6.2 to 12.4 miles versus 5.9 miles for the comparable portion of Segment 8A), and the grading of all-weather access roads for the associated switching stations for Alternative 4 result in a slightly increased potential to trigger or accelerate landslides during Project construction. The impacts and their associated mitigation measures that fall under Criterion GEO3 are summarized in the following paragraphs. Please see Section 3.7.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are similar to the proposed Project.

Impact G-2 (Erosion could be triggered or accelerated due to construction activities) would be similar under Alternative 4 as it would be for the proposed Project (please see Section 3.7.6.1). The rerouted portion of Alternative 4 is located in an undeveloped area with moderate to steep slopes and soil with severe to very severe erosion potential. Therefore, there is substantial potential for erosion caused by construction of transmission structures, unpaved access roads, ~~and~~ all-weather (e.g., paved) switching station access roads, and graded pads for the switching stations. The remaining portion of Alternative 4 is identical to the equivalent portions of Alternative 2 and the potential of erosion triggered or accelerated due to construction activities is similar, although incrementally decreased due to the shorter alignment length as presented in Section 3.7.6.1, and would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of this measure, as described in Section 3.7.6.1, Impact G-2 of Alternative 4 would be less than significant (Class II).

Route A. Despite the additional ground disturbance required for the switching station site and the several mile long associated permanent all-weather access road to the switching station, the approximately 16 mile shorter transmission line route (compared to the proposed Project) would still result in incrementally reduced ground disturbance and erosion for this alignment. Impact G-2 would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), as described in detail in Section 3.7.6.1, for Alternative 4, Route A, to reduce potential impacts to less than significant (Class II).

Route B. Erosion impacts of Route B would be incrementally greater than the impacts of Route A due to the longer alignment (approximately 3.6~~5~~ miles longer than Route A), grading for the switching station, and the associated permanent all-weather access road to the site off Butterfield Ranch Road. Impact G-2 would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), as described in detail in Section 3.7.6.1, for Alternative 4, Route B, to reduce potential impacts to less than significant (Class II).

Route C. New and rerouted transmission lines for Route C would include the removal of about 8.4 ~~7.0~~ circuit miles of transmission line/structures and grading for a several mile long permanent all-weather access road to the new switching station resulting in an incremental increase in erosion impacts. Impact G-2 would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), as described in detail in Section 3.7.6.1, for Alternative 4, Route C, to reduce potential impacts to less than significant (Class II).

Route C Modified. New and rerouted transmission lines for Route C Modified would include the removal of about 5.9 circuit miles of transmission line/structures, and grading for the new switching station and its associated several mile long permanent all-weather access road resulting in an incremental increase in erosion impacts relative to Route A. Impact G-2 would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), as described in detail in Section 3.7.6.1, for Alternative 4, Route C Modified, to reduce potential impacts to less than significant (Class II).

Route D. Grading for the Route D switching station, the associated all-weather access road to the site off Butterfield Ranch Road, and the approximately 3.7 miles greater length compared to Route A, results in incrementally greater construction-related erosion impacts. Impact G-2 would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), as described in detail in Section 3.7.6.1, for Alternative 4, Route D, to reduce potential impacts to less than significant (Class II).

Impact G-3 (Excavation and grading during construction activities could cause slope instability or trigger landslides) would be similar for Alternative 4 as it would be for the proposed Project (see Section 3.7.6.1). All route options of Alternative 4 are located in hillside areas with mapped landslides and substantial potential for slope failure similar to the equivalent portion of Alternative 2 that traverses the Puente Formation about two to three miles north. The Alternative 4 routes would traverse a slightly greater length of landslide prone Puente Formation than the proposed Project (ranging from 6.2 to 12.4 miles versus 5.9 miles for the comparable portion of Segment 8A), resulting in a slightly increased potential for impacts from landslides and unstable slopes along Alternative 4 compared to the proposed Project (Alternative 2). The remaining portion of Alternative 4 is identical to Alternative 2 and the potential of slope failure or triggered landslides due to construction activities is the same as presented in Section 3.7.6.1.

Route A. Route A would be only 0.3 miles longer than the proposed Project within hillside areas with slope stability issues resulting in slightly greater potential to cause slope instability or trigger landslides. Additionally the Route A alignment would require the construction of a several mile long permanent all-weather access road along ridgelines and in canyons and a new switch yard in areas underlain by the landslide prone Puente Formation which further increases the potential for construction triggered slope instability. Impact G-3 of Alternative 4, Route A, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Route B. Construction-triggered slope instability impacts of Route B would be incrementally greater than Route A due to the longer alignment (approximately 3.6~~5~~ miles longer than Route A), grading for the Route D switching station, and the associated all-weather access road to the site off

Butterfield Ranch Road. Impact G-3 of Alternative 4, Route B, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Route C. The total length of the Route C transmission line would be approximately 2.2~~6~~ miles longer than Route A resulting in an incremental increase in potential to cause construction-triggered slope instability. Additionally the Route C alignment would require the construction of a several mile long permanent all-weather access road along ridgelines and in canyons underlain by the landslide prone Puente Formation which further increases the potential for construction triggered slope instability. Removal of about 8.4 ~~7.0~~ circuit miles of transmission line/structures with nominal ground disturbance and site restoration is not anticipated to result in an increase in slope instability or trigger landslides. Impact G-3 of Alternative 4, Route C, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Route C Modified. The total length of the Route C Modified transmission line would be approximately 1.4 miles longer than Route A resulting in an incremental increase in potential to cause construction-triggered slope instability. Additionally the Route C Modified alignment would require the construction of a switching station on a hill/ridgetop and an associated several mile long permanent all-weather access road along ridgelines and in canyons underlain by the landslide prone Puente Formation which further increases the potential for construction triggered slope instability. The removal of about 5.9 circuit miles of transmission line/structures with nominal ground disturbance and site restoration is not anticipated to result in an increase in slope instability or trigger landslides. Impact G-3 of Alternative 4, Route C Modified, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Route D. Route D of Alternative 4 is about~~.4~~ 3.7 miles longer than Route A resulting in incrementally greater potential for construction-related slope instability impacts. Additional construction-related slope stability impacts could result from the grading for the Route D switching station and the associated all-weather access road to the site off Butterfield Ranch Road, which are both underlain by the landslide prone Puente Formation. Impact G-3 of Alternative 4, Route D, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Exposure to potential risk of loss or injury due to earthquake-related ground rupture (Criterion GEO4)

Impacts associated with Criterion GEO4 for Alternative 4 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a new shorter route for the portion of the Project alignment, eliminating the portion of the alignment equivalent to the end of Segment 8, it does ~~add one new fault~~shift the crossing of the Chino fault for two of Alternative 4 route options (Routes B and D) onto the mapped active trace of the fault and into its associated Alquist-Priolo zone~~, The the Chino fault~~. This ~~alignment~~alternative~~, however~~ does avoid both the Chino and Central Ave fault crossings for Routes A, C, and C Modified, and the Chino fault crossing for Routes B and D. Therefore the impacts related to Criterion GEO4 would be similar as for the proposed Project for Routes B and D, as presented in Section 3.7.6.1, even though there is one fewer fault crossing (the potentially active

Central Avenue Fault) due to the fact that these routes are more impacted by the crossing of the Chino Fault, as described below and in Section 3.7.2.4. Alternative 4 Routes A, C, and C Modified have a decreased potential for fault rupture damage due to the two fewer ~~with the same number of~~ fault crossings~~, but crossing a different strand of the Chino Central Avenue fault~~. The impact and associated mitigation measures that fall under Criterion GEO4 are summarized in the following paragraph.

Impact G-4 (Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards) would generally be the same for Alternative 4 as it would be for the proposed Project (see Section 3.7.6.1). The rerouted portion of Alternative 4, Routes A, C, and C Modified do not cross any active faults and therefore there is no potential for fault rupture along these reroutes. However, both the eastern ends of Routes B and D and their associated new switching station would cross and are located on the Alquist-Priolo zoned Chino Fault, resulting in a potential for damage to project facilities from surface fault rupture. The remaining portion of Alternative 4 (west of S8A-19.2) is identical to Alternative 2 and the potential of surface fault rupture is the same as presented in Section 3.7.6.1, with the exception that all of the Alternative 4 Routes do~~es~~ not cross the ~~Chino~~ Central Ave fault ~~crossing~~.

Route A. This impact would be exactly the same for Alternative 4, Route A, as it would be for the proposed Project (please see Section 3.7.6.1), with the exception of having ~~one~~ two less fault crossings (does not cross the northward trend of the active Chino fault nor the potentially active Central Ave fault). This would result in a minor decrease in the potential for damage to project facilities from fault rupture. Therefore the portions of Alternative 4, Route A, equivalent to Segments 5, 6, 7, 11, and 8A where it crosses the active San Andreas (Segment 5), San Gabriel~~,~~ (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), and Whittier (Segment 8A) faults~~Raymond (Segment 11), East Montebello Hills (Segment 11), and Whittier (Segment 8A) faults~~ would require implementation of Mitigation Measures G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones)~~ and G-4b (Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines)~~, described in detail in Section 3.7.6.1, to reduce potential impacts to less than significant (Class II).

Route B. The Route B option would be similar to Route A with regards to Impact G-4, with the exception that the eastern end of the Route B alignment and its associated switching station being located ~~cross~~across and ~~are mapped~~ on the Alquist-Priolo zoned portion of the Chino fault. Although this route would not cross the potentially active Central Avenue Fault, Route B would result in a minor to slight increase for damage to project facilities due to placement of the switching station on the trace of the Alquist-Priolo zoned portion of the Chino Fault. Therefore, in addition to the portions of Alternative 4~~,~~ Route B, equivalent to Segments 5, 6, 7, 11, and 8A where it crosses the active San Andreas (Segment 5), San Gabriel (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), and Whittier (Segment 8A) faults~~San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell Sawpit (Segment 6), Sierra Madre (Segments 7 and 11), Raymond (Segment 11), East Montebello Hills (Segment 11), and Whittier (Segment 8A) faults~~, the rerouted portion of Alternative 4~~,~~ Route B where it crosses and lies on the Chino fault would require implementation of Mitigation Measure~~s~~ G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones)~~ and G-4b (Prepare fault rupture contingency plans to minimize repair time~~

~~for damaged transmission lines)~~, described in detail in Section 3.7.6.1, to reduce potential impacts to less than significant (Class II).

Route C. The Route C option would be exactly the same as Route A with regards to Impact G-4. Therefore the portions of Alternative 4, Route C, equivalent to Segments 5, 6, 7, 11, and 8A where it crosses the active San Andreas (Segment 5), San Gabriel (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), and Whittier (Segment 8A) faults~~San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell Sawpit (Segment 6), Sierra Madre (Segments 7 and 11), Raymond (Segment 11), East Montebello Hills (Segment 11), and Whittier (Segment 8A) faults~~ would require implementation of Mitigation Measure~~s~~ G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones)~~ and G-4b (Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines)~~, described in detail in Section 3.7.6.1, to reduce potential impacts to less than significant (Class II).

Route C Modified. The Route C Modified option would be exactly the same as Route A with regards to Impact G-4. Therefore the portions of Alternative 4, Route C Modified, equivalent to San Andreas (Segment 5), San Gabriel (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), and Whittier (Segment 8A) faults would require implementation of Mitigation Measure G-4 (Minimize Project structures within active fault zones), described in detail in Section 3.7.6.1, to reduce potential impacts to less than significant (Class II).

Route D. The Route D option would be similar to Route A with regards to Impact G-4, with the exception that eastern end of the Route D alignment and its associated switching station across and ~~are mapped~~ on the Alquist-Priolo zoned portion of the Chino fault. Despite this route not crossing the potentially active Central Avenue Fault, this results in a minor to slight increase for damage to project facilities due to the placement of the Route D switching station on the trace of the Alquist-Priolo zoned portion of the Chino Fault. Therefore in addition to the portions of Alternative 4, Route D, equivalent to Segments 5, 6, 7, 11, and 8A where it crosses the active San Andreas (Segment 5), San Gabriel (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), and Whittier (Segment 8A) faults~~San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell Sawpit (Segment 6), Sierra Madre (Segments 7 and 11), Raymond (Segment 11), East Montebello Hills (Segment 11), and Whittier (Segment 8A) faults~~, the rerouted portion of Alternative 4, Route D where it crosses and lies on the Alquist-Priolo zoned Chino fault would require implementation of Mitigation Measure~~s~~ G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones)~~ and G-4b (Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines)~~, described in detail in Section 3.7.6.1, to reduce potential impacts to less than significant (Class II).

Exposure to potential risk of loss or injury due to seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, and/or surface cracking (Criterion GEO5)

Impacts associated with Criterion GEO5 for Alternative 4 would be the same as impacts associated with this criterion for the proposed Project. The shorter length of all ~~four~~ five routes of this alternative compared to the proposed Project would only result in incrementally decreased opportunity for damage to

Project structures from seismically induced groundshaking and ground failures. Therefore the impacts related to Criterion GEO5 would be the same as for the proposed Project, as presented in Section 3.7.6.1, and summarized below.

Impact G-5 (Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards) would be the same under Alternative 4 as it would be for the proposed Project (please see Section 3.7.6.1). All the route options under Alternative 4 traverse areas with PGAs ranging from ~~0.4 to 0.6g~~0.8 to 1.2g, the same as the proposed Project; therefore earthquake induced moderate to strong groundshaking equivalent to that along the corresponding portion of 8A should be expected along these alignments. The potential for landslides and unstable slopes along Alternative 4 are similar, but incrementally increased due to the increased length within the landslide prone Puente Formation, in~~to~~ the eastern Puente Hills portion of Segment 8A of the proposed Project (see Section 3.7.6.1). The potential for liquefaction-related phenomena are the same along Alternative 4 as for the proposed Project. These impacts could cause ~~collapse of~~damage to Project structures that could result in power outages, damage to nearby roads of structures, and injury or death to nearby people, a significant impact.

Route A. This impact would be the same for Alternative 4, Route A, regarding groundshaking ~~and liquefaction~~ as it would be for the proposed Project (please see Section 3.7.6.1). This impact would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking). However, the increased length (approximately 0.3 mile longer) of transmission line within hillside areas with slope stability issues results in a slightly greater potential for earthquake induced slope failure and would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route A, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures. ~~This impact would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking);~~). The decreased length of transmission line through alluvial sediments of the western Chino Basin results in a slightly decreased potential for liquefaction, however this impact would still require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction) along the portions of Alternative 4, Route A, equivalent to the portions of Segments 5, 7, 11, and 8A that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, and active river washes and streams. ~~; and Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route A, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures.~~ Implementation of these measures, as described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 4, Route A, to less than significant (Class II).

Route B. The Route B option would be exactly the same as Route A with regards to Impact G-5, except the potential for earthquake induced slope failures along Route B would be incrementally greater than Route A due to the 3.6~~5~~ mile longer alignment. This impact would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking); and Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route B, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures. The decreased length of transmission line through alluvial sediments of the western

Chino Basin results in a slightly decreased potential for liquefaction; however, this impact would still require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction) along the portions of Alternative 4, Route B, equivalent to the portions of Segments 5, 7, 11, and 8A that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, and active river washes and streams~~; and~~. ~~Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route B, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures.~~ Implementation of these measures, as described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 4, Route B, to less than significant (Class II).

Route C. The Route C option would be exactly the same as Route A with regards to Impact G-5, except Route C would consist of a new transmission line alignment and reroutes that total approximately 2.2~~6~~ miles more of transmission line than Route A, resulting in an incremental increase in potential for earthquake induced slope failures. This impact would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking); and Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route B, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures. The decreased length of transmission line through alluvial sediments of the western Chino Basin results in a slightly decreased potential for liquefaction, however this impact would still require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction) along the portions of Alternative 4, Route C, equivalent to the portions of Segments 5, 7, 11, and 8A that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, and active river washes and streams~~; and Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route A, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures~~. Implementation of these measures, as described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 4, Route A, to less than significant (Class II).

Route C Modified. The Route C Modified option would be exactly the same as Route A with regards to Impact G-5, except Route C Modified would consist of a new transmission line alignment and reroutes that total approximately 1.4 miles more of transmission line than Route A, resulting in an incremental increase in potential for earthquake induced slope failures. This impact would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking); and Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route B, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures. The decreased length of transmission line through alluvial sediments of the western Chino Basin results in a slightly decreased potential for liquefaction, however this impact would still require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction) along the portions of Alternative 4, Route C Modified, equivalent to the portions of Segments 5, 7, 11, and 8A that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, and active river washes and streams. Implementation of these measures, as

described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 4, Route A, to less than significant (Class II).

Route D. The Route D option would be exactly the same as Route A with regards to Impact G-5, except Route D of Alternative 4 is about ~~4~~ 3.7 miles longer than Route A resulting in an incrementally increased potential for earthquake induced slope failures. This impact would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking); and Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route B, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures. The decreased length of transmission line through alluvial sediments of the western Chino Basin results in a slightly decreased potential for liquefaction, however this impact would still require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction) along the portions of Alternative 4, Route D, equivalent to the portions of Segments 5, 7, 11, and 8A that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, and active river washes and streams~~; and Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along portions of Alternative 4, Route D, equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures~~. Implementation of these measures, as described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 4, Route D, to less than significant (Class II).

Exposure to potential risk of loss or injury where corrosive soils or other unsuitable soils are present (Criterion GEO6)

Impacts associated with Criterion GEO6 for Alternative 4 would be the same as impacts associated with this criterion for the proposed Project, as presented in Section 3.7.6.1. The shorter length of all five routes of this alternative compared to the proposed Project would result in incrementally decreased opportunity for damage to Project structures due to unsuitable soils. Therefore, the impacts related to Criterion GEO6 would be the same but the potential for damage from unsuitable soils would be incrementally less than for the proposed Project; as summarized below.

Impact G-6 (Project structures could be damaged by problematic soils exposing people or structures to hazards) would be the same for Alternative 4 as the alignment crosses the same soil types as the Alternative 2 alignment, but would be incrementally decreased due the shorter length of all the Alternative 4 route options as compared to Alternative 2. Soils along all five of the Alternative 4 routes have the same corrosive and expansive potential as the equivalent portion of Segment 8 of Alternative 2; with a potential to corrode steel ranging from low to high, potential to corrode concrete ranging from low to moderate, and expansion potential ranging from low to moderate. Corrosive and/or expansive soils can cause damage to structure foundations, potentially comprising the structural integrity of the structure, a significant impact (see Section 3.7.6.1). Therefore Alternative 4 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Route A. Despite the additional foundations required for the switching station site, the approximately 16 mile shorter transmission line route (compared to the proposed Project) would result in a reduced number of structures and foundations constructed in unsuitable soils resulting in an incremental reduction of potential for damage to project structures from expansive or corrosive

soils. Impact G-6 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), as described in detail in Section 3.7.6.1, for Alternative 4, Route A, to reduce potential impacts to less than significant (Class II).

Route B. Impacts related to unsuitable soils along Route B would be incrementally greater than the impacts of Route A due to the longer alignment (approximately 3.6 miles longer than Route A). Impact G-6 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), as described in detail in Section 3.7.6.1, for Alternative 4, Route B, to reduce potential impacts to less than significant (Class II).

Route C. The total length of the Route C transmission line would be approximately 2.2 miles longer than Route A resulting in an incremental increase in impacts from unsuitable soils compared to Route A. Impact G-6 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), as described in detail in Section 3.7.6.1, for Alternative 4, Route C, to reduce potential impacts to less than significant (Class II).

Route C Modified. Impacts related to unsuitable soils along Route C Modified would be incrementally greater than the impacts of Route A due to the longer alignment (approximately 1.4 miles longer). Impact G-6 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), as described in detail in Section 3.7.6.1, for Alternative 4, Route C Modified, to reduce potential impacts to less than significant (Class II).

Route D. The approximately 3.7 miles greater length compared to Route A results in incrementally greater impacts from unsuitable soils. Impact G-6 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), as described in detail in Section 3.7.6.1, for Alternative 4, Route D, to reduce potential impacts to less than significant (Class II).

Damage to Project structures due to slope failure (Criterion GEO7)

Impacts associated with Criterion GEO7 for Alternative 4 would be similar to impacts associated with this criterion for the proposed Project. The ~~four~~ five route options of Alternative 4 traverse hillside areas of the eastern Puente Hills composed of slightly consolidated Tertiary age marine sedimentary rocks prone to landslides and slope failure. Numerous mapped and suspected landslides and locally unstable slopes occur in the area of Alternative 4, with slope conditions similar to the comparable portion of the proposed Project.

Impact G-7 (Transmission line structures could be damaged by landslides, earth flow, or debris flows, during operation) would be similar for Alternative 4 as it would be for the proposed Project (see Section 3.7.6.1). Alternative 4 is underlain by the same geologic units and is located in identical terrain as the proposed Project, which includes the eastern Puente Hills where there is substantial potential for slope failure. The Alternative 4 transmission line routes would traverse a slightly greater length of landslide prone Puente Formation (ranging from 0.3 to 3.3 miles longer) than the equivalent portion of the proposed Project (Segment 8A) and each route would also include a new permanent access road and switching station in hillside areas also underlain by the landslide prone Puente Formation, resulting in a

~~slightly~~ minor increase~~d~~ in potential for impacts to project facilities and structures due to slope failures. The remaining portion of Alternative 4 is identical to Alternative 2 and the potential for failure of existing unstable slope or landslides during operation of the Project is the same as presented in Section 3.7.6.1.

Route A. Route A would be approximately 0.3 miles longer than the proposed Project and would also include new permanent access roads and a new switching station within the hillside areas underlain by the landslide prone Puente Formation resulting in ~~incrementally~~ slightly greater potential of slope instability or landslides to impact Project facilities and transmission structures during the life of the Project. Impact G-7 of Alternative 4, Route A, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce the impact to a level of less than significant (Class II).

Route B. Future slope instability or landslide impacts to transmission line structures of Route B would be incrementally greater than Route A due to the 3.6~~5~~ mile longer alignment. Impact G-7 of Alternative 4, Route B, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce the impact to a level of less than significant (Class II).

Route C. Route C would consist of a new transmission line alignment and reroutes that total approximately 2.2~~6~~ miles more of transmission line alignment than Route A and removal of about 8.4~~7.0~~ circuit miles of transmission line/structures resulting in a very small incremental increase in potential for future impacts from slope failure on transmission line structures. Impact G-7 of Alternative 4, Route C, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce the impact to a level of less than significant (Class II).

Route C Modified. Route C Modified would consist of a new transmission line alignment and reroutes that total approximately 1.4 miles more of transmission line alignment than Route A and removal of about 5.9 circuit miles of transmission line/structures resulting in a very small incremental increase in potential for future impacts from slope failure on transmission line structures. Impact G-7 of Alternative 4, Route C, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce the impact to a level of less than significant (Class II).

Route D. Route D of Alternative 4 is about ~~4~~3.7 miles longer than Route A resulting in incrementally greater potential for future landslides and slope failure impacts to transmission line structures. Impact G-7 of Alternative 4, Route A, would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7.6.1, to reduce the impact to a level of less than significant (Class II).

Destruction of unique paleontological resources (Criterion GEO8)

Impacts associated with Criterion GEO8 for Alternative 4 would be similar to impacts associated with this criterion for the proposed Project. The shorter length of all four routes of this alternative compared to the proposed Project would result in incrementally decreased opportunity to encounter and destroy paleontologic resources as a whole. However, each of the Alternative 4 route options is within the paleontologic-rich Puente Formation (high sensitivity) and is longer than the comparable portion of the proposed Project within these same formations (0.3 to 6.5 miles longer). Alternative 4 would eliminate

approximately 3.6 to 9.2 miles of paleontologically sensitive Puente Formation and alluvium along Segment 8A, ~~and~~ although 6.8 ~~and 6.4~~ miles of paleontologically sensitive alluvium along Segment~~s~~ 8B ~~and 8C, respectively~~would still be affected.

Route A. Although the transmission line of Route A within the highly sensitive Puente Formation is about 0.3 miles longer than the equivalent portion of Segment 8A (S8A MP 19.2 to 25.1) and Route A would require grading for a several mile long all-weather paved access road to the switching station through the highly sensitive Puente Formation, the Route A transmission alignment would overall be approximately 16 miles shorter (primarily in paleontologically sensitive units) than the proposed Project. This would result in reduced ground disturbance and potential to encounter paleontologic resources. Although construction could still disturb unique paleontologic resources, as with the proposed Project, application of SCE's planned APMs would reduce the potential for destruction of these resources to less than significant, resulting in no change in the potential for Impact G-8 (Grading and excavation could destroy paleontologic resources) to occur. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 4, Route A, would be less than significant (Class III).

Route B. Paleontologic impacts of Route B would be incrementally greater than the impacts of Route A due to the 3.6~~5~~ mile longer alignment and grading for the switching station and associated all-weather access road within the paleontologically sensitive Puente Formation. Although construction could still disturb unique paleontologic resources, as with the proposed Project, application of SCE's planned APMs would reduce the potential for destruction of these resources to less than significant, resulting in no change in the potential for Impact G-8 (Grading and excavation could destroy paleontologic resources) to occur. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 4, Route B, would be less than significant (Class III).

Route C. The new 500-kV transmission line alignment and the 500-kV and 220-kV reroute for Route C would be approximately 2.2~~6~~ miles longer than Route A and would require grading for a several mile long all-weather (e.g., paved) access road to the switching station through the highly sensitive Puente Formation, which results in an incremental increase in potential for paleontologic impacts. The removal of about 8.4~~7.0~~ circuit miles of transmission line/structures would not impact paleontologic resources. Although construction could still disturb unique paleontologic resources, as with the proposed Project, application of SCE's planned APMs would reduce the potential for destruction of these resources to less than significant, resulting in no change in the potential for Impact G-8 (Grading and excavation could destroy paleontologic resources) to occur. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 4, Route C, would be less than significant (Class III).

Route C Modified. The new 500-kV transmission line alignment and the 500-kV and 220-kV reroute for Route C Modified would be approximately 1.4 miles longer than Route A and would require grading for a several mile long all-weather (e.g., paved) access road to the switching station through the highly sensitive Puente Formation, which results in an incremental increase in potential for paleontologic impacts. The removal of about 5.9 circuit miles of transmission line/structures would not impact paleontologic resources. Although construction could still disturb unique paleontologic resources, as with the proposed Project, application of SCE's planned APMs would reduce the potential for destruction of these resources to less than significant, resulting in no change in the potential for Impact G-8 (Grading and excavation could destroy paleontologic resources) to

occur. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 4, Route C, would be less than significant (Class III).

Route D. Route D of Alternative 4 is approximately 4 3.7 miles longer than Route A and would require grading for the switching station and associated all-weather access road, which results in an incrementally greater potential for paleontologic impacts. Although construction could still disturb unique paleontologic resources, as with the proposed Project, application of SCE's planned APMs would reduce the potential for destruction of these resources to less than significant, resulting in no change in the potential for Impact G-8 (Grading and excavation could destroy paleontologic resources) to occur. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 4, Route A, would be less than significant (Class III).

3.7.8.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 4. The Alternative 4 routes deviate from the proposed Project beginning about two miles east of State Route 57 (approximately S8A MP 19.2), where the existing Mira Loma-Walnut/Olinda 220-kV double-circuit T/L and the existing un-energized Mesa-Chino T/L (both in the same corridor as that of Segment 8A) separate from one another. The remainder of this alternative route would be identical to that of the proposed Project and would, therefore, result in substantially similar or identical impacts as the proposed Project. The rerouted portion of the Alternative 4 route generally parallels the proposed Project route for approximately 4 to 6 miles, at a distance of approximately 3 miles south of the proposed Project route. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of the Alternative 4 route to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the rerouted portion of the alternative. Such increases or decreases would result from:

- The nature of the alternative (e.g., underground or overhead);
- The location of the alternative with respect to land uses and specific resources; or
- The location of past, present, or reasonably foreseeable projects with which impacts of the alternative route would have the potential to combine (i.e., the other projects are located such that their impacts would or would not combine with impacts of the alternative, as compared to the proposed Project).

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to geology, soils, and paleontology is limited to the Project site and the immediate vicinity surrounding Project substations, laydown areas, and the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the geologic materials and terrain at the Project site and directly adjacent to the Project site are the most significant factors to evaluate the potential for geologic hazards, unsuitable soil and paleontologic resources at a project site. Impacts would have the potential to occur during construction and operation and would be limited to the areas where concurrent construction is occurring. The geographic extent for Alternative 4 is identical to that of the proposed Project, as presented in Section 3.7.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 4 are identical to the proposed Project as discussed in Section 3.7.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 4 would be exactly the same as Alternative 2, described in Section 3.7.6.2.

Cumulative Impact Analysis

As discussed for the proposed Project in Section 3.7.6.2, Impacts G-1 through G-3 of Alternative 4 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2. Impacts G-4 through G-8 for Alternative 4, Routes A through D would combine but not be cumulatively significant (Class III) with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 2 in Section 3.7.6.1 (Direct and Indirect Effects Analysis) would help to reduce Alternative 4's incremental contribution to cumulative impacts. However, there are no impacts or significant cumulative effects of Alternative 4, Routes A through D, related to geology, soils, and paleontology and no additional mitigation is required.

3.7.9 Alternative 5: Partial Underground Alternative

3.7.9.1 Direct and Indirect Effects Analysis

The significance criteria used to identify geology, soils, and paleontology impacts are introduced in Section 3.7.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criterion.

As summarized below, the impacts and mitigation measures for Alternative 5 would be the same as those for Alternative 2. Although a portion of Alternative 5 would be installed underground, from approximately MP S8A-21.9 through the City of Chino Hills to approximately MP S8A-25.8, the route of this alternative would be identical to that of Alternative 2 and would therefore be within the same geologic materials and terrain. However, the construction of underground transmission lines would require more extensive amounts of ground disturbance and increased duration of construction activities required than for the equivalent aboveground portions of Alternative 2. Therefore, the potential for some geology, soils, and paleontology impacts to occur would be incrementally increased compared to Alternative 2.

Unique geologic features (Criterion GEO1)

No unique geologic features or geologic features of unusual scientific value for study or interpretation would be disturbed or otherwise adversely affected by Alternative 5. No impact would occur.

Known mineral and/or energy resources (Criterion GEO2)

Impacts associated with Criterion GEO2 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project, as presented in Section 3.7.6.1, and summarized below.

Impact G-1 (Project activities could interfere with access to known energy resources) would be the same as for Alternative 2. Therefore, where the portions of Alternative 5 equivalent to Segments 7, 11, and 8 would cross the Montebello oil field and where the Segment 8 equivalent would cross the northern edge of the Brea-Olinda oil field, there is a potential for Project construction activities to interfere with oil field operations. Impact G-1, as described in Section 3.7.6.1, for Alternative 5 would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Triggering or acceleration of geologic processes, such as landslides, soil erosion, or loss of topsoil, during construction (Criterion GEO3)

Impacts associated with Criterion GEO3 for Alternative 5 would be similar to the impacts associated with this criterion for Alternative 2. The underground portion of the alignment would require excavation and grading of transition stations at either side of the underground portion (approximately 1.8 acres each), that would equal more ground disturbance than that required for the towers that would be replaced by construction of the underground portion of Alternative 5, resulting in incrementally greater ground disturbance compared to Alternative 2 and would result in increased opportunity to cause construction triggered erosion. Construction of the tunnel and transition stations would incrementally decrease the potential of construction triggered landslides due to the decreased number of construction sites along potentially unstable slopes underlain by landslide prone Puente Formation. These impacts and their associated mitigation measures that fall under Criterion GEO3 are summarized in the following paragraphs. Please see Section 3.7.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are similar but have greater potential for significant impact than Alternative 2.

Impact G-2 (Erosion could be triggered or accelerated due to construction activities) would be greater under Alternative 5 than it would be for Alternative 2 (please see Section 3.7.6.1). The proposed underground portion of Alternative 5 and the associated transition stations are located along moderate to gentle hillside areas on the eastern slopes of the Chino Hills on soils with severe to very severe erosion potential. Alternative 5 would require the excavation and grading of large transition stations at either side of the underground portion (approximately 1.8 acres each), resulting in a slightly greater potential for erosion along Alternative 5 due to the smaller amount of ground disturbance that would be required for construction of the towers for the equivalent section of Alternative 2. Therefore, there is substantial potential for erosion caused by construction. The remaining portion of Alternative 5 is identical to Alternative 2 and the potential of erosion triggered or accelerated due to construction activities is the same as presented in Section 3.7.6.1, and would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of this measure, as described in Section 3.7.6.1, Impact G-2 of Alternative 5 would be less than significant (Class II).

Impact G-3 (Excavation and grading during construction activities could cause slope instability or trigger landslides) for Alternative 5 would be incrementally less than it would be for Alternative 2 (see Section 3.7.6.1). Although Alternative 5 is located in hillside areas with mapped landslides and substantial potential for slope failure identical to the equivalent portion of Alternative 2, the tunneling required to complete the underground installation of transmission lines for Alternative 5 would bypass slopes underlain by potentially unstable Puente Formation where tower foundations would otherwise be constructed, thus decreasing the potential that Project excavation would result in slope instability or landslides along the underground portion of the alignment. The remaining portion of Alternative 5 is

identical to Alternative 2 and the potential of slope failure or triggered landslides due to construction activities is the same as presented in Section 3.7.6.1, and would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability). With implementation of this measure, as described in Section 3.7.6.1, Impact G-3 of Alternative 5 would be less than significant (Class II).

Exposure to potential risk of loss or injury due to earthquake-related ground rupture (Criterion GEO4)

Impacts associated with Criterion GEO4 for Alternative 5 would be the same as impacts associated with this criterion for Alternative 2, as presented in Section 3.7.6.1, and summarized below.

Impact G-4 (Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards) would be similar for Alternative 5 as it would be for Alternative 2 (see Section 3.7.6.1). The trend to the active Chino fault, see Figure 3.7-10, potentially places the fault within or adjacent to the planned location for the eastern transition station for the underground portion of Alternative 5, which results in a potential for damage at these facilities due to surface fault rupture. The remainder of the Alternative 5 alignment would be identical to Alternative 2 and have the same fault rupture impacts. Therefore, at the eastern transition station and along the portions of Alternative 5 corresponding to Segments 5, 6, 7, 11, and 8A where it crosses the active San Andreas (Segment 5), San Gabriel~~,~~ (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), Whittier (Segment 8A), Chino (Segment 8A), and Central Ave (Segment 8A) faults~~San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell Sawpit (Segment 6), Sierra Madre (Segments 7 and 11), Raymond (Segment 11), East Montebello Hills (Segment 11), Whittier (Segment 8A), and Chino Central Ave (Segment 8A) faults~~, implementation of Mitigation Measure~~s~~ G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones) would be required to reduce potential impacts to less than significant (Class II).

~~Additionally, the portions of the Alternative 5, equivalent to the Segments 11 and 8A where the routes cross and then run parallel to and within the Sierra Madre and Whittier fault zones, respectively, are at substantial risk of damage to multiple structures should an earthquake and ground rupture occur along these portions of the respective faults. Implementation of Mitigation Measure G-4b (Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines) is recommended for Segments 11 and 8A where they cross and run parallel to and within the Sierra Madre and Whittier fault zones, respectively, is also recommended to reduce potential impacts to less than significant (Class II).~~

Exposure to potential risk of loss or injury due to seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, and/or surface cracking (Criterion GEO5)

Impacts associated with Criterion GEO5 for Alternative 5 would be the same as impacts associated with this criterion for Alternative 2, as presented in Section 3.7.6.1, except for the underground portion of Alternative 5. The impact and associated mitigation measure that is the same as Alternative 2 and that falls under Criterion GEO5 is summarized in the following paragraph. Construction of the underground portion of Alternative 5 would introduce one new impact related to the deep excavations for the transition stations and tunneling for the underground transmission line, Impact G-9 (Existing structures could be damaged by ground settlement along the tunnel exposing people or structures to hazards).

Impact G-5 (Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards) would be the same under Alternative 5 as it would be for Alternative 2 (see Section 3.7.6.1). The potential for strong to severe groundshaking, liquefaction, and earthquake induced slope failures along Alternative 5 are identical to Alternative 2 (see Section 3.7.6.1). Local strong to severe groundshaking may occur along the Alternative 5 alignment that corresponds to portions of Segments 4, 5, 6, 7, 9, and 11 and would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking). Portions of Alternative 5 equivalent to the portions of Segments 5, 7, 11, 8A, 8B, and 8C that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, and active river washes and streams would require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction). Portions of Alternative 5 equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability). Implementation of these measures, as described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 5 to less than significant (Class II).

Impact G-9: Existing structures could be damaged by ground settlement along the tunnel exposing people or structures to hazards.

Short term (days) and long term (years) settlement of the ground surface could occur during construction and operation of the tunnel and shafts of Alternative 5. There is potential for tunneling activities to encounter unstable geologic units or cause geologic units to become unstable and cause local subsidence and settlement of the overlying ground surface and result in damage to structures adjacent to the alignment. Tunneling through the unconsolidated alluvium from approximately MP S8A-24.5 to 25.5 could encounter flowing or running sands although the use of an earth-pressure balance tunnel boring machine (EPB TBM) or slurry-pressure balance machine (SPB TBM) to create a pressurized-face will effectively control rapid or excessive inflows. Similarly, excavation of the large eastern access shaft in saturated unconsolidated alluvium could encounter soft sediment or flowing sands. The access shaft excavation will be advanced as the permanent shoring is set and grouted to prevent entry of groundwater. This approach would effectively control inflows and limit the amount of ground settlement around the perimeter of the shaft. Excavation of the tunnel and shafts in the Tertiary age bedrock of eastern Chino Hills (MP S8A-21.9 to 24.5) is not anticipated to cause ground settlement and the use of a conventional (non-pressure balance) TBM may be adequate.

Subsidence caused by dewatering during construction would not occur as dewatering is not expected due to the use of a pressure-face TBM. Dewatering is also not anticipated at the shafts, which would use water-tight boxes.

Post-construction or operational settlement, including seismically-induced, could occur locally due to a loss of soil strength resulting from the tunneling process. Advancement of the TBM in full-pressure mode will not result in loss of soil strength above or around the tunnel. The project specifications will require that the contractor conduct the tunneling process under pressure at all times to prevent soil loss and the development of narrow chimneys that may migrate to the surface. Maintaining the soil properties will not increase the potential for seismically-induced settlements which existed before tunneling. Although settlement of the ground surface is estimated to be low due to the construction method (EPB or SPB TBM), an analysis of the settlement will be completed during final design.

Mitigation Measure for Impact G-9

G-9 Conduct geotechnical analysis of settlement potential during design and implement a Subsidence Monitoring Program during construction to protect against ground settlement. The potential for ground subsidence to occur during tunneling should be identified during design, and will identify Project-specific trigger levels that would require corrective action should subsidence occur. The settlement analysis would evaluate conditions along the tunnel alignment and at and adjacent to the proposed access shafts. Development and implementation of a Subsidence Monitoring Program is standard practice during construction of large diameter tunnels and access shafts in urban areas. As determined to be necessary, SCE or the tunnel contractor shall implement a subsidence monitoring program during shaft excavation and tunneling to detect subsidence, including measurements of groundwater levels, surface and subsurface settlement, ground movement and displacement, and movement in existing infrastructure as needed. SCE or the contractor will implement corrective actions, such as additional advance grouting or increased tunnel support, if measured displacement reaches the specified trigger levels. In addition, the Project specifications will require that the contractor conduct the tunneling process under pressure at all times to prevent soil loss and the development of narrow chimneys that may migrate to the surface. The results of the geotechnical analysis of settlement, Subsidence Monitoring Plan, and the relevant construction specifications shall be provided to the CPUC for review and approval at least 60 days prior to the start of construction (shaft excavation).

CEQA Significance Conclusion

During final design of the transition station facilities, access shafts, ventilation shafts, and tunnel of the Partial Underground Alternative, SCE shall conduct geotechnical analyses of the settlement potential, develop tunnel specifications, and develop and implement a Subsidence Monitoring Program to limit the amount of ground settlement. Implementation of Mitigation Measure G-9 (Conduct geotechnical analysis of settlement potential and implement Subsidence Monitoring Program), adds specific requirements to the planned geotechnical investigations to be completed prior to final Project design, such as implementing standard design procedures, selection of the most effective TBM method, and preparation of a Subsidence Monitoring Program. These specific requirements would ensure that potentially significant impacts from ground settlement along the Alternative 5 route are reduced to less-than-significant levels (Class II).

Exposure to potential risk of loss or injury where corrosive soils or other unsuitable soils are present (Criterion GEO6)

Impacts associated with Criterion GEO6 for Alternative 5 would be identical to those associated with this criterion for Alternative 2, as described in Section 3.7.6.1, and there would be no change in the potential for damage to Project structures due to unsuitable soils. This impact and its associated mitigation measure that falls under Criterion GEO6 are summarized in the following paragraphs.

Impact G-6 (Project structures could be damaged by problematic soils exposing people or structures to hazards) would be the same for Alternative 5 as the alignment crosses the same soil types as the Alternative 2 alignment. Soils along the alignment have a potential to corrode steel and concrete ranging from low to high and expansion potential ranging from low to high. Corrosive and/or expansive soils can cause damage to structure foundations, potentially ~~resulting in collapse~~comprising the structural integrity of the structure, a significant impact (see Section 3.7.6.1). Therefore Alternative 5 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and

aid in appropriate foundation design), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Damage to Project structures due to slope failure (Criterion GEO7)

Impacts associated with Criterion GEO7 for Alternative 5 would be incrementally less than it would be for Alternative 2, as presented in Section 3.7.6.1, and summarized below.

Impact G-7 (Transmission line structures could be damaged by landslides, earth flow, or debris flows, during operation) would be the incrementally less than it would be for Alternative 2 (see Section 3.7.6.1). Although Alternative 5 is located in hillside areas with mapped landslides and substantial potential for slope failure identical to the equivalent portion of Alternative 2, the tunneling required to complete the underground installation of transmission lines for Alternative 5 would bypass slopes underlain by potentially unstable Puente Formation where tower foundations would otherwise be constructed, thus decreasing the potential that slope instability or landslides could damage Project facilities along the underground portion of the alignment The remaining portion of Alternative 5 is identical to Alternative 2 and the potential for failure of existing unstable slope or landslides during operation of the Project is the same as presented in Section 3.7.6.1, and would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability). With implementation of this measure, as described in Section 3.7.6.1, Impact G-7 of Alternative 5 would be less than significant (Class II).

Destruction of unique paleontological resources (Criterion GEO8)

Impacts associated with Criterion GEO8 for Alternative 5 would be greater than the impacts associated with this criterion for Alternative 2. The underground construction would result in greater ground disturbance with the paleontologically sensitive Puente Formation as compared to Alternative 2 and would result in increased opportunity to destroy scientifically important paleontologic resources. Impact G-8 (Grading and excavation could destroy paleontologic resources) would be greater under Alternative 5 than it would be for Alternative 2 (please see Section 3.7.6.1) due to the greater amount of ground disturbance. Although construction could disturb unique paleontologic resources, as with Alternative 2 application of SCE's planned APMs would reduce the potential for destruction of these resources to less than significant, resulting in no change in the potential for Impact G-8 to occur. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 5 would be less than significant (Class III).

3.7.9.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 5. This alternative would utilize underground construction in place of the proposed overhead line construction following generally the same routes as the proposed Project. New underground facilities would replace existing aboveground facilities, and transition stations would be required at each end of an underground segment to transfer the transmission lines from overheard to underground and vice versa.

This alternative was developed to provide less visual impact in residential areas. The remainder of this alternative route (which totals approximately 159 miles) would be identical to that of the proposed Project and would, therefore, result in substantially similar or identical impacts as the proposed Project. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build (in addition to

utilizing underground construction techniques), and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of Alternative 5 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the change in construction (underground versus overhead). Such increases or decreases would result from:

- The nature of the alternative (e.g., underground or overhead);
- The location of the alternative with respect to land uses and specific resources; or
- The location of past, present, or reasonably foreseeable projects with which impacts of the alternative route would have the potential to combine (i.e., the other projects are located such that their impacts would or would not combine with impacts of the alternative, as compared to the proposed Project).

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to geology, soils, and paleontology is limited to the Project site and the immediate vicinity surrounding Project substations, laydown areas, and the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the geologic materials and terrain at the Project site and directly adjacent to the Project site are the most significant factors to evaluate the potential for geologic hazards, unsuitable soil and paleontologic resources at a project site. Impacts would have the potential to occur during construction and operation and would be limited to the areas where concurrent construction is occurring. The geographic extent for Alternative 5 is identical to that of the proposed Project, as presented in Section 3.7.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 5 are identical to the proposed Project as discussed in Section 3.7.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 5 would be exactly the same as Alternative 2, described in Section 3.7.6.2.

Cumulative Impact Analysis

As discussed for the proposed Project in Section 3.7.6.2, Impacts G-1 through G-3 of Alternative 5 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2. Impacts G-4 through G-9 for Alternative 5 would combine but not be cumulatively significant (Class III) with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.7.6.1 (Direct and Indirect Effects Analysis) would help to reduce Alternative 5's incremental contribution to cumulative impacts. However, there are no impacts or significant cumulative effects of Alternative 5 related to geology, soils, and paleontology and no additional mitigation is required.

3.7.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

3.7.10.1 Direct and Indirect Effects Analysis

The significance criteria used to identify geology, soils, and paleontology impacts are introduced in Section 3.7.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criterion.

As summarized below, the impacts and mitigation measures for Alternative 6 would be substantially the same as those for Alternative 2, with minor differences in the potential impacts to occur due to the differing amounts of ground disturbance required for each alternative. Although Alternative 6 would be installed along Segment 6 and Segment 11 in the ANF using maximum helicopter construction, the route of the transmission line and tower locations for Alternative 6 would be identical to those of Alternative 2 and would therefore be within the same geologic materials and terrain. However, the increased use of helicopter construction would require construction of ~~11~~ 13 helicopter staging areas and would reduce the number of access and spur roads that would need to be created or graded resulting in slightly less ground disturbance than required for the equivalent portions of Alternative 2. Therefore, the potential for some geology, soils, and paleontology impacts to occur would be incrementally decreased compared to Alternative 2.

Unique geologic features (Criterion GEO1)

No unique geologic features or geologic features of unusual scientific value for study or interpretation exist at any of the helicopter stating areas or along the transmission line route, and therefore none would be disturbed or otherwise adversely affected by Alternative 6. No impact would occur.

Known mineral and/or energy resources (Criterion GEO2)

Impacts associated with Criterion GEO2 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project, as presented in Section 3.7.6.1, and summarized below.

Impact G-1 (Project activities could interfere with access to known energy resources) would be the same as that identified for Alternative 2. Therefore, where the portions of Alternative 6 equivalent to Segments 7, 8, and 11 would cross the Montebello oil field and where the Segment 8 equivalent would cross the northern edge of the Brea-Olinda oil field, there is a potential for Project construction activities to interfere with oil field operations. Impact G-1, as described in Section 3.7.6.1, for Alternative 6 would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Triggering or acceleration of geologic processes, such as landslides, soil erosion, or loss of topsoil, during construction (Criterion GEO3)

Impacts associated with Criterion GEO3 for Alternative 6 would be less than the impacts associated with this criterion for Alternative 2. Although this alternative would require ground disturbance and grading for ~~10~~ 13 helicopter staging areas through the ANF, the associated decrease in grading required for fewer access and spur roads would result in slightly less ground disturbance compared to Alternative 2. This would result in incrementally decreased opportunity to cause construction triggered erosion and landslides. These impacts and their associated mitigation measures that fall under Criterion GEO3 are summarized in the following paragraphs. Please see Section 3.7.6.1 (Direct and Indirect Effects Analysis)

for a detailed description of these impacts, as they are similar but have less potential for significant impact than Alternative 2.

Impact G-2 (Erosion could be triggered or accelerated due to construction activities) would be slightly less under Alternative 6 than it would be for Alternative 2 (please see Section 3.7.6.1). The maximum helicopter construction along Segment 6 and Segment 11 through the ANF would require construction of ~~10~~ 13 helicopter staging areas but would reduce the number of access and spur roads that would need to be created or upgraded, which would require less overall ground disturbance in soils that have a hazard of erosion ranging from slight to severe. Therefore, there is incrementally less potential for erosion caused by construction in the ANF portion of Segment 6 and Segment 11 under Alternative 6. The remaining portion of Alternative 6 is identical to Alternative 2 and the potential of erosion triggered or accelerated due to construction activities is the same as presented in Section 3.7.6.1. Construction of Alternative 6 would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of this measure, as described in Section 3.7.6.1, Impact G-2 of Alternative 6 would be less than significant (Class II).

Impact G-3 (Excavation and grading during construction activities could cause slope instability or trigger landslides) for Alternative 6 would be incrementally less than it would be for Alternative 2 (see Section 3.7.6.1). The maximum helicopter construction along Segment 6 and Segment 11 through the ANF would require construction of ~~10~~ 13 helicopter staging areas but would reduce the number of access and spur roads that would need to be created or upgraded, which would require less overall ground disturbance in steep mountainous terrain, which would decrease the potential for construction related slope instability or landslides. The remaining portion of Alternative 6 is identical to Alternative 2 and the potential of slope failure or triggered landslides due to construction activities is the same as presented in Section 3.7.6.1. Construction of Alternative 6 would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along the transmission line corridors, and at all sites or access roads that would require grading. With implementation of this measure, as described in Section 3.7.6.1, Impact G-3 of Alternative 6 would be less than significant (Class II).

Exposure to potential risk of loss or injury due to earthquake-related ground rupture (Criterion GEO4)

Impacts associated with Criterion GEO4 for Alternative 6 would be the same as impacts associated with this criterion for Alternative 2, as presented in Section 3.7.6.1, and summarized below.

Impact G-4 (Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards) would be the same for Alternative 6 as it would be for Alternative 2 (see Section 3.7.6.1). Therefore, the portions of Alternative 6 corresponding to Segments 5, 6, 7, 11, and 8A where it crosses the active San Andreas (Segment 5), San Gabriel~~,~~ (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), Whittier (Segment 8A), Chino (Segment 8A), and Central Ave (Segment 8A) faults~~San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and 11), Raymond (Segment 11), East Montebello Hills (Segment 11), Whittier (Segment 8A), and Chino-Central Ave (Segment 8A) faults~~ would require implementation of Mitigation Measure G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones). ~~Additionally, portions of Alternative 6 equivalent to portions of Segment 11 and Segment 8A that cross and then run parallel to and within the Sierra Madre and Whittier fault zones, respectively, are at~~

~~substantial risk of damage to multiple structures should an earthquake and ground rupture occur along these portions of the respective faults. Implementation of Mitigation Measure G-4b (Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines) is recommended for Segments 11 and 8A where they cross and run parallel to and within the Sierra Madre and Whittier fault zones, respectively.~~ Implementation of ~~these~~ this mitigation measure~~s~~ is recommended to reduce potential impacts to less than significant (Class II).

Exposure to potential risk of loss or injury due to seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, and/or surface cracking (Criterion GEO5)

Impacts associated with Criterion GEO5 for Alternative 6 would be the same as impacts associated with this criterion for Alternative 2, as presented in Section 3.7.6.1, and summarized below.

Impact G-5 (Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards) would be the same under Alternative 6 as it would be for Alternative 2 (see Section 3.7.6.1). The potential for strong to severe groundshaking, liquefaction, and earthquake induced slope failures along Alternative 6 is identical to Alternative 2 (see Section 3.7.6.1). Local strong to severe groundshaking may occur along the Alternative 6 alignment that corresponds to portions of Segments 4, 5, 6, 7, 9, and 11 and would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking). Portions of Alternative 6 equivalent to the portions of Segments 5, 7, 11, 8A, 8B, and 8C that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, western Chino Basin, and active river washes and streams would require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction). Portions of Alternative 6 equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability). Implementation of these measures, as described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 6 to less than significant (Class II).

Exposure to potential risk of loss or injury where corrosive soils or other unsuitable soils are present (Criterion GEO6)

Impacts associated with Criterion GEO6 for Alternative 6 would be identical to those associated with this criterion for Alternative 2, as described in Section 3.7.6.1, and there would be no change in the potential for damage to Project structures due to unsuitable soils. This impact and its associated mitigation measure are summarized in the following paragraphs.

Impact G-6 (Project structures could be damaged by problematic soils exposing people or structures to hazards) would be the same for Alternative 6 as the alignment crosses the same soil types as the Alternative 2 alignment. Soils along the alignment have a potential to corrode steel and concrete ranging from low to high and expansion potential ranging from low to high. Corrosive and/or expansive soils can cause damage to structure foundations, potentially ~~resulting in collapse~~comprising the structural integrity of the structure, a significant impact (see Section 3.7.6.1). Therefore Alternative 6 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Damage to Project structures due to slope failure (Criterion GEO7)

Impacts associated with Criterion GEO7 for Alternative 6 would be the same as the impacts associated with this criterion for the proposed Project (Alternative 2). Although the maximum helicopter construction along Segment 6 and Segment 11 through the ANF would require construction of ~~10~~ 13 helicopter staging areas and would reduce the number of access and spur roads that would need to be created or upgraded in the steep mountainous terrain, the permanent transmission line structures would be the same as Alternative 2, which would result in no change to the potential for slope instability or landslides to damage Project structures during operation of the Project. Therefore the potential impact to transmission line facilities for Alternative 6 is the same as that presented in Section 3.7.6.1 for Alternative 2. This impact and its associated mitigation measure that falls under Criterion GEO3 are summarized in the following paragraph. Please see Section 3.7.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are the same as Alternative 2.

Impact G-7 (Transmission line structures could be damaged by landslides, earth flow, or debris flows, during operation) would be the same for Alternative 6 as it would be for Alternative 2 (see Section 3.7.6.1). The transmission line portion of Alternative 6 is identical to Alternative 2 and the potential for failure of existing unstable slope or landslides during operation of the Project is the same as presented in Section 3.7.6.1. Alternative 6 would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) in hillside and mountainous areas. With implementation of this measure, as described in Section 3.7.6.1, Impact G-7 of Alternative 6 would be less than significant (Class II).

Destruction of unique paleontological resources (Criterion GEO8)

Impacts associated with Criterion GEO8 for Alternative 6 would be the same as the impacts associated with this criterion for Alternative 2, as presented in Section 3.7.6.1, and summarized below.

Impact G-8 (Grading and excavation could destroy paleontologic resources) would be the same under Alternative 6 as it would be for Alternative 2 (please see Section 3.7.6.1). Although construction of the ANF portions of Segment 6 and Segment 11 would result in less ground disturbance, the areas of decreased ground disturbance would be located primarily within non-fossiliferous igneous and metamorphic rock, which would result in no change in potential impact to paleontologic resources compared to Alternative 2. The other portions of Alternative 6 have the same potential to disturb paleontologic resources as the corresponding portions of Alternative 2 (see Section 3.7.6.1). Although construction could disturb unique paleontologic resources, as with Alternative 2, application of SCE's planned APMs would reduce the potential for destruction of these resources to less than significant. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 6 would be less than significant (Class III).

3.7.10.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 6. This alternative would require construction of ~~10~~ 13 helicopter staging areas near to the transmission line routes. As a result of the increased helicopter construction, implementation of Alternative 6 would reduce the number of access and spur roads that would need to be created or upgraded, but would still follow the same transmission route as the proposed Project. As a result, this alternative would traverse the same geologic materials as the portion of the proposed Project route it is proposed to replace, would require similar types of construction activities to build, (although use of

helicopter construction would be increased), and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of Alternative 6 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the change in construction (underground versus overhead). Such increases or decreases would result from:

- The nature of the alternative (e.g., underground or overhead);
- The location of the alternative with respect to land uses and specific resources; or
- The location of past, present, or reasonably foreseeable projects with which impacts of the alternative route would have the potential to combine (i.e., the other projects are located such that their impacts would or would not combine with impacts of the alternative, as compared to the proposed Project).

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to geology, soils, and paleontology is limited to the Project site and the immediate vicinity surrounding Project substations, laydown areas, staging sites, and the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the geologic materials and terrain at the Project site and directly adjacent to the Project site are the most significant factors to evaluate the potential for geologic hazards, unsuitable soil and paleontologic resources at a project site. Impacts would have the potential to occur during construction and operation and would be limited to the areas where concurrent construction is occurring. The geographic extent for Alternative 6 is identical to that of the proposed Project, as presented in Section 3.7.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 6 are identical to the proposed Project as discussed in Section 3.7.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 6 would be exactly the same as Alternative 2, described in Section 3.7.6.2.

Cumulative Impact Analysis

As discussed for the proposed Project in Section 3.7.6.2, Impacts G-1 through G-3 of Alternative 6 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2. Impacts G-4 through G-8 for Alternative 6 would combine but not be cumulatively significant (Class III) with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.7.6.1 (Direct and Indirect Effects Analysis) would help to reduce the incremental contribution of Alternative 6 to cumulative impacts. However, there are no impacts or significant cumulative effects of Alternative 6 related to Geology, Soils, and Paleontology and no additional mitigation is required.

3.7.11 Alternative 7: 66-kV Subtransmission Alternative

3.7.11.1 Direct and Indirect Effects Analysis

The significance criteria used to identify geology, soils, and paleontology impacts are introduced in Section 4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criterion.

As summarized below, the impacts and mitigation measures for Alternative 7 would be the same as those for Alternative 2. Although Alternative 7 would include minor re-routes of ~~three~~ four 66-kV subtransmission line elements along portions of Segment 7 and Segment 8A, these re-routes are so close to the Alternative 2 route that the geologic materials, terrain, and seismic setting for this alternative would be identical to that of Alternative 2. However, the underground construction for ~~the 1.625 miles of~~two of the 66-kV subtransmission line re-routes would incrementally increase the amount of ground disturbance than that required for the equivalent portions of Alternative 2. Therefore, the potential for some geology, soils, and paleontology impacts to occur would be incrementally increased compared to Alternative 2.

Unique geologic features (Criterion GEO1)

No unique geologic features or geologic features of unusual scientific value for study or interpretation would be disturbed or otherwise adversely affected by Alternative 7. No impact would occur.

Known mineral and/or energy resources (Criterion GEO2)

Impacts associated with Criterion GEO2 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project, as presented in Section 3.7.6.1 and summarized below.

Impact G-1 (Project activities could interfere with access to known energy resources) would be the same as that identified for Alternative 2. Therefore, where the portions of the Alternative 7 equivalent to Segments 7, 11, and 8 would cross the Montebello oil field and where the Segment 8 equivalent would cross the northern edge of the Brea-Olinda oil field, there is a potential for Project construction activities to interfere with oil field operations. Impact G-1, as described in Section 3.7.6.1, for Alternative 7 would require implementation of Mitigation Measure G-1 (Coordination with oil field operations) to reduce potential impacts to less than significant (Class II).

Triggering or acceleration of geologic processes, such as landslides, soil erosion, or loss of topsoil, during construction (Criterion GEO3)

Impacts associated with Criterion GEO3 for Alternative 7 would be slightly increased compared to those identified for this criterion for Alternative 2. This alternative would require ground disturbance for construction of the two underground ~~portions of the~~ 66-kV re-routes, including excavation for trenches and vaults, and for construction of ~~several~~ new poles for ~~portions of~~ both the Segment 7 and Segment 8A (Options 1 and 2)~~the~~ Whittier Narrows 66-kV Overhead Re-Routes. This would result in an incrementally increased potential to result in construction triggered erosion. No increase in the potential to cause construction triggered landslides would occur with this alternative due to the primarily flat terrain in areas where additional ground disturbance would occur. These impacts and their associated mitigation measures that fall under Criterion GEO3 are summarized in the following paragraphs. Please see Section 3.7.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are similar but have less potential for significant impact than Alternative 2.

Impact G-2 (Erosion could be triggered or accelerated due to construction activities) would be slightly increased under Alternative 7 than it would be for Alternative 2 (please see Section 3.7.6.1). This alternative would require ground disturbance for construction of the two underground 66-kV re-routes, including excavation for trenches and vaults, and for construction of ~~several~~ new poles for both of ~~portions of~~ the Whittier Narrows 66-kV Overhead re-routes, along Segment 7 and Segment 8A (Options 1 and 2), in areas with soils that have hazard of erosion ranging from slight to severe. This would result in incrementally increased opportunity to cause construction triggered erosion. Therefore, there is incrementally more potential for erosion caused by construction of the 66-kV re-routes under Alternative 7. The remaining portion of Alternative 7 is identical to Alternative 2 and the potential of erosion triggered or accelerated due to construction activities is the same as presented in Section 3.7.6.1. Construction of Alternative 7 would require implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of this measure, as described in Section 3.7.6.1, Impact G-2 of Alternative 7 would be less than significant (Class II).

Impact G-3 (Excavation and grading during construction activities could cause slope instability or trigger landslides) for Alternative 7 would be the same as it would be for Alternative 2 (see Section 3.7.6.1). Ground disturbance required for the 66-kV re-routes of Alternative 7 would occur in flat terrain and would therefore not change the potential for construction triggered landslides to occur, thus Alternative 7 is identical to Alternative 2 in respect to the potential of slope failure or triggered landslides due to construction activities. Construction of Alternative 7 would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) along the transmission line corridors, and all at all sites or access roads that would require grading. With implementation of this measure, as described in Section 3.7.6.1, Impact G-3 of Alternative 7 would be less than significant (Class II).

Exposure to potential risk of loss or injury due to earthquake-related ground rupture (Criterion GEO4)

Impacts associated with Criterion GEO4 for Alternative 7 would be ~~the same~~similar to ~~as~~ impacts associated with this criterion for Alternative 2, as presented in Section 3.7.6.1, and summarized below. There are two additional potential fault crossings which are associated with the southward projection of the East Montebello Hills fault. This fault trends toward both the Segment 7 and Segment 8A (Options 1 and 2) Whittier Narrows 66-kV OH Re-Routes and potentially underlies these subtransmission lines~~,~~. The crossing of this fault would result in an incrementally increased potential for fault rupture damage for Alternative 7 compared to Alternative 2.

The re-routed and underground portions of the two 66-kV subtransmission lines of Alternative 7 are located the same distance from active faults as the equivalent portions of Alternative 2~~,~~. ~~h~~However, the alignment of the Alternative 7 reroutes would result in two additional potential fault crossings associated with the southward projection of the East Montebello Hills fault, which trends towards both the Segment 7 and Segment 8A (both Options 1 and 2) Whittier Narrows 66-kV OH re-routes. ~~Therefore,~~However, Impact G-4 (Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards) would ~~be the~~only be ~~same~~ incrementally increased for Alternative 7 ~~as it would be for~~compared to Alternative 2 (see Section 3.7.6.1) as the associated portions of Segments 7 and 8A are also crossed by the projections of this fault. Therefore, implementation of Mitigation Measure G-4~~a~~ (~~Minimize~~ Avoid placement of Project structures within active fault zones)

would be required for the two Whittier Narrows 66-kV OH re-routes (Segment 7 and Segment 8A, Option 1 or Option 2) where it crosses the trend of the active East Montebello Hills fault and for portions of Alternative 7 corresponding to Segments 5, 6, 7, 11, and 8A where it crosses the active San Andreas (Segment 5), San Gabriel (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), Whittier (Segment 8A), Chino (Segment 8A), and Central Ave (Segment 8A) faults.~~San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell Sawpit (Segment 6), Sierra Madre (Segments 7 and 11), Raymond (Segment 11), East Montebello Hills (Segment 11), Whittier (Segment 8A), and Chino Central Ave (Segment 8A) faults.~~ ~~Additionally, portions of Alternative 7 equivalent to portions of Segment 11 and Segment 8A that cross and then run parallel to and within the Sierra Madre and Whittier fault zones, respectively, are at substantial risk of damage to multiple structures should an earthquake and ground rupture occur along these portions of the respective faults. Implementation of Mitigation Measure G-4b (Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines) is recommended for Segment 11 and Segment 8A where they cross and run parallel to and within the Sierra Madre and Whittier fault zones, respectively.~~ Implementation of ~~these~~ this mitigation measure~~s~~ would reduce potential impacts to less than significant (Class II).

Exposure to potential risk of loss or injury due to seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, and/or surface cracking (Criterion GEO5)

Impacts associated with Criterion GEO5 for Alternative 7 would be the same as impacts associated with this criterion for Alternative 2, as presented in Section 3.7.6.1, and summarized below.

Impact G-5 (Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards) would be the same under Alternative 7 as it would be for Alternative 2 (see Section 3.7.6.1). The potential for strong to severe groundshaking, liquefaction, and earthquake induced slope failures along Alternative 7 is identical to that of Alternative 2 (see Section 3.7.6.1). Local strong to severe groundshaking may occur along the Alternative 7 alignment along Segments 4, 5, 6, 7, 9, and 11 and would require implementation of Mitigation Measure G-5a (Reduce effects of groundshaking). Portions of Alternative 7 equivalent to the portions of Segments 5, 7, 11, 8A, 8B, and 8C that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, western Chino Basin, and active river washes and streams would require implementation of Mitigation Measure G-5b (Conduct geotechnical investigations for liquefaction). Portions of Alternative 7 equivalent to Segments 5, 6, 11, and 8A where they are located along hillsides or ridgelines in geologic units of moderate to steep slopes that are susceptible to slope failures would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability). Implementation of these measures, as described in Section 3.7.6.1, would reduce Impact G-5 of Alternative 7 to less than significant (Class II).

Exposure to potential risk of loss or injury where corrosive soils or other unsuitable soils are present (Criterion GEO6)

Impacts associated with Criterion GEO6 for Alternative 7 would be identical to those associated with this criterion for Alternative 2, as described in Section 3.7.6.1, and there would be no change in the potential for damage to Project structures due to unsuitable soils. This impact and its associated mitigation measure that falls under Criterion GEO6 are summarized below.

Impact G-6 (Project structures could be damaged by problematic soils exposing people or structures to hazards) would be the same for Alternative 7 as it would be for Alternative 2 because this alignment would cross the same soil types as the Alternative 2 alignment. Soils along the alignment have a potential to corrode steel and concrete ranging from low to high and expansion potential ranging from low to high. Corrosive and/or expansive soils can cause damage to structure foundations, potentially comprising the structural integrity~~resulting in collapse~~ of the structure, which would be a significant impact (see Section 3.7.6.1). Therefore Alternative 7 would require implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), as described in Section 3.7.6.1, to reduce impacts to less than significant (Class II).

Damage to Project structures due to slope failure (Criterion GEO7)

Impacts associated with Criterion GEO7 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project (Alternative 2). New structures and facilities constructed for the 66-kV re-routes would be located in flat terrain and would not be subject to slope stability issues. Therefore, the potential impact to transmission line facilities is the same as that identified for Alternative 2, as presented in Section 3.7.6.1, and summarized below.

Impact G-7 (Transmission line structures could be damaged by landslides, earth flow, or debris flows, during operation) would be the same for Alternative 7 as it would be for Alternative 2 (see Section 3.7.6.1). With the exception of the minor 66-kV re-routes, Alternative 7 is identical to Alternative 2 and the potential for failure of existing unstable slopes or landslides during operation of the Project is the same as presented in Section 3.7.6.1. Therefore, Alternative 7 would require implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) in hillside and mountainous areas. With implementation of this measure, as described in Section 3.7.6.1, Impact G-7 of Alternative 7 would be less than significant (Class II).

Destruction of unique paleontological resources (Criterion GEO8)

Impacts associated with Criterion GEO8 for Alternative 7 would be similar to the impacts associated with this criterion for Alternative 2, as described in Section 3.7.6.1, and summarized below.

Impact G-8 (Grading and excavation could destroy paleontologic resources) would be slightly increased under Alternative 7 compared to Alternative 2 (please see Section 3.7.6.1). Due to the slight increase in ground disturbance associated with excavation of trenches and vaults for the two underground 66-kV re-routes of Alternative 7 and excavation for the new poles for the two overhead re-routes, this alternative would result in a corresponding increase in the potential for disturbing paleontologic resources during construction compared to Alternative 2. The other portions of Alternative 7 would have the same potential to disturb paleontologic resources as the corresponding portions of Alternative 2 (see Section 3.7.6.1). Although construction could disturb unique paleontologic resources, as with Alternative 2, application of SCE's planned APMs would reduce the potential for destruction of these resources to less than significant, resulting in no change in the potential for Impact G-8 to occur. With implementation of these APMs, as described in Section 3.7.6.1, Impact G-8 of Alternative 7 would be less than significant (Class III).

3.7.11.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 7. The re-routed portions of Alternative 7 diverge only slightly from the proposed Project alignments and therefore have the same geologic and seismic settings as the corresponding portions of the proposed Project. The remainder of this alternative route would be identical to that of the proposed

Project and would, therefore, result in substantially similar or identical impacts as the proposed Project. As a result, this alternative would traverse the same geologic materials as the portion of the proposed Project route it is proposed to replace, would require similar types of construction activities to build, and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of Alternative 7 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the change in construction (underground versus overhead). Such increases or decreases would result from:

- The nature of the alternative (e.g., underground or overhead);
- The location of the alternative with respect to land uses and specific resources; or
- The location of past, present, or reasonably foreseeable projects with which impacts of the alternative route would have the potential to combine (i.e., the other projects are located such that their impacts would or would not combine with impacts of the alternative, as compared to the proposed Project).

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to geology, soils, and paleontology is limited to the Project site and the immediate vicinity surrounding Project substations, laydown areas, staging sites, and the transmission line ROWs occupied by the proposed alignment. These geographic limits are appropriate to consider the potential cumulative impacts as the geologic materials and terrain at the Project site and directly adjacent to the Project site are the most significant factors to evaluate the potential for geologic hazards, unsuitable soil and paleontologic resources at a project site. Impacts would have the potential to occur during construction and operation and would be limited to the areas where concurrent construction is occurring. The geographic extent for Alternative 7 is identical to the proposed Project, as presented in Section 3.7.6.2.

Existing Cumulative Conditions

The existing cumulative conditions of Alternative 7 are identical to the proposed Project as discussed in Section 3.7.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 7 would be exactly the same as Alternative 2, described in Section 3.7.6.2.

Cumulative Impact Analysis

As discussed for the proposed Project in Section 3.7.6.2, Impacts G-1 through G-3 of Alternative 7 would not have the potential to combine with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2. Impacts G-4 through G-8 for Alternative 7 would combine but not be cumulatively significant (Class III) with impacts of other past, present and reasonably foreseeable projects for the same reasons discussed in Section 3.7.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.7.6.1 (Direct and Indirect Effects Analysis) would help to reduce Alternative 7's incremental contribution to cumulative impacts. However,

there are no impacts or significant cumulative effects of Alternative 7 related to Geology, Soils, and Paleontology and no additional mitigation is required.

3.7.12 Impact Significance Summary

Table 3.7-11 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives related to geology, soils, and paleontology. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.7.6 through 3.7.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.7.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Table 3.7-11. Summary of Impacts and Mitigation Measures – Geology, Soils, and Paleontology

Impact	Impact Significance								
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	Mitigation Measures
G-1: Project activities could interfere with access to known energy resources.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	G-1: Coordination with oil field operations.
G-2: Erosion could be triggered or accelerated due to construction activities.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.
G-3: Excavation and grading during construction activities could cause slope instability or trigger landslides.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	G-3: Conduct geological surveys for landslides and protect against slope instability.
G-4: Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	G-4a: ~~Minimize~~ Avoid placement of Project structures within active fault zones. ~~G-4b: Prepare fault rupture contingency plans to minimize repair time for damaged transmission lines.~~
G-5: Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	G-5a: Reduce effects of groundshaking. G-5b: Conduct geotechnical investigations for liquefaction. G-3. (See Impact G-3)
G-6: Project structures could be damaged by problematic soils exposing people or structures to hazards.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	G-6: Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design.
G-7: Transmission line structures could be damaged by landslides, earth flows, or debris slides, during operation.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	G-3 (See Impact G-3)
G-8: Grading and excavation could destroy paleontologic resources.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	No	None recommended.

Table 3.7-11. Summary of Impacts and Mitigation Measures – Geology, Soils, and Paleontology

Impact	Impact Significance								
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	Mitigation Measures
G-9: Existing structures could be damaged by ground settlement along the tunnel exposing people or structures to hazards.	N/A	N/A	N/A	N/A	Class II	N/A	N/A	No	G-9: Conduct geotechnical analysis of settlement potential during design and implement a Subsidence Monitoring Program during construction to protect against ground settlement.

N/A = Not Available

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.

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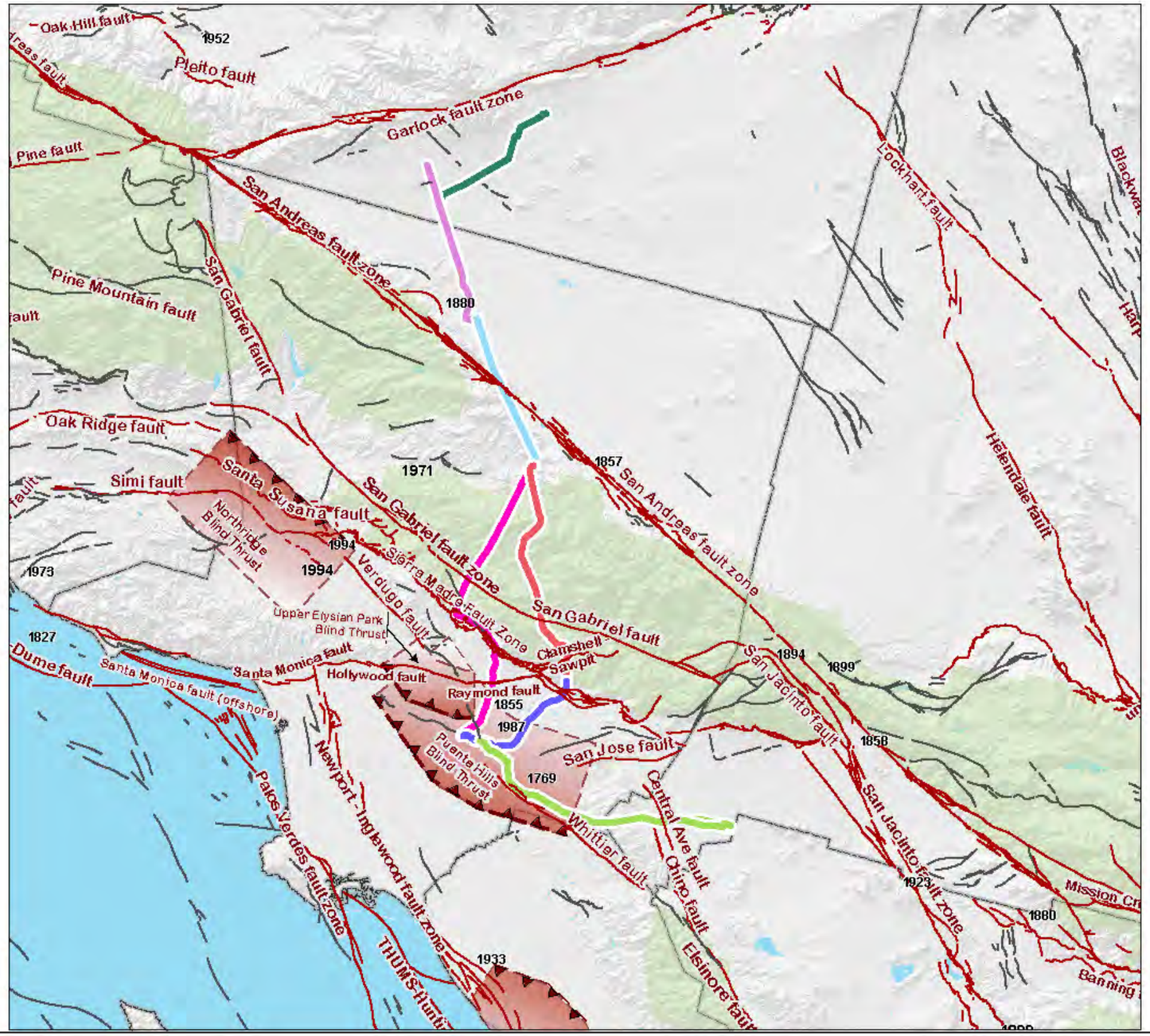


LEGEND

PROPOSED TRTP ROUTE SEGMENTS

- Segment 10
- Segment 4
- Segment 5
- Segment 6
- Segment 7
- Segment 11
- Segment 8: including Segments 8A, 8B, and 8C

FAULTS

- Significant Actve Fault
- Other Quaternary faults
- Blind Thrust Fault - (faults do not intersect the surface, mapped trace represents projection of upper edge of the fault to surface; rectangle represents projection of the fault plane to the surface)

REGIONAL EARTHQUAKES FROM 1800 TO 2005

MAGNITUDE

- 5.50 - 5.89
- 1933 — 5.90 - 6.49
- 1971 — 6.50 - 6.99
- 1952 — 7.00 - 7.80

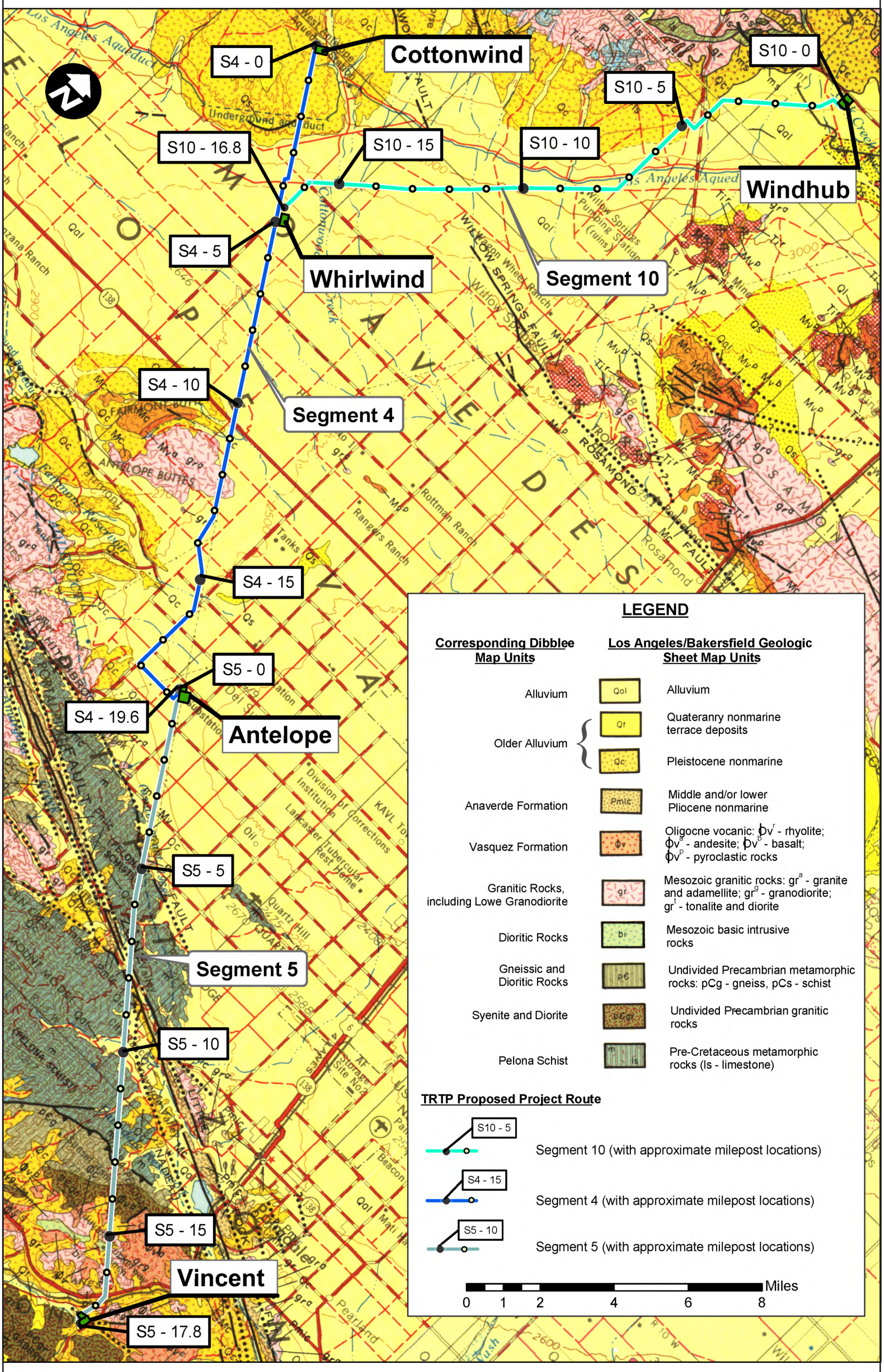
N W E S

0 2.5 5 10 15 20 25 30 Miles

Aspen Environmental Group

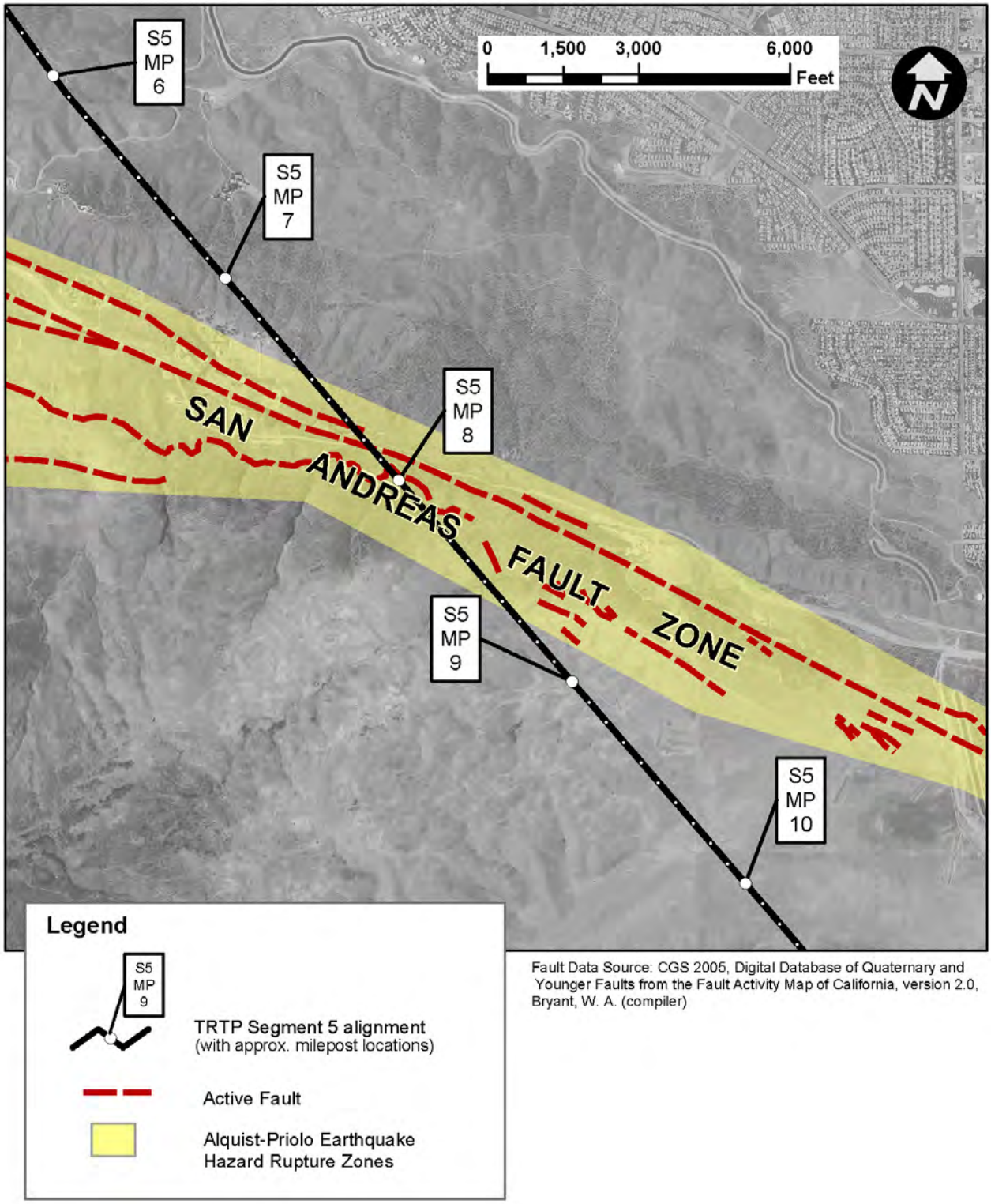
Source: GTC, 2008.

Figure 3.7-1 (Revised)
Regional Active Faults and Historic Earthquakes



Source: GTC, 2008.

Figure 3.7-2
Regional Geology Map A



Fault Data Source: CGS 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0, Bryant, W. A. (compiler)

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Figure 3.7-3
Segment 5 Active Fault Crossing

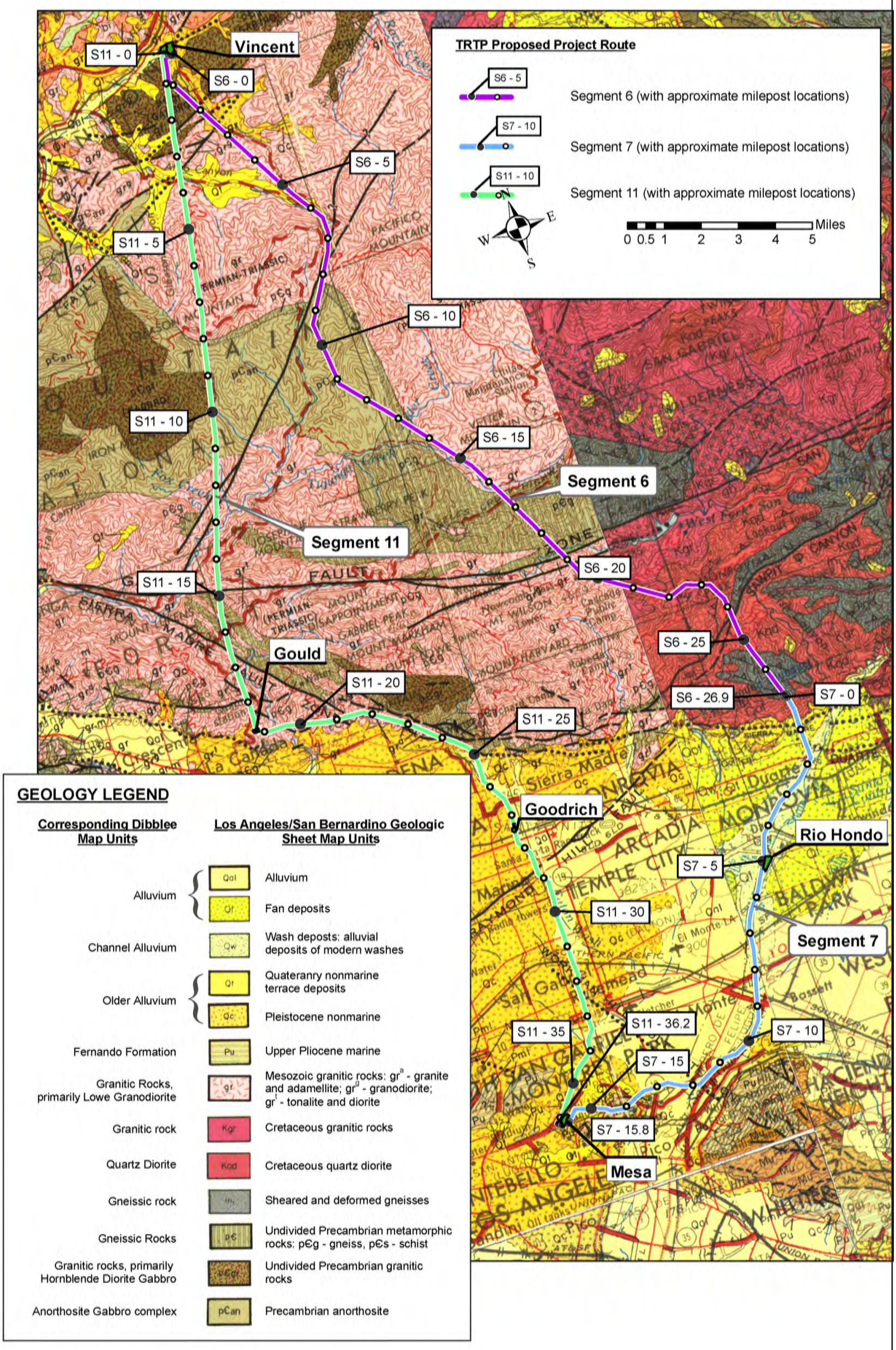
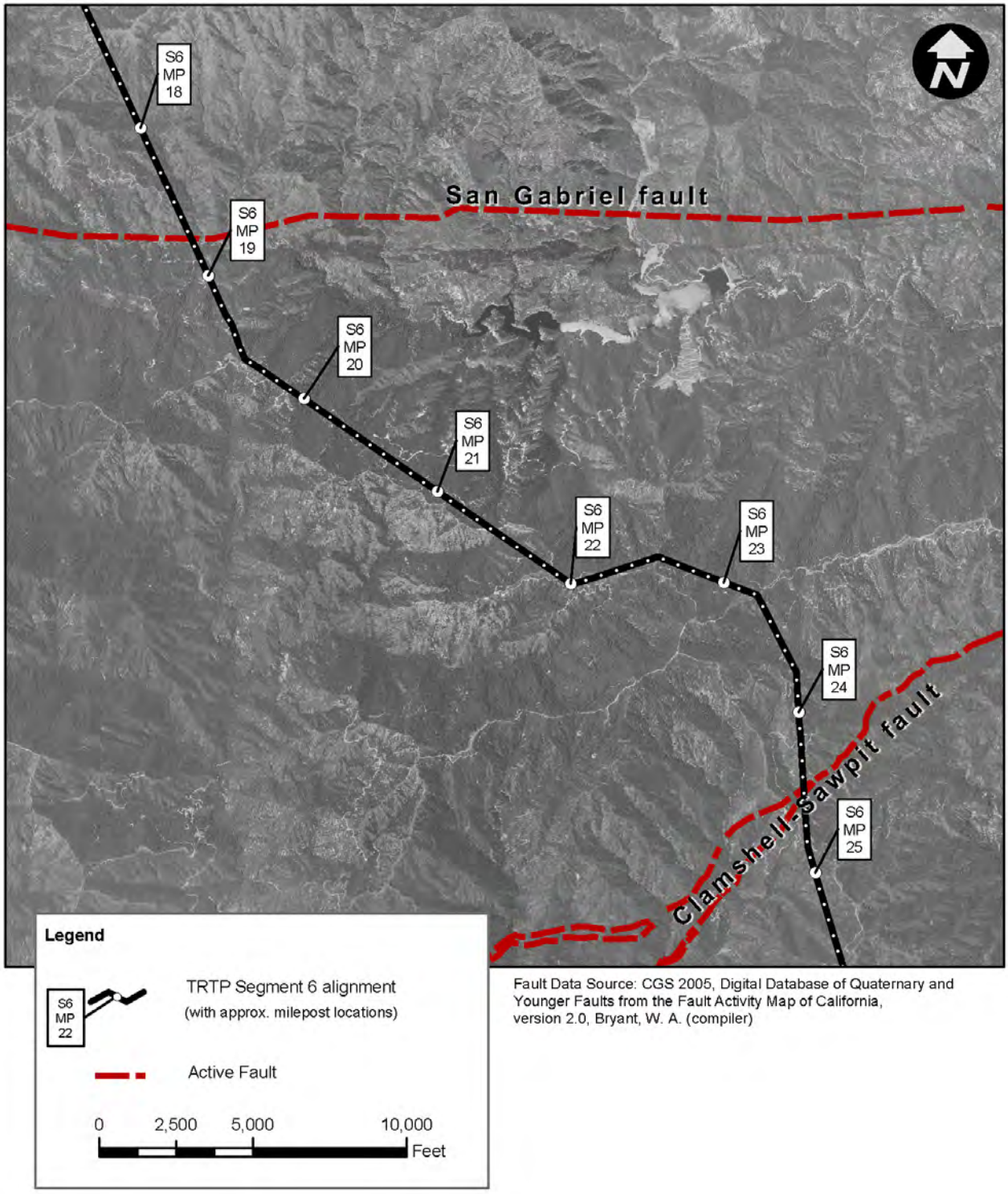


Figure 3.7-4
Regional Geology Map B

Source: GTC, 2008.



Fault Data Source: CGS 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0, Bryant, W. A. (compiler)

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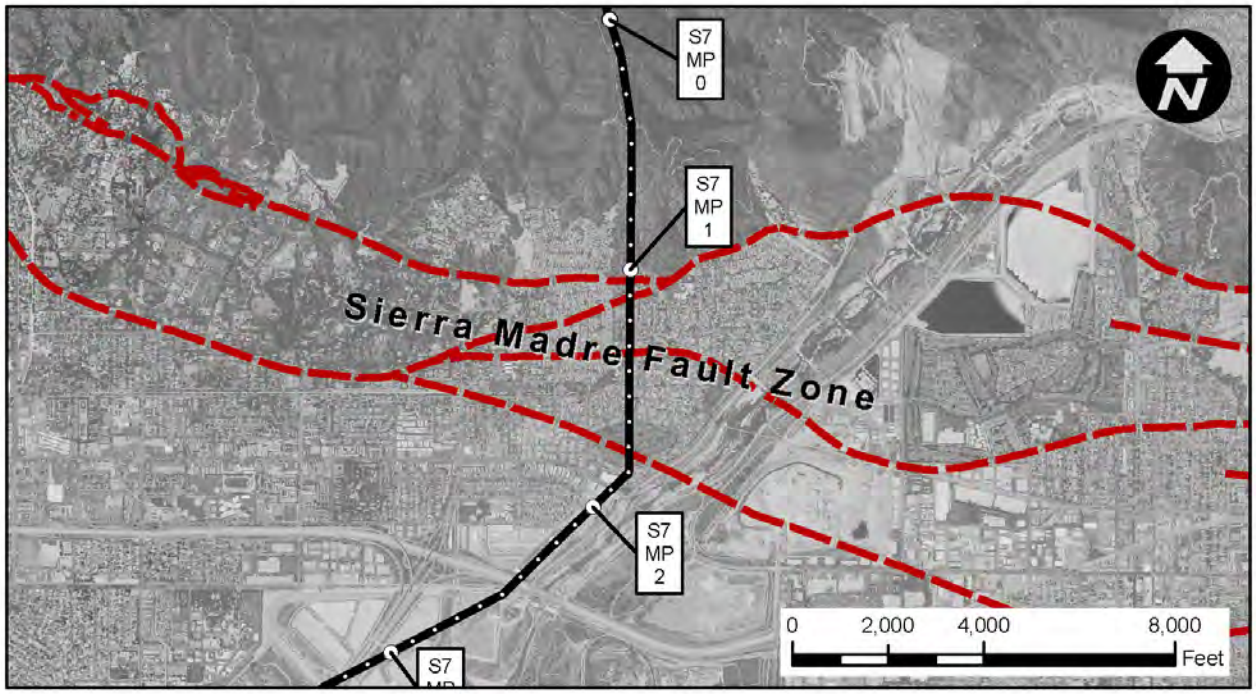
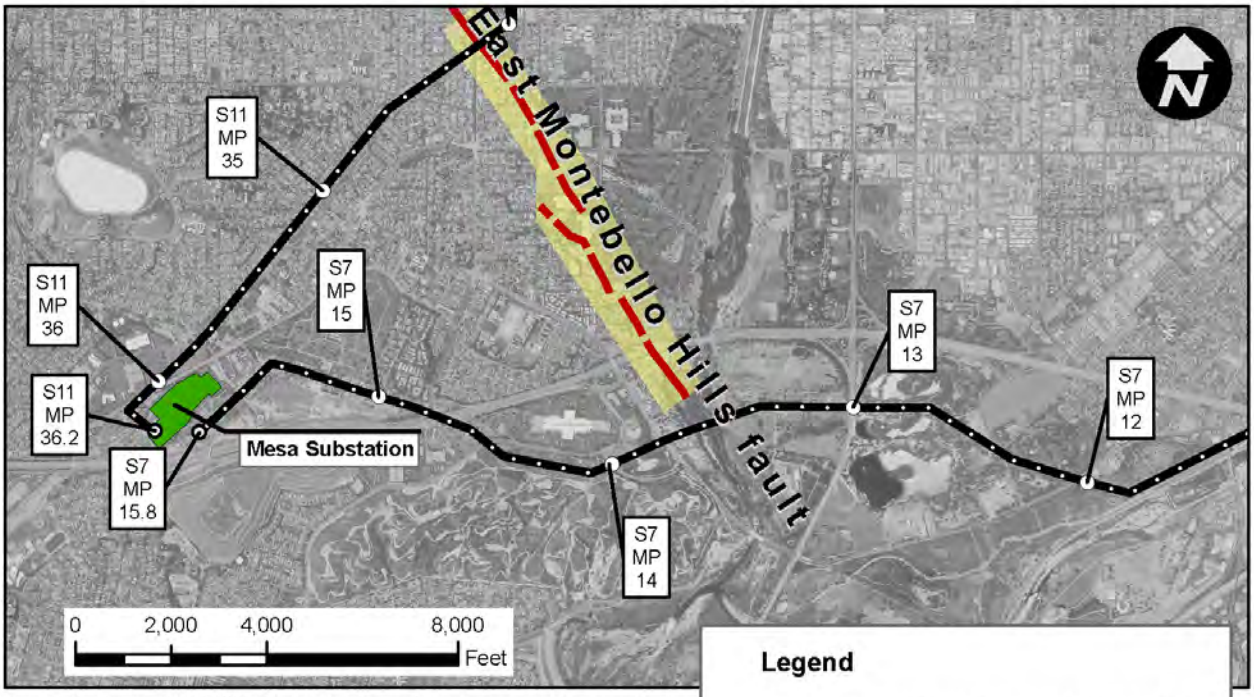
Figure 3.7-5

Segment 6 Active Fault Crossings





Fault Data Source: CGS 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0, Bryant, W. A. (compiler)

Legend

S7 MP 4 — TRTP Segment 7 alignment (with approx. milepost locations)

Active Fault

Alquist-Priolo Earthquake Hazard Rupture Zones

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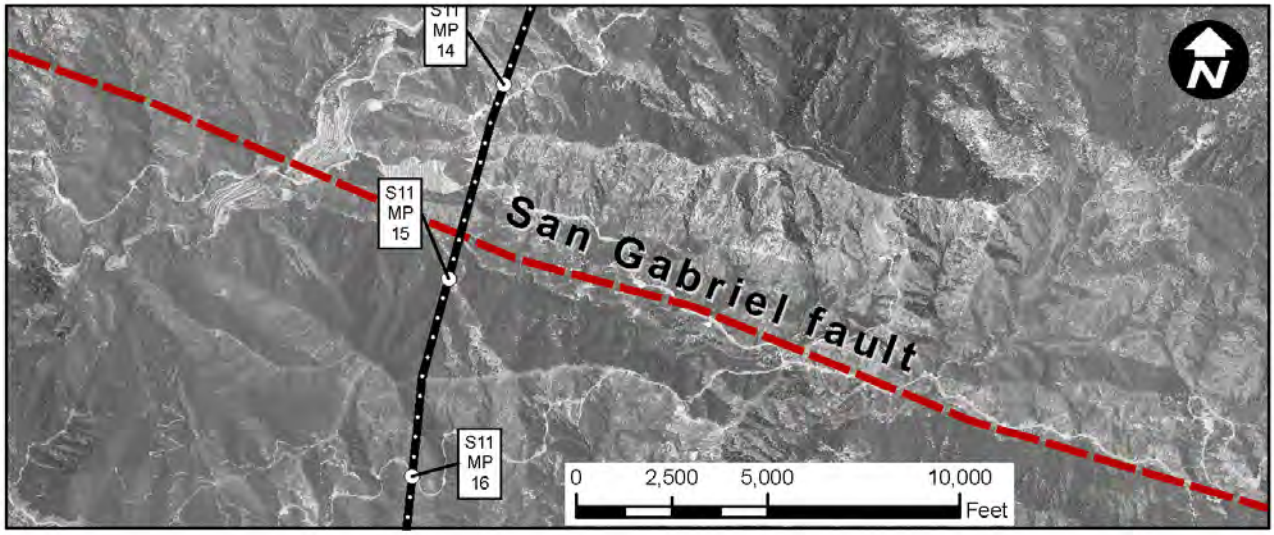
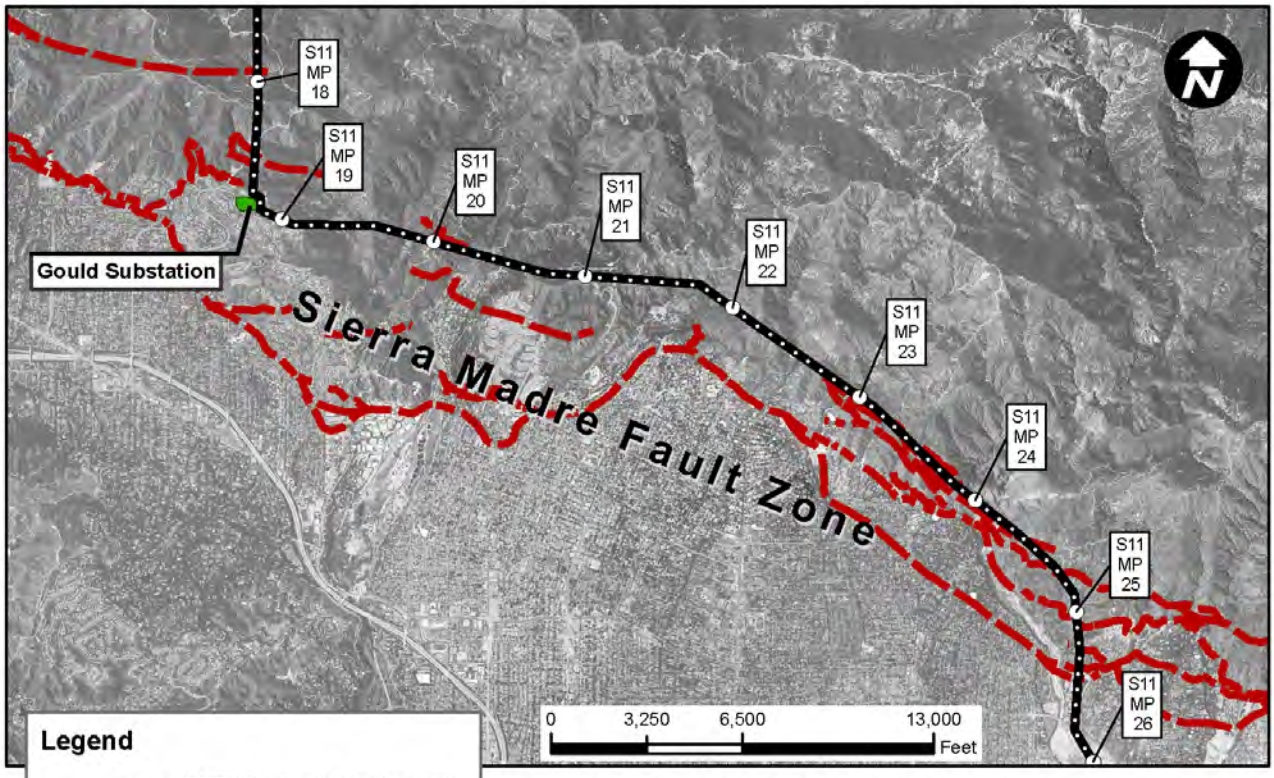
Figure 3.7-6

Segment 7 Active Fault Crossings





Legend

S11 MP 15 — TRTP Segment 11 alignment (with approx. milepost locations)

Active Fault

Fault Data Source: CGS 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0, Bryant, W. A. (compiler)

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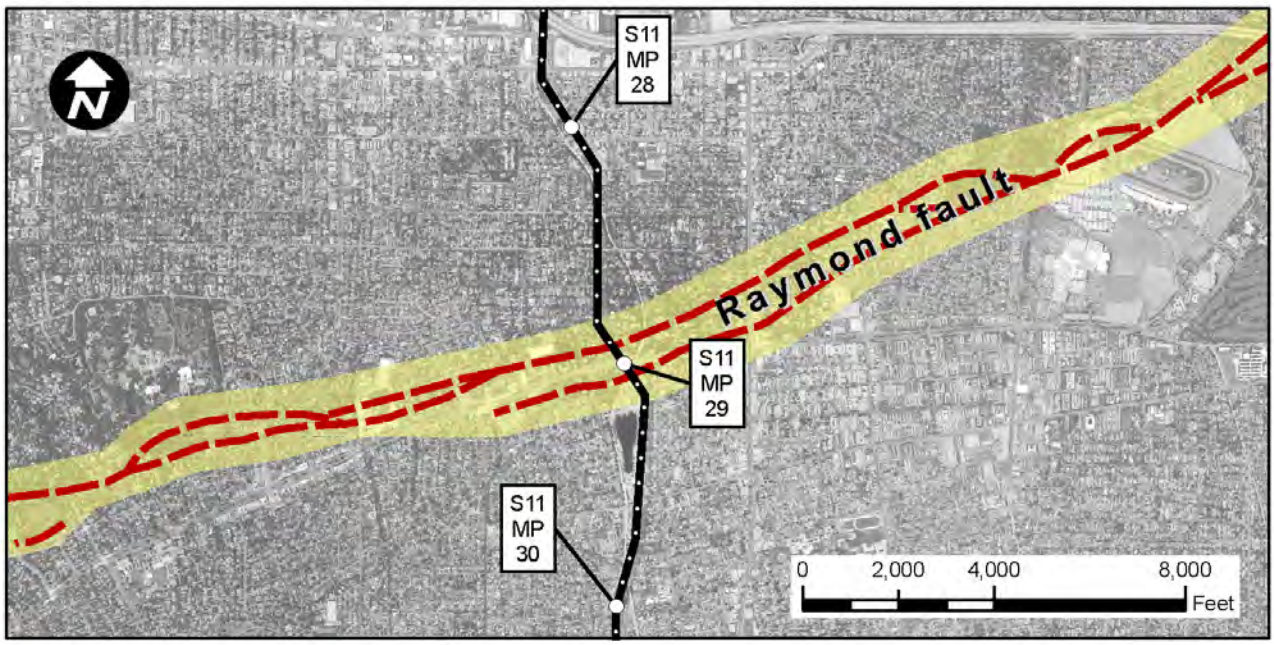
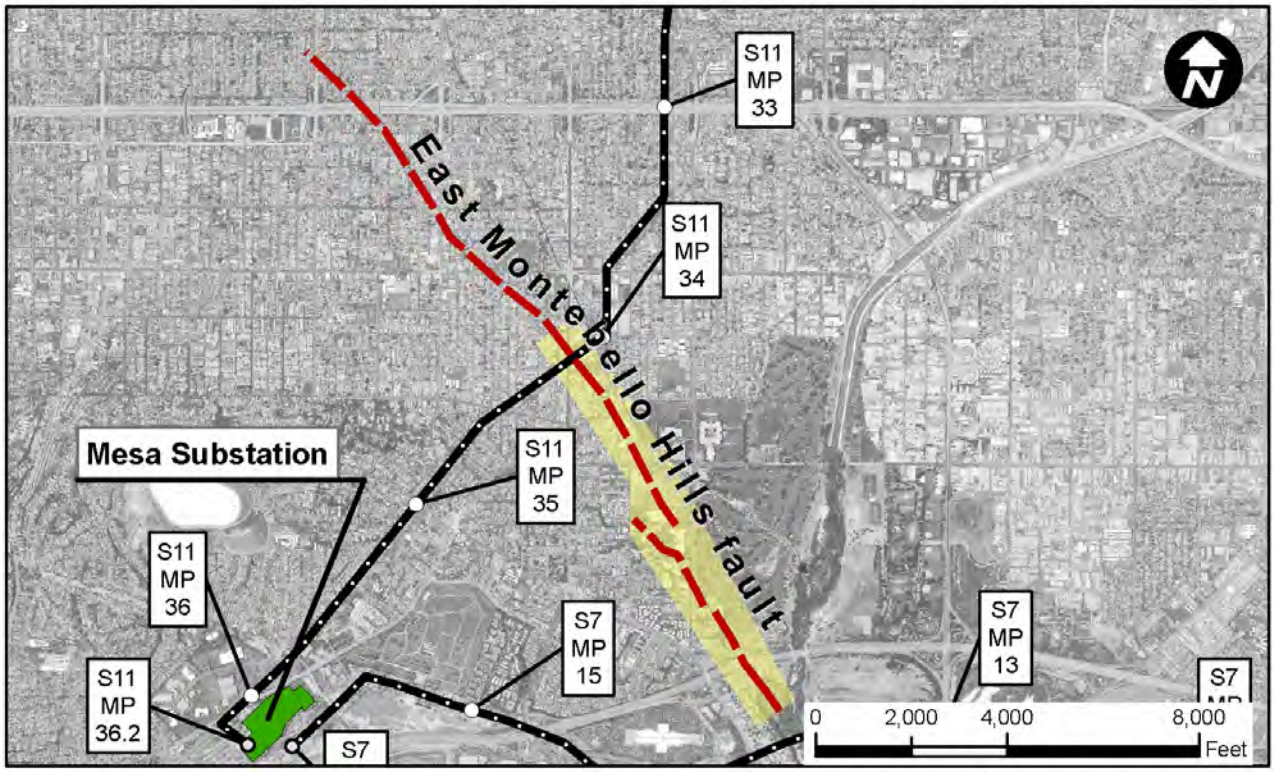
Figure 3.7-7a

Segment 11 Active Fault Crossings





Fault Data Source: CGS 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0, Bryant, W. A. (compiler)

Legend

- S11 MP 28 — TRTP Segment 11 alignment (with approx. milepost locations)
- Active Fault
- Alquist-Priolo Earthquake Hazard Rupture Zones

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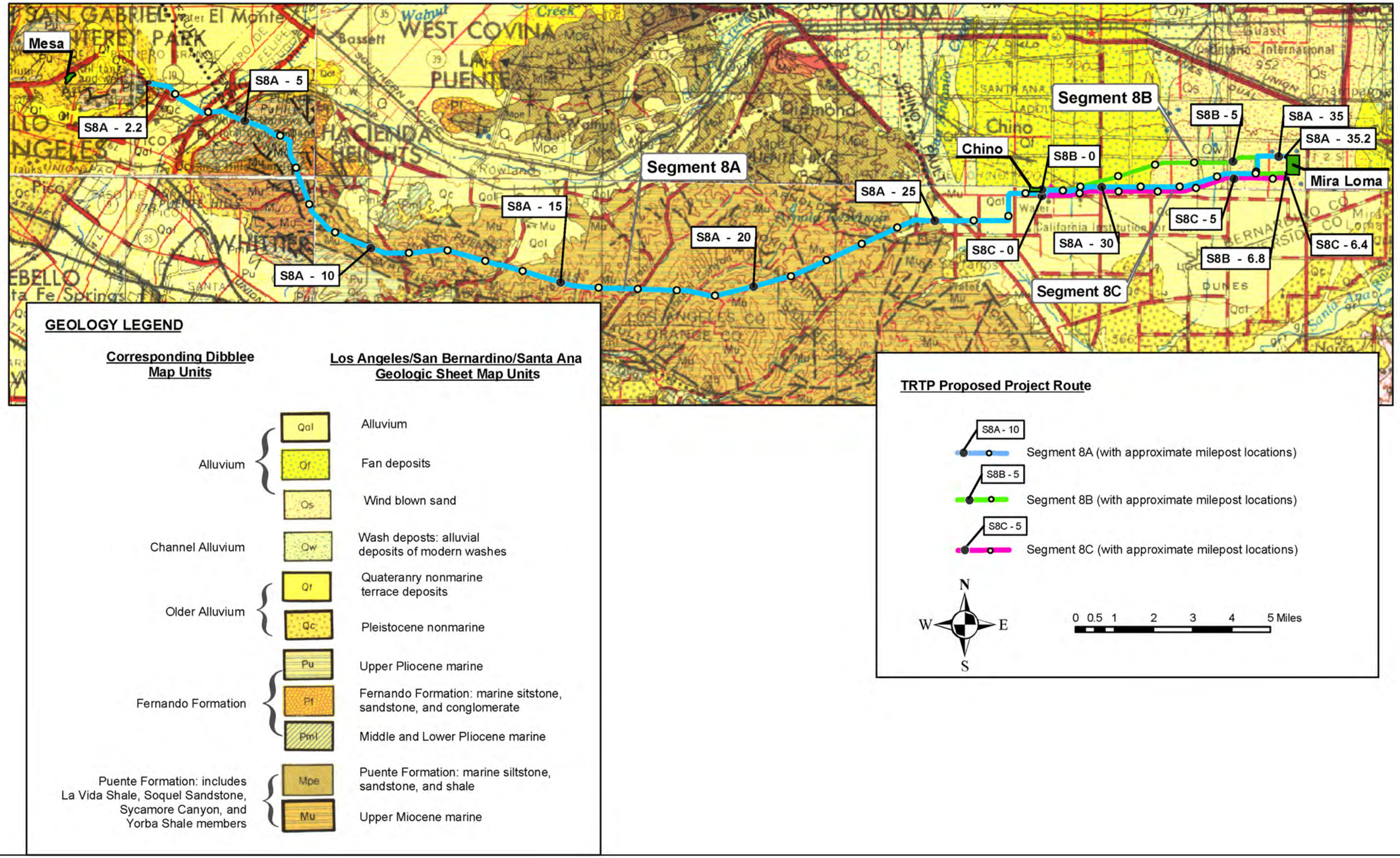
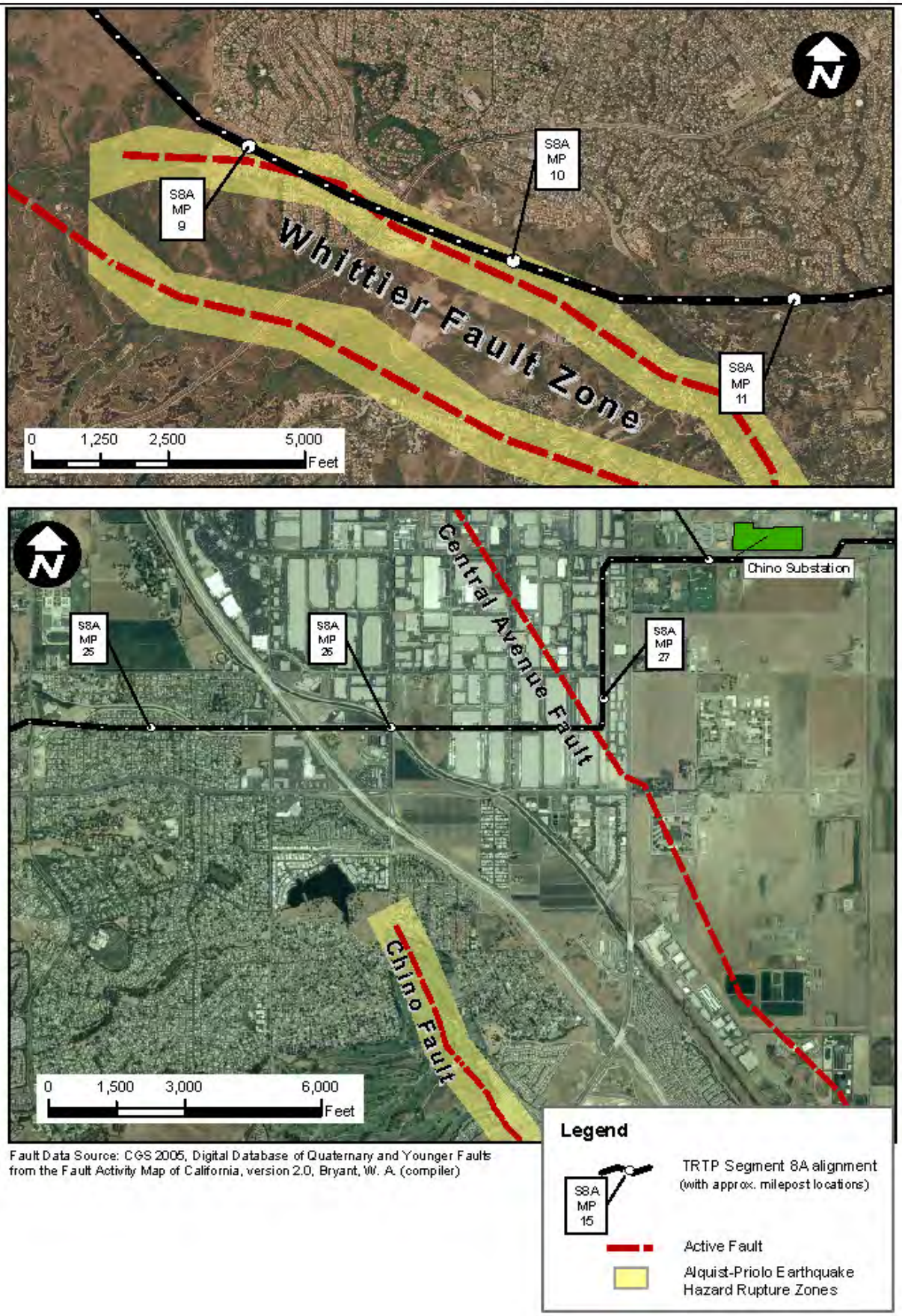
Figure 3.7-7b

Segment 11 Active Fault Crossings



Source: GTC, 2008.

Figure 3.7-8 (Revised)
Regional Geology Map C



Fault Data Source: CGS 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0, Bryant, W. A. (compiler)

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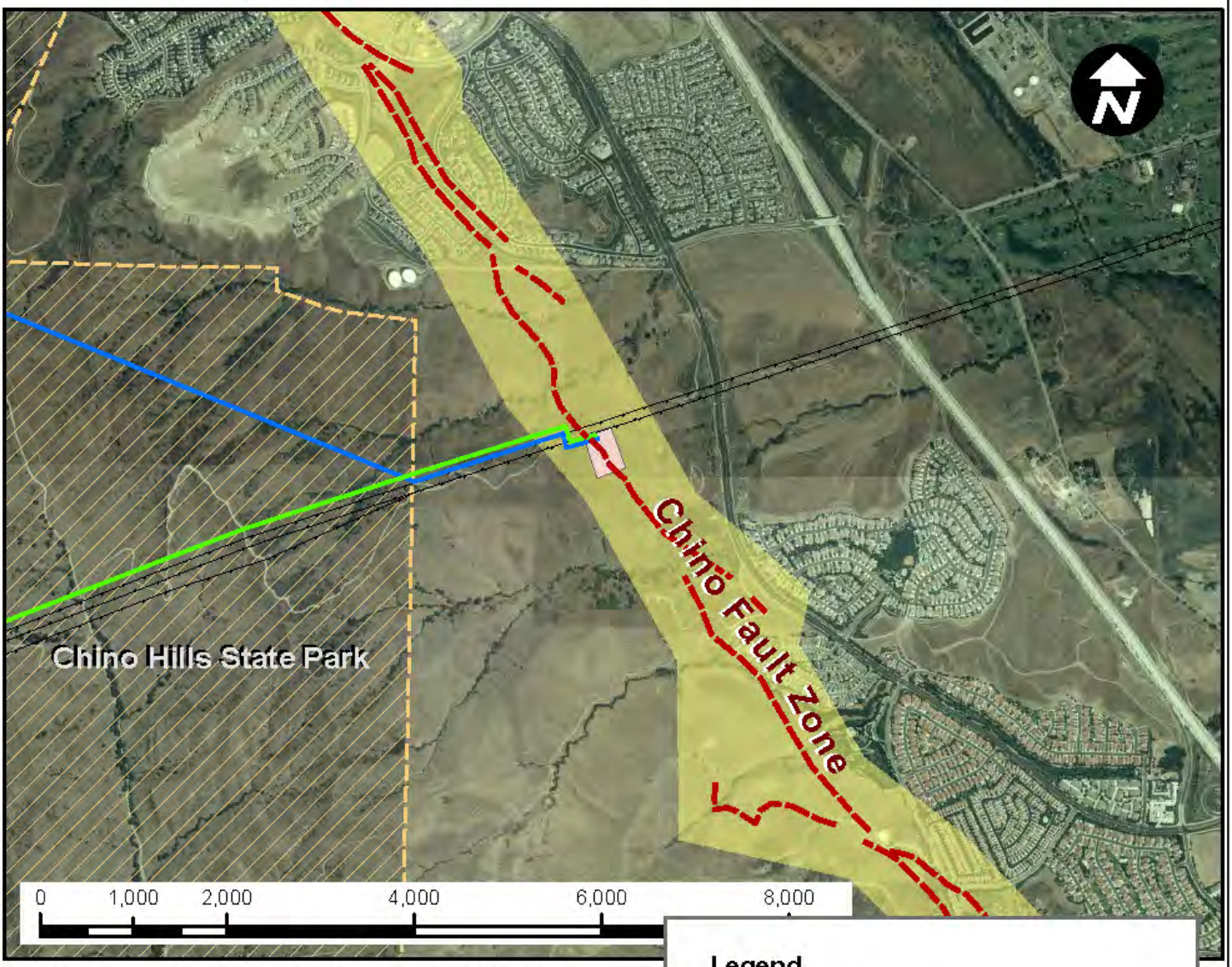
Figure 3.7-9 (Revised)

Segment 8A Active Fault Crossings



Fault Data Source: CGS 2003, GIS files of Revised Official Map of Alquist-Priolo Earthquake Fault Zones, Prado Dam Quadrangle, dated May 1, 2003.

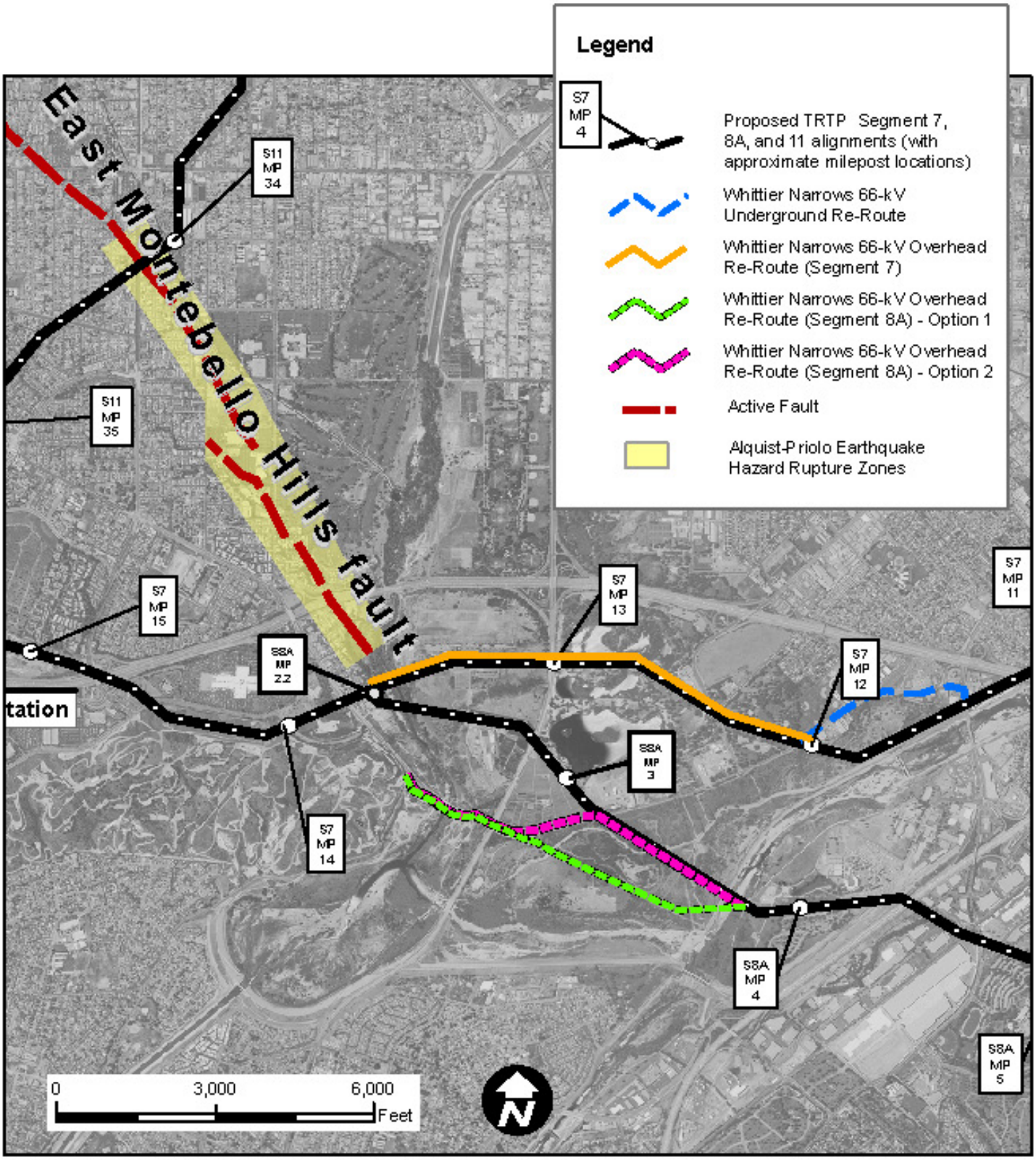
Legend

- Alternative 4 - Route B Alignment
- Alternative 4 - Route D Alignment
- Switching Station
- Active Fault
- Alquist-Priolo Earthquake Hazard Rupture Zones

Aspen Environmental Group

Figure 3.7-10 (New)

Alternative 4
Chino Fault Crossing



Fault Data Source: CGS 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0, Bryant, W. A. (compiler)

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Figure 3.7-11 (New)

Alternative 7 Fault Crossings

3.8 Hydrology and Water Quality

3.8.1 Introduction

This section describes effects on Hydrology and Water Quality that would be caused by implementation of the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to Hydrology and Water Quality are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

The information and analysis that is presented in this section has been derived from several secondary sources, described below under Section 3.8.2.1 (Baseline Data Collection Methodology), as well as the *Riparian Conservation Area Report* and the *Hydrology and Water Quality Specialist Report*, prepared by Aspen Environmental Group (2009~~8~~). While this section presents the findings of those reports, please refer to the full reports for more detailed information on Project effects on Hydrology and Water Quality.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following issues related to Hydrology and Water Quality that were raised during scoping are addressed in this section:

- Project structures should not be placed in natural drainage channels

On January 17, 2008, after completion of the scoping process, the Lahontan Regional Water Quality Control Board (LRWQCB) submitted a comment letter that raised several concerns. Some of the key concerns mentioned include: direct physical impacts to aquatic, wetland, and riparian habitat; generation of construction and operational pollutants; alteration of flow regimes and groundwater recharge; and disruption of watershed level aquatic functions.

Summary and Comparison of Alternatives

Table 3.8-1 on the following page presents some key factors related to Hydrology and Water Quality for each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.8-1 are not necessarily impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.8.4.1 (Criteria for Determining Impact Significance) are described in Sections 3.8.5 through 3.8.11.

Table 3.8-1. Summary Comparison of Environmental Issues/Impacts – Hydrology and Water Quality

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
Number of named stream crossed by ROW (Impacts H-1, H-2, H-4)	Many named streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.	41	Same as Alternative 2.	~~Alts 4A and 4C~~Route A: 32; Route B: 33; Route C: 32; Route C Modified: 32; Route ~~Alts 4B and 4~~D: 33.	36	Same as Alternative 2.	Same as Alternative 2.
Number of unnamed stream crossed by ROW (Impacts H-1, H-2, H-4)	Many unnamed streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.	160	162	~~Alternative~~ Route 4A: 152; ~~Alternative 4~~Route B: 154; ~~Alternative 4~~Route C: 157; Route C Modified: 159; ~~Alternative 4~~Route D: 150.	157	Same as Alternative 2.	Same as Alternative 2.
Miles of T/L within a Flood Hazard Area (Impact H-4)	T/Ls that would be built in lieu of the Project could be placed in Flood Hazard Areas, but the number of miles is unknown.	19.94	19.86	~~Alternatives 4~~Routes A, B, C, C Modified, and ~~through 4~~D: 14.12. Eastern transition station also located in a Flood Hazard area.	19.76	Same as Alternative 2.	Same as Alternative 2.
Number of named streams crossed by new and/or improved access and/or spur roads in the ANF	Many named streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.	14	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	6	Same as Alternative 2.
Number of unnamed streams crossed by new and/or improved access and/or spur roads in the ANF	Many unnamed streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.	123	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	62	Same as Alternative 2.

3.8.2 Affected Environment

This section presents information on Hydrology and Water Quality conditions in Kern, Los Angeles, Orange, and San Bernardino Counties. Section 3.8.2.1 describes the data collection methodology and lists the resources used to gather the applicable data. Section 3.8.2.2 describes the Regional Setting for the proposed Project and alternatives and provides information on the baseline conditions in the Project region. Section 3.8.2.3 describes the baseline conditions for Hydrology and Water Quality within the proposed Project study area. Sections 3.8.2.4 through 3.8.2.8 describe the baseline conditions for Hydrology and Water Quality applicable to the alternative study areas.

3.8.2.1 Baseline Data Collection Methodology

Data collection was conducted through review of the following resources: aerial photographs; United States Geological Survey (USGS) topographic maps; National Hydrography Dataset (NHD) and CalWater GIS data; SCE's Proponent's Environmental Assessment (PEA); basin plans from the Lahontan, Los Angeles and Santa Ana Regional Water Quality Control Boards (RWQCBs); the 2006 Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments from the State Water Resources Control Board (SWRCB); groundwater basin data from Bulletin 118 – Update 2003 published by the Department of Water Resources (DWR); groundwater well data from the USGS National Water Information System (NWIS); climate data from the National Oceanographic and Atmospheric Administration (NOAA); flood hazard data from the Federal Emergency Management Agency (FEMA); soil data from the Natural Resources Conservation Service (NRCS); and field reconnaissance data.

The study area was defined as the set of existing water resources crossed or overlain by the proposed Project and alternatives. The current condition and quality of these water resources was used as the baseline against which to compare potential impacts of the proposed Project and alternatives. Additionally, because pollutants that enter these water bodies can be transported downstream or down-gradient to sensitive receiving waters, downstream receiving waters were also considered.

3.8.2.2 Regional Setting

For analysis of Hydrology and Water Quality impacts, the proposed Project has been organized into the following three general geographic regions: Northern Region, Central Region, and Southern Region. The Northern Region generally includes all Project components located between the Windhub Substation in southern Kern County to Vincent Substation located in unincorporated Los Angeles County. The Central Region includes all portions of the TRTP extending from Vincent Substation to the southern boundary of the Angeles National Forest (ANF). The Southern Region includes all Project components located south of the ANF within Los Angeles, Orange and San Bernardino Counties.

The State of California uses a hierarchical naming and numbering convention to define watershed areas for management purposes. Watershed boundaries are defined according to size and topography, with multiple sub-watersheds within larger watersheds. A general description of how watershed levels are defined is provided below, in Table 3.8-2. The NRCS, which is part of the U.S. Department of Agriculture (USDA), is responsible for maintaining the California Interagency Watershed Mapping Committee (IWMC), formerly the CalWater Committee. The IWMC has defined a set of naming and numbering conventions applicable to all watershed areas in the State, for the purposes of interagency cooperation and management. Table 3.8-2 shows the primary watershed classification levels used by the State of California, as defined by the IWMC, which are applicable to this analysis.

Table 3.8-2. State of California Watershed Hierarchy Classifications

Watershed Level	Approximate Square Miles	Description
Hydrologic Region (HR)	12,735	Defined by large-scale topographic and geologic considerations. The State of California is divided into ten HRs.
Hydrologic Unit (HU)	672	Defined by surface drainage; may include a major river watershed, groundwater basin, or closed drainage.
Hydrologic Area (HA)	244	Major subdivisions of hydrologic units, such as by major tributaries, groundwater attributes, or stream components.
Hydrologic Sub-area (HSA)	195	A major segment of an HA with significant geographical characteristics or hydrological homogeneity.

Source: CalWater, 2007

The proposed Project would cross the South Lahontan and South Coast Hydrologic Regions. Within these two Hydrologic Regions (HRs), the proposed Project would cross the following Hydrologic Units (HUs): the Antelope HU, the Santa Clara-Calleguas HU, the Los Angeles River HU, the San Gabriel River HU, and the Santa Ana River HU. (CalWater, 2004)

Northern Region

The Northern Region lies within the Antelope Valley, which is located in the western Mojave high desert. This region is mostly within the southwestern-most portion of the South Lahontan HR and also includes a small area within the north-central portion of the South Coast HR, as illustrated in Figure 3.8-1. Water quality regulation for this area is governed by the Lahontan and Los Angeles RWQCBs. This area includes both the Antelope and Santa Clara-Calleguas HUs, and is bounded by the San Gabriel Mountains to the south and by the Tehachapi and Diablo ranges to the north. Within the Antelope HU, the proposed Project and alternatives cross five Hydrologic Areas (HAs), including: Chafee HA, Willow Springs HA, Neenach HA, Lancaster HA, and Rock Creek HA. The Antelope HU is a closed watershed, which means that precipitation falling within this watershed never reaches any ocean or other watershed (LACSD, 2005). The topography of the Antelope Valley is a flat desert floor between 2,300 to 3,500 feet above sea level that is cut by numerous small, mostly dry creeks and washes that drain generally in an easterly direction toward several dry lakebeds. The portion of the Santa Clara-Calleguas HU that lies within the Northern Region drains to the Santa Clara River and eventually to the Pacific Ocean. Within the Santa Clara-Calleguas HU, the proposed Project and alternatives cross the Acton Hydrologic Sub-Area (HSA). The topography of this area is comprised of mostly undeveloped foothills that form the headwaters of the Upper Santa Clara River. (CalWater, 2004; DWR, 2003)

The climate in this region is characterized by hot, dry summers, mild to cool winters, and sparse rainfall. Average annual temperature for the region ranges between a high of 80 degrees Fahrenheit (°F) in July to a low of 45 °F in December (City-Data.com, 2007b). Average precipitation within the Antelope Watershed ranges between five and 10 inches per year, from less than five inches per year along the northerly boundary of the Antelope Valley to about 10 inches per year along the southerly boundary. Most precipitation occurs between October and March, although short duration thunderstorms sometimes occur during the summer months (LADPW, 2005a). Average precipitation in the Santa Clara-Calleguas HU portion of the Northern Region, as measured at the city of Acton, is approximately nine inches per year (City-Data.com, 2007a).

Over time, land uses in the Antelope Valley have been transitioning from agricultural to residential and commercial. The Antelope Valley is also mined for various minerals, including borate, aggregate, and salt. Employment within this area is limited, with a large percentage of the population commuting to jobs in the southerly portions of Los Angeles County. The population within the Northern Region is projected

to increase rapidly over the next twenty years from approximately 285,000 persons in 2006 to approximately 550,000 persons in 2025 (AVEK, 2005). Land use in the Santa Clara-Calleguas HU portion of the Northern Region is mostly open space with sparse residential development (USDA, 2005a).

Surface Water

Water Bodies

As shown in Figure 3.8-1, the Northern Region is contained within the Antelope and Santa Clara-Calleguas HUs (CalWater, 2004). Stream channels in this region are well defined but typically ephemeral in the foothills, and become less defined washes upon reaching the desert floor. The flat topography and lack of defined channels can lead to unconfined overland flow during storm events. Major named drainages in the region include Amargosa Creek, Anaverde Creek, Cottonwood Creek, Oak Creek, and the Upper Santa Clara River (USGS, 2007). Precipitation within the Antelope Watershed that does not evaporate or infiltrate to the groundwater flows to several usually dry lakes, known as playa lakes. Playa lakes are formed when precipitation fills a shallow depression on a flat surface, such as a desert floor. These lakes are endorheic, which means that they have no outlet. The playa lakes in this region include Rosamond Lake, Rogers Dry Lake, and Buckhorn Dry Lake (LACSD, 2005). Precipitation within the Santa Clara-Calleguas Watershed that does not evaporate or infiltrate to the groundwater eventually flows to the Pacific Ocean. In addition to the major drainages and playa lakes, other notable hydrologic features in the region include Palmdale Lake, Little Rock Reservoir, the California Aqueduct, and the Los Angeles Aqueduct. The TRTP ~~also~~ crosses approximately 50 unnamed streams and numerous small gullies and washes in this region (USGS, 2007). Santa Clara River Reach 7, which also crosses through the Northern Region, is listed as impaired for coliform bacteria on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments (SWRCB, 2006).

Floodplains

In addition to the defined drainage channels and water bodies within the Northern Region, floodplains are an important part of the hydrologic network. A floodplain is a geographic area of relatively level land that is occasionally subject to inundation by surface water from rivers or streams that occur within the floodplain. A "100-year flood" refers to the maximum level of water that is expected to inundate a floodplain ten times every 1,000 years. FEMA has estimated the boundaries for 100-year floodplains for several drainages in the Northern Region, as shown in Figure 3.8-2. FEMA has also created Flood Insurance Rate Maps (FIRMs), which define the predicted boundaries of 100-year floods (SCE, 2007). FEMA refers to 100-year floodplains, such as those seen on Figure 3.8-2, as "Flood Hazard Areas." Not all streams have floodplain mapping by FEMA or any other agency. This does not mean the floodplain is not there, only that the floodplain has not been mapped. Any housing or residential development that ~~takes place~~is constructed in a Flood Hazard Area must comply with floodplain management ordinances (FEMA, 2005).

Groundwater

As shown in Figure 3.8-3, the Northern Region is underlain by the Antelope Valley Groundwater Basin and the ~~Freemont~~Fremont Valley Groundwater Basin.

Antelope Valley Groundwater Basin

The Antelope Valley Groundwater Basin underlies approximately 1,580 square miles of alluvial valley in the western Mojave Desert. The basin is bounded on the northwest by the Garlock fault zone at the base

of the Tehachapi Mountains and on the southwest by the San Andreas fault zone at the base of the San Gabriel Mountains. The basin is bounded on the east by ridges, buttes, and low hills that form a surface and groundwater drainage divide. On the north, the basin is bounded by the Fremont Valley Groundwater Basin at a groundwater divide approximated by a southeastward-trending line from the mouth of Oak Creek through Middle Butte to exposed bedrock near Gem Hill. Farther east, the Antelope Valley Groundwater Basin is bounded by the Rand Mountains. Runoff in Big Rock and Little Rock Creeks from the San Gabriel Mountains and in Cottonwood Creek from the Tehachapi Mountains flows toward a closed basin at Rosamond Lake. Rogers Lake is a closed basin in the northern part of Antelope Valley that collects ephemeral runoff from surrounding hills (DWR, 2003).

Recharge to the Antelope Valley Groundwater Basin is primarily accomplished by perennial runoff from the surrounding mountains and hills. Most recharge occurs at the foot of the mountains and hills by percolation through the head of alluvial fan systems. Big Rock and Little Rock Creeks, in the southern part of the basin, contribute about 80 percent of runoff into the basin. Other minor recharge is from return of irrigation water and septic system effluent (DWR, 2003).

The primary water-bearing materials in the Antelope Valley Groundwater Basin are Pleistocene and Holocene age unconsolidated alluvial and lacustrine deposits that consist of compact gravels, sand, silt, and clay. Coarse alluvial deposits form the two main aquifers of the basin: a lower aquifer and an upper aquifer. The upper aquifer, which is the primary source of groundwater for the valley, is generally unconfined whereas the lower aquifer is generally confined (DWR, 2003).

Total basin storage capacity is approximately 70,000,000 acre-feet (af), with a range in annual natural recharge of 31,200 to 59,100 af/year. Because of increased pumping since the 1920s, groundwater use has exceeded estimated natural recharge, resulting in overdraft conditions (USGS, 2003). This overdraft has caused water levels to decline by more than 200 feet in some areas and by at least 100 feet in most of the Antelope Valley. Water data collected in 1996 shows that depth to water within the Antelope Valley Groundwater basin ranges between 100 feet and 500 feet below ground surface (bgs) (USGS, 2003).

The USEPA and the California Department of Public Health regulate drinking water quality under the Safe Drinking Water Act of 1974. This Act sets health-based standards, known as Maximum Contaminant Levels (MCLs), which are used to assess the suitability of groundwater supply for use as drinking water (SCE, 2007). In the Antelope Valley Groundwater Basin, MCLs are exceeded in several wells throughout the basin for the following contaminants: inorganics, radiology, nitrates, pesticides, volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) (DWR, 2003).

Fremont Valley Groundwater Basin

The Fremont Valley Groundwater Basin underlies 523 square miles of alluvial valley in eastern Kern County and northwestern San Bernardino County. The basin is bounded on the northwest by the Garlock fault zone against impermeable crystalline rocks of the El Paso Mountains and the Sierra Nevada. This basin is bounded on the east by crystalline rocks of the Summit Range, Red Mountain, Lava Mountains, Rand Mountains, Castle Butte, Bissel Hills, and Rosamond Hills. The basin is bounded on the southwest by the Antelope Valley Groundwater Basin along a groundwater divide approximated by a line connecting the mouth of Oak Creek through Middle Butte to exposed basement rock near Gem Hill (DWR, 2003).

Natural recharge of the Fremont Valley Groundwater Basin includes the percolation of ephemeral streams that flow from the Sierra Nevada. The general groundwater flow direction is toward Koehn Lake at the

center of the valley. There is no appreciable quantity of groundwater flowing out of the basin (DWR, 2003).

The water-bearing materials of the Fremont Valley Groundwater Basin are dominated by Quaternary alluvium and lacustrine deposits. Groundwater in the alluvium is generally unconfined, although locally confined conditions occur near Koehn Lake (DWR, 2003).

The total storage capacity of the basin is calculated to be approximately 4,800,000 af. Hydrographs indicate that groundwater elevations declined in the southwestern part of the basin by approximately nine feet between 1957 and 1999 (DWR, 2003). Depth to groundwater in the southern portion of the basin is greater than 100 feet bgs (USGS, 2003).

In the Fremont Valley Groundwater basin, no primary MCLs are exceeded. However, groundwater in parts of the basin has high concentrations of Total Dissolved Solids (TDS), including fluoride and sodium (DWR, 2003).

Central Region

The Central Region lies within the ANF, which is located north of the City of Los Angeles, in the San Gabriel Mountains. This mountain range is aligned in a general east-west direction and forms the northern portion of the South Coast HR, as illustrated in Figure 3.8-1. Water quality regulation for this area is governed by the Los Angeles RWQCB (LARWQCB). This region includes the Santa Clara-Calleguas, Los Angeles River, and San Gabriel River HUs, and is bounded by the ANF administrative boundaries to the north and south. Although a portion of the ANF lies within the South Lahontan HR and drains to the Antelope Valley, all of the ANF land that is within the Central Region near TRTP drains to the South Coast HR and eventually to the Pacific Ocean. Within the Santa Clara-Calleguas HU, the proposed Project and alternatives cross the Acton HSA. Within the Los Angeles River HU, the proposed Project and alternatives cross four Hydrologic Sub-Areas, including: Tujunga HSA, Monk Hill HSA, Pasadena HSA, and Santa Anita HSA. Within the San Gabriel River HU, the proposed Project and alternatives cross the Upper Canyon HSA. Topography in the Central Region is generally rugged with deep, V-shaped canyons separated by sharp dividing ridges. Steep walled canyons with side slopes of 70 percent or more are common. The gradient of principal canyons ranges from 150 to 850 feet per mile. Stream channels are typically unimproved and defined by the natural drainage of the landscape (LADPW, 2005b).

The climate within the Central Region varies between subtropical on the Pacific Ocean side of the San Gabriel Mountain range to semi-arid on the Mojave Desert side. Nearly all precipitation occurs during the months of December through March. Precipitation during summer months is infrequent and rainless periods of several months are common. Average annual rainfall for the San Gabriel Mountains is approximately 27 inches (LADPW, 2005b). Snowfall at elevations above 5,000 feet is frequently experienced during winter storms, but the snow melts rapidly except on higher peaks and northern slopes. Mount Islip along the crest of the ANF has annual rainfall highs of approximately 42 inches (SCE, 2007). January and July are the coldest and warmest months of the year, respectively. At Mount Wilson (elevation 5,850 feet), the 30-year average daily minimum temperature for January is 35 °F and the average daily maximum temperature for July is 80 °F (LADPW, 2005b).

The ANF is predominantly characterized by undeveloped lands and open space which is managed by the USDA Forest Service for the purposes of recreation and natural resources management, among various other uses. The principal vegetative cover of upper mountain areas consists of various species of brush

and shrubs known as chaparral. Most trees found on mountain slopes are oak, with alder, willow, and sycamore found along streambeds at lower elevations. Pine, cedar, and juniper are found in ravines at higher elevations and along high mountain summits (LADPW, 2005b).

Surface Water

Water Bodies

As shown in Figure 3.8-1, the Central Region is contained within the Los Angeles River, San Gabriel River, and Santa Clara-Calleguas HUs (CalWater, 2004). In this mountainous area, the steep canyon slopes and channel gradients promote a rapid concentration of stormwater runoff. Depression storage and detention storage effects are minor in the rugged terrain. Precipitation during periods of soil moisture deficiency is nearly entirely absorbed by soils, and except for periods of extremely intense rainfall, significant runoff does not occur until soils are wetted to capacity. Due to high infiltration rates and porosity of mountain soils, runoff occurs primarily as subsurface flow or interflow in addition to direct runoff (LADPW, 2005b). Major named drainages in the Central Region include Alder Creek, Arroyo Seco, Big Tujunga Creek, Clear Creek, Eaton Wash, Fall Creek, Monte Cristo Creek, North Fork Mill Creek, Tujunga Wash, and the West Fork San Gabriel River. The TRTP also crosses approximately 65 unnamed streams and countless rills and small gullies in this region (USGS, 2007). Many of these unnamed drainages may qualify as Riparian Conservation Areas (RCAs). Please see Section 3.4, Biological Resources, for further information on RCAs. None of the streams or other water bodies in the Central Region is listed as impaired on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments (SWRCB, 2006).

Floodplains

FEMA has estimated the boundaries for 100-year floodplains for several drainages in the Central Region, as shown in Figure 3.8-4. The floodplains in the Central Region are relatively narrow compared to those of the Northern Region due to the steep terrain and deeply incised stream channels.

Groundwater

As shown in Figure 3.8-3, the edges of the Central Region are underlain by the Antelope Valley Groundwater Basin to the north and the Raymond Groundwater Basin to the south. The rest of the Central Region is not underlain by a named/identified groundwater basin. The Antelope Valley Groundwater Basin is described above in Section 3.8.2.2.

Raymond Groundwater Basin

The Raymond Groundwater Basin underlies approximately 50 square miles of the northwest part of the San Gabriel Valley. The west boundary is delineated by a drainage divide at Pickens Canyon Wash and the southeast boundary is the Raymond fault. The Raymond fault trends east-northeast and acts as a groundwater barrier along the southern boundary of the Raymond Groundwater Basin. This fault acts as a complete barrier along its western end and becomes a less effective barrier eastward. East of Santa Anita Wash, this fault ceases to be an effective barrier and the flow of groundwater southward into the San Gabriel Valley Groundwater Basin becomes essentially unrestricted. A north trending divide paralleling the Eaton Wash separates both surface and subsurface water flow in the eastern portion of the basin (DWR, 2003).

Natural recharge to the Raymond Groundwater Basin is mainly from direct percolation of precipitation and percolation of ephemeral streamflow from the San Gabriel Mountains in the north. The principal

streams bringing surface inflow are the Arroyo Seco, Eaton Creek and Santa Anita Creek. Some stream runoff is diverted into spreading grounds and some is impounded behind small dams, allowing the water to infiltrate and contribute to groundwater recharge of the basin. An unknown amount of underflow enters the basin from the San Gabriel Mountains through fracture systems (DWR, 2003).

The water-bearing materials of Raymond Groundwater Basin are dominated by unconsolidated Quaternary alluvial gravel, sand, and silt deposited by streams flowing out of the San Gabriel Mountains. Water in the older alluvium is typically unconfined and sediment sizes range from coarser to finer moving away from the San Gabriel Mountains. However, confined groundwater conditions have existed locally in the basin, particularly along the Raymond fault near Raymond Hill, where layers of finer grained sediments are more abundant (DWR, 2003).

The total storage capacity of Raymond Groundwater Basin is approximately 1,450,000 af. No estimates of available storage have recently been made. In 1970, the available amount of stored water was estimated to be 1,000,000 af, leaving approximately 450,000 af of storage space available. Because this basin is managed, the present amount of stored water and storage space available should be similar to the amount available in 1970 (DWR, 2003). Depth to groundwater is at least 200 feet bgs throughout the basin (MWD, 2007).

In the Raymond Groundwater Basin, MCLs are exceeded in several wells for the following contaminants: total dissolved solids, nitrate, VOCs, and perchlorate (MWD, 2007). As discussed above in Section 3.8.2.2, in the Antelope Valley Groundwater Basin, MCLs are exceeded for the following contaminants: inorganics, radiology, nitrates, pesticides, VOCs and SVOCs (DWR, 2003).

Southern Region

The Southern Region lies within the Greater Los Angeles Basin, within the South Coast HR, as illustrated in Figure 3.8-1. Water quality regulation for this area is governed by the Los Angeles and Santa Ana RWQCBs. This region includes the Los Angeles River, San Gabriel River, and Santa Ana River HUs. Within the Los Angeles River HU, the proposed Project and alternatives cross the Pasadena HSA and the Los Angeles HA. Within the San Gabriel River HU, the proposed Project and alternatives cross the Upper San Gabriel HA and four HSAs, including: Lower Canyon HSA, Central HSA, La Habra HSA, and Yorba Linda HSA. Within the Santa Ana River HU, the proposed Project and alternatives cross the Chino HSA and the Santa Ana Narrows HSA. The Southern Region encompasses much of the San Gabriel Valley and the southwestern portion of San Bernardino County. The topography is variable, but is generally formed by flat or gently sloping coastal plains and valleys with areas of rolling hills.

Differences in topography are responsible for large variations in temperature, humidity, precipitation, and cloud cover throughout the Southern Region. The coastal plains, with mild rainy winters and warm dry summers, are noted for their subtropical “Mediterranean” climate, while the inland slopes and basins of the Transverse Ranges are characterized by more extreme temperatures and little precipitation. With prevailing winds from the west and northwest, moist air from the Pacific Ocean is carried inland through the Southern Region until it is forced upward by the mountains. The resulting storms, common from November through March, are followed by dry periods during summer months. The average maximum and minimum winter (January) temperatures in downtown Los Angeles are 67°F and 49°F respectively, and in Ontario are 68°F and 45°F, respectively. The average maximum and minimum summer (July) temperatures in downtown Los Angeles are 83°F and 63°F respectively, and in Ontario are 95°F and 62°F, respectively. Precipitation in the Southern Region generally occurs as rainfall; snowfall is rare.

Most precipitation occurs during just a few major storms. Average annual rainfall in the City of Los Angeles is approximately 16 inches (SCE, 2007).

Most of the Southern Region is a highly developed urban landscape, with a mix of industrial, commercial, and residential land uses. Residential development is nearly continuous throughout the Greater Los Angeles Basin, and is only broken by a few preserved open spaces, such as the Chino Hills and Puente Hills.

Surface Water

Water Bodies

As shown in Figure 3.8-1, the Southern Region is contained within the Los Angeles River, San Gabriel River, and Santa Ana River HUs (CalWater, 2004). Streams are generally dry in the summer months, but it is common for perennial flows to be present, especially in the larger streams which are fed by the San Gabriel Mountains or urban runoff. Many of the drainages in this region have been lined with concrete to serve as flood control channels, or otherwise altered to conform to the urban landscape. Flood-control and debris-control dams have been built on many of the larger channels, especially at the interface between the mountains and the urban area, such as the Whittier Narrows Flood Control Basin and the Santa Fe Flood Control Basin. With the exception of several smaller or headwater drainages in undeveloped areas such as the Chino Hills and Puente Hills, few streams remain in a natural state. Major named drainages in the region include Alhambra Wash, Avocado Creek, Chino Creek, Cucamonga Creek, Eaton Wash, La Cañada Verde Creek, Little Chino Creek, Mission Creek, Rio Hondo, Rubio Wash, and the San Gabriel River. The TRTP ~~also~~ crosses approximately 50 unnamed streams in this region (USGS, 2007). Several of the streams and other water bodies in the Southern Region are listed as impaired on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments, including: Reach 3 of the San Gabriel River for toxicity; Reach 2 of the Rio Hondo for coliform and NH3; Reach 1 of San Jose Creek for algae and coliform; and Reach 2 of Chino Creek for coliform (SWRCB, 2006).

Floodplains

FEMA has estimated the boundaries for 100-year floodplains for several drainages in the Southern Region, as shown in Figure 3.8-5. The floodplains in the Southern Region are relatively narrow compared to those of the Northern Region due to the extensive flood control infrastructure throughout the greater Los Angeles Basin.

Groundwater

As shown in Figure 3.8-3, the Southern Region is underlain by the Raymond and San Gabriel Valley Groundwater Basins, the Central Subbasin of the Coastal Plain of Los Angeles Groundwater Basin, and the Chino Subbasin of the Upper Santa Ana Valley Groundwater Basin. The Raymond Groundwater Basin is described above in Section 3.8.2.2.

San Gabriel Valley Groundwater Basin

The San Gabriel Valley Groundwater Basin underlies 255 square miles of eastern Los Angeles County. This basin is bounded on the north by the Raymond fault and the contact between Quaternary sediments and consolidated basement rocks of the San Gabriel Mountains. Exposed consolidated rocks of the Repetto, Merced, and Puente Hills bound the basin on the south and west, and the Chino fault and the San Jose fault form the eastern boundary (DWR, 2003).

Recharge of the San Gabriel Groundwater Basin is mainly from direct percolation of precipitation and percolation of stream flow. Stream flow is a combination of runoff from the surrounding mountains, imported water conveyed in the San Gabriel River channel to spreading grounds in the Central Subbasin of the Coastal Plain of Los Angeles Groundwater Basin, and treated sewage effluent. Subsurface flow enters from the Raymond Groundwater Basin, from the Chino Subbasin and from fracture systems along the San Gabriel Mountain front (DWR, 2003).

The water-bearing materials of this basin are dominated by unconsolidated to semi-consolidated alluvium deposited by streams flowing out of the San Gabriel Mountains. These deposits include Pleistocene and Holocene alluvium and the lower Pleistocene San Pedro Formation. Upper Pleistocene alluvium deposits form most of the productive water-bearing deposits in this basin. They consist of unsorted, angular to sub-rounded sedimentary deposits ranging from boulder-bearing gravels near the San Gabriel Mountains to sands and silts in the central and western parts of the basin. The lower Pleistocene San Pedro Formation consists of interbedded marine sand, gravel, and silt. This formation bears fresh water and may grade eastward into continental deposits indistinguishable from the overlying Pleistocene age alluvium. (DWR, 2003)

The storage capacity of the San Gabriel Valley Groundwater Basin is approximately 9,000,000 af, and approximately 8,500,000 af are currently stored in the basin (MWD, 2007). The depth to groundwater varies from about 150 to 350 feet bgs (USEPA, 2004).

In the San Gabriel Valley Groundwater basin, MCLs are exceeded in several wells throughout the basin for the following contaminants: TDS, nitrate, VOCs, perchlorate, and N-nitrosodimethylamine (NDMA) (DWR, 2003).

Central Subbasin

The Central Subbasin underlies 277 square miles in the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin. This subbasin is commonly referred to as the "Central Basin" and is bounded on the north by a surface divide called the La Brea High, and on the northeast and east by emergent less permeable Tertiary rocks of the Elysian, Repetto, Merced and Puente Hills. The southeast boundary between the Central Basin and the Orange County Groundwater Basin roughly follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary of the Central Basin is formed by the Newport Inglewood fault system and the associated folded rocks of the Newport Inglewood uplift (DWR, 2003).

Groundwater enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water; replenishment of the aquifers occurs mainly in the forebay areas where permeable sediments are exposed at ground surface. Natural replenishment of the basin's groundwater supply is largely from surface inflow through Whittier Narrows (and some underflow) from the San Gabriel Valley. Percolation into the Los Angeles Forebay Area is restricted due to paving and development of the surface of the forebay. Imported water purchased from the Metropolitan Water District (MWD) and recycled water from Whittier and San Jose Treatment Plants are used for artificial recharge in the Montebello Forebay at the Rio Hondo and San Gabriel River spreading grounds. Saltwater intrusion is a problem in areas where recent or active river systems have eroded through the Newport Inglewood uplift. A mound of water to form a barrier is formed by injection of water in wells along the Alamitos Gap (DWR, 2003).

Throughout the Central Basin, groundwater occurs in Holocene and Pleistocene age sediments at relatively shallow depths. The Central Basin is historically divided into forebay and pressure areas. The Los Angeles forebay is located in the northern part of the Central Basin where the Los Angeles River enters the Central Basin through the Los Angeles Narrows from the San Fernando Groundwater Basin. The Montebello forebay extends southward from the Whittier Narrows where the San Gabriel River encounters the Central Basin and is the most important area of recharge in the subbasin. Both forebays have unconfined groundwater conditions and relatively interconnected aquifers that extend up to 1,600 feet deep to provide recharge to the aquifer system of this subbasin. The Whittier area extends from the Puente Hills south and southwest to the axis of the Santa Fe Springs-Coyote Hills uplift and contains up to 1,000 feet of freshwater-bearing sediments. The Central Basin pressure area is the largest of the four divisions, and contains many aquifers of permeable sands and gravels separated by semi-permeable sandy clay and impermeable clay, that extend to about 2,200 feet below the surface. Throughout much of the subbasin, the aquifers are confined, but areas with semipermeable aquicludes allow some interaction between the aquifers (DWR, 2003).

Total storage capacity of the Central Basin is approximately 13,800,000 af (DWR, 2003). The Water Replenishment District of Southern California requires that groundwater levels be maintained at a level of approximately 75 feet or more bgs (MWD, 2007).

In the Central Subbasin, MCLs are exceeded in several wells throughout the basin for the following contaminants: inorganics, radiology, nitrates, VOCs and SVOCs (DWR, 2003).

Chino Subbasin

The Chino Subbasin underlies 240 square miles of the northwestern portion of the upper Santa Ana River Watershed in San Bernardino County and portions of western Riverside and northern Los Angeles Counties (MWD, 2007). The Chino Subbasin is bounded on the east by the Rialto-Colton fault; on the southeast by the contact with impermeable rocks forming the Jurupa Mountains and low divides connecting the exposures. On the south, the Chino Subbasin is bounded by contact with impermeable rocks of the Puente Hills and by the Chino fault; on the northwest by the San Jose fault; and on the north by impermeable rocks of the San Gabriel Mountains and by the Cucamonga fault (DWR, 2003).

Groundwater recharge to this subbasin occurs by direct infiltration or precipitation on the subbasin floor, by infiltration of surface flow, and by underflow of ground water from adjacent basins (DWR, 2003).

The water-bearing units in the Chino Subbasin include Holocene and Upper Pleistocene alluvium. The Pleistocene alluvium is exposed mainly in the northern part of the subbasin and supplies most of the water to wells in the subbasin. The alluvium contains interfingering finer alluvial-fan deposits and coarser fluvial deposits. Most of the wells producing water from the eastern half of Chino Subbasin draw from the coarse portion of the Pleistocene alluvium (DWR, 2003).

Total storage within this subbasin is approximately 18,300,000 af, and approximately 5,300,000 af are currently stored in the basin (DWR, 2003). The depth to groundwater near the TRTP route is approximately 75 feet or greater bgs (CBW, 2006).

In the Chino Subbasin, MCLs are exceeded in several wells throughout the basin for the following contaminants: TDS, inorganics, radiology, nitrates, pesticides, VOCs and perchlorate (MWD, 2007).

3.8.2.3 Alternative 2: SCE's Proposed Project

This section describes specific water resources, including streams and associated underlying groundwater basins, crossed by the proposed Project. Stream crossings were identified through GIS analysis of National Hydrography Dataset High Resolution data and verified using USGS 7.5 Minute Quadrangles. Underlying groundwater basins were identified through GIS analysis of DWR Bulletin 118 groundwater data.

Northern Region

Surface Water

Streams crossed by the proposed Project within the Northern Region are listed in the *Hydrology and Water Quality Specialist Report*, Table 2.3-1. Stream channels in this region are well defined but typically ephemeral in the foothills, and become less defined washes along the desert floor. The flat topography and lack of defined channels on the desert floor can lead to unconfined overland flow during storm events. Major named drainages in this region that are crossed by the proposed Project include Amargosa Creek, Anaverde Creek, the California Aqueduct, Cottonwood Creek, the Los Angeles Aqueduct, Oak Creek, and the Upper Santa Clara River (USGS, 2007). The proposed Project also crosses approximately 50 identified unnamed streams in this region (USGS, 2007). Numerous other minor gullies and washes exist along the route.

Additionally, named and/or unnamed drainages may be crossed by new and/or upgraded access and spur roads. Although the precise location of these roads is unknown at this time, it is likely that the same named and unnamed drainages that would be crossed by the right-of-way of the proposed Project would also be crossed by the new and/or improved access and spur roads. The location of any drainage that would be crossed by access and/or spur roads will be identified prior to commencement of any construction activities. Also, the Hydrology and Water Quality analysis for the proposed Project and alternatives will address the potential impacts associated with drainage crossings by access and/or spur roads.

Santa Clara River Reach 7 is listed as impaired for coliform bacteria on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments (SWRCB, 2006). The upstream limits of Reach 7 are near Lang Station, which is over 15 miles downstream of the Segment 5 crossing and the Vincent Substation (SCE, 2007).

Groundwater

As described in Section 3.8.2.2, the Northern Region is underlain by the Antelope Valley Groundwater Basin and the Fremont Valley Groundwater Basin. Depth to water in the Antelope Valley Groundwater Basin ranges between 100 feet and 500 feet bgs in the areas crossed by the proposed Project (USGS, 2003). Maximum contaminant levels are exceeded in several wells throughout the Antelope Valley Groundwater Basin for inorganics, radiology, nitrates, pesticides, VOCs and SVOCs (DWR, 2003).

In the Fremont Valley Groundwater Basin, depth to groundwater near the Windhub Substation is greater than 100 feet bgs (USGS, 2003), and no primary MCLs are exceeded (DWR, 2003).

Central Region

Surface Water

Streams crossed by the proposed Project within the Central Region are listed in the *Hydrology and Water Quality Specialist Report*, Table 2.3-2. In this mountainous area, the steep canyon slopes and channel

gradients promote a rapid concentration of storm runoff. Major named drainages in the region include Alder Creek, Arroyo Seco, Big Tujunga Creek, Clear Creek, Eaton Wash, Fall Creek, Monte Cristo Creek, North Fork Mill Creek, Tujunga Wash, and the West Fork San Gabriel River. The proposed Project crosses approximately 65 identified unnamed streams in this region (USGS, 2007). Also, countless small rills and gullies exist along the route.

In addition, roughly 152 named and/or unnamed drainages would be crossed by new and/or upgraded access and spur roads in the ANF. The locations of these drainage crossings by access and spur roads were mapped as part of a special survey that was conducted for the Biological Resources analysis (see Section 3.4, Biological Resources). Also, the location and a description of these drainage crossings by access and/or spur roads can be found under the discussion of Riparian Conservation Areas in the EIR/EIS Section 3.4, Biological Resources. Although the Hydrology and Water Quality analysis for the proposed Project and alternatives does not identify the location of drainage crossings by access and/or spur roads, the impacts of such crossings are addressed based on analysis of the hydrology of the Project study area, the likely construction methods for access and/or spur roads, and the likely locations of those roads, as identified in Section 3.4, Biological Resources, of the EIR/EIS, as well as in the *Riparian Conservation Area Report* (Aspen, 2008).

None of the streams or other water bodies in this region of the Project study area are listed as impaired on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments (SWRCB, 2006).

Groundwater

As described in Section 3.8.2.2, the edges of the Central Region are underlain by the Antelope Valley Groundwater Basin to the north and the Raymond Groundwater Basin to the south. Depth to water in the Antelope Valley Groundwater Basin ranges between 100 feet and 500 feet bgs within the areas crossed by the proposed Project (USGS, 2003). Maximum contaminant levels are exceeded in several wells throughout the Antelope Valley Groundwater Basin for inorganics, radiology, nitrates, pesticides, VOCs and SVOCs (DWR, 2003).

Depth to groundwater throughout the Raymond Groundwater Basin is 200 feet bgs or more (MWD, 2007). Maximum contaminant levels are exceeded in several wells throughout the basin for the following contaminants: total dissolved solids, nitrate, VOCs, and perchlorate (MWD, 2007).

Southern Region

Surface Water

Streams crossed by the proposed Project within the Southern Region are listed in the *Hydrology and Water Quality Specialist Report*, Table 2.3-3. Streams in this region are generally dry in the summer months, but it is common for perennial flows to be present, especially in the larger streams, which are fed by the San Gabriel Mountains or urban runoff. Many of the drainages in the Southern Region have been lined with concrete to serve as flood control channels, or otherwise altered to conform to the urban landscape; few streams remain in a natural state. Major named drainages in the region include Alhambra Wash, Avocado Creek, Chino Creek, Cucamonga Creek, Eaton Wash, La Cañada Verde Creek, Little Chino Creek, Mission Creek, Rio Hondo, Rubio Wash, the San Gabriel River, and San Jose Creek. The TRTP ~~also~~ crosses approximately 50 unnamed streams in this region (USGS, 2007).

Additionally, named and/or unnamed drainages may be crossed by new and/or upgraded access and spur roads, such as those in the Puente and Chino Hills. Although the precise location of these roads is unknown

at this time, it is likely that the same named and unnamed drainages that would be crossed by the right-of-way of the proposed Project would also be crossed by the new and/or improved access and spur roads. The location of any drainage that would be crossed by access and/or spur roads will be identified prior to commencement of any construction activities. Also, the Hydrology and Water Quality analysis for the proposed Project and alternatives will address the potential impacts associated with drainage crossings by access and/or spur roads.

Several of the streams and other water bodies in this region are listed as impaired on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments, including: Reach 3 of the San Gabriel River for toxicity; Reach 2 of the Rio Hondo for coliform and NH3; Reach 1 of San Jose Creek for algae and coliform; and Reach 2 of Chino Creek for coliform (SWRCB, 2006).

Groundwater

As described in Section 3.8.2.2, the Southern Region is underlain by the Raymond Groundwater Basin, the San Gabriel Valley Groundwater Basin, the Central Subbasin of the Coastal Plain of Los Angeles Groundwater Basin, and the Chino Subbasin of the Upper Santa Ana Valley Groundwater Basin. Depth to groundwater throughout the Raymond Groundwater Basin is 200 feet bgs or more (MWD, 2007). Maximum contaminant levels are exceeded in several wells throughout the basin for the following contaminants: total dissolved solids, nitrate, VOCs, and perchlorate (MWD, 2007).

Within the San Gabriel Valley Groundwater Basin, depth to groundwater varies from about 150 to 350 feet bgs (USEPA, 2004). Maximum contaminant levels are exceeded in several wells throughout the basin for the following contaminants: TDS, nitrate, VOCs, perchlorate and NDMA (DWR, 2003).

For the Central Subbasin, the Water Replenishment District of Southern California requires that groundwater levels be maintained at a level of approximately 75 feet or more bgs (MWD, 2007). Maximum contaminant levels are exceeded in several wells throughout the basin for the following contaminants: inorganics, radiology, nitrates, VOCs and SVOCs (DWR, 2003).

For the Chino Subbasin depth to groundwater near the TRTP route is at least 75 feet bgs (CBW, 2006). Maximum contaminant levels are exceeded in several wells throughout the basin for the following contaminants: TDS, inorganics, radiology, nitrates, pesticides, VOCs and perchlorate (DWR, 2003).

3.8.2.4 Alternative 3: West Lancaster Alternative

This alternative includes one deviation from the proposed Project route, which would extend for 3.4 miles along Segment 4, between S4 MP 14.9 and MP 17.9. This re-route is located in the Northern Region of the Project Area. No other portion of the proposed Project route would be changed under Alternative 3.

Northern Region

The portion of the proposed Project that would be replaced by Alternative 3 (Segment 4, MP 14.9 - 17.9) would cross three unnamed streams. The Alternative 3 re-route would cross the same three unnamed streams, as well as two additional unnamed streams. No named streams would be crossed by the Alternative 3 re-route. All other aspects of the Affected Environment, including climate, topography, land use, floodplains, and groundwater basins, are the same as the proposed Project for the Northern Region, as described in Section 3.8.2.3.

Central Region

Affected Environment for the Central Region of Alternative 3 would be exactly the same as Affected Environment for the Central Region of the proposed Project, as described in Section 3.8.2.3.

Southern Region

Affected Environment for the Southern Region of Alternative 3 would be exactly the same as Affected Environment for the Southern Region of the proposed Project, as described in Section 3.8.2.3.

3.8.2.5 Alternative 4: Chino Hills Route Alternatives

Under Alternative 4, the proposed transmission line would follow the same route as the proposed Project through the Northern and Central Regions. In the Southern Region, Alternative 4 would diverge from the proposed Project route at S8A MP 19.2 and turn to the southeast, crossing through part of Orange County before entering San Bernardino County and the Chino Hills State Park (CHSP/Park).

Northern Region

Affected Environment for the Northern Region of Alternative 4 would be exactly the same as Affected Environment for the Northern Region of the proposed Project, as described in Section 3.8.2.3.

Central Region

Affected Environment for the Central Region of Alternative 4 would be exactly the same as Affected Environment for the Central Region of the proposed Project, as described in Section 3.8.2.3.

Southern Region

As described above, the Affected Environment of Alternative 4 is identical to the Affected Environment of the proposed Project (Section 3.8.2.3) for all Segments except Segment 8A, in the Southern Region. The Affected Environment of Segment 8A would be different than that of the proposed Project ~~from~~ beginning at S8A MP 19.2 to 35.2. Alternative 4 would not include upgrades along Segment 8A from MP 19.2 to 35.2 or along Segment 8C. However upgrades, including approximately 37 new double-circuit 220-kV transmission structures, would still be required along Segment 8B as part of Alternative 4, same as Alternative 2. ~~In addition, the upgrades associated with Segments 8B and 8C would not occur; therefore Affected Environment characteristics associated with Hydrology and Water Quality for these segments would not be the same under Alternative 4.~~

Impacts to several surface and groundwater resources would be avoided and/or introduced under each of the Alternative 4 routing options. The surface and groundwater resources that would be affected by the proposed Project but would be avoided under the routing options for Alternative 4 are listed in the *Hydrology and Water Quality Specialist Report*, Table 2.5-1.

Although the Alternative 4 routing options would avoid surface water and groundwater resources along ~~portions~~ approximately 16 miles of Segment 8A (includes Segment 8C) ~~as well as Segments 8B and 8C~~, these options would likewise introduce new stream crossings. Milepost information for these routes is not available, and it is anticipated that the location of one or more of the Alternative 4 routing options could change depending on final engineering. Therefore, it is not possible to provide accurate tables of stream crossings that would occur under each Alternative 4 routing option. Instead, a rough estimate of the number of stream crossings, including any named stream crossings, is provided here for each routing option.

The proposed routes for Alternative 4 would cross through parts of Orange County and San Bernardino County, which the proposed Project (Alternative 2) would not enter. The routing options for Alternative 4 would also cross through the CHSP and would include a new switching station either within or outside the Park. The ~~four~~ five different routing options (Routes A, B, C, C Modified, and ~~through~~ D) which are included under Alternative 4 are discussed in further detail below.

Route A

This alternative would deviate from the proposed Project route at Segment 8A MP 19.2 and run parallel to the existing Mira Loma-Walnut/Olinda 220-kV transmission line for 6.2 miles, 2.3 miles of which would be within the CHSP. Route A would be situated within an existing utility corridor, but would require that the corridor be widened by 150 feet along the length of Route A. In addition, Route A would require the installation of a new switching station within the CHSP. The size of new switching station would be a minimum of four to five acres in size, using gas-insulated technology. Five unnamed streams would be crossed by Route A.

Route B

Route B would follow the same path as Route A into the CHSP, but instead of terminating at the new switching station described above, Route B would continue to just beyond the eastern Park boundary, eventually terminating at a new switching station outside of the CHSP. As with the Route A alternative, the new switching station for Route B would be a minimum of four to five acres in size. Route B would travel through the CHSP for approximately 4.3 miles. Eight streams would be crossed by Route B, including Aliso Creek and seven unnamed streams.

Route C

The proposed Route C alternative would involve the construction of a new transmission line just north of the CHSP, the re-routing of two existing lines within the CHSP, the removal of existing transmission lines from within the CHSP, and the construction of a new switching station just north of the Park. The removal of existing transmission lines would be considered part of this alternative because removal activities would affect water quality. Ten unnamed streams would be crossed by Route C.

Route C Modified

The proposed Route C Modified is very similar to the original Route C, described above, with the exception that the switching station would be situated approximately 2,500 feet northwest of the location proposed under the original Route 4C. As such, transmission line configurations and access roads to the new switching station for Route C Modified would be altered to account for relocation of the switching station. Re-routing of the same transmission lines described under Route C would occur under Route C Modified; however, the 500-kV reroute would occur utilizing one set of double-circuit 500-kV towers rather than two sets (in parallel) of single-circuit 500-kV towers. Re-routing of these transmission lines would result in the same effects to water quality. Route 4C Modified would traverse twelve unnamed streams.

Route D

The proposed Route D alternative would follow the same path as the proposed Route C alternative, but instead of terminating at a switching station at approximately Segment 8A MP 24.7, Route D would continue to follow the northern boundary of CHSP for approximately 4.0 miles, before crossing through part of the Park in a southeasterly direction and terminating at a new switching station just outside the eastern Park boundary. The proposed switching station for Route D would be in the same location as that proposed for the Route B alternative. Four streams would be crossed by Route D, including Aliso Creek and three unnamed streams.

3.8.2.6 Alternative 5: Partial Underground Alternative

Under Alternative 5, the proposed transmission line (T/L) would follow the same route as the proposed Project through the Northern and Central Regions. In the Southern Region, Alternative 5 would place 3.5 miles of Segment 8A underground beneath the same corridor as the proposed aboveground T/L, from MP 21.9 to MP 25.4.

Northern Region

Affected Environment for the Northern Region of Alternative 5 would be exactly the same as Affected Environment for the Northern Region of the proposed Project, as described in Section 3.8.2.3.

Central Region

Affected Environment for the Central Region of Alternative 5 would be exactly the same as Affected Environment for the Central Region of the proposed Project, as described in Section 3.8.2.3.

Southern Region

Under this alternative, the existing 220-kV T/L along Segment 8A would be left in place from MP 21.9 to MP 25.4. Several streams that would be crossed by the proposed Project along Segment 8A, between MP 21.9 to MP 25.4, would not be crossed by Alternative 5 because the transmission infrastructure would be placed well below those streams. The streams that would be avoided under this alternative are listed in the *Hydrology and Water Quality Specialist Report*, Table 2.6-1. In addition, this alternative would affect the underlying groundwater basin because the transmission infrastructure would be placed below the depth to groundwater. Table 2.6-1 from the *Hydrology and Water Quality Specialist Report* also shows the groundwater basin (Upper Santa Ana Valley) that would be affected under this alternative but avoided under the proposed Project. Please see Section 3.8.2.2 for a description of the Chino Subbasin of the Upper Santa Ana Valley groundwater basin.

3.8.2.7 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Alternative 6 includes the maximum amount of helicopter construction on the ANF (Segments 6 and 11). This alternative follows the same route for the transmission line as the proposed Project in all three regions, as described in Section 2.6. This alternative would require ten helicopter staging areas ranging in size from two acres to over four acres (Figure 2.6-1). All of the locations identified for these areas, with the exception of Site 9, appear to have well-maintained access roads leading to them and should be accessible for the delivery and staging of materials, equipment, and personnel. Site 9 would require a new access road. Improvements at each of the staging and landing areas would be required and would include clearing of vegetation, grading, and potential cut and fill activities.

Due to the weight capacities and fuel limitations for the helicopters that would be used under this alternative, only those tower locations within an approximate 2.5-mile radius of the staging areas were considered viable candidates for helicopter construction. For the purpose of obtaining a maximum number of tower locations subject to helicopter construction, all of the tower locations that occur within the 2.5-mile radius of each staging area were assumed to require helicopter construction. As a result of this alternative, the construction and/or improvements to many of the access roads and all of the spur roads associated with these tower locations that would be required under SCE's proposed Project (Alternative 2) would not occur.

Northern Region

Affected Environment for the Northern Region of Alternative 6 would be exactly the same as Affected Environment for the Northern Region of the proposed Project, as described in Section 3.8.2.3.

Central Region

Affected Environment for the Central Region of Alternative 6 would be very similar to the Affected Environment for the Central Region of the proposed Project, as described in Section 3.8.2.3. However, under this alternative, up to 143 towers in the ANF would be constructed by helicopter. The use of helicopters for tower construction would preclude the need for construction and/or improvements along several access and spur roads within the ANF.

Several streams that would be crossed by access and spur roads within the ANF would no longer be affected under Alternative 6. The locations of these drainage crossings by access and spur roads that would be avoided under Alternative 6 were mapped as part of the *Riparian Conservation Area Report* (Aspen Environmental Group, 2008). Also, the location and a description of these drainage crossings by access and/or spur roads that would be avoided under Alternative 6 can be found under the discussion of Riparian Conservation Areas in the EIR/EIS Section 3.4, Biological Resources. Although the Hydrology and Water Quality analysis for the proposed Project and alternatives does not identify the location of drainage crossings by access and/or spur roads, nor the drainage crossings that would be avoided under this alternative, the impacts of such crossings are addressed based on analysis of the hydrology of the Project study area, the likely construction methods for access and/or spur roads, and the likely locations of those roads, as identified in Section 3.4, Biological Resources, of the EIR/EIS.

Southern Region

Affected Environment for the Southern Region of Alternative 6 would be exactly the same as Affected Environment for the Southern Region of the proposed Project, as described in Section 3.8.2.3.

3.8.2.8 Alternative 7: 66-kV Subtransmission Alternative

Under Alternative 7, the proposed T/L would follow the same route as the proposed Project through the Northern and Central Regions. In the Southern Region, Alternative 7 would place one mile of 66-kV subtransmission line underground beneath the same corridor as the proposed aboveground T/L, from Segment 7 MP 8.9 to MP 9.9, and would re-route and place underground several sections of 66-kV subtransmission lines through the Whittier Narrows Recreation Area.

Northern Region

Affected Environment for the Northern Region of Alternative 7 would be exactly the same as Affected Environment for the Northern Region of the proposed Project, as described in Section 3.8.2.3.

Central Region

Affected Environment for the Central Region of Alternative 7 would be exactly the same as Affected Environment for the Central Region of the proposed Project, as described in Section 3.8.2.3.

Southern Region

Under this alternative, three 66-kV subtransmission line elements would be undergrounded and/or re-routed: (1) undergrounding the 66-kV subtransmission line in Segment 7 through the River Commons or Duck Farm Project (between Valley Boulevard – S7 MP 8.9 and S7 MP 9.9), (2) re-routing and undergrounding the 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 7 (S7 MP 11.4 to 12.025), and (3) re-routing the 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8.

3.8.3 Applicable Laws, Regulations, and Standards

3.8.3.1 Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. For the proposed Project, NPDES permits would be delegated to the Lahontan, Los Angeles, and Santa Ana RWQCBs. Projects that disturb one or more acres are required to obtain NPDES coverage under the ~~California General Permit for~~NPDES General Permit for Storm Water Discharges ~~of Storm Water~~ Associated with Construction Activity, Order No. 99-08-DWQ. The Construction General Permits require the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP describes Best Management Practices (BMPs) the discharger will use to protect stormwater runoff. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. (SWRCB, 2006)

Section 401 of the CWA requires that any activity, including river or stream crossing during road, pipeline, or transmission line construction, which may result in discharges into a State waterbody, must be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards. Proposed Project activities would adhere to State and federal water quality standards and would be in compliance with Section 401 of the CWA.

Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (USACE) to regulate the discharge of dredge or fill material to the waters of the U.S. and adjacent wetlands. The limits of non-tidal waters extend to the Ordinary High Water (OHW) line, defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics, such as natural line impressed on the bank, changes in the character of the soil, and presence of debris. The USACE may issue either individual, site-specific permits or general, nationwide permits for discharge into US waters. A Section 404 permit would be required for the proposed Project construction activities involving excavation or

replacement of fill material into waters of the United States (i.e., road construction involving cut-and-fill in streams). A Water Quality Certification pursuant to Section 401 of the CWA is required for Section 404 permit actions. If applicable, construction would also require a request for Water Quality Certification (or waiver thereof) from the applicable RWQCB. Proposed Project activities would adhere to State and federal water quality standards and would be in compliance with Section 404 of the CWA.

Section 303(d) of the CWA (CWA, 33 USC 1250, et seq., at 1313(d)) requires states to identify "impaired" water bodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to the USEPA for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, states are required to prioritize waters and watersheds for future development of TMDL requirements. The State Water Resources Control Board (SWRCB) and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL requirements (LARWQCB, 2004).

Both the USEPA and the California State Board are revising their NPDES construction guidelines and permits. The State Board is expected to adopt a revised Construction General Permit (CGP) in August 2009. The current CGP (Order No. 99-08-DWQ) expired in 2004. The State Board expects to adopt the new CGP in August 2009, and implementation of the permit will likely begin in the 2009/2010 rainy season. The new CGP is expected to include requirements beyond those in the current Construction Permit. Where the current CGP requires only a Sorm Water Pollution Prevention Plan for compliance with the permit, the new CGP will require substantial additional documents and compliance steps. Examples of the increased compliance tasks include project risk evaluation, effluent monitoring, receiving water monitoring, electronic data submission of the SWPPP and all other permit registration documents, and a Rain Event Action Plan (REAP). The REAP is expected to weigh heavilty in a site's permit compliance evaluation, and possibly be more important than the SWPPP. The proposed Project is likely to fall under the requirements of the new CGP.

In addition, the USEPA is mandated to promulgate Effluent Limitation Guidelines for construction activities by December 1, 2009; Draft Guidelines were issued in November 2008. If the State CGP is not adoped prior to December 1, 2009, the USEPA effluent limit guidelines must be included in the State CGP. The proposed TRTP would be subject to the State CGP and the increased regulatory requirements.

Wild and Scenic Rivers Act

In accordance with the Wild and Scenic Rivers Act (Public Law 90-542), certain selected rivers in the United States are to be protected and preserved in free-flowing condition because of their "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values…" Every wild, scenic, or recreational river in a free-flowing condition, or upon restoration of this condition, is eligible for inclusion in the National Wild and Scenic Rivers System. If determined to be eligible, a suitability analysis is conducted for the river's current level of development, accounting for water resource projects, shoreline development, and accessibility. A recommendation is also made that the eligible river be placed in one or more of three classes: wild, scenic, and/or recreational. Prior to official designation, eligible rivers are afforded federal protection against activities or actions that could potentially interfere with the "outstandingly remarkable values" (ORVs) of the river that make it eligible for the recommended classification/s within the National Wild and Scenic Rivers System. In the Angeles National Forest, the West Fork of the San Gabriel River is currently eligible to be included in the National Wild and Scenic River System (USDA, 2005b) as a recreational river.

USDA Forest Service Land Management Plan

The USDA Forest Service Land Management Plan for the ANF provides management direction for the ANF (USDA, 2005b). The 2005 Land Management Plan was approved on September 20, 2005, and became effective on October 31, 2005. Part 2, Appendix B, of the 2005 Land Management Plan includes a description of "Program Strategies and Tactics" that the ANF may choose to emphasize to progress toward achieving the desired conditions and goals of the Plan. The following is a list of the program strategies related to Hydrology and Water Quality that are applicable to the proposed Project:

- Watershed Function – Protect, maintain and restore natural watershed functions including slope processes, surface water and groundwater flow and retention, and riparian area sustainability.
- Water Management – Manage groundwater and surface water to maintain or improve water quantity and quality in ways that minimize adverse effects.
- Hazardous Materials – Manage known hazardous materials risks.

3.8.3.2 State

Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the California Department of Fish and Game (CDFG) in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 requires an agreement between the CDFG and a public agency proposing a project that would:

- Divert, obstruct, or change a streambed;
- Use material from the streambed; or
- Result in the disposal, or deposition of debris, waste, or other material containing crumbed, flaked, or ground pavement where it can flow into a stream.

As described in the following impact analysis, it is ~~not~~ expected that the proposed Project would cause or facilitate the actions listed above. ~~However, if it is determined d~~During final engineering and design of the proposed Project, if it is determined that any Project-related actions would have the potential to necessitate a Streambed Alteration Agreement, then such an agreement would be prepared and implemented prior to construction of the proposed Project, thus maintaining compliance with Section 1602 of the California Fish and Game Code.

Porter Cologne Water Quality Control Act

The Porter Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures.

California Water Code §13260

California Water Code §13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system, must submit a report of waste discharge to the applicable RWQCB. Any actions related to the proposed Project that would be applicable to California Water Code §13260 would be reported to the applicable RWQCB (Lahontan, Los Angeles, or Santa Ana).

3.8.3.3 Local

Within Kern County, surface water and groundwater quality and use are regulated by the County of Kern Engineering and Survey Service (KCESS). Water quality in Kern County is also under the jurisdiction of the Lahontan RWQCB (LRWQCB). Within Los Angeles County, surface water and groundwater quality and use are regulated by the Los Angeles County Department of Public Works (LACDPW). The LACDPW has Master Plans for many of its large flood control facilities including the Los Angeles River. Water quality in Los Angeles County is also under the jurisdiction of the Los Angeles RWQCB (LARWQCB). Water quality in the eastern part of Los Angeles County is also under the jurisdiction of the Santa Ana RWQCB (SARWQCB). Within San Bernardino County, surface water and groundwater quality and use are regulated by the San Bernardino County Department of Public Works (SBCDPW) in addition to the SARWQCB (SCE, 2007).

Local water quality control plans applicable to the proposed Project include the Lahontan RWQCB Basin Plan, the Los Angeles RWQCB Basin Plan, and the Santa Ana RWQCB Basin Plan. Each of these plans defines water quality objectives for their jurisdiction. These Regional Boards regulate the sources of water quality problems which could result in the impairment of beneficial uses or degradation of water quality, including both point sources of pollution and non-point sources of pollution. These pollution sources are regulated through the issuance of NPDES permits (SCE, 2007).

SCE has also developed site-specific Storm Water Management Plans (SWMPs) for each of its attended substations and service centers. These SWMPs address operational water quality and storm water issues. The existing SWMP for Vincent Substation would be updated to reflect the planned changes. There is currently no SWMP for Antelope Substation because it is not an attended facility. Whirlwind Substation is not proposed to be an attended facility, and therefore a SWMP would not be developed for this substation (SCE, 2007).

3.8.4 Impact Analysis Approach

3.8.4.1 Criteria for Determining Impact Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that would result from the proposed Project and alternatives. Appropriate criteria have been identified and utilized to make these significance conclusions. The following significance criteria for Hydrology and Water Quality were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). Impacts of the proposed Project or alternatives would be considered significant and would require mitigation if:

- Criterion HYD1: Violate any water quality standards or waste discharge requirements, create any substantial new sources of polluted runoff, or otherwise degrade water quality.
- Criterion HYD2: Substantially deplete groundwater supplies or interfere with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- Criterion HYD3: Place within a watercourse or flood hazard area structures which would impede or redirect flood flows, or otherwise substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or other flood-related damage on- or offsite.

- Criterion HYD4: Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite, or otherwise create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems.
- Criterion HYD5: Result in or be subject to damage from inundation by mudflow.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.8.4.2 Applicant-Proposed Measures (APMs)

APMs were identified by SCE in the PEA. Table 3.8-3 presents the APMs that are relevant to the issue area of Hydrology and Water Quality. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. Therefore, the following discussions of impact analysis assume that all APMs will be implemented as defined in the table. Additional mitigation measures are recommended in this section if it is determined that APMs do not fully mitigate the impacts for which they are presented.

Table 3.8-3. Applicant-Proposed Measures – Hydrology and Water Quality

APM HYD-1	Construction SWPPP. A Construction SWPPP would be developed for the Project. Notices of Intent (NOIs) would be filed with the SWRCB and/or the RWQCBs, and a Waste Discharge Identification Number (WDID) would be obtained prior to construction. The SWPPP would be stored at the construction site for reference or inspection review. In addition, grading permit applications would be submitted, as applicable, to local jurisdictions. Implementation of the SWPPP would help stabilize graded areas and waterways, and reduce erosion and sedimentation. The plan would designate BMPs that would be adhered to during construction activities. Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) would be installed before clearing and grading begins. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities. During construction activities, measures would be in place to ensure that contaminates are not discharged from the construction sites. The SWPPP would define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. Erosion control during grading of the construction sites and during subsequent construction would be in place and monitored as specified by the SWPPP. A silting basin(s) would be established, as necessary, to capture silt and other materials, which might otherwise be carried from the site by rainwater surface runoff. In addition to a Construction SWPPP, all additionally required documents and procedures (as required in the anticipated April 2009 CGP) will be developed. These procedures may include effluent monitoring, receiving water monitoring, additional staff training, additional documentation, online reporting of all documentation and monitoring results, and project risk analysis.
APM HYD-2	Environmental Training Program. An environmental training program would be established to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. A monitoring program would be implemented to ensure that the plans are followed throughout the period of construction.
APM HYD-3	Accidental Spill Control. The Construction SWPPP identified above would include procedures for quick and safe cleanup of accidental spills. The Construction SWPPP would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. The SWPPP would identify areas where refueling and vehicle maintenance activities and storage of hazardous materials, if any, would be permitted.
APM HYD-4	Non-storm Water and Waste Management Pollution Controls. Oil-absorbent materials, tarps, and storage drums would be used to contain and control any minor releases of transformer oil. In the event that excess water and liquid concrete escapes from foundations during pouring, it would be directed to bermed areas adjacent to the borings where the water would infiltrate or evaporate and the concrete would remain and begin to set. Once the excess concrete has been allowed to set up (but before it is dry), it would be removed and transported to an approved landfill for disposal.

Table 3.8-3. Applicant-Proposed Measures – Hydrology and Water Quality	
APM HYD-5	Hazardous Material Identification. A Phase I Environmental Site Assessment (ESA) would be performed at each new or expanded substation location and along newly acquired transmission line R-O-Ws. Depending on the results of the Phase I ESA, soil sampling would be conducted and remedial activities would be implemented, if applicable. If hazardous materials were encountered during any construction activities, work would be stopped until the material was properly characterized and appropriate measures were taken to protect human health and the environment. If excavation of hazardous materials is required, they would be handled, transported, and disposed of in accordance with federal, state, and local regulations.
APM HYD-6	Drilling and Construction Site Dewatering Management. Any dewatering operations associated with drilling and LST/TSP footing installation would follow applicable state and local regulatory requirements. If groundwater were encountered while excavating or constructing the transmission line or substations, dewatering operations would be performed. These operations would include, as applicable, the use of sediment traps and sediment basins in accordance with BMP NS-2 (Dewatering Operations) from the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook – Construction (CASQA, 2003).
APM HYD-7	Flood and Erosion Structure Damage Protection. Transmission towers or other structures would not be placed within waterway protection corridors (floodways) defined by city and county codes. Aboveground project features such as transmission line towers and substation facilities will be designed and engineered to withstand potential flooding and erosion hazards. Although some project features may need to be placed within 100-year floodplain boundaries, they will be designed per applicable floodplain development guidelines. Measures would include specially designed footings to withstand flooding due either to a 100-yr flood event or a failure of a nearby upstream dam or reservoir. The main Project facilities (i.e., substations) will be located outside of known watercourses.
APM HYD-8	Operation Storm Water Management Plan. The post-construction (Operation) Storm Water Management Plan (SWMP) for Vincent Substation would be updated. The SWMP identifies potential pollutants based on the activities that take place at the site, and discusses the appropriate Best Management Practices that should be used to prevent pollutants from entering the storm water and non-storm water runoff from the site. The SWMP also includes requirements for periodic site training for employees and inspections by onsite personnel.
APM GEO-2	Perform Geotechnical Studies. Prior to final design of substation facilities and T/L tower foundations, a geotechnical study would be performed to identify site-specific geologic conditions and potential geologic hazards in enough detail to support good engineering practice. The geotechnical study would be performed by professional civil or geotechnical engineers and engineering geologists licensed in the State of California and would provide design and construction recommendations, as appropriate, to reduce potential impacts from geologic hazards or soil conditions.
APM HAZ-2	Hazardous Materials and Waste Handling Management. Hazardous materials used and stored onsite for the proposed construction activities – as well as hazardous wastes generated onsite as a result of the proposed construction activities – would be managed according to the specifications outlined below. • Hazardous Materials and Hazardous Waste Handling: A project-specific hazardous materials management and hazardous waste management program would be developed prior to initiation of the project. The program would outline proper hazardous materials use, storage and disposal requirements as well as hazardous waste management procedures. The program would identify types of hazardous materials to be used during the project and the types of wastes that would be generated. All project personnel would be provided with project-specific training. This program would be developed to ensure that all hazardous materials and wastes were handled in a safe and environmentally sound manner. Hazardous wastes would be handled and disposed of according to applicable rules and regulations. Employees handling wastes would receive hazardous materials training and shall be trained in hazardous waste procedures, spill contingencies, waste minimization procedures and treatment, storage and disposal facility (TSDF) training in accordance with OSHA Hazard Communication Standard and 22 CCR. SCE would use landfill facilities that are authorized to accept treated wood pole waste in accordance with HSC 25143.1.4(b). • Construction Stormwater Pollution Prevention Plan (SWPPP): A project-specific construction SWPPP would be prepared and implemented prior to the start of construction of the transmission line and substations. The SWPPP would utilize Best Management Practices (BMPs) to address the storage and handling of hazardous materials and sediment runoff during construction activities (California Stormwater Quality Association, 2004). • Transport of Hazardous Materials: Hazardous materials that would be transported by truck include fuel (diesel fuel and gasoline) and oil and lubricants for equipment. Containers used to stored hazardous materials would be properly labeled and kept in good condition. Written procedures for the transport of hazardous materials used would be established in accordance with U.S. Department of Transportation and Caltrans regulations. A qualified transporter would be selected to comply with U.S. Department of Transportation and Caltrans regulations.

Table 3.8-3. Applicant-Proposed Measures – Hydrology and Water Quality	
	• Fueling and Maintenance of Construction Equipment: Written procedures for fueling and maintenance of construction equipment would be prepared prior to construction. Vehicles and equipment would be refueled onsite or by tanker trucks. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling stations would be located in designated areas where absorbent pad and trays would be available. The fuel tanks would also contain a lined area to ensure that accidental spillage does not occur. Drip pans or other collection devices would be placed under the equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet. • Fueling and Maintenance of Helicopters: Written procedures for fueling and maintenance of helicopters would be prepared prior to construction. Helicopters would be refueled at helicopter staging areas or local airports. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling areas would be located in designated areas where absorbent pad and trays are available. • Emergency Release Response Procedures: An Emergency Response Plan detailing responses to releases of hazardous materials would be developed prior to construction activities. It would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. All hazardous materials spills or threatened release, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of the quantity spilled would be immediately reported if the spill has entered a navigable water, stream, lake, wetland, or storm drain, if the spill impacted any sensitive area including conservation areas and wildlife preserved, or if the spill caused injury to a person or threatens injury to public health. All construction personnel, including environmental monitors, would be aware of state and federal emergency response reporting guidelines.
APM HAZ-5	Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan. • Spill Prevention, Countermeasure, and Control Plan (SPCC Plan). In accordance with Title 40 of the CFR, Part 112, SCE would prepare a SPCC for proposed and/or expanded substations. The plans would include engineered and operational methods for preventing, containing, and controlling potential releases, and provisions for quick and safe cleanup. • Hazardous Materials Business Plans (HMBPs). Prior to operation of new or expanded substations, SCE would prepare or update and submit, in accordance with Chapter 6.95 of the CHSD, and Title 22 CCR, an HMBP. The required documentation would be submitted to the CUPA. The HMBPs would include hazardous materials and hazardous waste management procedures and emergency response procedures including emergency spill cleanup supplies and equipment.

3.8.4.3 Impact Assessment Methodology

This analysis first established baseline conditions for the affected environment of Hydrology and Water Quality, presented above in Section 3.8.2, which included a description of climate, topography, surface water resources, groundwater basins, floodplains, water quality, and land use. These baseline conditions were evaluated based on their potential to be affected by construction activities as well as operation and maintenance activities related to the proposed Project and alternatives. Construction, operation, and maintenance activities were identified based on analysis provided in SCE's PEA. Results from the *Riparian Conservation Area Report* and the *Hydrology and Water Quality Specialist Report* (Aspen, 2009~~8~~) were used to further identify the effects of Project activities on the affected environment. Impacts to Hydrology and Water Quality were then identified based on the predicted interaction between construction, operation, and maintenance activities with the affected environment.

3.8.5 Alternative 1: No Project/Action

Selection of the No Project/Action Alternative would mean that the proposed TRTP would not be implemented. As such, none of the associated Project activities would occur and the environmental impacts associated specifically with the proposed Project would not occur. Particularly, the construction-related water quality impacts described in Sections 3.8.6 through 3.8.11 would be avoided. No soil would be disturbed, and therefore the potential for erosion would be the same as under baseline conditions. No

hazardous materials would be transported and potentially leaked into waterbodies, and the potential for water quality contamination would also be the same as under baseline conditions.

However, under the No Project/Action Alternative, some currently unknown plan would need to be developed to provide the transmission upgrades necessary to interconnect renewable generation projects in the Tehachapi area and to also address the existing transmission problems south of Lugo Substation. Similarly, other yet unspecified transmission upgrades would presumably be proposed in the future to provide the needed capacity and reliability to serve growing electrical load in the Antelope Valley. To interconnect wind projects in the Tehachapi area, it is possible that other electrical utilities with transmission facilities in the area, such as LADWP, might purchase some of the power from Tehachapi wind developers and integrate it into their system. Another possibility is the development of a private transmission line that could connect wind projects to the electrical grid. Any of these projects, which would occur as a result of the unfulfilled electrical transmission need in the absence of TRTP, are likely to produce similar impacts as those identified for the proposed Project. Transmission line construction utilizes some standard techniques such as leveling, grading, and excavation, which would have similar water quality impacts regardless of the specific configuration of the transmission line.

Additionally, numerous potential developments throughout the proposed Project area that are completely unrelated to electrical transmission could impact water quality. For example, the population within the Antelope Valley was 285,000 in 2006 and is projected to reach 550,000 by the year 2025 (AVEK, 2005). In order to accommodate this large population increase, numerous large housing developments will need to be completed. Not only will these developments impact water quality during the construction phase, but once they are occupied they will be a new source of wastewater. The additional wastewater will at the least change the hydrology of the region and will most likely produce water quality impacts as well. Another example of a change to water quality under the No Project/Action Alternative that is completely unrelated to electrical transmission is the continued development of water quality regulations throughout the Project Regions. In particular, Total Maximum Daily Loads (TMDLs) are being implemented at an increasing rate. These watershed-level regulations may have substantial positive impacts on water quality. The TMDLs will continue to be implemented, regardless of whether or not TRTP is constructed. Because of the above mentioned examples as well as numerous other possible developments, Hydrology and Water Quality impacts, both negative and positive, would occur under the No Project/Action Alternative.

3.8.6 Alternative 2: SCE's Proposed Project

3.8.6.1 Direct and Indirect Effects Analysis

The following section describes potential direct and indirect impacts and mitigation measures related to Hydrology and Water Quality impacts for Alternative 2.

Water Quality Violations, Waste Discharges, or Polluted Runoff (Criterion HYD1)

Impact H-1: Construction activities would degrade surface water quality through erosion and accelerated sedimentation.

Construction and/or demolition of overhead transmission line towers and construction and/or upgrades of substations would require several types of soil disturbance that could subsequently cause localized, short-term water quality degradation. Excavation and/or grading would be required at all tower sites where new pads or footings would be required, at all tower demolition sites, and at all new and/or expanded substations. Additional clearing of vegetation and/or grading would be required for crane pads,

pulling/stringing stations, staging areas, marshalling yards, concrete batch plants, helicopter staging areas, helicopter landing pads, tower wreck-out staging areas, and access and spur roads. Disturbance of soil during construction and/or demolition could result in soil erosion and temporarily lowered water quality through increased turbidity and accelerated sediment deposition into local streams. In particular, road construction for both temporary and permanent roadways has the potential to cause soil instability resulting in accelerated erosion and sedimentation, which could temporarily degrade surrounding water quality. Road construction and improvements may involve road widening up to 16 feet (SCE, 2007), and would produce large amounts of loose and disturbed soil, which, without proper management, could enter nearby streams. The water quality impact of road construction and improvement is of particular concern when that road crosses a stream channel, closely parallels a stream channel, or traverses a steep slope. In steep terrain, existing unpaved roads within the Project area show extensive evidence of overland flow, such as rills and gullies that run across and parallel to the roadways. Soil disturbance on these steep, unpaved roads would create a high potential for accelerated erosion. Land disturbance associated with road construction and improvements would include the following activities: removal of vegetation, blade grading, soil compaction, installation of drainage structures and stream crossings, installation of footings and foundations, and installation of slope-strengthening structures as needed. These activities involve soil disturbance and stockpiling of earth, which, without proper management, could wash into surrounding waterways. Construction of any type of stream crossing through an actively flowing stream channel would cause some amount of unavoidable, temporary, localized sedimentation. This impact would apply to all stream crossings along the route, including those presented in the *Hydrology and Water Quality Specialist Report*, as well as streams crossed by access and spur roads that are identified in the *Riparian Conservation Area Report* (Aspen, 2009~~8~~).

Northern Region

The potential for localized, short-term degradation of surface water quality through erosion and sedimentation would be low to moderate within the Northern Region. The majority of the soil disturbance in the Northern Region would occur on very flat ground, which reduces the potential for erosion compared to soil disturbance on steeply sloped topography. Most streams crossed by the proposed Project within the Northern Region are dry except during infrequent periods of brief rainfall with sufficient intensity to produce runoff. However, these infrequent precipitation events can occur with great intensity, and can produce extensive sheet flow and flooding, which would lead to substantial erosion of unmanaged disturbed and/or stockpiled soil.

Central Region

The potential for localized, short-term degradation of surface water quality through accelerated erosion and sedimentation would be moderate within the Central Region. This Region, which includes the ANF, is characterized by steep slopes and greater precipitation than either the Northern or Southern Regions. Although soils in the Central Region generally have a high capacity for absorption, the Central Region is subject to intense storm events that generate precipitation that exceeds the soil's capacity to absorb moisture. Under these conditions, substantial runoff is probable. Without the proper implementation of soil management practices, disturbed and/or stockpiled soil, especially disturbances associated with road construction and/or improvement, would have a moderate potential for erosion during these storm events. In many cases, such as along Monte Cristo Creek, access road construction and/or improvement would occur directly adjacent to a stream channel, which, without the proper implementation of soil management practices, would have a moderate potential to temporarily accelerate sedimentation of the nearby stream

should a large storm event occur. Implementation of best management practices would substantially reduce the potential for water quality degradation through accelerated erosion and sedimentation. For the Central Region, the predicted annual average increase in erosion and sedimentation as a result of construction activities associated with both the proposed Project and alternatives was analyzed using GIS-based erosion and sedimentation modeling. The results of that modeling are presented in the *Hydrology and Water Quality Specialist Report* (Aspen, 2009~~8~~).

Southern Region

The potential for localized, short-term degradation of surface water quality through erosion and sedimentation would be low to moderate within the Southern Region. This region is highly urbanized and most of the stream crossings are channelized and lined with concrete. The vast majority of all Project work would occur outside of drainages, with the exception of Project structures that would be placed in detention basins and construction activities that could affect drainages in open areas such as the Puente Hills and Chino Hills. The topography is relatively flat compared to the Central Region. Most runoff quickly enters the municipal storm drain system. Erosion from disturbed and/or stockpiled soil would have a low to moderate potential to enter nearby streams during storm events.

APM HYD-1 (Construction SWPPP) and APM HYD-2 (Environmental Training Program) would reduce the likelihood of construction-related water quality degradation through erosion and sedimentation. APM HYD-1 requires implementation of a Construction SWPPP, which would include several BMPs to reduce erosion and sedimentation, such as straw wattles, water bars, covered stockpiles, silt fences, silting basins, and mulching or seeding to protect exposed areas as well as monitoring to ensure that the BMPs are implemented. APM HYD-2 requires establishment of an environmental training program to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. Although the APM HYD-1 and APM HYD-2 would reduce the potential for soil erosion and deposition of sediment into stream channels, erosion and sediment deposition could still occur. Additionally, site-specific requirements, such as soil management requirements within the ANF, may require BMPs beyond those specified by the RWQCBs in the SWPPP, or may prohibit specific BMPs that would otherwise be allowed by the RWQCBs. Guidance on erosion control practices within the ANF can be found in the *Water Quality Management for Forest System Lands in California, Best Management Practices* handbook (USDA, 2000).

In order to further reduce the potential for localized, short-term degradation of surface water quality through erosion and sedimentation, especially within the ANF, implementation of Mitigation Measures H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) and H-1b (Dry weather construction), in addition to Mitigation Measure B-2 (Implement RCA Treatment Plan) as described in Section 3.4 (Biological Resources), would be required. Mitigation Measure H-1a would require that an Erosion Control Plan be submitted to the CPUC and the USDA Forest Service prior to commencement of any soil-disturbing activities. This plan would include a logbook that records major precipitation events and evaluates the effectiveness of existing BMPs. Iterative review of the logbook by the CPUC and the USDA Forest Service will provide the opportunity to employ adaptive management practices through review and modification, if necessary, of existing BMPs and their effectiveness. Evaluation of the effectiveness of the BMPs can be narrative, and need not include water quality testing unless otherwise required by the RWQCBs, CPUC, USDA Forest Service, or any other jurisdictional agency. Within the ANF, the applicant shall follow the Best Management Practice Evaluation Process set forth in the *Water Quality Management for Forest System Lands in California, Best Management Practices* (USDA, 2000). Examples of typical BMPs can be found in the California Department of

Transportation's (Caltrans') *Stormwater Quality Handbooks, Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual* (Caltrans, 2007). Some of the more commonly employed BMPs include: preservation of existing vegetation, mulching, hydroseeding, soil binders, geotextiles, silt fences, sediment/desilting basins, check dams, fiber rolls, straw bale barriers, and stockpile management. Mitigation Measure H-1b (Dry weather construction) would minimize soil-disturbing activities during wet weather in the Angeles National Forest and Chino Hills State Park, and would prohibit soil-disturbing activities on those lands during major storm events, unless otherwise authorized by the Forest Service or State Park. On steeply sloped topography subject to intense precipitation, limiting construction to dry weather substantially lowers the potential to cause erosion and water quality degradation. Mitigation Measure B-2 (Implement RCA Treatment Plan) would require the applicant to receive ANF approval before constructing or modifying any structure, culvert, or bridge or modifying any habitat on NFS lands in Riparian Conservation Areas.

Mitigation Measures for Impact H-1

H-1a **Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** SCE shall develop and submit to the CPUC and FS for approval 30 days prior to construction an Erosion Control Plan, and implement Best Management Practices (BMPs), as described below. (Note: The Erosion Control Plan may be part of the same document as the Stormwater Pollution Prevention Plan.) Within the Erosion Control Plan, the applicant shall identify the location of all soil-disturbing activities, including but not limited to new and/or improved access and spur roads, the location of all streams and drainage structures that would be directly affected by soil-disturbing activities (such as stream crossings by access roads), and the location and type of all BMPs that would be installed to protect aquatic resources. The Erosion Control Plan shall include a proposed schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details. As part of the Erosion Control Plan, SCE shall maintain a logbook of all precipitation events within the Project area that produce more than one inch of precipitation within a 24-hour period. The logbook shall contain the date of the precipitation event, the approximate duration of the event, and the amount of precipitation (measured as the largest amount recorded by a rain gage or weather station within one mile of the Project). Additionally, the logbook shall include a narrative evaluation (and/or a numerical evaluation, if required by the FS or other jurisdictional agency) of the erosion-prevention effectiveness of the existing BMPs, as well as a description of any post-storm modifications to those BMPs. The logbook shall be submitted to the CPUC and FS for review within 30 days following the first storm event (after construction has begun) that produces greater than one inch of precipitation within a 24-hour period. SCE shall re-submit the logbook annually after the first storm of the rainy season that produces more than one inch of precipitation within a 24-hour period. The logbook shall be retired 5 years after completion of construction.

In addition to the Erosion Control Plan, the applicant shall submit to the CPUC and the FS evidence of possession of all required permits before engaging in soil-disturbing construction/demolition activities, before entering flowing or ponded water, or before constructing a crossing at flowing or ponded water. Such permits may include, but are not limited to, a Streambed Alteration Agreement from the California Department of Fish and Game, a Clean Water Act (CWA) Section 404 permit from the USACE, a CWA Section 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit) from the applicable Regional Water Quality Control Board(s) (RWQCBs), and/or a CWA Section 401 certification from the applicable RWQCBs. In addition, if construction-related excavation activities on National Forest System (NFS) lands encounter

perched groundwater, triggering the need for dewatering activities to occur in compliance with Applicant-Proposed Measure HYD-6 (Drilling and Construction Site Dewatering Management), SCE shall notify the Forest Service at the onset of dewatering and, upon the completion of dewatering activities at the affected site(s), SCE shall submit to the Forest Service written description of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface.

H-1b **Dry weather construction.** Any construction activities within the ANF and/or Chino Hills State Park (CHSP) [CHSP is only included as part of this measure for Alternative 4 (Routes A through D)] shall be scheduled to avoid anticipated precipitation events that are predicted to produce more than one-half inch of precipitation over a 24-hour period, unless expressly authorized by the FS and/or the California Department of Parks and Recreation (State Parks). If an unexpected precipitation event occurs while construction activities are already underway, SCE shall contact the FS and/or State Parks for guidance. The FS and/or State Parks may require cessation of construction activities within their jurisdiction during any precipitation event in order to prevent excessive erosion and to protect aquatic resources. On NFS lands, SCE shall also observe any criteria promulgated by the FS regarding construction during precipitation events. SCE shall provide documentation to the CPUC monitor of all wet-weather coordination with the FS and/or State Parks.

B-2 **Implement RCA Treatment Plan.** (See full description under Biological Resources, Section 3.4)

CEQA Significance Conclusion

Implementation of Mitigation Measures H-1a, H-1b, and B-2 would substantially reduce the potential for erosion and sedimentation by ensuring that construction activities employ the most effective erosion control practices, avoid periods of heavy precipitation, and minimize disturbance to Riparian Conservation Areas. These measures would minimize the potential for disturbed or stockpiled soil to be carried into nearby streams. Therefore, Impact H-1 would be reduced to a less-than-significant level (Class II).

Impact H-2: Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.

Surface water and groundwater quality could be degraded through the accidental release of hazardous materials into a dry or flowing stream channel during Project-related construction activities. Such materials include: lead-based paint flakes, diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids required for the operation of construction vehicles and equipment. The transportation of concrete and the use of motorized equipment are examples of construction activities that would involve the use of potentially harmful materials. Motorized equipment could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error. The release of one or more hazardous materials into a stream channel could occur at any stream crossing within the Project area, or at any of the Project staging areas, such as marshalling yards and helicopter staging areas, that are crossed by or directly adjacent to a stream channel.

Surface water could be contaminated through either direct or indirect contact with potentially harmful or hazardous materials. Direct contact with these materials would result from a spill or leak that occurs directly above or within the bed and banks of a flowing stream or waterbody. An accidental release of a potentially harmful or hazardous material into a dry stream bed or wash would not directly impact water

quality. Similarly, an accidental spill or release of hazardous materials outside of a stream channel would not directly impact water quality. However, accidental spills or releases of hazardous materials into a dry stream bed or wash, or outside of a stream channel, could indirectly impact water quality through runoff during a subsequent storm event, when the spilled material could come in contact with or be washed into a flowing stream or waterbody. See Section 3.6, Environmental Contamination and Hazards, for further analysis on the impact of an accidental release of hazardous materials outside the bed and bank of a stream channel.

Groundwater could be contaminated through indirect contact with potentially harmful or hazardous materials. Because depth to groundwater throughout the Project Regions is approximately 75 feet or more bgs, and the maximum construction-related excavation depth is approximately 40 feet bgs, no direct contact with groundwater would occur during construction of the proposed Project. However, accidental spills or releases of hazardous materials into a dry or flowing stream channel could indirectly impact groundwater through leaching. Stream channels often facilitate infiltration into the underlying groundwater and therefore an accidental release of hazardous materials within a stream channel would have a greater potential to indirectly impact groundwater resources than would an accidental release of hazardous materials outside the bed and banks of a stream channel. Hazardous material spills that are left on the ground surface within a dry stream channel and are followed quickly by a storm event could leach through the soil and into the groundwater, thereby resulting in the degradation of groundwater quality.

Northern Region

The potential for degradation of water quality through the accidental release of harmful or hazardous materials during Project construction would be relatively low within the Northern Region. Because almost all streams crossed by the proposed Project within the Northern Region are dry for most of the year, direct contamination of a waterbody by accidental spill or release of a hazardous material is unlikely.

Central Region

The potential for degradation of water quality through accidental release of potentially harmful or hazardous materials would be moderate within the Central Region. Several of the streams in the Central Region have a year-round base flow. In addition, topography in the Central Region is generally steep and characterized by relatively narrow canyons. An accidental release of hazardous materials during Project construction could result in direct contamination of a surface waterbody in the Central Region.

Southern Region

The potential for degradation of water quality through accidental release of potentially harmful or hazardous materials would be relatively low within the Southern Region. Most streams are channelized and lined with concrete, and most construction activities would occur outside of these concrete stream channels. Accidental release of hazardous materials could enter a surface waterbody through the storm drain system; however, except during rare periods of heavy precipitation, any accidental release of hazardous materials could be contained before entering the storm drain system.

The following APMs, which are considered to be part of the Project description, would reduce the likelihood that an accidental spill or release of hazardous materials would directly or indirectly impact water quality: HYD-1 (Construction SWPPP), HYD-2 (Environmental Training Program), HYD-3 (Accidental Spill Control), HYD-4 (Non-storm Water and Waste Management Pollution Controls), and HAZ-2 (Hazardous Materials and Waste Handling Management). APM HYD-1 requires implementation of a Construction SWPPP, which would define the following: where hazardous materials would be stored;

where trash would be placed; where motorized equipment would be parked, fueled, and serviced; and where construction materials would be stored. APM HYD-2 requires establishment of an environmental training program to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. APM HYD-3 requires that the Construction SWPPP include an emergency response program to ensure quick and safe cleanup of accidental spills. APM HYD-4 requires that excess concrete and concrete slurry that is produced during tower and substation construction would be retained on-site within a bermed area and then transported to an approved landfill for disposal. APM HAZ-2 requires development of a Project-specific hazardous materials management and hazardous waste management program, which would outline proper hazardous materials use, storage and disposal requirements as well as hazardous waste management procedures. All Project personnel would be provided with Project-specific training.

Although the APMs APM HYD-1 through APM HYD-4 and APM HAZ-2 would reduce the potential for water quality degradation through the accidental release of potentially harmful or hazardous materials, these adverse effects could still occur. In order to further reduce the potential for degradation of water quality through accidental release of potentially harmful or hazardous materials, implementation of Mitigation Measure H-1b, described under the discussion for Impact H-1, would be required.

CEQA Significance Conclusion

Implementation of Mitigation Measure H-1b would substantially reduce the potential for water quality degradation through accidental release of potentially harmful or hazardous materials by minimizing the potential for such materials to directly contact surface water or leach into the groundwater, and would therefore reduce Impact H-2 to a less-than-significant level (Class II).

Impact H-3: Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.

Surface water quality could be directly impacted through the accidental release of harmful or hazardous materials within a stream channel during Project operation and maintenance activities at stream crossings along access roads and near tower locations. Due to the use of vehicles and other motorized equipment during operations and maintenance, some of the potentially hazardous substances that could be released include: diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, and lubricant grease. These materials could contaminate surface water directly through contact with a flowing stream. Groundwater resources could be indirectly affected if the hazardous materials were left on the ground surface and allowed to leach into the groundwater. There are multiple federal, State, and local agencies and bodies of law with authority over the mitigation of hazardous materials spills. The specific authority over a spill depends on multiple factors such as the location and nature of the spill.

In contrast with construction activities, which would include more intensive use of heavy equipment for longer periods of time, operation of the proposed Project would include activities with substantially less potential to result in water quality degradation from the accidental spill of hazardous materials. Operational activities would include annual visual inspections of Project facilities via helicopter and light truck, with maintenance performed on an as-needed basis.

Northern Region

The potential for degradation of water quality through the accidental release of potentially harmful or hazardous materials during operation and maintenance activities would be low within the Northern Region. Because almost all streams crossed by the proposed Project within the Northern Region are dry

for most of the year, direct contamination of a waterbody by accidental spill or release of a hazardous material is unlikely.

Central Region

The potential for degradation of water quality through accidental release of potentially harmful or hazardous materials during operation and maintenance activities would be low to moderate within the Central Region. Several of the streams in the Central Region have a year-round base flow. The topography is steep and characterized by relatively narrow canyons. An accidental release of hazardous materials could potentially come in direct contact with a surface waterbody, though this potential is reduced due to the low number of truck trips that would occur during operation and maintenance activities.

Southern Region

The potential for degradation of water quality through accidental release of potentially harmful or hazardous materials during operation and maintenance activities in the Southern Region would be low. Most streams are channelized and lined with concrete, and most operation and maintenance activities would occur outside of these concrete stream channels. Accidental releases of hazardous materials could enter a surface waterbody through the storm drain system. However, except during rare periods of heavy precipitation, any accidental release of hazardous materials could be contained before entering the storm drain system.

The following APMs, which are considered to be part of the Project description, would reduce the likelihood that an accidental spill or release of hazardous materials during operation and maintenance activities would directly or indirectly impact water quality: HYD-2 (Environmental Training Program) and HYD-3 (Accidental Spill Control). APM HYD-2 requires that all field personnel are trained on environmental concerns and appropriate work practices, including spill prevention and response measures. APM HYD-3 requires that the Construction SWPPP include an emergency response program to ensure quick and safe cleanup of accidental spills.

CEQA Significance Conclusion

Implementation of APMs HYD-2 and HYD-3 would substantially reduce the potential for water quality degradation through accidental release of potentially harmful or hazardous materials by ensuring that inspection and maintenance personnel have the knowledge and means to quickly and effectively address accidental releases of hazardous materials. Because these APMs would minimize the potential for accidental spills of potentially harmful or hazardous materials to directly contact or be carried into nearby waterways, or leach into the groundwater, Impact H-3 would be less than significant (Class III).

Depletion of Groundwater Supplies or Interference with Groundwater Recharge (Criterion HYD2)

Should groundwater be encountered during construction-related excavation, dewatering of the construction site would be required. ~~However, d~~Depth to groundwater throughout the Project area is approximately 75 feet or more below ground surface (bgs), ~~and~~ while the maximum construction-related excavation depth is approximately 40 feet bgs. ~~and t~~Therefore, Project construction activities would not result in direct contact with a main groundwater table. However, it is possible that construction-related excavation could encounter areas of perched groundwater, especially when drilling or construction during the wet season. Perched groundwater is a zone of saturation that is separated from the main groundwater

table by a typically impermeable divide. Perched groundwater may be ephemeral in nature (occurring in direct response to precipitation events), or it may be recharged by percolation from surface water and/or nearby saturated zones. As mentioned above, dewatering of the construction area would be required if groundwater (including perched groundwater) is encountered during excavation activities. In accordance with APM HYD-6 (Drilling and Construction Site Dewatering Management), dewatering operations would include, as applicable, the use of sediment traps and sediment basins per BMP NS-2 (Dewatering Operations) from the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook – Construction (CASQA, 2003). Any groundwater encountered during construction would be returned to the subsurface as a part of the dewatering process. Although construction-related excavation activities may encounter perched groundwater, thus requiring dewatering activities in accordance with APM HYD-6, such activities would not contribute to the depletion of groundwater supplies or the interference with groundwater recharge.

~~no direct contact with groundwater would be expected to occur during construction of the proposed Project and no dewatering would be required.~~ Creation of new impervious surfaces through construction of the proposed Project could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underground aquifers. Impervious surfaces that would result from construction of the proposed Project include concrete tower footings, concrete pads beneath various substation elements, such as transformer banks, and paved or sealed access roads. The concrete tower footings and concrete pads beneath various substation elements would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater recharge.

Operation of the proposed Project would consist of transmission of electric current though the transmission line as well as periodic maintenance which would consist of driving construction vehicles along or within the transmission ROW and would have no effect on groundwater recharge. Therefore, no depletion of groundwater supplies or substantial interference with groundwater recharge would result from operation and maintenance of the proposed Project.

Northern Region

The creation of new paved or sealed access roads would result in an incremental increase in the amount of impervious surface area within the Northern Region. However, the vast majority of these roads would be unpaved and would not interfere with groundwater recharge. No impact would occur.

Central Region

New access roads within the Central Region would be subject to requirements of the USDA Forest Service road Maintenance Level standards for the ANF and therefore would not substantially increase the amount of impervious surface area in the Central Region. Implementation of the proposed Project would not interfere with groundwater recharge in the Central Region. No impact would occur.

Southern Region

The vast majority of the Southern Region is already covered by impervious surface and groundwater recharge is accomplished through managed groundwater injection. Creation of new or improved access roads would not substantially alter the amount of impervious surface area within the Southern Region. No impact would occur.

Mitigation Measure for Significance Criterion HYD-1

As described above, the proposed Project would not cause or contribute to the depletion of groundwater supplies or interference with groundwater recharge in the Project area, and would therefore result in No Impact under Significance Criterion HYD-1. However, at the request of the Forest Service, Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) has been expanded to include language that requires SCE to notify the Forest Service when dewatering activities associated with perched groundwater are required in accordance with APM HYD-6 (Drilling and Construction Site Dewatering Management). This modification of existing mitigation does not alter the impact analysis presented above for Significance Criterion HYD-1; rather, it reinforces previously introduced mitigation (MM H-1a) and requires notification of procedures developed by the Applicant for inclusion as part of the Project (APM HYD-6).

Siltation, Erosion, or Other Flood-related Damage from Impeding or Redirecting Flood Flows through Placement of a Structure in a Stream or Flood Hazard Area (Criterion HYD3)

Impact H-4: Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows.

Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. As shown in Figures 3.8-2, 3.8-4, and 3.8-5, the proposed Project would traverse several individual FEMA-designated Flood Hazard Areas.

Northern Region

In the Northern Region, the proposed Project would cross through Flood Hazard Areas associated with the following canyons or waterways: Oak Creek, the Los Angeles Aqueduct, Broad Canyon, Myrick Canyon, California Aqueduct, Amargosa Creek, Anaverde Creek, and Soledad Canyon.

Central Region

In the Central Region, the proposed Project would cross one Flood Hazard Area associated with Kentucky Springs Canyon. Additional flood hazards may be associated with streams within the ANF, but FEMA does not map Flood Hazard Areas within the Forest.

Southern Region

In the Southern Region, the proposed Project would cross several Flood Hazard Areas, including those associated with the following waterways: Whittier Narrows Flood Control Basin (which includes the San Gabriel River and the Rio Hondo), Santa Fe Flood Control Basin, Little Chino Creek, Carbon Canyon, Chino Creek, Cypress Channel and Cucamonga Creek (SCE, 2007).

According to FEMA, development is permitted in Flood Hazard Areas provided that the development complies with local floodplain management ordinances (FEMA, 2005). All applicable floodplain management ordinances would be fully complied with in accordance with FEMA's regulations on development in Flood Hazard Areas. In addition to the design standards specified by FEMA's floodplain management ordinances, APM HYD-7 (Flood and Erosion Structure Damage Protection), which is part of the proposed Project design, would require that aboveground Project features such as transmission line towers and substation facilities be designed and engineered to withstand potential flooding and erosion hazards. Measures would include specially designed footings to withstand flooding due either to a 100-

year flood event or failure of a nearby upstream dam or reservoir. Impact H-4 is most likely to occur where transmission towers or other permanent Project features are constructed in or closely adjacent to a watercourse. None of the infrastructure associated with the proposed Project would be situated within a watercourse (SCE 2007). However, some towers would be placed in areas subject to periodic overland flow and flooding, such as the Santa Fe Flood Control Basin, the Whittier Narrows Flood Control Basin, and some broad, ephemeral washes in the Northern Region.

Although APM HYD-7 would reduce the potential for flooding of or erosion damage to the encroaching structure, it would not address the potential for that structure to divert flood flows, increase the flood risk for adjacent property, or increase the erosion on adjacent property. In order to reduce the potential for the encroaching structure to result in these adverse effects, implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) would be required. This mitigation measure would ensure that appropriate BMPs are employed to reduce the potential for erosion during construction activities. It would also require demonstrated compliance with all required water quality permits, including compliance with any applicable floodplain management ordinances, as required by FEMA.

CEQA Significance Conclusion

Implementation of Mitigation Measure H-1a would substantially reduce the potential for damage due to flooding or erosion of the encroaching structure, diversion of flood flows and increased flood risk for adjacent property, or increased erosion on adjacent property through implementation of an erosion control plan and demonstrated compliance with applicable permits, such as local floodplain management ordinances. Because this measure would minimize the potential for damage due to flooding or erosion of either the encroaching structure or adjacent property, Impact H-4 would be reduced to a less-than-significant level (Class II).

Flooding from Increased Rate or Amount of Surface Runoff (Criterion HYD4)

The rate and amount of surface runoff is determined by multiple factors, including the following: amount and intensity of precipitation; amount of other imported water that enters a watershed; and amount of precipitation and imported water that infiltrates to the groundwater. Infiltration is determined by several factors, including soil type, antecedent soil moisture, rainfall intensity, the amount of impervious surfaces within a watershed, and topography. The rate of surface runoff is largely determined by topography and the storm hydrograph (the intensity of rainfall over a given period of time).

The proposed Project would not alter any precipitation amounts or intensities, nor would it require any additional water to be imported into the proposed Project area. Although grading would occur at tower locations, new and/or expanded substations, crane pads, pulling and splicing stations, and access roads, this ground disturbance would be spread over a large geographic area and would not alter the overall topography of the proposed Project area. Impervious surfaces that would result from construction of the proposed Project include concrete tower footings, concrete pads beneath various substation elements such as transformer banks and paved or sealed access roads. Concrete tower footings and concrete pads beneath various substation elements would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater infiltration. The proposed Project would not alter precipitation amounts or intensities, or the amount of precipitation or imported water that infiltrates into the groundwater. Therefore, the rate or amount of surface runoff resulting from the proposed Project would not change relative to existing conditions.

Northern Region

The creation of new paved or sealed access roads would increase the amount of impervious surface area within the Northern Region; however, the vast majority of these roads would be unpaved and would not substantially interfere with groundwater infiltration. No impact would occur.

Central Region

New access roads within the Central Region would be subject to regulations of the USDA Forest Service for the ANF and would comply with all road Maintenance Level requirements. Therefore, new or improved access roads within the Central Region would not increase the amount of impervious surface area and would not interfere with infiltration. No impact would occur.

Southern Region

The vast majority of the Southern Region is already covered by impervious surface, and surface runoff is managed through a system of municipal storm drains. Groundwater infiltration is accomplished either through injection wells, infiltration and retention basins, or open spaces such as the Chino and Puente Hills. Creation of new or improved access roads would not substantially alter the amount of impervious surface area within the Southern Region, and therefore would not interfere with groundwater infiltration or the conveyance of surface runoff to drainage channels through the storm drains. No impact would occur.

Damage from Inundation by Mudflow (Criterion HYD5)

Impact H-5: Project structures would be inundated by mudflow.

Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result of this super-saturation, soil and rock materials become unstable and eventually slide away from their existing location.

Northern Region

The Northern Region is characterized by generally flat terrain that would not be conducive to a mudflow event.

Central Region

Although the Central Region receives heavy seasonal precipitation and contains areas of steep slopes that would increase the probability of mudflow events, the soils within the region are not prone to mudslides.

Southern Region

The majority of the Southern Region is characterized by generally flat terrain that would not be conducive to a mudflow event. However, the steeper portions of the Puente and Chino Hills do contain soils that could form a mudflow under heavy precipitation.

The potential for inundation of Project structures by mudflow is reduced by the implementation of APM HYD-1 (Construction SWPPP) and APM HYD-7 (Flood and Erosion Structure Damage Protection), which are included under the Project description. APM HYD-1 requires implementation of a Construction SWPPP, which would include several BMPs to reduce erosion and soil movement, such as straw wattles,

water bars, covered stockpiles, silt fences, silting basins, and mulching or seeding to protect exposed areas as well as monitoring to ensure that the BMPs are implemented. APM HYD-7 would require that aboveground Project features such as transmission line towers and substation facilities be designed and engineered to withstand potential flooding and erosion hazards. Measures would include specially designed footings to withstand flooding due either to a 100-year flood event or failure of a nearby upstream dam or reservoir. These design features would also help proposed Project structures withstand inundation by mudflow.

Although APM HYD-1 and APM HYD-7 would reduce the potential for damage of Project structures due to inundation by mudflow, this adverse effect could still occur, especially in the Puente and Chino Hills. In order to further reduce the potential for inundation by mudflow, implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), as described in Section 3.7 (Geology, Soils, and Paleontology), would be required.

CEQA Significance Conclusion

Implementation of Mitigation Measure G-3 would substantially reduce the potential for inundation by mudflow during the construction phase of the proposed Project. By avoiding areas prone to landslide, and by installing appropriate protection where those areas cannot be avoided, Project structures will not be placed in locations that are prone to landslide and/or mudslide without proper protection. Because this measure would minimize the potential for damage due to inundation by mudflow, Impact H-5 would be reduced to a less-than-significant level (Class II).

3.8.6.2 Cumulative Effects Analysis

A cumulative impact is one that results from the incremental impact of the proposed Project when combined with other past, present, and reasonably foreseeable future actions that occur within the geographic extent of the cumulative effects analysis.

Geographic Extent

The geographic extent of this cumulative effects analysis is the same as the extent of the regional setting, as described in Section 3.8.2 (Affected Environment). As such, this cumulative effects analysis is organized into the following three geographic regions: Northern Region, Central Region, and Southern Region. The Northern Region includes all Project components located between the Windhub Substation in southern Kern County to Vincent Substation located in unincorporated Los Angeles County. The Central Region includes all portions of the TRTP extending from Vincent Substation to the southern boundary of the ANF. The Southern Region includes all Project components located south of the ANF within Los Angeles, Orange, and San Bernardino Counties.

The proposed Project would cross the South Lahontan and South Coast HRs. These Hydrologic Regions are too large to use as geographic boundaries for consideration of cumulative effects. Because Hydrology and Water Quality impacts are typically contained within watersheds associated with major drainages (Hydrologic Units), and because water quality regulations such as TMDLs are generally implemented at the Hydrologic Unit level, the geographic extent of this cumulative effects analysis will be limited to the Hydrologic Units crossed by the proposed Project. Additional significance will be given to projects that lie within the specific Hydrologic Areas and Hydrologic Sub-Areas crossed by the proposed Project and alternatives. Within the South Lahontan and South Coast HRs, the proposed Project would cross the

following Hydrologic Units: the Antelope HU, the Los Angeles River HU, the San Gabriel River HU, the Santa Ana River HU, and the Santa Clara-Calleguas HU.

Existing Cumulative Conditions

This section discusses the past projects that have occurred in the cumulative analysis area described above, in addition to ongoing projects in the area. A wide variety of past and present development projects contribute to the cumulative conditions for Hydrology and Water Quality in the Project area. A discussion of cumulative projects in the Project area is provided in Section 2.9 (Cumulative Projects). Consideration of the projects identified in that section was used to develop this analysis of cumulative effects on Hydrology and Water Quality.

Several types of development projects could contribute to the cumulative impact of the proposed Project, including housing development projects, commercial and industrial development, water infrastructure projects, and water quality improvement projects. These types of past and existing projects could combine with several proposed Project impacts to affect hydrology and water quality. Some of these possible impacts include: alteration of the landscape, degradation of water quality through encroachment on stream channels, discharge of treated wastewater, and introduction of potentially hazardous substances to stormwater runoff.

A list of existing projects within the cumulative analysis area is found in Section 2.9 (Cumulative Projects). This Cumulative Impact Scenario indicates that the vast majority of ongoing projects are residential developments. Furthermore, the population growth estimates portrayed in this scenario indicate that rapid population growth has not only occurred in the past, but it is ongoing and expected to continue into the future. Therefore, it is reasonably assumed that ongoing projects within the cumulative analysis area are characterized primarily by residential developments. A few major examples of these developments include the Ritter Ranch development, the Anaverde Ranch development, and the Agua Dulce Residential Project. Hundreds of smaller residential projects are either currently being developed or have been developed in the recent past.

In addition to residential development, two important water-conveyance features exist within the Project area: the SWP's California Aqueduct and LADWP's Los Angeles Aqueduct. In the Project area and vicinity, the former is contained within concrete channels and pipes and the latter is in pipes. The California Aqueduct is 444 miles long and transports water south for both the SWP and the federal Central Valley Project. The Los Angeles Aqueduct is 223 miles long and transports water to the southern California market from the Owens Valley, to the north. The proposed Project would cross both the California Aqueduct and the Los Angeles Aqueduct, as described in Section 3.8.2.2 (Regional Setting) and Section 3.8.2.3 (setting for the proposed Project). In addition to the California Aqueduct and the Los Angeles Aqueduct, other major water development projects in the Project area include Lake Palmdale, Littlerock Reservoir, Santa Fe Flood Control Basin, Whittier Narrows Flood Control Basin, and a variety of other dams, reservoirs, and diversion projects throughout the five Hydrologic Units listed above.

Reasonably Foreseeable Future Projects and Changes

As discussed above and portrayed in Section 2.9 (Cumulative Projects), ongoing development throughout the cumulative effects area for Hydrology and Water Quality is dominated by residential developments, clustered in and around established community areas. This trend in residential development is also representative of reasonably foreseeable future projects in the cumulative effects area, as supported by the aggressive population growth forecast in the Cumulative Impact Scenario. Two examples of major

foreseeable residential development include the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario. Numerous other residential developments throughout the cumulative effects area are in various stages of planning.

In addition to the reasonably foreseeable residential developments, a major water infrastructure project called the Antelope Valley Water Bank Project is being planned in the Northern Region. This project proposes to develop facilities to store and recharge imported surface water and associated delivery and distribution pipelines. The 13,440-acre facility area would be bounded by the Kern/Los Angeles County border line (also known as Avenue A) to the south and Rosamond Blvd to the north, and between 170th Street West and 100th Street West in unincorporated Kern County. Segment 4 of the proposed Project would traverse the Water Bank Facility at approximately 160th Street West and Avenue A.

Cumulative Impact Analysis

Impacts of the proposed Project would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with impacts of other past, present, or reasonably foreseeable projects. The potential for Hydrology and Water Quality impacts of the proposed Project to combine with the effects of other projects within the geographic scope of the cumulative analysis is described below.

- **Construction activities would degrade surface water quality through erosion and accelerated sedimentation (Impact H-1).** Construction of the overhead transmission line towers and substations would require several types of soil disturbance. Excavation and/or grading would be required at all tower sites where new pads or footings would be required and at all new and/or expanded substations. Additional clearing of vegetation and/or grading would be required for crane pads, pulling/stringing stations, staging areas, marshalling yards, concrete batch plants, helicopter staging areas, tower wreck-out staging areas, and access and spur roads. Without implementation of proper soil management practices, disturbance of soil during construction could result in soil erosion and short-term impacts to water quality through increased turbidity and sediment deposition into local streams. If construction activities for other projects in the area also result in erosion and sedimentation of nearby surface waters, and such impacts occur at the same time as they would for the proposed Project's construction activities, the resulting impacts would be cumulatively considerable to Hydrology and Water Quality in the Project area. Although mitigation measures that would be implemented for the proposed Project would reduce this impact to a less-than-significant level for the proposed Project itself, several residential development projects with construction activities substantial enough to contribute to erosion and sedimentation within the cumulative effects area, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario, are currently scheduled to occur at the same time and in the same vicinity as the proposed Project. These residential projects would likely implement best management practices that would reduce erosion and sedimentation impacts to less-than-significant levels. However, the effectiveness of best management practice implementation for these residential projects is unknown. Therefore, ~~if best management practices are not properly implemented,~~ it is possible that this impact of the proposed Project could combine with similar impacts of other projects to result in a cumulatively significant and unavoidable impact (Class I).
- **Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials (Impact H-2).** Surface water and groundwater quality could be degraded through the accidental release of hazardous materials during Project-related construction activities. Such materials include: lead-based paint flakes, diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids. The release of one or more hazardous materials could occur at tower installation locations, tower wreck-out staging areas, substation construction locations, staging areas, pulling/stringing stations, refueling stations, helicopter staging areas, concrete batch plants, stream crossings, and other locations where construction activities would occur. If construction activities for other projects in the area also result in the accidental release of potentially harmful or hazardous materials, and such impacts occur at the same time as they would for the proposed Project's construction activities, the resulting impacts would be cumulatively considerable to Hydrology and Water Quality in the Project area. Although mitigation measures that would be implemented for the proposed Project would reduce

this impact to a less-than-significant level for the proposed Project itself, several large residential development projects, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario, would occur at the same time and in the same vicinity as the proposed Project. It is not possible to predict the accidential release of a hazardous material during construction of these residential development projects, nor is it possible to ensure proper implementation of best management practices for these projects. Therefore, this impact of the proposed Project could combine with similar impacts of other projects to result in a cumulatively significant and unavoidable impact (Class I).

- **Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials (Impact H-3).** Surface and groundwater quality could be degraded through the accidental release of potentially harmful or hazardous materials during Project operation and maintenance activities. Potentially harmful materials could be accidentally released during operational and maintenance activities at or near tower locations and along access roads. Due to the use of vehicles and other motorized equipment, some of the potentially hazardous substances that could be released include: diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, and lubricant grease. Although unlikely due to the few number of vehicle trips required for operation and maintenance, these materials could contaminate surface water through direct contact with water in a stream channel or through runoff to local streams. Within the cumulative analysis area, several large residential development projects are already approved, and several more large residential development projects are planned, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario. Operational activities for a residential development would include occupancy of the development, use of the residential facilities, including use of water resources and discharge of wastewater, and vehicle trips by residents and visitors to and from the residential development. These residential development operation activities could lead to an accidental release of potentially harmful or hazardous materials. These potential impacts would affect many of the same streams that would be crossed by the proposed Project. However, existing water quality regulations would greatly reduce the potential for an accidental release of hazardous materials. Therefore, it is unlikely that this impact of the proposed Project would combine with similar impacts of other projects. This impact would be less than significant (Class III).
- **Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows (Impact H-4).** Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Impact H-4 is most likely to occur where transmission towers or other permanent Project features are constructed in or closely adjacent to a watercourse. None of the infrastructure associated with the proposed Project would be situated within a watercourse (SCE, 2007). However, some towers would be placed in areas subject to periodic overland flow and flooding, such as the Santa Fe Flood Control Basin, the Whittier Narrows Flood Control Basin, and some broad, ephemeral washes in the Northern Region. Numerous present and foreseeable residential development projects, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario, could impede flood flows if proper design features were not implemented. For the Project this impact would be reduced to a less-than-significant level with implementation of mitigation measures, as would be required for present and foreseeable residential development projects.Therefore, the cumulative impact would be less than significant (Class III).
- **Project structures would be inundated by mudflow (Impact H-5).** Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result, soil and rock materials become unstable and eventually slide away from their existing location, in a mudflow event. For the proposed Project, the potential for inundation of Project structures by mudflow would be reduced to a less-than-significant level through the implementation of Mitigation Measure G-3, described under the discussion for Impact H-5. While the present and reasonably foreseeable residential development projects in the cumulative effects area could potentially increase the probability that Project structures would be inundated by mudflow, this potential is likely very low because residential development projects tend to decrease the overall slope in an area through grading and earth movement. An overall decrease in slope would lower the probability that Project structures would be inundated by mudflow. Therefore, the

cumulative impact of inundation of Project structures by mudflow is considered less than significant (Class III).

In summary, the proposed Project would contribute to two Hydrology and Water Quality impacts that would be cumulatively significant and unavoidable (Class I), one Hydrology and Water Quality impact that would be less than significant with mitigation (Class II), and two Hydrology and Water Quality impacts that would be considered less than significant (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.8.6.1 (Direct and Indirect Effects Analysis) would help to reduce the proposed Project's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for Hydrology and Water Quality.

3.8.7 Alternative 3: West Lancaster Alternative

The following section describes Hydrology and Water Quality impacts of Alternative 3 (West Lancaster Alternative), as determined by the significance criteria listed in Section 3.8.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels. This alternative would deviate from the proposed route along Segment 4, at approximately S4 MP 14.9, where the new 500-kV transmission line would turn south down 115th Street West for approximately 3.0 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route would increase the overall distance of Segment 4 by approximately 0.4 mile, and would cross two additional unnamed streams.

3.8.7.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to Hydrology and Water Quality are introduced in Section 3.8.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criterion.

Water Quality Violations, Waste Discharges, or Polluted Runoff (Criterion HYD1)

Impacts associated with Criterion HYD1 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of the proposed transmission line in the Northern Region, the re-route would cross three of the same unnamed streams as the proposed Project, plus two additional unnamed streams. The two additional unnamed streams do not differ in channel type or flow characteristics from the other unnamed nearby streams that are crossed by the proposed Project. Therefore, the Hydrology and Water Quality impacts of Alternative 3 would be nearly identical to the proposed Project but of a slightly greater magnitude. A list of the streams and groundwater basins that could potentially be affected by impacts of Alternative 3 (with the exception of the two additional unnamed streams) is included in the *Hydrology and Water Quality Specialist Report* (refer to Tables 2.3-1 through 2.3-3). These impacts and their associated mitigation measures that fall under Criterion HYD1 are summarized in the following paragraphs. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are nearly identical to the proposed Project.

Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) for this alternative is nearly identical to Impact H-1 for the proposed Project. Although this alternative requires a minor re-route in the Northern Region, and would cross two additional unnamed

streams, the overall impact of Alternative 3 on erosion and sedimentation would remain unchanged compared to Impact H-1 for the proposed Project, and therefore would require implementation of the following mitigation measures: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), H-1b (Dry weather construction), and B-2 (Implement RCA Treatment Plan). With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-1 for Alternative 3 would be less than significant (Class II).

Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) for this alternative is nearly identical to Impact H-2 for the proposed Project. Although this alternative requires a minor re-route in the Northern Region, and would cross two additional unnamed streams, the overall impact of Alternative 3 on water quality would remain unchanged compared to Impact H-2 for the proposed Project, and therefore would require implementation of the following mitigation measure: H-1b (Dry weather construction). With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-2 for Alternative 3 would be less than significant (Class II).

Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) for this alternative is nearly identical to Impact H-3 for the proposed Project. Although this alternative requires a minor re-route in the Northern Region, and would cross two additional unnamed streams, the overall impact of Alternative 3 on water quality would remain unchanged compared to Impact H-3 for the proposed Project. As described in detail in Section 3.8.6.1, Impact H-3 for Alternative 3 would be less than significant (Class III).

No further impacts would be introduced by Alternative 3 under Criterion HYD1. As mentioned, please see Section 3.8.6.1 for a detailed description of the impacts and mitigation measures listed above.

Depletion of Groundwater Supplies or Interference with Groundwater Recharge (Criterion HYD2)

Should groundwater be encountered during construction-related excavation, dewatering of the construction site would be required. For Alternative 3, depth to groundwater is approximately 75 feet or more bgs, and the maximum construction-related excavation depth is approximately 40 feet bgs. Although Alternative 3 would include a minor re-route of the proposed transmission line in the Northern Region, no excavation beyond 40 feet bgs would be required along the re-routed section of the transmission line, and depth to groundwater in that area is at least 100 feet bgs. Therefore no direct contact with the main groundwater table would be expected to occur during construction of Alternative 3. However, it may be possible for perched groundwater to be encountered during excavation activities, which would necessitate the implementation of APM HYD-6 (Drilling and Construction Site Dewatering Management). As described above in Section 6, the potential encountering and dewatering of perched groundwater during construction activities would not cause or contribute to depletion of groundwater supplies or interference with groundwater recharge.

~~Therefore no direct contact with groundwater would be expected to occur during construction of Alternative 3 and no dewatering would be required.~~ Creation of new impervious surfaces through construction of Alternative 3 could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underground aquifers. However, impervious surfaces that would result from construction of Alternative 3 would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater recharge.

Operation of Alternative 3 would consist of transmission of electric current though the transmission line as well as periodic maintenance which would consist of driving construction vehicles along or within the transmission ROW and would have no effect on groundwater recharge. Therefore, all impacts related to Criterion HYD2 would be exactly the same as those for the proposed Project and, as described under Criterion HYD2 in Section 3.8.6.1, no impact would occur.

Siltation, Erosion, or Other Flood Related Damage from Impeding or Redirecting Flood Flows through Placement of a Structure in a Stream or Flood Hazard Area (Criterion HYD3)

Impacts associated with Criterion HYD3 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Although this alternative introduces a re-route of part of the proposed transmission line in the Northern Region, the re-route would not cross through or be placed within any new Flood Hazard Areas. The impediment of flood flows is most likely to occur where transmission towers or other permanent Project features are constructed in or closely adjacent to a watercourse. Alternative 3 crosses two more streams than the proposed Project, both of which are unnamed streams. It is not expected that infrastructure associated with Alternative 3 would be situated within a watercourse; however, some towers would be placed in areas subject to periodic overland flow and flooding, such as the Santa Fe Flood Control Basin, the Whittier Narrows Flood Control Basin, and some broad, ephemeral washes in the Northern Region.. Therefore, the Hydrology and Water Quality impacts of Alternative 3 that fall under Criterion HYD3 would be the same as the proposed Project. This impact and its associated mitigation measures are summarized in the following paragraph. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of this impact, as it is the same as for the proposed Project.

Impact H-4 (Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows) for this alternative is nearly identical to Impact H-4 for the proposed Project. Although this alternative requires a minor re-route in the Northern Region, and would cross two additional unnamed streams, the overall impact of Alternative 3 on flooding would remain unchanged compared to Impact H-4 for the proposed Project, and therefore would require implementation of the following mitigation measure: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-4 for Alternative 3 would be less than significant (Class II).

Flooding from Increased Rate or Amount of Surface Runoff (Criterion HYD4)

The amount of surface runoff is determined by the amount of precipitation and other imported water that enters a watershed, minus the amount of precipitation and imported water that infiltrates into the groundwater. Infiltration is determined by several factors, including soil type, antecedent soil moisture, rainfall intensity, the amount of impervious surfaces within a watershed, and topography. The rate of surface runoff is largely determined by topography and the storm hydrograph (the intensity of rainfall over a given period of time). Alternative 3 would not alter any precipitation amounts or intensities, nor would it require any additional water to be imported into the proposed Project area. Although Alternative 3 would include a minor re-route of the proposed transmission line in the Northern Region, this alternative would create the same amount and distribution of impervious surfaces as the proposed Project, and therefore would have the same effect on groundwater infiltration as described for the proposed Project under Section 3.8.6.1.

Alternative 3 would not substantially alter precipitation amounts or intensities, or the amount of precipitation or imported water that infiltrates into the groundwater. Therefore, all impacts related to Criterion HYD4 would be exactly the same as those for the proposed Project and, as described under Criterion HYD4 in Section 3.8.6.1, no impact would occur.

Damage from Inundation by Mudflow (Criterion HYD5)

Impacts associated with Criterion HYD5 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result, soil and rock materials become unstable and eventually slide away from their existing location, in a mudflow event. Although this alternative introduces a re-route of part of the proposed transmission line in the Northern Region, it would still pass through the same mudslide prone areas, such as the Puente and Chino Hills. Therefore, the Hydrology and Water Quality impacts of Alternative 3 that fall under Criterion HYD5 would be the same as the proposed Project. This impact and its associated mitigation measures are summarized in the following paragraph. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of this impact, as it is the same as for the proposed Project.

Impact H-5 (Project structures would be inundated by mudflow) for this alternative is nearly identical to Impact H-5 for the proposed Project. Although this alternative requires a minor re-route in the Northern Region, and would cross two additional unnamed streams, the overall impact of Alternative 3 on inundation by mudflow would remain unchanged compared to Impact H-5 for the proposed Project, and therefore would require implementation of the following mitigation measure: G-3 (Conduct geological surveys for landslides and protect against slope instability). With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-5 for Alternative 3 would be less than significant (Class II).

3.8.7.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 3 (West Lancaster Alternative). This alternative consists of a brief re-route of the proposed transmission line just north of Antelope Substation, which would add approximately 0.4 mile to the length of the route. The remainder of this alternative route (south of Antelope Substation) would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. The rerouted portion of the Alternative 3 route generally parallels the proposed Project route to the west. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 3 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Alternative 3 only differs from the proposed Project for a very small portion of the proposed route in the City of Lancaster, near Antelope Substation. This area is still encompassed by the geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.8.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 3 is exactly the same as that for Alternative 2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 3 are exactly the same as for Alternative 2, as described in Section 3.8.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 3 would be exactly the same as Alternative 2, described in Section 3.8.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 3 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with impacts of other past, present, or reasonably foreseeable projects. The minor re-route of the proposed Project transmission line associated with Alternative 3 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 3 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.8.6.2 and described below.

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials), Impact H-4 (Project structures would cause erosion, sedimentation, or other flood related damage by impeding flood flows), and Impact H-5 (Project structures would be inundated by mudflow).

The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) and Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 3 in Section 3.8.7.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for Hydrology and Water Quality.

3.8.8 Alternative 4: Chino Hills Route Alternatives

The following section describes the impacts to Hydrology and Water Quality of Alternative 4 (Chino Hills Route Alternatives), as determined by the significance criteria listed in Section 3.8.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

3.8.8.1 Direct and Indirect Effects Analysis

The significance criteria used to identify the Hydrology and Water Quality impacts of Alternative 4 are introduced in Section 3.8.4.1 (Criteria for Determining Impact Significance). This alternative would follow the same route as the proposed Project through the Northern and Central Regions, diverging from the proposed Project route along Segment 8A in the Southern Region, at S8A MP 19.2. Therefore, any impacts of the proposed Project that would occur between S8A MP 19.2 and 35.2 (16 miles) or along

Segment 8C (6.4 miles) through Chino Hills, Chino, and Ontario would not occur under Alternative 4. ~~In addition, i~~Impacts associated with Segment~~s~~ 8B ~~and 8C~~ of the proposed Project also would ~~not~~still occur under Alternative 4, same as Alternative 2. Where the proposed route for Alternative 4 diverges from the proposed Project route at S8A MP 19.2, it would turn to the southeast, crossing through part of Orange County, San Bernardino County, and CHSP. Therefore, Alternative 4 would introduce Hydrology and Water Quality impacts to these areas which would not be introduced through the proposed Project.

This alternative includes ~~four~~ five separate routing options: Route A, Route B, Route C, Route C Modified, and Route D. For the purposes of this impact analysis, the routing options for Alternative 4 are discussed in comparison to each other throughout the following section. As described, the alignment of Alternative 4 would be the same as the proposed Project west and north of S8A MP 19.2.

All Hydrology and Water Quality impacts that would occur under the proposed Project would also occur under each of the Alternative 4 routing options. However, due to differences between the proposed Project route and each of the proposed Alternative 4 routing options, different streams and/or groundwater basins would be avoided and/or affected under each routing option. Therefore, this section summarizes all impacts of Alternative 4, which are described in detail for the proposed Project in Section 3.8.6.1. Stream crossings that would occur under the proposed Project but that would be avoided under this alternative are listed in the *Hydrology and Water Quality Specialist Report*, Table 2.5-1.

All routing options for Alternative 4 would cross nine unnamed streams before they diverge near the border of Chino Hills State Park. After the ~~four~~ five routing options for Alternative 4 diverge, they differ in terms of number of streams crossed. Route A would cross five unnamed streams. Route B would cross eight streams, including Aliso Creek and seven unnamed streams. Route C would cross ten unnamed streams. Route C Modified would cross twelve unnamed streams. Route D would cross four streams, including Aliso Creek and three unnamed streams.

All Hydrology and Water Quality impacts that are expected to occur under the routing options for Alternative 4 are presented in the following discussions according to their corresponding significance criteria.

Water Quality Violations, Waste Discharges, or Polluted Runoff (Criterion HYD1)

As described in the introduction for this analysis of Alternative 4, impacts associated with Criterion HYD1 would be mostly the same for Alternative 4 as for the proposed Project. However, the ~~four~~ five different routing options included under Alternative 4 would avoid some surface water and groundwater resources along the proposed Project alignment and would introduce other stream crossings associated with each of the ~~four~~ five routing options. These surface water and groundwater resources and the associated impacts and mitigation measures that fall under Criterion HYD1 are summarized below.

Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.8.6.1), with the exception of the ~~four~~ five routing options which are described below. As described in Section 3.8.6.1, Impact H-1 would result due to several types of soil disturbance. Excavation and/or grading would be required at all tower sites where new pads or footings would be required and at all new and/or expanded substations. Additional clearing of vegetation and/or grading would be required for crane pads, pulling stations, staging areas, and new and/or improved access and spur roads. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams.

In Chino Hills State Park, where the topography is steep and the stream channels are mostly natural and unimproved, the potential for degradation of surface water quality through erosion and sedimentation is relatively high compared to the flatter, more urbanized topography of the portion of the proposed Project that would be avoided under this alternative. Therefore, Impact H-1 for Alternative 4 would be the same as Impact H-1 for the proposed Project, but of a slightly greater magnitude due to the increased potential for erosion and sedimentation through Chino Hills State Park. Impact H-1 for Alternative 4 would require the following mitigation measures, which are fully described in Section 3.8.6.1: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), H-1b (Dry weather construction), and B-2 (Implement RCA Treatment Plan).

Route A. Several streams that would have the potential to be affected by Impact H-1 under the proposed Project would not be affected under the Route A option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route A would introduce the potential for Impact H-1 to affect five new unnamed streams. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-1 for Alternative 4, Route A, would be less than significant (Class II).

Route B. Several streams that would have the potential to be affected by Impact H-1 under the proposed Project would not be affected under the Route B option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route B would introduce the potential for Impact H-1 to affect eight new streams, including Aliso Creek and seven unnamed streams. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-1 for Alternative 4, Route B, would be less than significant (Class II).

Route C. Several streams that would have the potential to be affected by Impact H-1 under the proposed Project would not be affected under the Route C option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route C would introduce the potential for Impact H-1 to affect ten new unnamed streams. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-1 for Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. As with Route C, described above, several streams that would have the potential to be affected by Impact H-1 under the proposed Project would not be affected under the Route C Modified option and the following streams that would be affected by the proposed Project would be avoided by Route C Modified: Little Chino Creek, Chino Creek, and Cucamonga Creek. Route C Modified would introduce the potential for Impact H-1 to affect twelve unnamed streams. Additionally, in comparison with the original Route C, site-specific effects of Impact H-1 would be slightly different under Route C Modified, due to the switching station being relocated to a site approximately 2,500 feet northwest of the original Route C location. Implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1 would reduce Impact H-1 for Route C Modified to a less-than-significant level (Class II).

Route D. Several streams that would have the potential to be affected by Impact H-1 under the proposed Project would not be affected under the Route D option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little

Chino Creek, Chino Creek, and Cucamonga Creek. However, Route D would introduce the potential for Impact H-1 to affect four new streams, including Aliso Creek and three unnamed streams. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-1 for Alternative 4, Route D, would be less than significant (Class II).

Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) would be mostly the same under Alternative 4 as it would for the proposed Project (please see Section 3.8.6.1), with the exception of the ~~four~~ five routing options which are described below. Surface water and groundwater quality could be degraded through the accidental release of hazardous materials during Project-related construction activities. Such materials include: lead-based paint flakes, diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids. The preparation and pouring of concrete and the use of motorized equipment are examples of construction activities that would specifically involve the use of potentially harmful materials. Impact H-2 for Alternative 4 would require the following mitigation measure, which is fully described in Section 3.8.6.1: H-1b (Dry weather construction).

Route A. Several streams that would have the potential to be affected by Impact H-2 under the proposed Project would not be affected under the Route A option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route A would introduce the potential for Impact H-2 to affect five new unnamed streams. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-2 for Alternative 4, Route A, would be less than significant (Class II).

Route B. Several streams that would have the potential to be affected by Impact H-2 under the proposed Project would not be affected under the Route B option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route B would introduce the potential for Impact H-2 to affect eight new streams, including Aliso Creek and seven unnamed streams. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-2 for Alternative 4, Route B, would be less than significant (Class II).

Route C. Several streams that would have the potential to be affected by Impact H-2 under the proposed Project would not be affected under the Route C option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route C would introduce the potential for Impact H-2 to affect three new unnamed streams. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-2 for Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. The effect of Impact H-2 under Route C Modified would be similar to Route C, described above, except that site-specific effects related to the new switching station would differ as a result of the new switching station being located approximately 2,500 feet northwest of the location proposed under the original Route C. As with Route C, the proposed Route C Modified would avoid unnamed streams affected by the proposed Project, as well as the following named streams: Little Chino Creek, Chino Creek, and Cucamonga Creek. Route C Modified would introduce the potential for Impact H-2 to affect twelve unnamed streams. Implementation of the

mitigation measures listed above and described in detail in Section 3.8.6.1 would reduce Impact H-2 for Route C Modified to a less-than-significant level (Class II).

Route D. Several streams that would have the potential to be affected by Impact H-2 under the proposed Project would not be affected under the Route D option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route D would introduce the potential for Impact H-2 to affect four new streams, including Aliso Creek and three unnamed streams. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-2 for Alternative 4, Route D, would be less than significant (Class II).

Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) would be mostly the same under Alternative 4 as it would for the proposed Project (please see Section 3.8.6.1), with the exception of the ~~four~~ five routing options which are described below. Surface and groundwater quality could potentially be degraded through the accidental release of potentially harmful or hazardous materials during Project operation and maintenance activities. Potentially harmful materials could be accidentally released during operational and maintenance activities at or near tower locations and along access roads. Due to the use of vehicles and other motorized equipment, some of the potentially hazardous substances that could be released include: diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, and lubricant grease. However, the potential for this impact to occur would be minimal due to the low number of vehicle trips required for operation and maintenance.

Route A. Several streams that would have the potential to be affected by Impact H-3 under the proposed Project would not be affected under the Route A option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route A would introduce the potential for Impact H-3 to affect five new unnamed streams. As described in detail in Section 3.8.6.1, Impact H-3 for Alternative 4, Route A, would be less than significant (Class III).

Route B. Several streams that would have the potential to be affected by Impact H-3 under the proposed Project would not be affected under the Route B option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route B would introduce the potential for Impact H-3 to affect eight new streams, including Aliso Creek and seven unnamed streams. As described in detail in Section 3.8.6.1, Impact H-3 for Alternative 4, Route B, would be less than significant (Class III).

Route C. Several streams that would have the potential to be affected by Impact H-3 under the proposed Project would not be affected under the Route C option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route C would introduce the potential for Impact H-3 to affect ten new unnamed streams. As described in detail in Section 3.8.6.1, Impact H-3 for Alternative 4, Route C, would be less than significant (Class III).

Route C Modified. As previously described, the switching station included under Route C Modified is located approximately 2,500 feet northwest of the location included under the original Route C. Therefore, the configuration of access roads to be used during operations and maintenance activities would also be different under Route C Modified and as a result, site-specific effects of Impact H-3

that would occur in relation to switching station activities would also vary under Route C Modified. Similar to the original Route C, the proposed Route C Modified would avoid the occurrence of Impact H-3 at several unnamed and named streams that would be affected under the proposed Project. Route C Modified would introduce the potential for Impact H-3 to affect twelve unnamed streams during operations and maintenance activities. However, site-specific differences between the original Route C and the Route C Modified option would not affect the overall significance of Impact H-3, in comparison with Route C and therefore, as described in detail in Section 3.8.6.1, Impact H-3 for Route C Modified would be less than significant (Class III).

Route D. Several streams that would have the potential to be affected by Impact H-3 under the proposed Project would not be affected under the Route D option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route D would introduce the potential for Impact H-3 to affect four new streams, including Aliso Creek and three unnamed streams. As described in detail in Section 3.8.6.1, Impact H-3 for Alternative 4, Route D, would be less than significant (Class III).

No further impacts would be introduced by Alternative 4 under Criterion HYD1. As mentioned, please see Section 3.8.6.1 for a detailed description of the impacts and mitigation measures listed above.

Depletion of Groundwater Supplies or Interference with Groundwater Recharge (Criterion HYD2)

Should groundwater be encountered during construction-related excavation, dewatering of the construction site would be required. For the proposed Project, depth to groundwater is approximately 75 feet or more bgs, and the maximum construction-related excavation depth is approximately 40 feet bgs. Although Alternative 4 would include several different routing options of the proposed transmission line in the Southern Region, no excavation beyond 40 feet bgs would be required along the re-routed section of the transmission line, and depth to groundwater in that area is approximately 75 feet or more bgs. Therefore, no direct contact with a main groundwater would be expected to occur during construction of Alternative 4. However, it may be possible for perched groundwater to be encountered during excavation activities, which would necessitate the implementation of APM HYD-6 (Drilling and Construction Site Dewatering Management). As described in Section 3.8.6, the potential encountering and dewatering of perched groundwater during construction activities would not cause or contribute to depletion of groundwater supplies or interference with groundwater recharge.~~Therefore no direct contact with groundwater would be expected to occur during construction of Alternative 4 and no dewatering would be required.~~

Creation of new impervious surfaces through construction of Alternative 4 could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underground aquifers. However, impervious surfaces that would result from construction of Alternative 4 would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater recharge.

Operation and maintenance of Alternative 4 would consist of transmission of electric current through the transmission line as well as periodic ~~maintenance~~ activities which would consist of driving construction vehicles along or within the transmission ROW and would have no effect on groundwater recharge. Therefore, all impacts related to Criterion HYD2 would be exactly the same as those for the proposed Project and, as described under Criterion HYD2 in Section 3.8.6.1, and no impact would occur.

Siltation, Erosion, or Other Flood Related Damage from Impeding or Redirecting Flood Flows through Placement of a Structure in a Stream or Flood Hazard Area (Criterion HYD3)

As described in the introduction for this analysis of Alternative 4, impacts associated with Criterion HYD3 would be mostly the same for Alternative 4 as for the proposed Project. However, the ~~four~~ five different routing options included under Alternative 4 would avoid some surface water and groundwater resources along the proposed Project alignment and would introduce other stream crossings associated with each of the ~~four~~ five routing options. These surface water and groundwater resources and the associated impacts and mitigation measures that fall under Criterion HYD3 are summarized below.

Impact H-4 (Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows) would be mostly the same under Alternative 4 as it would for the proposed Project (please see Section 3.8.6.1), with the exception of the ~~four~~ five routing options which are described below. Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Project structures include transmission towers, as well as structures associated with substation and switching station facilities. Although this alternative introduces several re-route options for the proposed transmission line in the Southern Region, the re-route options would not cross through or be placed within any new Flood Hazard Areas. The impediment of flood flows is most likely to occur where transmission towers or other permanent Project features are constructed in or closely adjacent to a watercourse. The ~~four~~ five different routing options included under Alternative 4 would avoid some surface water and groundwater resources along the proposed Project alignment and would introduce other stream crossings associated with each of the ~~four~~ five routing options. The following mitigation measure would be required for Impact H-4 under Alternative 4: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits).

> ***Route A.*** Several streams that would have the potential to be affected by Impact H-4 under the proposed Project would not be affected under the Route A option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route A would introduce the potential for Impact H-4 to affect five new unnamed streams. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-4 for Alternative 4, Route A, would be less than significant (Class II).
>
> ***Route B.*** Several streams that would have the potential to be affected by Impact H-4 under the proposed Project would not be affected under the Route B option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route B would introduce the potential for Impact H-4 to affect eight new streams, including Aliso Creek and seven unnamed streams. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-4 for Alternative 4, Route B, would be less than significant (Class II).
>
> ***Route C.*** Several streams that would have the potential to be affected by Impact H-4 under the proposed Project would not be affected under the Route C option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route C would introduce the potential for Impact H-4 to affect ten new unnamed streams. With implementation of the

mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-4 for Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. The same unnamed and named streams that would be avoided under the original Route C option, described above, would also be avoided under Route C Modified. Additionally, under Route C Modified, the potential for Impact H-4 to affect Project infrastructure and facilities would be introduced along approximately twelve unnamed streams. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-4 for Route C Modified would be less than significant (Class II).

Route D. Several streams that would have the potential to be affected by Impact H-4 under the proposed Project would not be affected under the Route D option. In addition to the unnamed streams that would be avoided, the named streams that would no longer be impacted include Little Chino Creek, Chino Creek, and Cucamonga Creek. However, Route D would introduce the potential for Impact H-4 to affect four new streams, including Aliso Creek and three unnamed streams. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-4 for Alternative 4, Route D, would be less than significant (Class II).

No further impacts would be introduced by Alternative 4 under Criterion HYD3. As mentioned, please see Section 3.8.6.1 for a detailed description of the impacts and mitigation measures listed above.

Flooding from Increased Rate or Amount of Surface Runoff (Criterion HYD4)

The amount of surface runoff is determined by the amount of precipitation and other imported water that enters a watershed, minus the amount of precipitation and imported water that infiltrates into the groundwater. Infiltration is determined by several factors, including soil type, antecedent soil moisture, rainfall intensity, the amount of impervious surfaces within a watershed, and topography. The rate of surface runoff is largely determined by topography and the storm hydrograph (the intensity of rainfall over a given period of time). Alternative 4 would not alter any precipitation amounts or intensities, nor would it require any additional water to be imported into the proposed Project area. Creation of new impervious surfaces through construction of Alternative 4 could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underground aquifers. However, impervious surfaces that would result from construction of Alternative 4 would cover very small areas and would be distributed over a large geographic region, and therefore would have the same effect on groundwater infiltration as described for the proposed Project under Section 3.8.6.1.

Alternative 4 would not substantially alter precipitation amounts or intensities, or the amount of precipitation or imported water that infiltrates into the groundwater. Therefore, all impacts related to Criterion HYD4 would be exactly the same as those for the proposed Project and, as described under Criterion HYD4 in Section 3.8.6.1, no impact would occur.

Damage from Inundation by Mudflow (Criterion HYD5)

As described in the introduction for this analysis of Alternative 4, impacts associated with Criterion HYD5 would be mostly the same for Alternative 4 as for the proposed Project. However, the ~~four~~ five different routing options included under Alternative 4 would avoid some surface water and groundwater resources along the proposed Project alignment and would introduce other stream crossings associated with each of the ~~four~~ five routing options. These surface water and groundwater resources and the associated impacts and mitigation measures that fall under Criterion HYD5 are summarized below.

Impact H-5 (Project structures would be inundated by mudflow) would be mostly the same under Alternative 4 as it would for the proposed Project (please see Section 3.8.6.1), with the exception of the ~~four~~ five routing options which are described below. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result, soil and rock materials become unstable and eventually slide away from their existing location, in a mudflow event. The several re-route options for the proposed transmission line in the Southern Region would pass through ~~the~~ steep terrain ~~of~~ within the CHSP, where soils are susceptible to mudflow. Therefore, the Hydrology and Water Quality impacts of Alternative 4 that fall under Criterion HYD5 would be similar but of a greater magnitude than the proposed Project. The following mitigation measure would be required for Impact H-5 under Alternative 4: G-3 (Conduct geological surveys for landslides and protect against slope instability).

Route A. As described above, 16 miles of Segment 8A (MP 19.2 – 35.2) would not occur under this alternative route, although Segment 8B would still be constructed between the Chino and Mira Loma Substations, same as Alternative 2. ~~the eastern portion of Segment 8A (starting at mile post 19.3), as well as all of Segments 8B and 8C would not be included as part of this alternative route. Therefore, the m~~Mudflow hazards associated with those ~~segments~~ 16 miles of the proposed Project's Segment 8A ~~route~~ would not affect this alternative route. However, Route A would introduce new steep terrain and soils susceptible to mudflow near Chino Hills State Park, which could produce potential new mudflow hazards that would not be introduced under the proposed Project. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-5 for Alternative 4, Route A, would be less than significant (Class II).

Route B. As described above, 16 miles of Segment 8A (MP 19.2 – 35.2) would not occur under this alternative route, although Segment 8B would still be constructed between the Chino and Mira Loma Substations, same as Alternative 2. ~~the eastern portion of Segment 8A (starting at mile post 19.3), as well as all of Segments 8B and 8C would not be included as part of this alternative route. Therefore, the m~~Mudflow hazards associated with those ~~segments~~ 16 miles of the proposed Project's Segment 8A ~~route~~ would not affect this alternative route. However, Route B would introduce new steep terrain and soils susceptible to mudflow near Chino Hills State Park, which could produce potential new mudflow hazards that would not be introduced under the proposed Project. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-5 for Alternative 4, Route B, would be less than significant (Class II).

Route C. As described above, 16 miles of Segment 8A (MP 19.2 – 35.2) would not occur under this alternative route, although Segment 8B would still be constructed between the Chino and Mira Loma Substations, same as Alternative 2. ~~the eastern portion of Segment 8A (starting at mile post 19.3), as well as all of Segments 8B and 8C would not be included as part of this alternative route. Therefore, the m~~Mudflow hazards associated with those ~~segments~~ 16 miles of the proposed Project's ~~route~~ Segment 8A would not affect this alternative route. However, Route C would introduce new steep terrain and soils susceptible to mudflow near Chino Hills State Park, which could produce potential new mudflow hazards that would not be introduced under the proposed Project. With implementation of the mitigation measure listed above and described in

detail in Section 3.8.6.1, Impact H-5 for Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. The potential for Impact H-5 to occur under Route C Modified would be the same as described above for the original Route C option, with site-specific differences related to the switching station being located approximately 2,500 feet northwest of the location proposed under the original Route C. Terrain in the area of the switching station location under Route C Modified is comparable to terrain at the switching station under the original Route C and therefore, any differences in the occurrence of Impact H-5 would be site-specific as related to the switching station. However, implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1 would reduce Impact H-5 for Route C Modified to a less-than-significant level (Class II).

Route D. As described above, 16 miles of Segment 8A (MP 19.2 – 35.2) would not occur under this alternative route, although Segment 8B would still be constructed between the Chino and Mira Loma Substations, same as Alternative 2. ~~the eastern portion of Segment 8A (starting at mile post 19.3), as well as all of Segments 8B and 8C would not be included as part of this alternative route. Therefore, the m~~Mudflow hazards associated with those ~~segments~~ 16 miles of the proposed Project's Segment 8A ~~route~~ would not affect this alternative route. However, Route D would introduce new steep terrain and soils susceptible to mudflow near Chino Hills State Park, which could produce potential new mudflow hazards that would not be introduced under the proposed Project. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-5 for Alternative 4, Route D, would be less than significant (Class II).

No further impacts would be introduced by Alternative 4 under Criterion HYD5. As mentioned, please see Section 3.8.6.1 for a detailed description of the impacts and mitigation measures listed above.

3.8.8.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 4 (Chino Hills Route Alternatives). This alternative consists of ~~four~~ five different routing options which would diverge from the proposed Project route in the City of Chino Hills. The route for Alternative 4 would be exactly the same as that of the proposed Project for all segments except Segment 8, where the Alternative 4 routing options (Routes A through D and C Modified) would diverge from the proposed Project alignment at S8A MP 19.2. Furthermore, Alternative 4 would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 4 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the rerouted portion of the alternative. With regards to Alternative 4, any incremental increases or decreases in the Project's contribution to the cumulative scenario would result from the location of the alternative alignments associated with Routes A, B, C, C Modified, and D.

Geographic Extent

Alternative 4 differs from the proposed Project in the southwestern portion of the proposed route, near the cities of Chino, Chino Hills, and Ontario. This area is still encompassed by the geographic extent of the

cumulative analysis defined for Alternative 2 in Section 3.8.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 4 is exactly the same as that for Alternative 2 and would include all of the Northern, Central, and Southern Regions.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 4 are exactly the same as for Alternative 2, as described in Section 3.8.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 4 would be exactly the same as Alternative 2, described in Section 3.8.6.2.

Cumulative Impact Analysis

As described in Section 3.8.6.2, impacts associated with Alternative 4 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with impacts of other past, present, or reasonably foreseeable projects. The proposed re-route options of Alternative 4 would have the potential to incrementally increase or decrease the proposed Project's contribution to cumulative impacts because they would have the potential to affect surface water and groundwater resources that would not be affected by the proposed Project, and they would likewise avoid effects to some surface water and groundwater resources that would be impacted by the proposed Project. The analysis of the Alternative 4 routing options provided in Section 3.8.8.1 indicates that although there would be some location-specific differences between the proposed Project and the Alternative 4 routing options, such location-specific differences are limited to a portion of the Southern Region and across the entirety of the proposed routes (including the proposed Project), the nature of impacts that would occur are the same between the proposed Project and Alternative 4. As such, the contribution of Alternative 4 to cumulative impacts would be the same as the proposed Project's contribution, as summarized below. Please see Section 3.8.6.2 (Cumulative Effects Analysis: Alternative 2) for a detailed discussion of these cumulative Project impacts.

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials), Impact H-4 (Project structures would cause erosion, sedimentation, or other flood related damage by impeding flood flows), and Impact H-5 (Project structures would be inundated by mudflow).

The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) and Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 4 in Section 3.8.8.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for Hydrology and Water Quality.

3.8.9 Alternative 5: Partial Underground Alternative

The following section describes Hydrology and Water Quality impacts of Alternative 5 (Partial Underground), as determined by the significance criteria listed in Section 3.8.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels. This alternative would follow the same route as the proposed Project through the Northern and Central Regions. In the Southern Region, Alternative 5 would place 3.5 miles of Segment 8A underground beneath the same corridor as the proposed aboveground T/L, from MP 21.9 to MP 25.4. Under this alternative, the existing 220-kV T/L along Segment 8A would be left in place from MP 21.9 to MP 25.4. Several streams that would be crossed by the proposed Project along Segment 8A, between MP 21.9 to MP 25.4, would not be crossed by Alternative 5 because the transmission infrastructure would be placed well below those streams. In addition, this alternative would come in contact with the underlying groundwater basin because the transmission infrastructure would be placed below the depth to groundwater.

3.8.9.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to Hydrology and Water Quality are introduced in Section 3.8.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criterion.

Water Quality Violations, Waste Discharges, or Polluted Runoff (Criterion HYD1)

Impacts associated with Criterion HYD1 for Alternative 5 would be similar to the impacts associated with this criterion for the proposed Project. This alternative places a portion of the proposed transmission line underground through the City of Chino Hills. This alternative would avoid eight stream crossings that would otherwise be crossed by the proposed Project, including three unnamed streams and five crossings of Little Chino Creek. Aside from the eight stream crossings that would be avoided, all remaining stream crossings for Alternative 5 are the same as for the proposed Project. Additionally, because this alternative would place transmission infrastructure between 100 and 400 feet below ground, the Chino Subbasin of the Upper Santa Ana Valley Groundwater Basin would be encountered. These impacts and their associated mitigation measures that fall under Criterion HYD1 are summarized in the following paragraphs. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for additional description of these impacts, as they are similar to the proposed Project.

Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) for this alternative is nearly identical to Impact H-1 for the proposed Project. Although this alternative places a portion of Segment 8A underground in the Southern Region, through the City of Chino Hills, the vast majority of the surface water resources that would be impacted by the proposed Project would also be impacted by Alternative 5, with the exception of the eight stream crossings listed in Table 2.6-1 of the *Hydrology and Water Quality Specialist Report*. The overall impact of Alternative 5 on erosion and sedimentation would remain unchanged compared to Impact H-1 for the proposed Project, and therefore would require implementation of the following mitigation measures: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), H-1b (Dry weather construction), and B-2 (Implement RCA Treatment Plan). With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-1 for Alternative 5 would be less than significant (Class II).

Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) for this alternative is very similar to Impact H-2 for the proposed Project, with the exception of the undergrounded portion of Segment 8A. Although this alternative would avoid eight stream crossings in the Southern Region, the vast majority of the water resources that could be degraded through the accidental release of potentially harmful or hazardous materials under the proposed Project could also be degraded under this alternative. The most substantial difference between Impact H-2 as described for the proposed Project and Impact H-2 for this alternative is the increased potential for degradation of the groundwater in the Chino Subbasin through the accidental release of potentially harmful or hazardous materials. Depth to groundwater along the eastern portion of the undergrounded section is approximately 75 feet bgs, and the planned excavation depth for the eastern access shaft is approximately 100 feet. Therefore, construction activities will likely come in direct contact with the groundwater in that area, which would increase the potential for degradation of groundwater quality through release of potentially harmful or hazardous materials, such as hydraulic fluid, engine oil, and lubricants. Dewatering of the eastern access shaft construction site may be necessary to reduce the potential for contamination of the groundwater through the accidental release of potentially harmful or hazardous materials. Contact with the groundwater would be limited to construction of the eastern access shaft. Groundwater would not be encountered at the western access shaft because no groundwater underlies that shaft. Additionally, no groundwater would be encountered during construction of the horizontal tunnel because tunnel construction would utilize pressurized-face tunnel boring machines, which would prevent groundwater intrusion. Although construction of the underground portion of Alternative 5 could degrade groundwater through accidental release of potentially harmful or hazardous materials, the overall impact of Alternative 5 on water quality would remain mostly unchanged compared to Impact H-2 for the proposed Project.Impact H-2 for Alternative 5 would require implementation of the following mitigation measures: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) and H-1b (Dry weather construction). By requiring demonstrated compliance with water quality permits (such as the NPDES General Permit or other required dewatering discharge permits), Mitigation Measure H-1a would ensure proper design and implementation of any dewatering activities, and would substantially reduce the likelihood that groundwater supplies would be contaminated. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-2 for Alternative 5 would be less than significant (Class II).

Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) for this alternative is nearly identical to Impact H-3 for the proposed Project. Although this alternative requires undergrounding a small portion of Segment 8A in the Southern Region, and would result in eight fewer stream crossings, the overall operational impact of Alternative 5 on water quality would remain unchanged compared to Impact H-3 for the proposed Project. Although construction of the underground portion of Alternative 5 would likely come in contact with groundwater, the completed tunnel and access shafts would be impervious to groundwater; therefore, operation and maintenance activities would not have the potential to degrade groundwater quality through the accidental release of potentially harmful or hazardous materials. Impact H-3 for Alternative 5 would be less than significant (Class III).

Impact H-6: Discharge of contaminated groundwater during dewatering operations would degrade surface water quality.

Impact H-6 (Discharge of contaminated groundwater during dewatering operations would degrade surface water quality) for Alternative 5 would result from the improper discharge of dewatered contaminated

groundwater. As described in Section 3.8.2.2, the Chino Subbasin exceeds MCLs for TDS, inorganics, radiology, nitrates, pesticides, VOCs and perchlorate. Construction of the eastern access shaft for this alternative would require excavation down to 100 feet, and the groundwater level is at approximately 75 feet bgs in that area. Therefore, dewatering likely would be required. Improper design and/or implementation of a dewatering plan could result in discharge of contaminated groundwater to a surface waterbody, which would subsequently lead to degradation of surface water quality. A proper dewatering plan would include testing of the groundwater to be dewatered, and subsequent treatment of that groundwater prior to discharge if contamination is discovered. Discharge of the dewatered effluent would be regulated under the NPDES permit required by the appropriate Regional Water Quality Control Board. Compliance with the conditions of the NPDES permit would ensure that contaminated groundwater is properly tested and treated, if necessary, prior to discharge to any surface water. See Section 3.8.3 for more information on the NPDES permit requirements.

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Impact H-6 for Alternative 5 would require implementation of the following mitigation measure: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). Mitigation Measure H-1a would ensure proper design and implementation of any dewatering activities through demonstrated compliance with NPDES requirements, and would substantially reduce the likelihood that surface water would be contaminated. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-6 for Alternative 5 would be less than significant (Class II).

No further impacts would be introduced by Alternative 5 under Criterion HYD1. As mentioned, please see Section 3.8.6.1 for a detailed description of Impacts H-1 through H-3 and the associated mitigation measures.

Depletion of Groundwater Supplies or Interference with Groundwater Recharge (Criterion HYD2)

Should groundwater be encountered during construction-related excavation, dewatering of the construction site would be required. For Alternative 5, depth to groundwater is approximately 75 feet bgs in the southwestern portion of the Chino Subbasin, and the eastern access shaft will be excavated to 100 feet. Therefore excavation of the eastern access shaft would likely require dewatering of the construction site. In accordance with APM HYD6 (Drilling and Construction Site Dewatering Management), dewatering operations would follow applicable state and local regulatory requirements, including as designated in the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook – Construction (CASQA, 2003). Any required dewatering activities would involve very low quantities of groundwater relative to the Chino Subbasin's storage and capacity, would occur at the edge of the groundwater basin, would continue for a short period of time, and would not substantially change groundwater levels. No other portion of Alternative 5 would be expected to result in the encountering of the main groundwater table; however, it is possible that perched groundwater may be encountered, thus necessitating dewatering procedures specified under APM HYD6. Any groundwater encountered during construction would be returned to the subsurface as a part of the dewatering process. Such activities would not contribute to the depletion of groundwater supplies or the interference with groundwater recharge. ~~However, this dewatering activity would involve very low quantities of groundwater relative to the Chino Subbasin's storage and capacity, would occur at the edge of the groundwater basin, would~~

~~continue for a short period of time, and would not substantially change groundwater levels. No other portion of Alternative 5 would encounter groundwater or require dewatering.~~

Creation of new impervious surfaces through construction of Alternative 5 could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underground aquifers. However, impervious surfaces that would result from construction of Alternative 5 would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater recharge.

Operation of Alternative 5 would consist of transmission of electric current though the transmission line as well as periodic maintenance which would consist of driving construction vehicles along or within the transmission ROW and underground tunnel, and would have no effect on groundwater recharge. Therefore, all impacts related to Criterion HYD2 would be very similar to those for the proposed Project and, as described under Criterion HYD2 in Section 3.8.6.1, no impact would occur.

Siltation, Erosion, or Other Flood Related Damage from Impeding or Redirecting Flood Flows through Placement of a Structure in a Stream or Flood Hazard Area (Criterion HYD3)

Impacts associated with Criterion HYD3 for Alternative 5 would be very similar to the impacts associated with this criterion for the proposed Project, but of a slightly greater magnitude. Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Although this alternative introduces an undergrounded portion of Segment 8A in the Southern Region, the existing aboveground towers would be left in place and would have a similar potential to impede or redirect flood flows compared to the towers that would be installed under the proposed Project. The impediment of flood flows is most likely to occur where transmission towers or other permanent Project features are constructed in or closely adjacent to a watercourse. Alternative 5 crosses a stream eight fewer times than the proposed Project. It is not expected that infrastructure associated with Alternative 5 would be situated within a watercourse; however, some towers would be placed in areas subject to periodic overland flow and flooding, such as the Santa Fe Flood Control Basin, the Whittier Narrows Flood Control Basin, and some broad, ephemeral washes in the Northern Region. Additionally, the aboveground structure associated with the eastern access shaft for the underground portion of Segment 8A would be placed within a Flood Hazard Area. If not properly designed, this structure could impede or redirect flood flows. However, placement of the eastern access shaft aboveground structure within a Flood Hazard Area would not substantially alter the overall potential for the impediment or redirection of flood flows, compared to the proposed Project. Therefore, the Hydrology and Water Quality impacts of Alternative 5 that fall under Criterion HYD3 would be very similar to the proposed Project. This impact and its associated mitigation measures are summarized in the following paragraph. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of this impact, as it is mostly the same as for the proposed Project.

Impact H-4 (Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows) for this alternative is nearly identical to Impact H-4 for the proposed Project. Although this alternative undergrounds a small portion of Segment 8A in the Southern Region, and would place an additional structure in a Flood Hazard Area, the overall impact of Alternative 5 on flooding would remain unchanged compared to Impact H-4 for the proposed Project, and therefore would require implementation of the following mitigation measure: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of the mitigation measure listed

above and described in detail in Section 3.8.6.1, Impact H-4 for Alternative 5 would be less than significant (Class II).

Flooding from Increased Rate or Amount of Surface Runoff (Criterion HYD4)

The amount of surface runoff is determined by the amount of precipitation and other imported water that enters a watershed, minus the amount of precipitation and imported water that infiltrates into the groundwater. Infiltration is determined by several factors, including soil type, antecedent soil moisture, rainfall intensity, the amount of impervious surfaces within a watershed, and topography. The rate of surface runoff is largely determined by topography and the storm hydrograph (the intensity of rainfall over a given period of time). Alternative 5 would not alter any precipitation amounts or intensities, nor would it require any additional water to be imported into the proposed Project area. Although Alternative 5 would include an underground portion of the proposed transmission line in the Southern Region, this alternative would create mostly the same amount and distribution of impervious surfaces as the proposed Project, and therefore would have the same effect on groundwater infiltration as described for the proposed Project under Section 3.8.6.1.

Alternative 5 would not substantially alter precipitation amounts or intensities, or the amount of precipitation or imported water that infiltrates into the groundwater. Therefore, all impacts related to Criterion HYD4 would be exactly the same as those for the proposed Project and, as described under Criterion HYD4 in Section 3.8.6.1, no impact would occur.

Damage from Inundation by Mudflow (Criterion HYD5)

Impacts associated with Criterion HYD5 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result, soil and rock materials become unstable and eventually slide away from their existing location, in a mudflow event. Although this alternative introduces an underground portion of the proposed transmission line in the Southern Region, it would still pass through the same steep terrain and soils susceptible to mudflow through the Puente and Chino Hills. Therefore, the Hydrology and Water Quality impacts of Alternative 5 that fall under Criterion HYD5 would be mostly the same as the proposed Project. This impact and its associated mitigation measures are summarized in the following paragraph. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of this impact, as it is mostly the same as for the proposed Project.

Impact H-5 (Project structures would be inundated by mudflow) for this alternative is nearly identical to Impact H-5 for the proposed Project. Although this alternative requires an underground portion of Segment 8A in the Southern Region, and would cross a stream eight fewer times, the overall impact of Alternative 5 on inundation by mudflow would remain unchanged compared to Impact H-5 for the proposed Project, and therefore would require implementation of the following mitigation measure: G-3 (Conduct geological surveys for landslides and protect against slope instability). With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-5 for Alternative 5 would be less than significant (Class II).

3.8.9.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 5 (Partial Underground Alternative). This alternative consists of a short underground portion of the proposed transmission line just east of the Puente and Chino Hills, which would lead to eight fewer stream crossings. The remainder of this alternative route would be identical to that of the proposed Project and would, therefore, result in nearly identical impacts as the proposed Project. The undergrounded portion of the Alternative 5 route follows the exact same ROW as the proposed Project. As a result, this alternative traverses the same land uses as the portion of the proposed Project route it is proposed to replace, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 5 to the proposed Project, this alternative's contribution to cumulative impacts would be nearly identical to that of the proposed Project, with the exception of potential impacts to groundwater.

Geographic Extent

Alternative 5 only differs from the proposed Project for a very small portion of the proposed route in the City of Chino Hills. This area is still encompassed by the geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.8.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 5 is exactly the same as that for Alternative 2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 5 are exactly the same as for Alternative 2, as described in Section 3.8.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 5 would be exactly the same as Alternative 2, described in Section 3.8.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 5 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with impacts of other past, present, or reasonably foreseeable projects. The small underground portion of the proposed transmission line associated with Alternative 5 would not affect this alternative's contribution to cumulative impacts other than potential impacts to groundwater and therefore, cumulative impacts of Alternative 5 would be very similar to cumulative impacts for Alternative 2, as detailed in Section 3.8.6.2 and described below.

This alternative would introduce one new impact compared to the proposed Project, Impact H-6 (Discharge of contaminated groundwater during dewatering operations would degrade surface water quality). However, Impact H-6 would not be cumulatively considerable because implementation of Mitigation Measure H-1a would require demonstrated compliance with NPDES discharge permits and therefore any dewatered groundwater would be tested and treated prior to discharge. The discharge of clean and/or treated groundwater would not have the potential to combine with impacts from other projects because the clean and/or treated discharge would not contribute to the degradation of surface water.

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of

potentially harmful or hazardous materials), Impact H-4 (Project structures would cause erosion, sedimentation, or other flood related damage by impeding flood flows), and Impact H-5 (Project structures would be inundated by mudflow).

The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) and Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 5 in Section 3.8.9.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for Hydrology and Water Quality.

3.8.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

The following section describes Hydrology and Water Quality impacts of Alternative 6 (Maximum Helicopter Construction in the ANF Alternative), as determined by the significance criteria listed in Section 3.8.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels. This alternative would differ from the proposed Project in that up to 148~~3~~ towers in the ANF would be constructed by helicopter. The use of helicopters for tower construction would preclude the need for construction and/or improvements along several access and spur roads within the ANF.

3.8.10.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to Hydrology and Water Quality are introduced in Section 3.8.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criterion.

Water Quality Violations, Waste Discharges, or Polluted Runoff (Criterion HYD1)

Impacts associated with Criterion HYD1 for Alternative 6 would be similar to impacts associated with this criterion for the proposed Project, but of a lesser magnitude. Although this alternative introduces helicopter construction of up to 148~~3~~ towers in the ANF, the majority of the streams that are crossed by the proposed Project would also be crossed by Alternative 6. Several streams that are crossed by access and spur roads associated with the proposed Project would be avoided by this alternative. See Section 3.4, Biological Resources, for a description of the streams that would be avoided under this alternative. Because Alternative 6 is identical to the proposed Project outside of the ANF, and because many of the same streams within the ANF that are affected by the proposed Project are also affected by Alternative 6, the Hydrology and Water Quality impacts of Alternative 6 would be similar to the proposed Project, but of a lesser magnitude. A list of the streams and groundwater basins that could potentially be affected by impacts of Alternative 6 is included in the *Hydrology and Water Quality Specialist Report*, Tables 2.3-1 through 2.3-3. However, several streams that would be impacted by access road construction and/or improvement under the proposed Project would not be impacted under Alternative 6. For a list of streams

within the ANF that would be affected by access and spur roads (both under the proposed Project and this alternative), see Section 3.4, Biological Resources. The impacts and their associated mitigation measures that fall under Criterion HYD1 are summarized in the following paragraphs. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of these impacts, as they are similar to the proposed Project, but of a lesser magnitude.

Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) for this alternative is similar to Impact H-1 for the proposed Project, but of a lesser magnitude. Although this alternative introduces helicopter construction of up to ~~143~~ 148 towers within the ANF, and would cross several fewer streams, the overall impact of Alternative 6 on erosion and sedimentation would be very similar compared to Impact H-1 for the proposed Project, and therefore would require implementation of the following mitigation measures: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), H-1b (Dry weather construction), and B-2 (Implement RCA Treatment Plan). With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-1 for Alternative 6 would be less than significant (Class II).

Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) for this alternative is very similar to Impact H-2 for the proposed Project. Although this alternative introduces helicopter construction of up to ~~143~~ 148 towers within the ANF, and would cross several fewer streams, the overall impact of Alternative 6 on water quality would remain nearly unchanged compared to Impact H-2 for the proposed Project, and therefore would require implementation of the following mitigation measure: H-1b (Dry weather construction). With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-2 for Alternative 6 would be less than significant (Class II).

Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) for this alternative is very similar to Impact H-3 for the proposed Project. Although this alternative introduces helicopter construction of up to ~~143~~ 148 towers within the ANF, and would cross several fewer streams, the overall impact of Alternative 6 on water quality would remain nearly unchanged compared to Impact H-3 for the proposed Project. As described in detail in Section 3.8.6.1, Impact H-3 for Alternative 6 would be less than significant (Class III).

No further impacts would be introduced by Alternative 6 under Criterion HYD1. As mentioned, please see Section 3.8.6.1 for a detailed description of the impacts and mitigation measures listed above.

Depletion of Groundwater Supplies or Interference with Groundwater Recharge (Criterion HYD2)

Should groundwater be encountered during construction-related excavation, dewatering of the construction site would be required. For Alternative 6, depth to groundwater is approximately 75 feet or more bgs, and the maximum construction-related excavation depth is approximately 40 feet bgs. Although Alternative 6 would introduce helicopter construction of up to 148~~3~~ towers within the ANF, no excavation beyond 40 feet bgs would be required, and depth to groundwater throughout the affected environment for Alternative 6 is at least 75 feet bgs. Therefore no direct contact with the main groundwater table would be expected to occur during construction of Alternative 6; however, it may be possible for perched groundwater to be encountered, especially when drilling or construction during the wet season. In accordance with APM HYD-6 (Drilling and Construction Site Dewatering Management), dewatering operations would include, as applicable, the use of sediment traps and sediment basins per BMP NS-2

(Dewatering Operations) from the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook – Construction (CASQA, 2003). Any groundwater encountered during construction would be returned to the subsurface as a part of the dewatering process. Such activities would not contribute to the depletion of groundwater supplies or the interference with groundwater recharge.

~~Therefore no direct contact with groundwater would be expected to occur during construction of Alternative 6 and no dewatering would be required.~~ Creation of new impervious surfaces through construction of Alternative 6 could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underground aquifers. However, impervious surfaces that would result from construction of Alternative 6 would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater recharge.

Operation of Alternative 6 would consist of transmission of electric current though the transmission line as well as periodic maintenance which would consist of driving construction vehicles along or within the transmission ROW and would have no effect on groundwater recharge. Therefore, all impacts related to Criterion HYD2 would be exactly the same as those for the proposed Project and, as described under Criterion HYD2 in Section 3.8.6.1, no impact would occur.

Siltation, Erosion, or Other Flood Related Damage from Impeding or Redirecting Flood Flows through Placement of a Structure in a Stream or Flood Hazard Area (Criterion HYD3)

Impacts associated with Criterion HYD3 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project, but of a slightly lesser magnitude. Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Although this alternative introduces helicopter construction of up to 148~~3~~ towers within the ANF, and would cross several fewer streams, this alternative would cross through or be placed within the same Flood Hazard Areas as the proposed Project. The impediment of flood flows is most likely to occur where transmission towers or other permanent Project features are constructed in or closely adjacent to a watercourse. Alternative 6 crosses several fewer streams than the proposed Project, and it is not expected that infrastructure associated with Alternative 6 would be situated within a watercourse; however, some towers would be placed in areas subject to periodic overland flow and flooding, such as the Santa Fe Flood Control Basin, the Whittier Narrows Flood Control Basin, and some broad, ephemeral washes in the Northern Region. Therefore, the Hydrology and Water Quality impacts of Alternative 6 that fall under Criterion HYD3 would be the same as the proposed Project. This impact and its associated mitigation measures are summarized in the following paragraph. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of this impact, as it is the same as for the proposed Project.

Impact H-4 (Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows) for this alternative is nearly identical to Impact H-4 for the proposed Project. Although this alternative introduces helicopter construction of up to 148~~3~~ towers within the ANF, and would cross several fewer streams, the overall impact of Alternative 6 on flooding would remain unchanged compared to Impact H-4 for the proposed Project, and therefore would require implementation of the following mitigation measure: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of the mitigation measure listed above and

described in detail in Section 3.8.6.1, Impact H-4 for Alternative 6 would be less than significant (Class II).

Flooding from Increased Rate or Amount of Surface Runoff (Criterion HYD4)

The amount of surface runoff is determined by the amount of precipitation and other imported water that enters a watershed, minus the amount of precipitation and imported water that infiltrates into the groundwater. Infiltration is determined by several factors, including soil type, antecedent soil moisture, rainfall intensity, the amount of impervious surfaces within a watershed, and topography. The rate of surface runoff is largely determined by topography and the storm hydrograph (the intensity of rainfall over a given period of time). Alternative 6 would not alter any precipitation amounts or intensities, nor would it require any additional water to be imported into the proposed Project area. Although Alternative 6 would introduce helicopter construction of up to 148~~3~~ towers within the ANF, and would cross several fewer streams, this alternative would create a very similar amount and distribution of impervious surfaces as the proposed Project, and therefore would have the same effect on groundwater infiltration as described for the proposed Project under Section 3.8.6.1.

Alternative 6 would not substantially alter precipitation amounts or intensities, or the amount of precipitation or imported water that infiltrates into the groundwater. Therefore, all impacts related to Criterion HYD4 would be exactly the same as those for the proposed Project and, as described under Criterion HYD4 in Section 3.8.6.1, no impact would occur.

Damage from Inundation by Mudflow (Criterion HYD5)

Impacts associated with Criterion HYD5 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result, soil and rock materials become unstable and eventually slide away from their existing location, in a mudflow event. Although this alternative introduces helicopter construction of up to 148~~3~~ towers within the ANF, and would cross several fewer streams, it would still pass through the same steep terrain and soils susceptible to mudflow within the Puente and Chino Hills. Therefore, the Hydrology and Water Quality impacts of Alternative 6 that fall under Criterion HYD5 would be the same as the proposed Project. This impact and its associated mitigation measures are summarized in the following paragraph. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of this impact, as it is the same as for the proposed Project.

Impact H-5 (Project structures would be inundated by mudflow) for this alternative is nearly identical to Impact H-5 for the proposed Project. Although this alternative introduces helicopter construction of up to 148~~3~~ towers within the ANF, and would cross several fewer streams, the overall impact of Alternative 6 on inundation by mudflow would remain unchanged compared to Impact H-5 for the proposed Project, and therefore would require implementation of the following mitigation measure: G-3 (Conduct geological surveys for landslides and protect against slope instability). With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-5 for Alternative 6 would be less than significant (Class II).

3.8.10.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 6 (Maximum Helicopter Construction in the ANF Alternative). This alternative introduces helicopter construction of up to 148~~3~~ towers within the ANF, and would cross several fewer streams. The remainder of this alternative (outside of the ANF) would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. The Alternative 6 route is the exact same as the proposed Project route. As a result, this alternative traverses the same land uses as the proposed Project route, would require the same types of construction activities to build (with the exception of the use of helicopters in the ANF), and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 6 to the proposed Project, this alternative's contribution to cumulative impacts would be nearly identical to that of the proposed Project.

Geographic Extent

The geographic extent for Alternative 6 is exactly the same as the geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.8.6.2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 6 are exactly the same as for Alternative 2, as described in Section 3.8.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 6 would be exactly the same as Alternative 2, described in Section 3.8.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 6 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with impacts of other past, present, or reasonably foreseeable projects. The introduction of helicopter construction within the ANF associated with Alternative 6 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 6 would be nearly identical to cumulative impacts for Alternative 2, as detailed in Section 3.8.6.2 and described below.

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials), Impact H-4 (Project structures would cause erosion, sedimentation, or other flood related damage by impeding flood flows), and Impact H-5 (Project structures would be inundated by mudflow).

The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) and Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 6 in Section 3.8.10.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for Hydrology and Water Quality.

3.8.11 Alternative 7: 66-kV Subtransmission Alternative

The following section describes Hydrology and Water Quality impacts of Alternative 7 (66-kV Subtransmission Alternative), as determined by the significance criteria listed in Section 3.8.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels. This alternative would follow the same route as the proposed Project through the Northern and Central Regions. In the Southern Region, this alternative is comprised of ~~three~~ four 66-kV subtransmission line elements, including the following: (1) ~~u~~Undergrounding the 66-kV subtransmission line in Segment 7 through the River Commons or Duck Farm Project (between Valley Boulevard – S7 MP 8.9 and S7 MP 9.9);~~,~~ (2) ~~r~~Re-routing and undergrounding the 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 7 (S7 MP 11.4 to 12.025);~~,~~ ~~and~~ (3) Re-routing the existing 66-kV subtransmission line through the Whittier Narrows Recreation Area in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing 220-kV ROW to reduce the number of structures required (20-foot expanded ROW required); and (4) ~~r~~Re-routing the 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8.

3.8.11.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to Hydrology and Water Quality are introduced in Section 3.8.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criterion.

Water Quality Violations, Waste Discharges, or Polluted Runoff (Criterion HYD1)

Impacts associated with Criterion HYD1 for Alternative 7 would be similar to the impacts associated with this criterion for the proposed Project. This alternative re-routes and/or places ~~a~~ portions of the 66-kV subtransmission line underground in Segments 7 and 8A. All stream crossings for Alternative 7 are the same as for the proposed Project. Additionally, because this alternative would place subtransmission infrastructure below ground, the San Gabriel Valley Groundwater Basin would be encountered. These impacts and their associated mitigation measures that fall under Criterion HYD1 are summarized in the following paragraphs. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for additional description of these impacts, as they are similar to the proposed Project.

Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) for this alternative is nearly identical to Impact H-1 for the proposed Project. Although this alternative places sections of 66-kV subtransmission line associated with Segments 7 and 8A underground in the Southern Region, the vast majority of the surface water resources that would be impacted by the proposed Project would also be impacted by Alternative 7. The overall impact of Alternative 7 on erosion and sedimentation would remain unchanged compared to Impact H-1 for the proposed Project, and therefore would require implementation of the following mitigation measures: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), H-1b (Dry weather

construction), and B-2 (Implement RCA Treatment Plan). With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-1 for Alternative 7 would be less than significant (Class II).

Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) for this alternative is very similar to Impact H-2 for the proposed Project, with the exception of the undergrounded sections of the subtransmission lines. The vast majority of the water resources that could be degraded through the accidental release of potentially harmful or hazardous materials under the proposed Project could also be degraded under this alternative. The most substantial difference between Impact H-2 as described for the proposed Project and Impact H-2 for this alternative is the increased potential for degradation of the groundwater in the San Gabriel Valley Groundwater Basin through the accidental release of potentially harmful or hazardous materials. Although depth to groundwater in this Basin is approximately 150 feet bgs or more, locally elevated pockets of groundwater could be encountered while routing the subtransmission line under Avocado Creek, a tributary of the San Gabriel River. Dewatering may be necessary. Therefore, this alternative would increase the potential for degradation of groundwater quality through release of potentially harmful or hazardous materials, such as hydraulic fluid, engine oil, and lubricants. Although construction of the underground portion of Alternative 7 could degrade groundwater through accidental release of potentially harmful or hazardous materials, the overall impact of Alternative 7 on water quality would remain mostly unchanged compared to Impact H-2 for the proposed Project. Impact H-2 for Alternative 7 would require implementation of the following mitigation measures: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) and H-1b (Dry weather construction). By requiring demonstrated compliance with water quality permits (such as the NPDES General Permit or other required dewatering discharge permits), Mitigation Measure H-1a would ensure proper design and implementation of any dewatering activities, and would substantially reduce the likelihood that groundwater supplies would be contaminated. With implementation of the mitigation measures listed above and described in detail in Section 3.8.6.1, Impact H-2 for Alternative 7 would be less than significant (Class II).

Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials) for this alternative is nearly identical to Impact H-3 for the proposed Project. Although this alternative requires undergrounding sections of subtransmission lines in Segments 7 and 8A in the Southern Region, the overall operational impact of Alternative 7 on water quality would remain unchanged compared to Impact H-3 for the proposed Project. Although construction of the underground portion of Alternative 7 could come in contact with groundwater, the completed underground sections of subtransmission line would be impervious to groundwater; therefore, operation and maintenance activities would not have the potential to degrade groundwater quality through the accidental release of potentially harmful or hazardous materials. Impact H-3 for Alternative 7 would be less than significant (Class III).

Impact H-6 (Discharge of contaminated groundwater during dewatering operations would degrade surface water quality) for Alternative 7 would result from the improper discharge of dewatered contaminated groundwater. As described in Section 3.8.2.2, the San Gabriel Valley Groundwater Basin exceeds MCLs for TDS, nitrate, VOCs, perchlorate and NDMA. Construction of the undergrounded sections of subtransmission line for this alternative would require excavation below Avocado Creek, a tributary of the San Gabriel River. Therefore, dewatering likely would be required. Improper design and/or implementation of a dewatering plan could result in discharge of contaminated groundwater to a surface

waterbody, which would subsequently lead to degradation of surface water quality. A proper dewatering plan would include testing of the groundwater to be dewatered, and subsequent treatment of that groundwater prior to discharge if contamination is discovered. Discharge of the dewatered effluent would be regulated under the NPDES permit required by the appropriate Regional Water Quality Control Board. Compliance with the conditions of the NPDES permit would ensure that contaminated groundwater is properly tested and treated, if necessary, prior to discharge to any surface water. See Section 3.8.3 for more information on the NPDES permit requirements. Impact H-6 for Alternative 7 would require implementation of the following mitigation measure: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). Mitigation Measure H-1a would ensure proper design and implementation of any dewatering activities through demonstrated compliance with NPDES requirements, and would substantially reduce the likelihood that surface water would be contaminated. With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-6 for Alternative 7 would be less than significant (Class II).

No further impacts would be introduced by Alternative 7 under Criterion HYD1. As mentioned, please see Section 3.8.6.1 for a detailed description of Impacts H-1 through H-3 and the associated mitigation measures.

Depletion of Groundwater Supplies or Interference with Groundwater Recharge (Criterion HYD2)

Should groundwater be encountered during construction-related excavation, dewatering of the construction site would be required. For Alternative 7, excavation beneath Avocado Creek, a tributary of the San Gabriel River would likely require dewatering of the construction site. However, this dewatering activity would involve very low quantities of groundwater relative to the San Gabriel Valley Groundwater Basin's storage and capacity, would continue for a short period of time, and would not substantially change groundwater levels. In addition, as described above with regards to other Project alternatives, construction-related excavation activities may result in the encountering of perched groundwater, especially when drilling or construction during the wet season. In accordance with APM HYD-6 (Drilling and Construction Site Dewatering Management), dewatering operations would include, as applicable, the use of sediment traps and sediment basins per BMP NS-2 (Dewatering Operations) from the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook – Construction (CASQA, 2003). Any groundwater encountered during construction would be returned to the subsurface as a part of the dewatering process. Such activities would not contribute to the depletion of groundwater supplies or the interference with groundwater recharge.

Creation of new impervious surfaces through construction of Alternative 7 could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underground aquifers. However, impervious surfaces that would result from construction of Alternative 7 would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater recharge.

Operation of Alternative 7 would consist of transmission of electric current though the transmission line as well as periodic maintenance which would consist of driving construction vehicles along or within the transmission ROW, and would have no effect on groundwater recharge. Therefore, all impacts related to Criterion HYD2 would be very similar to those for the proposed Project and, as described under Criterion HYD2 in Section 3.8.6.1, no impact would occur.

Siltation, Erosion, or Other Flood Related Damage from Impeding or Redirecting Flood Flows through Placement of a Structure in a Stream or Flood Hazard Area (Criterion HYD3)

Impacts associated with Criterion HYD3 for Alternative 7 would be very similar to the impacts associated with this criterion for the proposed Project, but of a slightly lesser magnitude. Although this alternative undergrounds sections of subtransmission line in Segments 7 and 8A, the vast majority of above-ground structures associated with the proposed Project would remain under this alternative. Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. The impediment of flood flows is most likely to occur where transmission towers or other permanent Project features are constructed in or closely adjacent to a watercourse. It is not expected that infrastructure associated with Alternative 7 would be situated within a watercourse; however, some towers would be placed in areas subject to periodic overland flow and flooding, such as the Santa Fe Flood Control Basin, the Whittier Narrows Flood Control Basin, and some broad, ephemeral washes in the Northern Region. The undergrounding of subtransmission lines within the Whittier Narrows Flood Control Basin will only slightly reduce the overall potential for impeding or redirecting flood flows compared to the proposed Project, because the vast majority of large transmission towers would remain unchanged under this alternative compared to the proposed Project. Therefore, the Hydrology and Water Quality impacts of Alternative 7 that fall under Criterion HYD3 would be very similar to the proposed Project. This impact and its associated mitigation measures are summarized in the following paragraph. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of this impact, as it is mostly the same as for the proposed Project.

Impact H-4 (Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows) for this alternative is nearly identical to Impact H-4 for the proposed Project. Although this alternative undergrounds sections of subtransmission lines in Segments 7 and 8A, the overall impact of Alternative 7 on flooding would remain unchanged compared to Impact H-4 for the proposed Project, and therefore would require implementation of the following mitigation measure: H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits). With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-4 for Alternative 7 would be less than significant (Class II).

Flooding from Increased Rate or Amount of Surface Runoff (Criterion HYD4)

The amount of surface runoff is determined by the amount of precipitation and other imported water that enters a watershed, minus the amount of precipitation and imported water that infiltrates into the groundwater. Infiltration is determined by several factors, including soil type, antecedent soil moisture, rainfall intensity, the amount of impervious surfaces within a watershed, and topography. The rate of surface runoff is largely determined by topography and the storm hydrograph (the intensity of rainfall over a given period of time). Alternative 7 would not alter any precipitation amounts or intensities, nor would it require any additional water to be imported into the proposed Project area. Although Alternative 7 would include underground sections of subtransmission lines in the Southern Region, this alternative would create the same amount and distribution of impervious surfaces as the proposed Project, and therefore would have the same effect on groundwater infiltration as described for the proposed Project under Section 3.8.6.1.

Alternative 7 would not substantially alter precipitation amounts or intensities, or the amount of precipitation or imported water that infiltrates into the groundwater. Therefore, all impacts related to

Criterion HYD4 would be exactly the same as those for the proposed Project and, as described under Criterion HYD4 in Section 3.8.6.1, no impact would occur.

Damage from Inundation by Mudflow (Criterion HYD5)

Impacts associated with Criterion HYD5 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result, soil and rock materials become unstable and eventually slide away from their existing location, in a mudflow event. Although this alternative introduces underground sections of subtransmission lines in the Southern Region, it would still pass through the same steep terrain soils susceptible to mudflow through the Puente and Chino Hills. Therefore, the Hydrology and Water Quality impacts of Alternative 7 that fall under Criterion HYD5 would be the same as the proposed Project. This impact and its associated mitigation measures are summarized in the following paragraph. Please see Section 3.8.6.1 (Direct and Indirect Effects Analysis) for a detailed description of this impact, as it is mostly the same as for the proposed Project.

Impact H-5 (Project structures would be inundated by mudflow) for this alternative is nearly identical to Impact H-5 for the proposed Project. Although this alternative requires undergrounding sections of subtransmission lines in Segments 7 and 8A, the overall impact of Alternative 7 on inundation by mudflow would remain unchanged compared to Impact H-5 for the proposed Project, and therefore would require implementation of the following mitigation measure: G-3 (Conduct geological surveys for landslides and protect against slope instability). With implementation of the mitigation measure listed above and described in detail in Section 3.8.6.1, Impact H-5 for Alternative 7 would be less than significant (Class II).

3.8.11.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 7 (66-kV Subtransmission Alternative). This alternative consists of several undergrounded sections of subtransmission line in the Southern Region. The remainder of this alternative route would be identical to that of the proposed Project and would, therefore, result in nearly identical impacts as the proposed Project. The undergrounded sections of subtransmission line under Alternative 7 follow a very similar ROW as the proposed Project. As a result, this alternative traverses the same land uses as the portion of the proposed Project route it is proposed to replace, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 7 to the proposed Project, this alternative's contribution to cumulative impacts would be nearly identical to that of the proposed Project.

Geographic Extent

Alternative 7 only differs from the proposed Project for a very small portion of the proposed route in the Southern Region near the San Gabriel River and the Whittier Narrows Flood Control Basin. This area is still encompassed by the geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.8.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 7 is exactly the same as that for Alternative 2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 7 are exactly the same as for Alternative 2, as described in Section 3.8.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 7 would be exactly the same as Alternative 2, described in Section 3.8.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 7 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with impacts of other past, present, or reasonably foreseeable projects. The small underground portion of subtransmission line associated with Alternative 7 would not affect this alternative's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 7 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.8.6.2 and described below.

This alternative would introduce one new impact compared to the proposed Project, Impact H-6 (Discharge of contaminated groundwater during dewatering operations would degrade surface water quality). However, Impact H-6 would not be cumulatively considerable because implementation of Mitigation Measure H-1a would require demonstrated compliance with NPDES discharge permits and therefore any dewatered groundwater would be tested and treated prior to discharge. The discharge of clean and/or treated groundwater would not have the potential to combine with impacts from other projects because the clean and/or treated discharge would not contribute to the degradation of surface water.

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact H-3 (Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials), Impact H-4 (Project structures would cause erosion, sedimentation, or other flood related damage by impeding flood flows), and Impact H-5 (Project structures would be inundated by mudflow).

The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact H-1 (Construction activities would degrade surface water quality through erosion and accelerated sedimentation) and Impact H-2 (Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 7 in Section 3.8.11.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for Hydrology and Water Quality.

3.8.12 Impact Significance Summary

Table 3.8-4 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on Hydrology and Water Quality. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.8.6 through 3.8.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.8.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Table 3.8-4. Summary of Impacts and Mitigation Measures – Hydrology and Water Quality

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
H-1: Construction activities would degrade surface water quality through erosion and accelerated sedimentation.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits. H-1b: Dry weather construction. B-2: Implement RCA Treatment Plan.
H-2: Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	H-1a (See Impact H-1) [applicable to Alternatives 5 and 7] H-1b (See Impact H-1)
H-3: Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended.
H-4: Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	H-1a (See Impact H-1)
H-5: Project structures would be inundated by mudflow.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	G-3: Conduct geological surveys for landslides and protect against slope instability.
H-6: Discharge of contaminated groundwater during dewatering operations would degrade surface water quality.	N/A	No Impact	No Impact	No Impact	Class II	No Impact	Class II	No	H-1a (See Impact H-1)

N/A = Not Available.

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.

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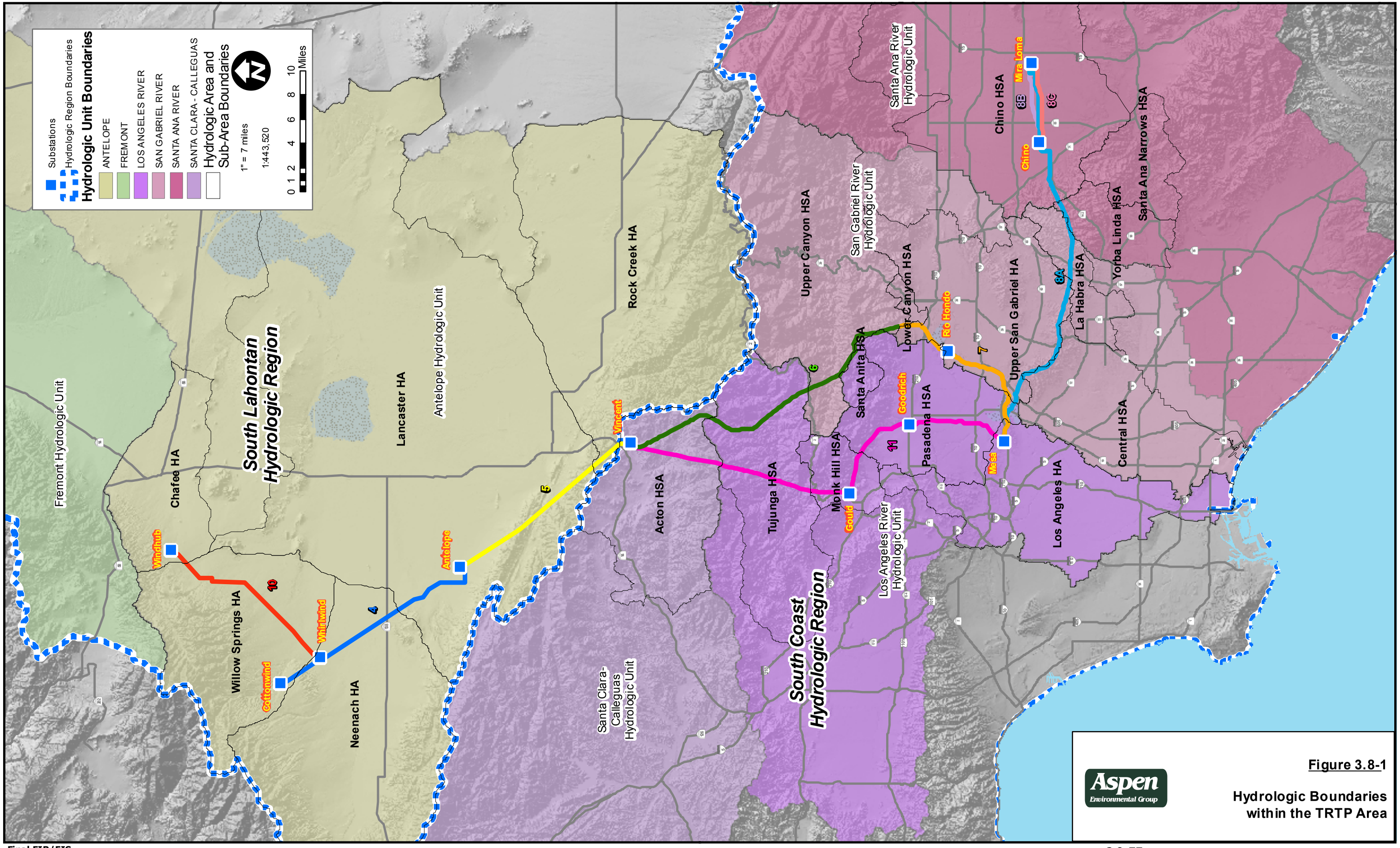

Aspen Environmental Group

Figure 3.8-1

Hydrologic Boundaries within the TRTP Area

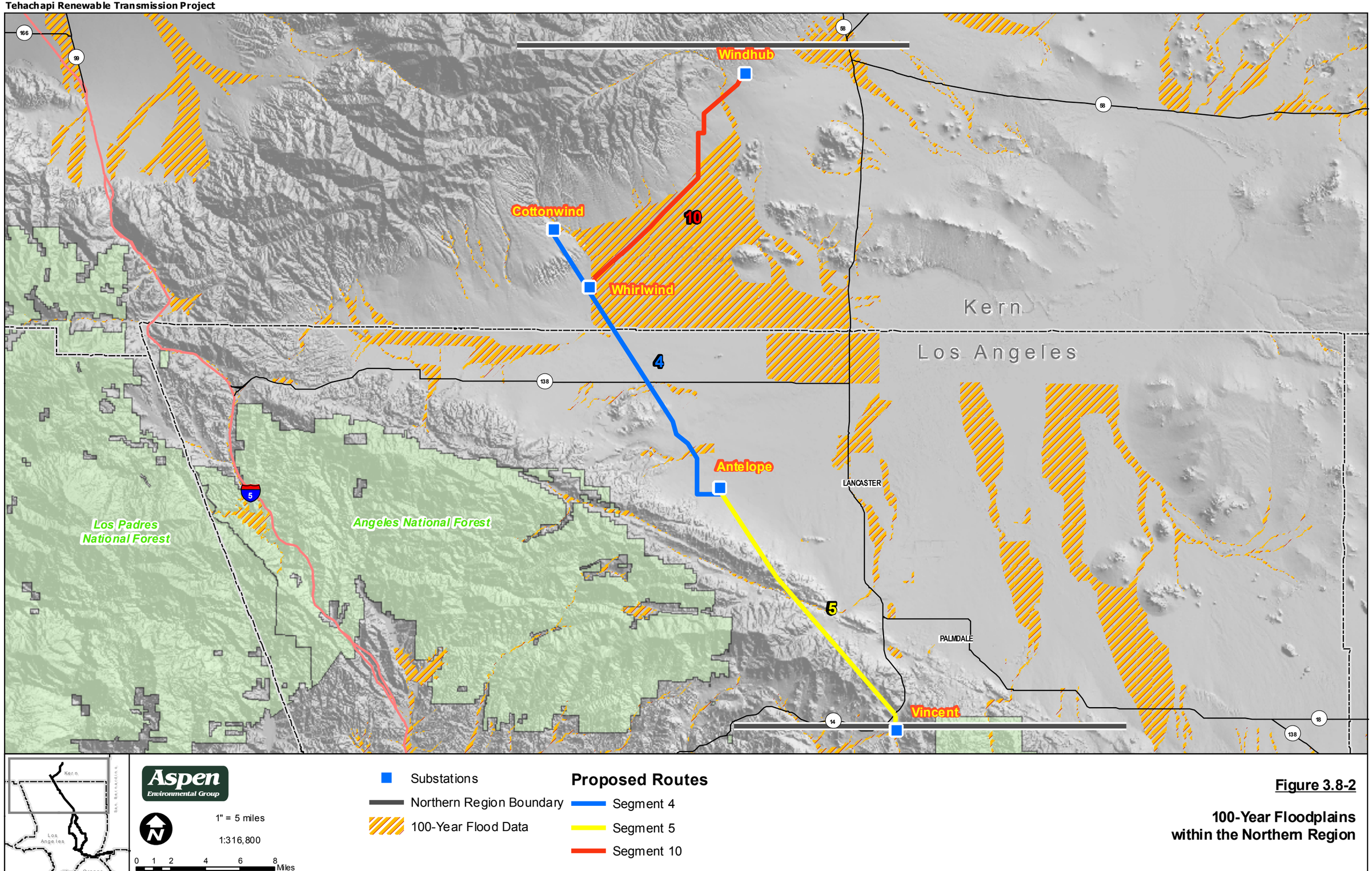

Figure 3.8-2

100-Year Floodplains within the Northern Region

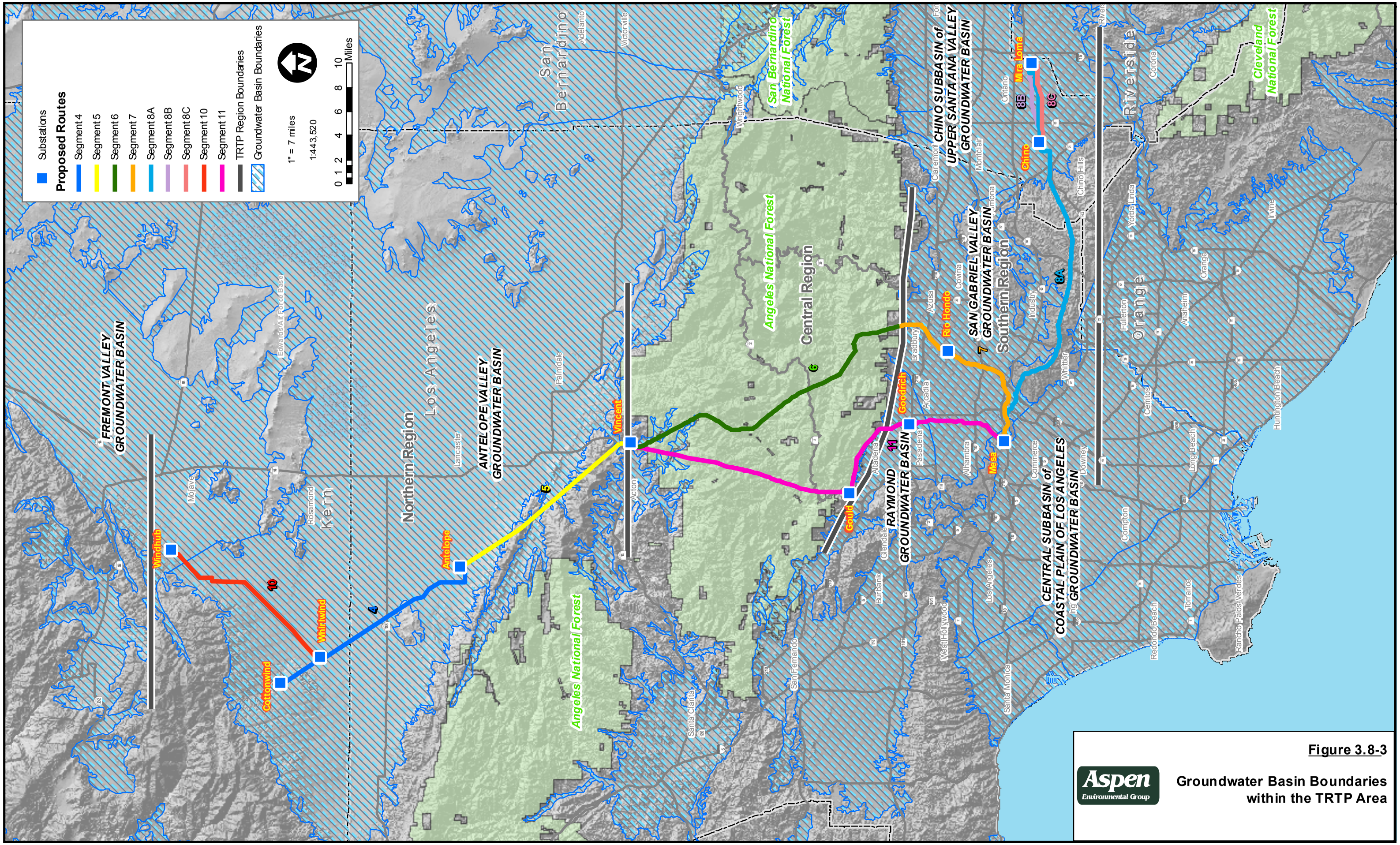

Figure 3.8-3

Aspen Environmental Group

Groundwater Basin Boundaries within the TRTP Area

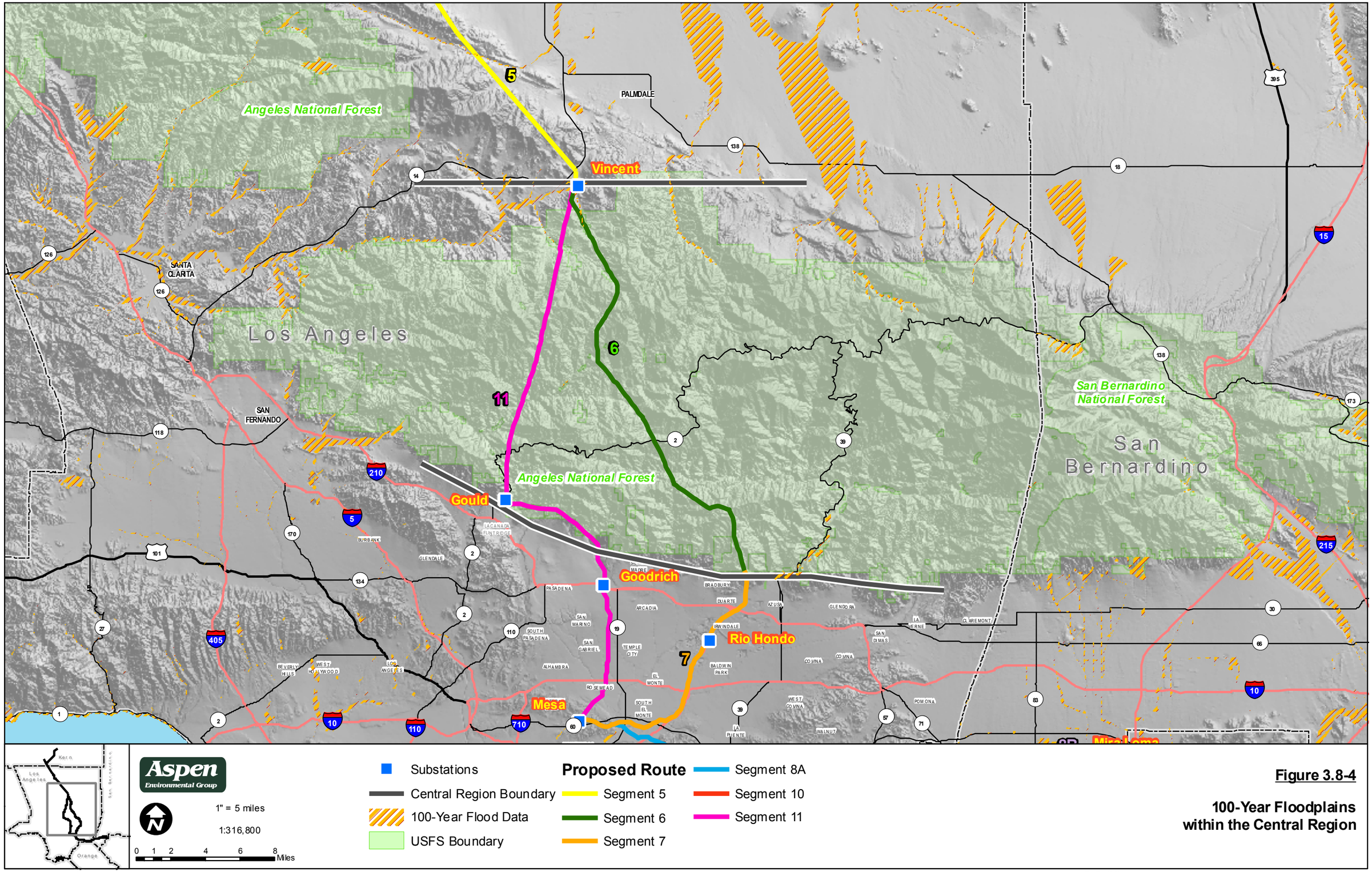

Figure 3.8-4

100-Year Floodplains within the Central Region

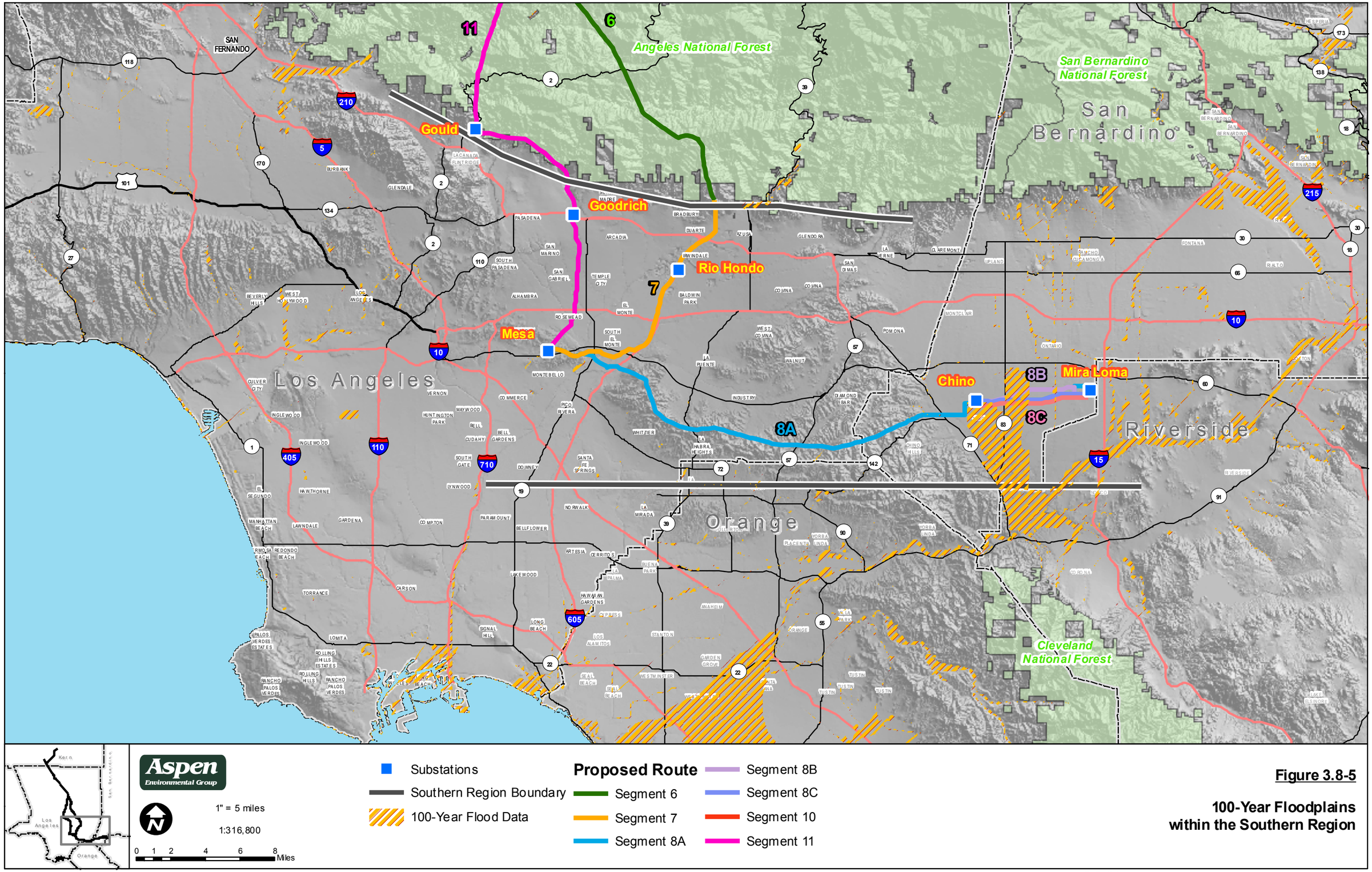

Figure 3.8-5

100-Year Floodplains within the Southern Region

3.9 Land Use

3.9.1 Introduction

This section provides information related to land use within and adjacent to the proposed Project and its alternatives. It includes a summary of the methods used for data collection, review, mapping and analysis, identification of the Land Use Study Area and its three regions, a description of the Land Use Study Area at regional scale, and more detailed descriptions of land use related information for the proposed Project and its alternatives. Although this section identifies agricultural, wilderness, open space and recreational uses, as well as proposed and existing Habitat Conservation Plans (HCPs), Significant Ecological Areas (SEAs), and Natural Community Conservation Plans (NCCPs), it does not provide detailed descriptions of these plans and areas. A detailed analysis of agricultural uses can be found in Section 3.2 (Agricultural Resources), and a detailed analysis of wilderness and recreational resources and uses can be found in Section 3.15 (Wilderness and Recreation). Information and analysis related to SEAs, HCPs and NCCPs can be found in Section 3.4 (Biological Resources). Sensitive receptors, including schools, churches and other religious establishments, hospitals and nursing homes, and cemeteries are addressed in Sections 3.3 (Air Quality) and 3.10 (Noise).

Scoping Issues Addressed

A series of scoping meetings were conducted with the public and government agencies during the scoping period for the EIR/EIS (August through October 2007) to gather information on issues and concerns related to SCE's proposed Project. In addition, written comments were sent by agencies and the public identifying issues and concerns. All of this input is summarized in the Scoping Report and Comment Analysis published by the CPUC and USDA Forest Service in November 2007. Relevant issues raised during the scoping process are summarized below.

- The proposed Project has the potential to be inconsistent with policies, goals, objectives and guidelines of adopted land use and resource management plans.
- Placement of new or expanded transmission lines in Chino Hills State Park would conflict with park-wide goals and guidelines for managing park-wide natural resources, interpretation, visitor uses, and development.
- SCE's exercise of its existing easement rights in Pasadena has damaged property and reduced the usable life and safety of the easement.
- The proposed Project could be inconsitent with local zoning ordinances and design standards, including those related to transmission tower heights.
- The proposed Project's existing ROW is accessed for unauthorized uses such as off-road vehicles and dirtbikes. SCE needs to monitor and post private property signs on the access roads to their transmission line towers to prevent trespassing.
- The proposed Prjoect would conflict with, or otherwise impede future development projects.
- Acquisition of additional ROWs require review and approval of the County of Los Angeles Department of Public Works. SCE should obtain permits for any work within the County of Los Angeles easements.

Summary and Comparison of Alternatives

Table 3.9-1 on the following page presents some key factors related to land use for each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.9-1 are not necessarily impact statements, but rather selected information items that provide a comparison between the alternatives.

Table 3.9-1. Summary Comparison of Environmental Issues/Impacts – Land Use

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
Residential land uses would be temporarily disrupted, displaced or precluded by construction.	Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.	No residential land uses would be temporarily or permanently displaced. In comparison to Alt.3, a slightly greater number of residential land uses would be temporarily disturbed or disrupted by construction.	The number of residential land uses disturbed or disrupted by construction would be slightly reduced in the North Region compared to Alternative 2.	The greatest reduction of temporary disturbances to residential land uses during construction, due to the elimination of construction along Segment 8A MP 19.2 to 35.2.	Slightly reduced temporary disturbances to residential land uses during construction along the underground portion of the alignment, except at transition stations where construction-related disturbances would increase.	Increased temporary disruptions to residential land uses within private in-holdings in the ANF Outside of the ANF, temporary impacts to residential land uses would be the same as Alternative 2.	Same as Alternative 2.
Residential land uses would be permanently disrupted, displaced or precluded by operation and maintenance (O&M).	Same as above.	No residential land uses would be permanently displaced or precluded by O&M.	Slightly reduced number of residential land uses disturbed by O&M in the North Region compared to Alternative 2.	The greatest reduction of long-term disturbances to residential land uses due to O&M.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Non-residential land uses would be temporarily disrupted, displaced or precluded by construction.	Same as above.	Non-residential land uses would be temporarily disrupted, displaced or precluded by construction, particularly in the South Region along Segments 7, 11, and 8.	Same as Alternative 2.	Same as Alternative 2 except along Segments 8A and 8C (16 miles), where no impacts to existing non-residential land uses ~~along a portion of Segment 8A (16 miles) and all of Segment 8B (6.8 miles) and 8C (6.4 miles)~~ would occur. Temporary disruption, displacement and preclusion of non-residential land uses within CHSP.	Same as Alternative 2 except along Segment 8A between MP 21.9 and MP 25.8. At S8A MP 25.8 construction would result in the permanent displacement (removal) of commercial land uses.	Increased temporary disruptions to non-residential land uses within the ANF. Additional coordination required with the FAA and L.A. County Sherriff's Department related to the use of helicopters in the ANF. Outside of the ANF, temporary impacts to non-residential land uses would be the same as Alternative 2.	Same as Alternative 2 except along Peck Rd. and Durfee Ave. (adjacent to Segment 7 between MPs 11.5 and 12.1) and through the Duck Farm Project area, where construction-related activities would be intensified.

Table 3.9-1. Summary Comparison of Environmental Issues/Impacts – Land Use

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
Non-residential land uses would be permanently disrupted, displaced or precluded by operation and maintenance (O&M).	Same as above.	No non-residential land uses would be permanently displaced or precluded by O&M.	Same as Alternative 2.	Same as Alternative 2 except along Segments 8A and 8C (16 miles), where no impacts to existing non-residential land uses ~~along a portion of Segment 8A (16 miles) and all of Segment 8B (6.8 miles) and 8C (6.4 miles)~~ would occur. Would result in the long-term disruption, displacement and preclusion of non-residential land uses within CHSP.	Same as Alternative 2 except along Segment 8A between MP 21.9 and MP 25.8. At MP 25.8, O&M would result in the permanent displacement (removal) of commercial land uses.	Same as Alternative 4; however, on-going coordination with the FAA and Los Angeles County Sheriff's Department required to ensure that no conflicts related to the use of O&M helicopters in the ANF.	Same Alternative 2.
Construction, operation or maintenance would conflict with applicable federal, State or local land use plans, goals, or policies.	Same as above.	No conflicts with any applicable federal, State or local land use plans, goals, or policies.	Same as Alternative 2.	Same as Alternative 2 except within CHSP. Construction and O&M would conflict with the CHSP General Plan.	Same as Alternative 2.	Same as Alternative 2; however, additional agency coordination would be necessary related to the increased level of helicopter construction within the ANF.	Same as Alternative 2.

Table 3.9-2. Existing Land Use Classification Scheme*

Land Use	Land Use Categories
Residential	- Single Family Residential (High-Density Single Family Residential, Low-Density Single Family Residential, Multi-Family Residential, Mixed Multi-Family Residential, Duplexes, Triplexes and 2-or 3-Unit Condominiums and Townhouses, Low-Rise Apartments, Condominiums, and Townhouses, Medium-Rise Apartments and Condominiums, High-Rise Apartments and Condominiums) - Mobile Homes and Trailer Parks (Trailer Parks and Mobile Home Courts, High-Density, Mobile Home Courts and Subdivisions, Low-Density) - Mixed Residential - Rural Residential (High-Density, Low-Density)
Commercial and Services	- General Office Use (Low- and Medium-Rise Major Office Use, High-Rise Major Office Use, Skyscrapers) - Retail Stores and Commercial Services(Regional Shopping Center (Retail Centers [Non-Strip With Contiguous Interconnected Off-Street Parking], Modern Strip Development, Older Strip Development) - Other Commercial (Commercial Storage, Commercial Recreation, Hotels and Motels, Attended Pay Public Parking Facilities)
Public and Special Use Facilities	- Public Facilities (Government Offices, Police and Sheriff Stations, Fire Stations, Major Medical Health Care Facilities, Religious Facilities, Cemeteries, Other Public Facilities, Non-Attended Public Parking Facilities - Special Use Facilities (Correctional Facilities, Special Care Facilities, Other Special Use Facilities)
Educational Facilities	- Pre-Schools/Day Care Centers, Elementary Schools, Junior or Intermediate High Schools, Senior High Schools, Colleges and Universities, Trade Schools and Professional Training Facilities
Military Installations	- Base (Built-up Area), Vacant Area, Air Field, Former Base (Built-up Area), Former Base Vacant Area, Former Base Air Field
Industrial	- Light Industrial (Manufacturing, Assembly, and Industrial Services, Motion Picture and Television Studio Lots, Packing Houses and Grain Elevators, Research and Development) - Heavy Industrial (Manufacturing, Petroleum Refining and Processing, Open Storage, Major Metal Processing, Chemical Processing) - Extraction (Mineral Extraction - Other Than Oil and Gas, Mineral Extraction - Oil and Gas) - Wholesaling and Warehousing
Transportation-Communications-Utilities	- Transportation (Airports, Railroads, Freeways and Major Roads, Park-and-Ride Lots, Bus Terminals and Yards, Truck Terminals, Harbor Facilities, Navigation Aids) - Communication Facilities - Utilities (Solid Waste Disposal Facilities, Liquid Waste Disposal Facilities, Water Storage Facilities, Natural Gas and Petroleum Facilities, Water Transfer Facilities, Improved Flood Waterways and Structures, Mixed Utilities) - Maintenance Yards - Mixed Transportation - Mixed Transportation and Utility
Electrical Power Facilities	- Electrical Transmission Lines
Mixed Uses	- Mixed Commercial and Industrial - Mixed Urban - Under Construction

Table 3.9-2. Existing Land Use Classification Scheme*

Land Use	Land Use Categories
Open Space/Recreation	- Private and Public Golf Courses - Local Parks and Recreation (Developed and Undeveloped) - Regional Parks and Recreation (Developed and Undeveloped) - Wildlife Preserves and Sanctuaries - Specimen Gardens and Arboreta - Beach Parks - Other Open Space and Recreation
Agriculture	- Cropland and Improved Pasture Land (Irrigated and Non-Irrigated) - Orchards and Vineyards - Nurseries – Commercial and Retail - Dairy, Intensive Livestock, and Associated Facilities - Poultry Operations - Other Agriculture - Horse Ranches
Open Space/Undeveloped	- Vacant Undifferentiated, Abandoned Orchards and Vineyards, Vacant With Limited Improvements, Beaches (Vacant)
Water	- Water (Undifferentiated) - Harbor Water Facilities - Marina Water Facilities - Water Within a Military Installation - Area of Inundation (High Water)

* For the purposes of a consistent existing land use mapping classification scheme of the North, Central and Southern Regions, the majority of NFS lands have been assigned Open Space/Undeveloped or Open Space/Recreation. However, it is noted that the SCAG existing land use data used for the mapping does not apply to lands under federal jurisdiction and management.

Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.9.4.1 (Criteria for Determining Impact Significance) are described in Sections 3.9.5 through 3.9.11.

3.9.2 Affected Environment

The identification of existing land uses was based upon a consolidation of the classification scheme used by the Southern California Association of Governments (SCAG) for its mapping of existing land uses. Use of the SCAG General Plan land use designation data ensures a consistent classification scheme across all of the various jurisdictions potentially affected by the proposed Project. Table 3.9-2 provides a summary of the existing land use classification scheme used for this analysis. Following establishment of the classification scheme, existing land use GIS data was mapped to a distance of one-half mile of either side of the proposed Project's Right-of-Way (ROW), as well as the ROWs of the alternatives. Identified land uses were subsequently verified through review of recent aerial photographs and published maps (SCE, 2007b; SCE 2007c; DeLorme Mapping Company, 2006; Rand McNally, 2007a and 2007b; Google Earth, 2007 and 2008), as well as field reconnaissance conducted on July 12 and 13, and December 11 and 20 of 2007 (Aspen Environmental Group, 2007).

Because the SCAG's existing land use data did not include information related to Kern County, the identification of existing land uses in this area was based upon GIS data provided by Kern County (Kern County, 2007), and subsequently verified through analysis of recent aerial photographs and published maps as outlined in the above paragraph, as well as field reconnaissance (Aspen Environmental Group, 2007).

Within the ANF, the SCAG GIS data for both existing land uses and General Plan land use designations do not apply because NFS lands fall under federal jurisdiction and management. Consequently, existing land uses were identified through review of the USDA Forest Service Land Management Plan for the Angeles, Cleveland, Los Padres and San Bernardino National Forests (USDA Forest Service, 2005a), the Angeles National Forest Atlas (USDA Forest Service, 2005b), analysis of recent aerial photographs (SCE, 2007b; SCE 2007c; Google Earth, 2007 and 2008), discussions with ANF USDA Forest Service personnel, and field reconnaissance (Aspen Environmental Group, 2007).

General Plan land use designation maps were additionally obtained from Kern County and mapped to a distance of one-half mile of either side of the proposed Project's ROW and the ROWs of its alternatives (Kern County, 2007). Table 3.9-3 provides a summary of the General Plan land use designations used for Kern, Los Angeles, San Bernardino, Orange and Riverside Counties.

For the proposed Project's routing alternatives (Alternatives 3 and 4), the Antelope Valley Areawide General Plan was used for General Plan land use designations associated with Alternative 3 (Los Angeles County Regional Planning Department, 1986). For Alternative 4, the General Plan land use designation maps for Orange County, the City of Brea and the City Chino Hills were obtained (Orange County, 2005; City of Brea, 2003; City of Chino Hills, 2006), as were the land use zones contained in the Chino Hills State Park General Plan (California Department of Parks and Recreation, 1999). Existing land uses within one-half mile of these alternative ROWs were obtained from field reconnaissance and review of recent aerial photographs and published maps (Aspen Environmental Group, 2007; DeLorme Mapping Company, 2006; Rand McNally, 2007a and 2007b; Google Earth, 2007 and 2008).

Table 3.9-3. Summary of General Plan Land Use Designations		
Los Angeles, San Bernardino, Orange and Riverside Counties		Kern County
Regional Retail	Other Institutions[4]	General Commercial
Retail/Services	Agriculture	Residential[9]
General Commercial	Open Not Developable[5]	Public or Private Recreation Areas
Miscellaneous Commercial[1]	Parks/Recreation[6]	Educational Facilities
Light Industry	Urban Mixed Categories	Other Facilities
Heavy Industry	General Industrial	Light Industrial/Comprehensive Plan Area
Miscellaneous Industry[2]	Residential	Heavy Industrial
K-12 Schools	No Data Available	Intensive Agriculture (Minimum 20 Acre Parcel Size)
Colleges/Junior Colleges	Unknown[7]	Extensive Agriculture (Minimum 20 Acre Parcel Size)
Transportation Categories	Military	Mineral and Petroleum (Minimum 5 Acre Parcel Size)
Utilities[3]	Offices[8]	Resource Management (Minimum 20 Acre Parcel Size)

Table Notes:

[1] Includes Recreational and Sports Complexes and RV Facilities
[2] Includes Extraction and Landfills
[3] Includes Sewage Treatments, Energy Facilities, Recycling
[4] Includes Government Facilities, Churches, Cemeteries, Etc.
[5] Includes Conservation, Flood Control and Lakes
[6] Includes Golf Course Categories and Open Space
[7] Includes Railroad/Highway oriented development
[8] Includes Professional, Commercial, Business Parks and Local Offices
[9] Includes all Residential Categories (Maximum Residential 10 Units/Net Acre/Comprehensive Plan Area; Maximum Residential 1 Unit/Net Acre; Minimum Residential 2.5 Gross Acres/Unit; Minimum Residential 5 Gross Acres/Unit; Minimum Residential 10 Gross Acres/Unit; Minimum Residential 20 Gross Acres/Unit

In addition to the above, adopted General Plans and related land use management and planning documents of the jurisdictions affected by the proposed Project and its alternatives were collected and reviewed for consistency. All of the plans evaluated are contained in the proposed Project's Policy Consistency Report (Aspen Environmental Group, 2008). Applicable goals, policies, programs and objectives associated with HCPs and NCCPs and SEA-specific Management Plans are evaluated in Section 3.4 (Biological Resources).

Airports and airstrips in the vicinity of the proposed Project and its alternatives were also identified from information provided in the PEA and review of published maps and recent aerial photography (SCE, 2007b; SCE 2007c; DeLorme Mapping Company, 2006; Rand McNally, 2007a and 2007b; Google Earth, 2007 and 2008).

3.9.2.1 Regional Setting

For the purposes of this analysis, the Land Use Study Area includes three regions, as follows:

- **North Region:** The North Region extends from the Windhub Substation (MP (for milepost) 0.0 of the proposed Project's Segment 10) to the Vincent Substation (MP 17.8 of the proposed Project's Segment 5). The North Region includes the proposed Project's Segments 4, 5 and 10 and traverses parts of southern Kern County and northern Los Angeles County, as well as the incorporated cities of Lancaster and Palmdale. The approved Windhub, proposed Cottonwood[1] and Whirlwind[2], and existing Antelope Substation are contained within the North Region.
- **Central Region:** The Central Region is located between the Vincent Substation and the southern boundary of the Angeles National Forest (ANF) (MP 24.5 of the proposed Project's Segment 11 and MP 26.9 of the proposed Project's Segment 6). The majority of the Central Region falls within the jurisdictional boundaries of the ANF and includes all of the proposed Project's Segment 6 and approximately 70 percent of Segment

[1] The proposed Cottonwood Substation is currently undergoing environmental review and approval under a separate action and is not proposed for development as part of Tehachapi Renewable Transmission Project.
[2] Development of the proposed Whirlwind Substation is part of the Tehachapi Renewable Transmission Project.

11. The existing Vincent and Gould Substations are located outside of the ANF's jurisdictional boundaries, but are part of the Central Region.

- **South Region:** The South Region extends from the southern boundary of the ANF (MPs 0.0 and 24.5 of the proposed Project's Segments 7 and 11, respectively) to the Mira Loma Substation (MPs 35.2, 6.8 and 6.4 of the proposed Project's Segments 8A, 8B and 8C, respectively). The South Region includes the existing Goodrich, Rio Hondo, Mesa, Chino and Mira Loma Substations, and traverses lands within Los Angeles County, as well as several incorporated cities within San Bernardino County.

Figure 3.9-1 at the end of Section 3.9, provides a map of the three regions outlined above.

The proposed Project and its alternatives extend from the approved Windhub Substation, which is to be located approximately 11 miles southeast of Tehachapi in Kern County to the existing Mira Loma Substation, which is located along the eastern boundary of the City of Ontario in San Bernardino County. At a regional scale, the Land Use Study Area includes portions of Kern County, the ANF, and incorporated and unincorporated areas of Los Angeles and San Bernardino Counties. Additionally, a portion of Riverside County is located within one-half mile of the Mira Loma Substation, and Alternative 4 would traverse a portion of Orange County and the City of Brea.

North Region

The North Region, as defined above, includes portions of southern Kern County and northern Los Angeles County. The predominant existing land uses located within the North Region include large expanses of undeveloped open space, agriculture and residential development. There are also several large tracts of undeveloped land which are planned for future development within this region. The cities of Palmdale and Lancaster, located in northern Los Angeles County, are both rapidly developing urban areas that include large tracts of residential development, as well as other uses such as commercial, business and industrial development.

General Plan land use designations of the North Region in Kern County are predominately Intensive and Extensive Agriculture, Resource Management, and Residential. In northern Los Angeles County, the predominant General Plan land use designations include Agriculture, Residential, and Urban Mixed Categories.

Lands in the North Region fall under the planning, management and jurisdictional authority of multiple federal, State and local agencies, including the U.S. Department of the Interior's Bureau of Land Management (BLM); California State Lands Commission (CSLC); California State Department of Parks and Recreation; Kern County; Los Angeles County; City of Palmdale; and City of Lancaster. Additionally, the northern portion of the ANF is located within the North Region. There are also several airports in the North Region which are subject to the regulations of the Federal Aviation Administration (FAA) and County-specific Airport Land Use Compatibility Plans.

The North Region also contains several existing and proposed ecological preserves and SEAs, and falls within the boundaries of the West Mojave Desert Plan, a HCP which has been incorporated into the BLM's California Desert Conservation Area Plan.

Central Region

The Central Region is primarily located within the ANF, the majority of which is made-up of undeveloped lands used for recreation and natural resource management. Additional uses of the ANF include rural residential, commodity and commercial uses (non-recreation special uses such as the infrastructure required to provide water, energy, communications and transportation and other needs, mineral and non-renewable exploration and development, and timber production and grazing), and fire

management (Forest Service, 2005). Within the ANF there are also some parcels of privately held land which do not fall under the jurisdiction of the Forest Service.

Suitable land uses within the ANF have been established through eight land use zones. These zones include: Developed Area Interface (DAI); Back Country (BC); Back Country Motor Use Restricted (BCMUR); Back Country Non-Motorized (BCNM); Critical Biological (CB); Existing Wilderness (EW); Recommended Wilderness (RW); and, Experimental Forest (EF) (Forest Service, 2005). Table 3.9-4 provides a summary of the land use zones within the ANF. Figure 3.9-2 at the end ~~for~~ of Section 3.9 provides a map of these land use zones within the ANF.

There is also a set of special designation overlays which identify suitable land uses within each land use zone of the ANF. These special designation overlays are summarized in Table 3.9-5.

Inventoried Roadless Areas (IRAs) are undeveloped areas on NFS lands that are inventoried as lacking authorized roadways as determined through the USDA Forest Service's Roadless Area Review and Evaluation (RAREII) process. IRAs may include trails suitable for hiking and equestrian use, but do not include NFS authorized roads that would accommodate either full-sized vehicles (including high-clearance and passenger vehicles) or Off-Highway Vehicles (OHVs). IRAs are intended to protect: areas for their natural or wilderness qualities; self-contained ecosystems; and, undeveloped areas adjacent to existing Wilderness Areas As (USDA Forest Service, 2005d). Figure 3.9-2 provides a map of the designated IRAs that are located within the southern portion of the ANF.

Some designated IRAs qualify as Wilderness Areas. The Wilderness Area evaluation of an IRA is based on three primary criteria: capability; availability; and, need. "Capability" refers to the degree to which a Roadless Area contains the basic characteristics of a Wilderness Area, such as special features and recreation opportunities. "Availability" is reflective of other potential resource uses for the roadless area which could be more valuable than a "wilderness" designation for the same area. "Need" is based on a comparison of existing Wilderness Areas and their proximity to the Roadless Area under consideration (USDA Forest Service, 2005d). Section 3.9.2.2 (Alternative 2: SCE's Proposed Project) provides a summary of those IRAs which are located within one-half mile of the proposed Project and their associated Wilderness Area evaluation criteria.

In addition to the above, the ANF has been divided into a set of 11 geographical units called "Places." Each Place has a theme, setting, desired condition and management program emphasis. Of these 11 Places, eight are located within the southern portion of the ANF. Figure 3.9-2 provides a map of these 11 Places, and Table 3.9-9 of Section 3.9.2.2 provides a summary description of those Places crossed by, or within one-half mile, of the proposed Project.

South Region

The South Region extends from the southern boundary of the ANF to the existing Mira Loma Substation, as illustrated in Figure 3.9-1. The majority of this region is made up of a complex mix of land uses ranging from agricultural and undeveloped open space areas to intensively developed residential, commercial and industrial uses. In addition, the South Region contains numerous tracts of land planned for future development or redevelopment.

Table 3.9-4. Land Use Zones Within the ANF

Land Use Zone	Total Acreage of Land Within the ANF	Percentage of Land Within the ANF	Land Use Zone Descriptions
Developed Area Interface (DAI)	85,828	13	The DAI zone includes areas adjacent to communities or concentrated developed areas with more scattered or isolated community infrastructure. The level of human use and infrastructure is typically higher than in other zones. This zone may have a broad range of higher intensity uses; however, the management intent is to limit development to a slow increase of carefully designed facilities to help direct use into the most suitable areas and improving existing facilities before developing new ones.
Back Country (BC)	161,392	24	The BC zone includes areas that are generally undeveloped with few roads. The level of human use and infrastructure is low. Most of the ANF's remote recreational and administrative facilities are found in this zone. Although the BC zone generally allows for a broad range of uses, its management intent is to retain its natural character and limit the level and type of development. Additionally, it is anticipated that this zone will be managed for no increase, or a very low level of increase, in its road system.
Back Country Motorized Use Restricted (BCMUR)	52,791	8	The BCMUR zone includes areas of the ANF that are generally undeveloped with few roads. Few facilities are found in this zone, but some may occur in remote locations. The level of human use and infrastructure is low to moderate. Although this zone allows a range of low intensity land uses, its management intent is to retain its natural character and limit the level and type of development. Some roads may be constructed and maintained, but the intent is to manage the zone for no increase, or a very low level of increase, in its road system.
Back Country Non-Motorized (BCNM)	248,399	37	The BCNM zone generally includes areas of the ANF that are undeveloped with few, if any roads. Developed facilities supporting dispersed recreation activities are minimal and generally limited to trails and signage. The level of human use and infrastructure is low. While a range of non-motorized public uses are generally allowed, the management intent of this zone is to retain its undeveloped character and limit development to a low level of increase. Facility construction (except trails) is generally not allowed, but may occur in remote locations where roaded access is not needed for maintenance.
Critical Biological (CB)	3,920	< 1	The CB zone includes the most important areas in the ANF for the protection of species-at-risk. Facilities are minimal to discourage human use. The level of human use and infrastructure is low to moderate. The management intent of this zone is to retain its natural character and habitat characteristics and limit the level of human development. Activities and modifications to existing infrastructure are allowed if they are beneficial or neutral to the species for which the zone is primarily managed. Human uses are more restricted in this zone than in BCNM zone in order to protect species needs, but are not excluded. Low impact uses, such as hiking, mountain biking and hunting are generally allowed. Road density will not be increased.
Existing Wilderness (EW)	81,924	12	The EW zone includes Congressionally designated wildernesses. Only uses consistent with all applicable wilderness legislation and the zone's primitive character are allowed. Road access is limited. The management intent of this zone is focused on public use and enjoyment while preserving its wilderness character and natural conditions.
Recommended Wilderness (RW)	13,231	2	The RW zone includes lands which are recommended to Congress for wilderness designation. These lands are managed in the same manner as EW zone. If RW lands are not designated as wilderness by Congress, they are zoned BCNM until modified by a subsequent amendment to the Forest Service Land Management Plan. No inventoried roads are found in the RW zone.
Experimental Forest (EF)	15,498	2	The EF zone provides for research and demonstration areas. The EF zone is generally closed to the public except by permit. Within the ANF, only the San Dimas Experimental Forest is zoned EF.

Source: USDA Forest Service, 2005.

Table 3.9-5. Special Designation Overlays Within the Angeles National Forest

Special Designation Overlay	Description
Wild and Scenic Rivers	This special designation overlay identifies river and river segments that have been designated as Wild, Scenic and Recreational. Land uses within these designated river corridors must comply with USDA Forest Service Handbook 1909.12, Chapter 8.2. Eligible Wild and Scenic river corridors within the ANF include Little Rock Creek, Piru, San Antonio Canyon Creek, San Francisquito Canyon and the San Gabriel River (East, West and North Forks).
Inventoried Roadless Areas	This special designation overlay identifies those portions of the ANF where either: (1) no road construction or reconstruction is allowed and the area been recommended or is designated Wilderness; (2) no road construction or reconstruction is allowed and the area has not been recommended or is not designated Wilderness; (3) road construction or reconstruction is allowed. Figure 3.9-2 provides a map of the ANF's inventoried roadless areas.
Research Natural Areas	This special designation overlay identifies relatively undisturbed, pristine areas of the ANF that form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Established Research Natural Areas within the ANF include Falls Canyon and Fern Canyon.
Special Interest Areas	This special designation overlay identifies areas that protect and foster public use and enjoyment of their respective scenic, historical, geological, botanical, zoological, paleontological and other special attributes. Special Interest Areas within the ANF include Devil's Punchbowl, Mt. Baden-Powell, Mt. San Antonio, Aliso-Arrastre Middle and North, and Liebre Mountain.
Other Designations	This special designation overlay identifies areas of the ANF that have been designated for a specific use, including communication sites, utility corridors, transportation corridors, recreation residential tracts, shooting areas, and sediment disposal sites. There are 12 designated utility corridors within the ANF, including: Interstate 5 (Tejon Pass); Old Ridge Route; Saugus/Mesa; Saugus Del Sur; Ranaldi Department of Water and Power; Gorge Ranaldi; BPL; Vincent Gould; Vincent Rio Hondo; 3-P Line; Midway Vincent; and, Vincent Pardee.

Source: USDA Forest Service, 2005a.

The South Region falls within Los Angeles and San Bernardino Counties and is in close proximity to northern Orange County and eastern Riverside County. Within Los Angeles County, there are 33 incorporated cities located south of the ANF boundary, east of the Mesa Substation, north of Orange County boundary and State Route 72, and west of the San Bernardino County boundary. There are also six incorporated cities in southwest San Bernardino County, west of Interstate 15. Within Orange County, the City of Brea is located within the Land Use Study Area. Table 3.9-6, below, lists the incorporated cities of the South Region.

Table 3.9-6. Incorporated Cities of the South Region

Los Angeles County		
Alhambra	Irwindale	Montebello
Arcadia	La Cañada Flintridge	Monterey Park
Azusa	La Habre Heights	Pasadena
Baldwin Park	La Puente	Pico Rivera
Bradbury	La Verne	Pomona
City of Industry	Monrovia	Rosemead
Claremont	South Pasadena	San Dimas
Covina	Temple City	San Gabriel
Diamond Bar	Walnut	San Marino
El Monte	West Covina	Sierra Madre
Glendora	Whittier	South El Monte
San Bernardino County		
Chino	Ontario	
Chino Hills	Rancho Cucamonga	
Montclair	Upland	
Orange County		
City of Brea		

Source: Los Angeles Almanac, 2007; County of San Bernardino, 2007

In addition to the above, lands within the South Region fall under the jurisdictional authority of several federal and State agencies, including, the U.S. Department of Defense (DoD), the BLM, the U.S. Army Corps of Engineers, the California State Department of Parks and Recreation, and the CSLC. There are also several public and private airports and heliports in the South Region which are subject to the regulations of the FAA and County-specific Airport Land Use Compatibility Plans.

General Plan land use designations in the South Region vary widely. Throughout this region there are both large and small tracts of land designated residential, punctuated by all of the other land use designations outlined in Table 3.9-3. The majority of lands located along major local streets and highways are designated for retail/services, general and miscellaneous commercial, industrial, office and mixed urban uses. Parallel to the boundary between Los Angeles and Orange Counties there are also large tracts of lands designated open not developable, consistent with several SEAs located in this area. As with Los Angeles County, in San Bernardino County there is a similar pattern of highly mixed land use designations with large tracts of lands designated for residential use, and variable patterns of non-residential land use designations located along major transportation corridors and in the centers of incorporated cities and other unincorporated urban areas.

3.9.2.2 Alternative 2: SCE's Proposed Project

The proposed Project ROW extends from the approved Windhub Substation, located in Kern County, to the existing Mira Loma Substation, located in the City of Ontario, San Bernardino County. The following description of land uses within one-half mile of the proposed Project's ROW has been divided into the three regions defined in Section 3.9.2.1.

North Region

The North Region includes proposed Segments 10, 4 and 5, as well as the approved Windhub Substation, the proposed (under a separate action) Cottonwood Substation, the proposed (as part of the proposed Project) Whirlwind Substation, and the existing Antelope Substation. The North Region falls within the jurisdictional boundaries of Kern and Los Angeles Counties, as well as the cities of Palmdale and Lancaster. Existing land uses and General Plan land use designations in the North Region are provided in Figures 3.9-3 and 3.9-4 of the Tehachapi Renewable Transmission Project Map and Figures Series Volume (TRTP Map and Figure Series Volume) and summarized in Table 3.9-7.

Segment 10 would require the construction of approximately 17 miles of new ROW in Kern County. The ROW width would be 330 feet. Existing land uses within one-half mile of Segment 10 are primarily open space/undeveloped, rural residential and agricultural; mining operations and existing wind energy generation facilities additionally occur in the northern-most portion of Segment 10. General Plan land use designations within one-half mile of Segment 10 include Heavy Industrial, Mineral and Petroleum, Extensive Agriculture, Resource Management, Federal, Residential, Public or Private Recreation Areas, and Educational Facilities. Lloyd's Landing Strip is located approximately 3.8 miles east of MP 11, and several Specific Plans are either crossed by or within one-half mile of the proposed ROW, as outlined in Tables 3.9-7 and 3.9-8. The proposed ROW would additionally be located within the boundaries of the West Mojave Desert Plan, and falls within one-half mile of lands under the jurisdiction of the CSLC.

Table 3.9-7. Land Uses: North Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
Segment 10					
S 10 MP 0.0 – MP 7.5	Kern County	Kern County	Open Space/Undeveloped, Energy Generation, Mineral Resources, Residential, Transportation-Communications-Utilities	Heavy Industrial, Mineral and Petroleum, Extensive Agriculture, Resource Management	- Proposed El Paso Line Conversion Project is within ½ mile of, and crossed by the ROW at MP 1.4 - Los Angeles Aqueduct is within ½ mile of the ROW between MP 6.0 and MP 7.5, and crossed by the ROW at MP 6.7 - The Edwards Air Force Base boundary is located approximately 10 miles east of MP 7.0 through MP 7.5 - All portions of Segment 10 are located within the boundaries of the West Mojave Desert Plan
S 10 MP 7.5 – MP 16.8	Kern County	Kern County	Open Space/Undeveloped, Residential, Transportation-Communications-Utilities	Extensive Agriculture, Resource Management, Residential, Public or Private Recreation Areas, Educational Facilities	- Los Angeles Aqueduct is within ½ mile of the ROW between MP 7.5 and MP 9.6 - California State Lands Commission property is within ½ mile of the ROW between MP 9.4 and MP 10.2 - Lloyd's Landing Strip is located approximately 3.8 miles east of MP 11.0 - Willow Springs Specific Plan is within ½ mile of, and crossed by the ROW between MP 11.3 and MP 16.8 - Antelope Valley Water Bank Project is within ½ mile of, and crossed by the ROW between MP 15.8 and 16.8 - The Edwards Air Force Base boundary is located between 10.0 to 16.0 miles east of MP 7.5 through MP 16.8, depending on MP-specific location - All portions of Segment 10 are located within the boundaries of the West Mojave Desert Plan
Segment 4					
S 4 MP 0.0 – MP 3.7	Kern County	Kern County	Open Space/Undeveloped, Residential, Agriculture, Electrical Power Facilities, Transportation-Communications-Utilities	Extensive Agriculture, Resource Management, Residential	- Proposed PdV Wind Energy Project boundary is located within ½ mile of MP 0.0 - The Cottonwood Substation is located at MP 0.0 (currently in environmental review) - Los Angeles Aqueduct within ½ mile of, and crossed by the ROW at MP 2.0 - Willow Springs Specific Plan is within ½ mile of, and crossed by the ROW between MP 2.7 and MP 3.7 - All portions of Segment 4 are located within the boundaries of the West Mojave Desert Plan
S 4 MP 3.7 – MP 6.9	Kern County	Kern County	Open Space/Undeveloped, Residential, Agriculture, Electrical Power Facilities	Residential, Intensive Agriculture, Resource Management, Light Industrial / Comprehensive Plan Area, Public or Private Recreation Areas, General Commercial	- Willow Springs Specific Plan is within ½ mile of, and crossed by the ROW between MP 3.7 and MP 6.9 - Antelope Valley Water Bank Project is within ½ mile of, and crossed by the ROW between MP 4.8 and 6.9 - Skyotee Ranch Airstrip is located approximately 0.9 miles east of MP 6.0 - The Edwards Air Force Base boundary is located approximately 16.0 miles east of MP 3.7 through MP 6.9 - All portions of Segment 4 are located within the boundaries of the West Mojave Desert Plan

Table 3.9-7. Land Uses: North Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
Whirlwind Substation (S 4 MP 3.9 – MP 4.3) (S 10 MP 16.1 – MP 16.5)	Kern County	Kern County	Open Space/Undeveloped, Residential, Agriculture, Electrical Power Facilities	Residential, Resource Management, Public or Private Recreation Areas, General Commercial	- The footprint of the substation falls within the Willow Springs Specific Plan - The footprint of the substation is within ½ mile of the Antelope Valley Water Bank Project - The Edwards Air Force Base boundary is located approximately 16.0 miles east of the footprint of the substation - The footprint of the substation is within the boundaries of the West Mojave Desert Plan
S 4 MP 6.9 – MP 17.4	Los Angeles County, City of Lancaster	Los Angeles County	Open Space/Undeveloped, Residential, Agriculture, Transportation-Communications-Utilities, Electrical Power Facilities	Agriculture, Open Not Developable	- ROW enters Los Angeles County at MP 6.9 - A portion of the existing Joshua Tree Woodland Habitat SEA is located within ½ mile of the ROW between MP 9.0 and MP 9.8, and crossed by the ROW between MP 9.1 and MP 9.6 - A portion of the proposed Joshua Tree Woodland Habitat SEA is located within ½ mile of, and crossed by the ROW between MP 8.7 and MP 9.2 - A portion of the existing Fairmont-Antelope Buttes SEA is located within ½ mile of, and crossed by the ROW between MP 10.6 and MP 12.9 - A portion of the existing Antelope Valley California Poppy Reserve is located within ½ mile of the ROW at MP 12.9 - General William J. Fox Airfield is located approximately 4.58 miles east of MP 14.8 - The Edwards Air Force Base boundary is located approximately 16.0 to 13.0 miles east of MP 6.9 through MP 11.5, depending on MP specific location. - A portion of the southwest boundary of the Del Sur Ranch Development Specific Plan is located ½ mile away from the ROW between MP 15.8 and MP 15.9 - All portions of Segment 4 are located within the boundaries of the West Mojave Desert Plan
S 4 MP 17.4 – MP 19.6	City of Lancaster	City of Lancaster	Open Space/Undeveloped, Residential, Agriculture, Electrical Power Facilities	Agriculture, Residential	- Bohunk's Airpark is located approximately 1.1 miles northeast of MP 19.6 - All portions of Segment 4 are located within the boundaries of the West Mojave Desert Plan
Antelope Substation (S 4 MP 19.3 – MP 19.6) (S 5 MP 0.0 – MP 0.4)	City of Lancaster	City of Lancaster	Open Space/Undeveloped, Residential, Agriculture, Electrical Power Facilities	Agriculture, Residential	- The footprint of the substation and its proposed expansion area are within the boundaries of the West Mojave Desert Plan

Table 3.9-7. Land Uses: North Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
Segment 5					
S 5 MP 0.0 – MP 3.5	City of Lancaster	City of Lancaster	Open Space/Undeveloped, Residential, Open Space/Recreation, Commercial and Services, Agriculture, Mixed Uses, Electrical Power Facilities	Agriculture, Residential	- All portions of Segment 5 are located within the boundaries of the West Mojave Desert Plan
S 5 MP 3.5 – MP 11.1	City of Palmdale, Los Angeles County	- City of Palmdale (MP 3.5 – MP 5.8) - Los Angeles County (MP 5.8 – MP 7.4) - City of Palmdale (MP 7.4 – MP 11.1)	Open Space/Undeveloped, Residential, Agriculture, Mixed Uses, Industrial, Transportation-Communications-Utilities, Electrical Power Facilities	Residential, Agriculture, Open Not Developable, Other Institutions, Miscellaneous Industry, Urban Mixed Categories	- Los Angeles Aqueduct is within ½ mile of the ROW between MP 3.5 and MP 5.2, and crossed by the ROW at MP 4.4 - Palmdale Regional Airport/United States Air Force Plant is located approximately 8.5 miles east of MP 5.0 - Planned Amargosa Creek Improvements Project is within ½ mile of the ROW between MP 6.6 and MP 7.7, and crossed by the ROW between MP 7.7 and MP 7.8 - Ritter Ranch ~~Master Planned Community~~approved Specific Plan~~s~~ is within ½ mile of, and crossed by the ROW between MP 7.4 and MP 9.8 - Joshua Ranch Planned Development is within ½ mile of the ROW between MP 8.0 and MP 8.2 - City Ranch ~~Planned Development~~approved Specific Plan (Ana Verde) is within ½ mile of the ROW between MP 9.2 and MP 9.6, and crossed by the ROW between MP 9.8 and MP 11.1 - A portion of the existing Ritter Ridge SEA is within ½ mile of the ROW between MP 6.3 and 9.8, and crossed by the ROW between MP 6.1 and MP 8.0 - A portion of the proposed San Andreas Rift Zone SEA is within ½ mile of the ROW between MP 3.5 and 8.9, and crossed by the ROW between MP 4.3 and MP 8.0 - All portions of Segment 5 are located within the boundaries of the West Mojave Desert Plan
S 5 MP 11.1 – MP 17.8	Los Angeles County	Los Angeles County	Open Space/Undeveloped, Residential, Agriculture, Transportation-Communications-Utilities, Commercial and Services, Mixed Uses, Industrial, Electrical Power Facilities	Agriculture, Open Not Developable, Transportation	- BLM lands are located within ½ mile of the ROW between MP 11.8 and MP 13.2, and MP 13.7 through MP 13.9 - Quail Valley Annexation and Development Plan is within ½ mile of the ROW between MP 12 and MP 14.3, and crossed by the ROW between MP 12.5 and MP 13, and MP 13.2 through MP 14.3 - Planned Maglev Project and California High Speed Rail Project are within ½ mile of, and crossed by the ROW between MP 16.5 and MP 16.8 - A portion of the existing Kentucky Springs SEA is within ½ mile of the ROW between MP 17.1 and MP 17.8, and crossed by the ROW between MP 17.2 and MP 17.8 - A portion of the proposed Santa Clara River SEA is within ½ mile of the ROW between MP 17.1 and MP 17.8, and crossed by the ROW between MP 17.3 and MP 17.8 - All portions of Segment 5 are located within the boundaries of the West Mojave Desert Plan

Table 3.9-7. Land Uses: North Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
Vincent Substation (S 5 MP 17.4 – MP 17.8) (S 6 MP 0.0 – MP 0.1) (S 11 MP 0.0 – MP 0.2)	Los Angeles County	Los Angeles County	Open Space/Undeveloped, Residential, Agriculture, Transportation-Communications-Utilities, Electrical Power Facilities	Agriculture, Transportation, Open Not Developable	- The footprint of the substation and proposed expansion area are within ½ mile of lands falling under the jurisdiction of the BLM - The footprint of the substation and proposed expansion area are within the boundaries of the proposed Santa Clara River SEA - The footprint of the substation and proposed expansion area are within the boundaries of the existing Kentucky Springs SEA - The footprint of the substation and proposed expansion area are within the boundaries of the West Mojave Desert Plan

‡ Mile Post locations are approximate

Table 3.9-8. Summary of Large Development and Specific Plans Crossed by or Within ½ Mile of the Proposed Project*

Region	Development and Specific Plans
North Region	• El Paso Line 1903 Conversion Project (Segment 10) • Willow Springs Specific Plan (Segments 4 and 10, Whirlwind Substation) • PdV Wind Energy Project (Segment 4) • Antelope Valley Water Bank Project (Segments 4 and 10) • Del Sur Ranch Development Project (Segment 4) • Amargosa Creek Improvement Project (Segment 5) • Ritter Ranch Master Planned Community (Segment 5) • Joshua Ranch Planned Development (Segment 5) • City Ranch (Ana Verde) Development (Segment 5) • ~~Quail Valley Annexation and Development Plan (Segment 5)~~ • Maglev Orangeline Project (Segment 5) • California High Speed Rail Project (Segment 5)
Central Region	• Angeles Crest Scenic Byway California State Route 2 Enhancement Project and Corridor Management Plan (Segments 6 and 11)
South Region	• Specific Plan 02SP 05-01/TTM 062064 (Segment 7) • Encanto Parkway Project (Segment 7) • Rancho Verde Specific Plan (Segment 7) • Las Brisas Specific Plan (Segment 7) • Metro Gold Line Foothill Extension Pasadena to Montclair (Segment 7) • Maglev Line at Interstate 10 (Segments 7 and 11) • California High Speed Rail Project adjacent to Interstate 605 (Segment 8A) • Aera Masterplan Community Project (Segment 8A) • Chino Hills Specific Plan (Segment 8A) • Majestic Spectrum Project (Segment 8A) • Commons at Chino Hills (Segment 8A) • Eucalyptus Business Park (Segment 8A) • Magelv Line through Chino Hills (Segment 8A) • Chino College Park Specific Plan (Segments 8A, 8B and 8C) • East Chino Project (Segments 8A, 8B and 8C) • New Model Colony (Segments 8A, 8B and 8C) • East Pasadena Project (Segment 11) • East Colorado Project (Segment 11) • Valley Boulevard Sustainability Plan (Segment 11)

Source: SCE, 2007.
* For the North and South Regions, Please refer to Tables 3.9-7, and 3.9-12 for Mile Post locations.

The proposed Whirlwind Substation is located at the southern terminus of Segment 10. This substation would require the acquisition of approximately 106 acres of land. Existing land uses within one-half mile of this site include residential, agriculture and open space/undeveloped uses; the General Plan land use designation for the substation site is Mineral and Petroleum. The proposed site also falls within the boundaries of the Willow Springs Specific Plan.

Segment 4 would begin at the Cottonwood Substation, and would terminate at the existing Antelope Substation; the proposed Whirlwind Substation is located between approximately MP 3.9 and 4.3. Segment 4 would be constructed in a new ROW parallel to an existing ROW. At MP 6.9 Segment 4 leaves Kern County and enters lands under the jurisdiction of Los Angeles County. At MP 17.4 the proposed ROW enters lands under the City of Lancaster. Existing land uses within one-half mile of Segment 4 are primarily open space/undeveloped, rural residential, agriculture, and electrical power facilities. General Plan land use designations within Kern County include Residential, Intensive Agriculture, Extensive Agriculture, Resource Management, Light Industrial/Comprehensive Plan Area, Public or Private Recreation Areas, and Educational Facilities. General Plan land use designations within Los Angeles County and City of Lancaster include Agriculture and Residential. Several SEAs and Specific Plans are located within one-half mile of Segment 4, as outlined in Table 3.9-7; additionally, the proposed ROW falls within the boundaries of the West Mojave Desert Plan, and is located approximately

4.6 miles east of the General William J. Fox Airfield at MP 14.8 and 1.1 miles northeast of Bohunk's Airpark at MP 19.6.

Proposed modifications at the existing Antelope Substation would require the acquisition of approximately 18 additional acres of land. Existing land uses within one-half mile of the substation include open space/undeveloped, residential, agriculture, and electrical power facilities. The substation is located within the jurisdictional boundaries of the City of Lancaster; General Plan land use designations within one-half mile include Agriculture and Residential. The footprint of the substation and its proposed expansion area are additionally within the boundaries of the West Mojave Desert Plan.

Segment 5 begins at the existing Antelope Substation and terminates at the existing Vincent Substation. Segment 5 would be constructed within an existing ROW and would require the removal of the existing Antelope-Vincent and Antelope-Mesa transmission lines. As outlined in Table 3.9-7, Segment 5 traverses land under the jurisdiction of the City of Lancaster, City of Palmdale, and Los Angeles County. In comparison to Segments 4 and 10, Segment 5 traverses more intensively developed/urban areas along some portions of its ROW. Existing land uses within one-half mile of the proposed ROW include open space/undeveloped, residential, open space/recreation, commercial and services, agriculture, transportation-communications-utilities, industrial, and electrical power facilities. General Plan land use designations within one-half mile of the ROW include Residential, Agriculture, Open Not Developable, Other Institutions, Miscellaneous Industry, Urban Mixed Categories, and Transportation. Additionally, Segment 5 traverses within one-half mile of lands under the jurisdiction of the BLM, and numerous SEAs and Specific Plans (please refer to Table 3.9-7). The proposed ROW is also an estimated 8.5 miles east of the Palmdale Regional Airport/United States Air Force Plant at MP 5.0 and falls within the boundaries of the West Mojave Desert Plan.

As noted in Table 3.9-7, the proposed Project traverses several proposed and approved Specific Plans and other development projects. Table 3.9-8 provides a summary of these planned development projects.

Central Region

The Central Region includes the Vincent Substation, all of proposed ROW Segment 6, the northern-most 24.5 miles of Segment 11, and the Gould Substation. The majority of the Central Region falls within the jurisdictional boundaries of the ANF; exceptions include the Vincent Substation, MPs 0.0 through 1.5 of proposed ROW Segments 6 and 11, the Gould Substation, and a series of parcels punctuated along Segments 6 and 11 within the ANF and along its southern boundary.

The Vincent Substation and MPs 0.0 through 1.5 of Segments 6 and 11 fall within an unincorporated area of Los Angeles County. Within one-half mile of these segments all lands have a General Plan land use designation of Agriculture. Existing land uses include residential, agriculture, open space/undeveloped and electrical power facilities. Proposed modifications to the Vincent Substation would require the acquisition of approximately 0.2 acre; the total proposed expansion of the substation would be an estimated 18 acres. The existing Kentucky Springs SEA and the proposed Santa Clara River SEA are crossed by both Segments 6 and 11 between their respective MPs 0.0 through 1.4. The ANF boundary and West Mojave Desert Plan boundaries are located at MP 1.4 of both Segments 6 and 11.

Within the ANF, along Segment 6, all of the proposed Project's ROW would fall within an existing, designated utility corridor. Predominant land uses within one-half mile of Segment 6 include recreation, open space, resource management, and designated electrical utility corridors. Specific recreational facilities and opportunities are detailed in Section 3.15 (Wilderness and Recreation). The ANF Places that are either traversed by, or within one-half mile of Segment 6 include the: Soledad Front County; Angeles

High Country; Angeles Uplands (West); Angeles Uplands (East); San Gabriel Canyon; and, Front Country. Each Place has a specific theme, setting, desired condition and management program emphasis. Table 3.9-9 provides a summary description of these Places and Table 3.9-10 provides the approximate acreage of each of Place that is within one-half mile of Segment 6.

The ANF land use zones traversed by, or within one-half mile of Segment 6 include: Back Country Motorized Use Restricted; Back Country; Back Country, Non-Motorized; Critical Biological (Upper Big Tujunga); and, Existing Wilderness (San Gabriel Wilderness). Table 3.9-4 provides a summary description of these zones and Table 3.9-10 provides the approximate acreage of each zone that is within one-half mile of Segment 6. Figure 3.9-2 provides a map of the respective locations of these zones in relation to Segment 6. The Upper Big Tujunga Critical Biological Zone is located within the Angeles Uplands (West) and the primary special status species protected include the Arroyo toad (*Bufo californicus*) and California red-legged frog (*Rana draytonii*); the area includes a Los Angeles County road, access to private in-holdings, special uses, an Off-Highway Vehicle (OHV) corridor across Alder Creek and dispersed recreational uses (USDA Forest Service, 2005a). The San Gabriel Wilderness is located within three Places, including San Gabriel Canyon, Angeles Uplands (East) and Angeles High Country; it located within extremely rugged terrain with limited visitation (USDA Forest Service, 2005a). Uses of this area are predominantly recreational in nature and are concentrated along canyon bottoms and existing trails (USDA Forest Service, 2005a). Access to a portion of Segment 6 would additionally require use of a paved access road that is adjacent to the West Fork of the San Gabriel River, which is a designated Critical Biological Zone located within the San Gabriel Canyon Place. The primary species protected by this Critical Biological Zone is the Santa Ana sucker (*Catostomus santaanae*) (USDA Forest Service, 2005a); however, Project-related activities would be limited to the road itself.

Special designation overlays that are within one-half mile or, or traversed by Segment 6 include two Special Interest Areas (Aliso-Arrastre North and Aliso-Arrastre Middle) and one Eligible (for recreation only) Wild and Scenic River (the West Fork of the San Gabriel River). The Aliso-Arrastre North and Middle Special Interest Areas are located within the Soledad Front Country and are known for their heritage resource values; they include Native American archaeological sites as well as other uses, including an existing transmission line corridor, a clay mine operation, NFS roads, Los Angeles County roads, plantations, private in-holdings, and hiking and riding trails (USDA Forest Service, 2005a). The West Fork of the San Gabriel River, an Eligible Wild and Scenic River for recreation, is considered to be an outstanding recreational area and includes national recreational trails, year-round flowing water, high quality fishing opportunities, and several campgrounds (USDA Forest Service, 2005a).

A portion of Segment 6 additionally falls within one-half mile of the Westfork/San Gabriel River and West Fork/San Gabriel River Inventories Roadless Areas. Table 3.9-11 provides a summary of these IRAs, and Table 3.9-10 provides a summary of their acreage within one-half mile of Segment 6 and Figure 3.9-2 provides their location. These designated IRAs have a management prescription of "no construction," which means that no road construction or improvements are permitted to occur. These IRAs have not been recommended as Wilderness Areas.

From the Vincent Substation lands falling under the jurisdiction of the BLM are located within one-half mile of the Segment 6 ROW between MP 0.0 and 0.3. Non-NFS lands that would be traversed by Segment 6 occur from approximately MPs 1.7 through 2.8, 5.3 through 5.7, 24.8 through 25.8, and 25.8 through 26.9. Please refer to Figures 3.9-3 and 3.9-4 of the TRTP Map and Figure Series Volume for the existing land uses and General Plan land use designations within these privately held areas. The Pacific

Table 3.9-9. Places Traversed By or Within ½ Mile of Segments 6 and 11 – Angeles National Forest

Place	Description
The Front Country Total Acreage: 101,232 Percent of ANF: 15	The Front Country Place rises from the Los Angeles Basin from an elevation of approximately 300 feet to an elevation of approximately 6,000 feet. The communities that make up the urban interface of the San Bernardino, San Fernando and San Gabriel Valleys define the lower elevation edge of this Place. The Front Country includes a variety of special designations, including the San Dimas Experimental Forest and Fern Canyon Research Natural Area (RNA). Five Inventoried Roadless Areas are located in the Front Country, some of which may be recommended as Wilderness. It is maintained as a natural appearing landscape. Management emphasis is on protecting communities from the threat of fire, accommodating high levels of recreational use, and maintaining urban and ANF infrastructure (facilities). An extensive trail network is managed to provide opportunities for hiking, biking, and equestrian trips of short duration and to provide linkages to the national forest trail network and the Pacific Crest Trail.
Angeles Uplands (East) Total Acreage: 56,049 Percent of ANF: 8	The Angeles Uplands East Place is a rugged and remote wilderness area that serves as a transition zone between the Front Country and the High Country; it includes a well developed trail system. Human use is most visible in the area around Mt. Baldy Village. Recreation use tends to be concentrated in riparian areas. This Place includes two Eligible Wild and Scenic Rivers (San Antonio Canyon Creek and the San Gabriel River), three Existing Wilderness (EW) zones (Cucamonga, San Gabriel and Sheep Mountain), and one Recommended Wilderness (RW) zone (Sheep Mountain). It is maintained as a naturally evolving landscape that functions as wilderness and provides remote and dispersed recreational use. Management is focused on forest health, sustaining existing urban and ANF infrastructure, and maintaining a sense of remoteness and solitude. Protection and enhancement of threatened, endangered, proposed, candidate and sensitive species is also emphasized.
Angeles Uplands (West) Total Acreage: 68,792 Percent of ANF: 10	The Angeles Uplands West Place is located between the Front and High Country Places. It is a popular chaparral-covered landscape that serves as a mid-elevation gateway to the Angeles High Country Place. It is one of the ANF's "Key Places," and includes the Falls Canyon RNA, San Gabriel River West Fork (an eligible Wild and Scenic River for recreation), and Upper Big Tujunga Critical Biological (CB) zone. Management emphasis is focused on forest health, accommodating high levels of recreational use, and maintaining existing urban and ANF infrastructure in a balanced and sustainable manner.
Big Tujunga Canyon Total Acreage: 5,495 Percent of ANF: 1	The Big Tujunga Canyon Place functions as a year-round, day-use recreational area in a river-based woodland setting. This Place offers access to the Angeles Uplands and Angeles High Country Places. Uses include intensive recreational and special-use authorization areas, utility corridors, water, flood control and retention basins, and sediment disposal areas. Most facilities and trails are located along the canyon bottom, on flats or cut into hillsides. Due to its accessibility to water, this Place is marked by concentrated public use. Management emphasis is focused on day-use, water oriented recreation and maintenance of existing urban and ANF infrastructure in sustainable manner, compatible with the Place's natural setting and with minimal effects on species and habitat of management concern. Recreation use carrying capacity levels will be developed. The protection and enhancement of threatened, endangered, proposed, candidate and sensitive species are also emphasized.
San Gabriel Canyon Total Acreage: 23,288 Percent of ANF: 4	The San Gabriel Canyon Place is located between the Angeles Uplands East and Front Country Places. Human influence is most apparent in its developed and dispersed recreational areas and along the paths flanking the San Gabriel River. Uses include intensive recreation, utility corridors, reservoirs and dams, borrow sites, sediment placement sites, and water retention basins. Due to its accessibility to water, concentrated public use exists in some areas, including the San Gabriel OHV open area. This Place includes one Eligible Wild and Scenic River (the San Gabriel River [West Fork, Lower Portion]), two EW zones (San Gabriel and Sheep Mountain), one RW zone (Sheep Mountain), and one proposed CB zone (West Fork San Gabriel River). Management emphasis is focused on extremely high levels of recreational use, and maintaining existing urban and ANF infrastructure in a sustainable manner that has minimal effects on species of management concern and their habitat. Numerous trailheads are managed to provide access to the wilderness. Protection and enhancement of threatened, endangered, proposed, candidate and sensitive species and their habitat is also emphasized.
Soledad Front Country Total Acreage: 59,338 Percent of ANF: 9	Within the southern portion of the ANF the Soledad Front Country Place runs southwest along California State Highway 14. A portion of the Pacific Crest National Scenic Trail occurs within this the Place, as does the Aliso-Arrastre Middle and North Special Interest Areas. It is identified as a "Key Place" for its natural appearance. Management emphasis is focused on the protection of communities from the threat of fire, accommodating high levels of recreational use, and maintaining existing urban and ANF infrastructure in a sustainable manner. Management is also focused on the protection of open space and boundary management in anticipation of future adjacent development.
Angeles High Country Total Acreage: 100,560 Percent of ANF: 15	The Angeles High Country Place is located within the eastern-most portion of the ANF. The Pacific Crest Trail is located within this Place, and traverses its entire width. It is also one of the ANF's "Key Places," and is regarded by many as the ANF's "core area." The Angeles High Country Place is maintained as a naturally evolving landscape that functions as a year-round, forested recreational area. Management emphasis of this Place is focused on forest health while maintaining its big tree setting, vistas and landscapes. Additional emphasis is placed on recreational use and maintaining existing urban and ANF infrastructure in a sustainable manner that has minimal effects on species of management concern and their habit.

Table 3.9-10. Approximate ANF Acreages and ANF Acreage Percentages for Places, Land Use Zones, Special Designation Overlays and Land Ownership Within ½ Mile of Segments 6 and 11[1]

	Segment 6		Segment 11		Total	
Land Use Attribute	Approximate Acreage[2]	Approximate Percentage of ANF Acreage[3]	Approximate Acreage[2]	Approximate Percentage of ANF Acreage[3]	Approximate Acreage[2]	Approximate Percentage of ANF Acreage[3]
Places						
• Soledad Front Country	3,147	5.3	3,153	5.3	6,300	10.6
• Angeles High Country	1,432	1.4	882	0.9	2,314	2.3
• Angeles Uplands (East)	326	0.6	0	0	326	0.6
• Angeles Uplands (West)	7,239	10.5	3,934	5.7	11,173	16.2
• Big Tujunga Canyon	0	0	378	6.9	378	6.9
• San Gabriel Canyon	339	1.5	0	0	339	1.5
• The Front Country	3,128	3.1	3,995	3.9	7,123	7.0
Land Use Zones						
• Back Country	9,873	6.1	3,199	2.0	13,072	8.1
• Back Country, Non-Motorized	2,498	1.0	2,739	1.1	5,237	2.1
• Back Country Motorized Use Restricted	2,583	4.9	5,527	10.5	8,110	15.4
• Developed Interface Area	0	0	876	1.0	876	1.0
• Existing Wilderness – Total	326	0.4	0	0	326	0.4
- San Gabriel Wilderness	326	9.8	0	0	326	9.8
• Recommended Wilderness	0	0	0	0	0	0.0
• Critical Biological - Total	322	8.2	0	0	322	8.2
- Upper Big Tujunga	322	39.3	0	0	322	39.3
• Experimental Forest	0	0	0	0	0	0
Special Designation Overlays						
• Special Interest Areas - Aliso-Arrastre Middle & North	1,549	19.7	1,758	22.4	3,307	4.3
• Research Natural Areas	0	0	0	0	0	0
• Wild and Scenic Rivers - San Gabriel River: West Fork	422	8.9	0	0	422	8.9
• Inventoried Roadless Areas – Total	572	0.4	214	0.2	786	0.6
- Strawberry Peak/Los Angeles River	0	0	28	0.4	28	0.4
- Arroyo Seco/Los Angeles River	0	0	186	4.0	186	4.0
- Westfork and West Fork/San Gabriel River	572	10.3	0	0	572	10.3
Ownership						
• Total	16,260	2.3	13,697	2.0	29,957	4.3
• NFS Lands	15,593	2.4	12,335	1.9	27,928	4.2
• Non-NFS Lands	667	1.7	1,362	3.5	2,029	5.2

1 Please refer to Figure 3.9-2 for the Places, Zones, Special Designation Overlays and ownership within the ANF, and Figures 3.9-3 and 3.9-4 of the TRTP Map and Figure Series Volume for the existing land uses and General Plan land use designations associated with privately held (Non-Forest Service) lands within the ANF.

2 Approximate acreages of ANF lands traversed by Segments 6 and 11 include a buffer area of ½ mile of either side of the ROWs. The ROWs themselves fall within designated utility corridors.

[3] Approximate acreage percentages within the ANF represent the percentage of acreage traversed by Segments 6 and 11, including a ½ mile buffer on either side of ROW, for any given land attribute listed in Table 3.9-10 in comparison to the total ANF acreage for that land attribute, as follows:

(a) The approximate percentages for Places are based upon the total acreage of each Place within the ANF as provided in Table 3.9-9.
(b) The approximate percentages for Zones are based upon the total acreage of each Zone within the ANF as provided in Table 3.9-4.
(c) The approximate percentages for the Existing San Gabriel Wilderness and Upper Big Tujunga Critical Biological Area are based upon their total acreages, which equal 3,319 and 819 acres, respectively (USDA Forest Service, 2005c).
(d) The approximate percentages for the Aliso-Arrastre Middle and North Special Interest Areas are based upon their total acreage of 7,850 acres, as provided in the 2005 Forest Plan (USDA Forest Service, 2005a).
(e) The approximate percentage for the San Gabriel River: West Fork Eligible Wild and Scenic River (for recreation only) is based upon its total acreage of 4,759 acres (USDA Forest Service, 2005c).
(f) The approximate percentages for the Inventoried Roadless Areas are based upon their total acreages as follows: ANF total: 137,277 acres; Strawberry Peak/Los Angeles River: 7,193 acres; Arroyo Seco/Los Angeles River: 4,674 acres; and, Westfork and West Fork/San Gabriel River combined: 5,541 (USDA Forest Service, 2005d).
(g) The approximate percentages for Ownership are based upon the following: Total lands falling within the outer-boundaries of the ANF: 700,863 acres; Total NFS Lands falling within the outer-boundaries of the ANF: 661,587 acres; Total Non-NFS lands (private in-holdings) falling within the outer-boundaries of the ANF: 39, 276 acres (USDA Forest Service, 2005c).

Table 3.9-11. Summary of Designated Inventoried Roadless Areas Within ½ Mile of Segments 6 and 11

Name/Ranger Station (Segment)	Size (Acres)	Management Prescription (Rx)	Wilderness Area Evaluation Criteria Ranking		
			Capability	Availability	Need
Westfork/San Gabriel River (Segment 6)	4,385	No Construction	High	High	Low
West Fork/San Gabriel River (Segment 6)	1,156	No Construction	High	High	Low
Strawberry Peak/Los Angeles River (Segment 11)	7,193	No Construction	Low	Low	Low
Arroyo Seco/Los Angeles River (Segment 11)	4,674	No Construction	Moderate	Low	Low

Source: USDA Forest Service, 2205d

Crest National Scenic Trail (PCT) is located within one-half mile of Segment 6 between MPs 6.8 and 7.7, and is crossed by the ROW at MP 7.4. Additionally, the ANF Mill Creek Summit Station and helipad are located adjacent to MP 7.4, and a La Cañada Unified School District campground is located within one-half mile of MP 13.5.

All of proposed Segment 11 is also located within an existing, designated utility corridor. As with Segment 6, predominant land uses within one-half mile of Segment 11 include recreation, open space, resource management, and designated electrical utility corridors. The ANF Places that are either traversed by, or within one-half mile of Segment 11 include the: Soledad Front County; Angeles High Country; Angeles Uplands (West); Big Tujunga Canyon; and, Front Country. Table 3.9-9 provides a summary description of these Places and Table 3.9-10 provides the approximate acreage of each of Place that is traversed by or within one-half mile of Segment 11. Figure 3.9-2 provides a map of their locations.

The ANF land use zones that are either traversed by, or fall within one-half mile of Segment 11 include the: Back Country; Back Country Motorized Use Restricted; Back Country, Non-Motorized; and, Developed Area Interface, as summarized in Table 3.9-9. Table 3.9-10 provides the approximate acreage of each of land use zone that is traversed by or within one-half mile of Segment 11, and Figure 3.9-2 provides a map of their respective locations. Segment 11 does not traverse or fall within one-half mile of any Critical Biological or Existing Wilderness Zones.

The Aliso-Arrastre Middle North and Middle Special Interest Areas, as described above, are located within the Soledad Front Country and would be traversed by Segment 11. Additionally, Segment 11 would fall within one-half mile of two IRAs, including the Strawberry Peak/Los Angeles River IRA and Arroyo Seco/Los Angeles River IRA. The acreages of these IRAs within one-half mile of Segment 11 are provided in Table 3.9-10 and their summary descriptions are provided in Table 3.9-11. Their respective locations are provided in Figure 3.9-2.

Along Segment 11, privately held lands are crossed by the ROW from approximately MPs 3.5 through 3.8, 16.8 though 17.2, 18.7 through 19.3, 20.3 through 20.8, 21.3 through 21.8, 22.6 through 23.0, and 24.0 through 24.3. Please refer to Figures 3.9-3 and 3.9-4 of the TRTP Map and Figure Series Volume for the existing land uses and General Plan land use designations associated with these areas. The PCT is located within one-half mile of the ROW between MPs 7.1 and 7.7 and is crossed by the ROW at MP 7.2. An ANF heliport site is located approximately one-half mile east of the ROW at MP 7.8, and is within one-half mile of the Little Gleason Forestry Plantation at this location. The Camp 2 and Mesa Heliports are both located south of MP 19.8 and are a distance of 1.25 miles and 0.6 mile, respectively, from the ROW.

Two SEAs are also located within one-half mile of, or crossed by Segment 11, including the: existing Kentucky Springs SEA (MP 0.0 though 1.5); and, proposed Santa Clara River SEA (MP 0.0 though 5.3). Construction of Segment 11 would require an expanded ROW between approximately MP 15.9 and 18.9 to maintain an overall ROW width of 250 feet; however, the expanded ROW would remain within an existing utility corridor.

The existing Gould Substation is located between approximately MPs 18.7 and 18.9 of Segment 11. The footprint of the substation is located within the jurisdictional boundaries of the City of La Cañada Flintridge. Existing land uses within one-half mile of the substation include residential, open space/recreation, open space/undeveloped, transportation-communications-utilities, water, and electrical power facilities. General Plan land use designations within one-half mile of the substation include Open Not Developable, Parks, and Residential. The substation is additionally located within one-half mile of the

ANF's Front Country, and areas containing an ANF land use zone of Back Country, Back Country Motorized Use Restricted, and Developed Area Interface. All proposed modifications to this substation would occur within its existing fence lines.

In addition to the above, within the ANF 33 towers would be constructed by helicopter, including 17 towers along Segment 6 and 16 towers along Segment 11. Thirteen~~welve~~ sites have been identified as helicopter staging areas; seven of these sites are located along Segment 11, six~~five~~ are located along Segment 6 and one is located along the northern-most portion of Segment 7, as shown in Figure 2.2-38. Four of the sites are located off National Forest Service lands, including Sites SCE #0, 4, 5 and 9 (see Figure 2.2-38 ~~83~~). Within the ANF, one site is located within the Angeles High Country (SCE #1), six~~five~~ are within the Angeles Uplands (West) (SCE #2, 3, 6, 6B, ~~and~~ 7 and 10), one is within Big Tujunga Canyon (SCE #3B), and one is within The Front Country (SCE #8). These sites carry land use zones as follows: Back Country Motorized Use Restricted (SCE #2, 3, ~~and~~ 8 and 10); Back Country (SCE #1, 6, 6B. and 7); and, Developed Area Interface (SCE #3B). Additionally, SCE #7 and 10 ~~is~~are located within one-half mile of the San Gabriel River, West Fork (eligible as a Wild and Scenic River for recreation only). Existing land uses associated with all of these sites are open space/undeveloped.

Site SCE #0, located along Segment 11, is within a private in-holding of the ANF. This site falls within an unincorporated area of Los Angeles County and carries a General Plan land use designation of Open Not Developable. This site is within an area of rural residential and agricultural (livestock) uses. Outside of the ANF boundaries, the remaining helicopter staging areas are located within the City of La Cañada-Flintridge (SCE #4 and 5) and the City of Duarte (SCE #9). Sites SCE #4 and 5 have a General Plan land use designation of Residential. Both sites are open space/undeveloped; however, SCE #5 is immediately adjacent to residential land uses and the Gould Substation. Site SCE #9 is used as a private rifle range and carries General Plan land use designation of Open Not Developable.

South Region

The South Region includes all of Segments 7 and 8, and the southern-most 11.7 miles of Segment 11. It additionally includes the Goodrich, Rio Hondo, Mesa, Chino and Mira Loma Substations, of which facility upgrades within existing fence lines are proposed at the Mesa and Mira Loma Substations. Table 3.9-12 provides a summary of the jurisdictions crossed by, or within one-half mile of the proposed ROW and its substations, as well as information regarding existing land uses, General Plan land use designations, and other notable land uses.

Construction of the southern-most 11.7 miles of Segment 11 would occur within existing ROW. Jurisdictions crossed by the ROW itself include Los Angeles County, Temple City, the City of Rosemead, and City of Monterey Park. Lands within one-half mile of this portion of Segment 11 are highly urbanized in character; existing land uses and land use designations are summarized in Table 3.9-12. The predominant existing land use within one-half mile of this portion of Segment 11 is residential with associated commercial and services, public and special use facilities, local educational facilities and open space/ recreation facilities, and electrical power facilities. Within the ROW itself predominant existing land uses include commercial and services, agriculture (nurseries), transportation-communications-utilities, industrial, open space/recreation, open space/undeveloped, and electrical power facilities. The existing Goodrich Substation is located between approximately MP 27.2 and 27.4, and the existing Mesa Substation is located at the ROW's southern terminus. The El Monte Airport is located approximately 2.8 miles east of MP 32.0, and the Robert D. Cloud Heliport is located approximately 0.6 mile east of MP 35.2. The ROW additionally traverses or is within several Specific Plan or other development plan

projects, as outlined in Table 3.9-12. There are no proposed or existing SEAs located within one-half mile of this portion of Segment 11.

Segment 7 begins at the southern terminus of Segment 6, and ends at the existing Mesa Substation; it would be placed within existing ROW. Construction of Segment 7 would require removal of the existing Antelope-Mesa 220-kV transmission line, as well as either the relocation of approximately 45 existing double-circuit 66-kV transmission towers to the edge of the ROW between MP 4.4 and 15.8 (the ROW's entrance to the Mesa Substation), or the undergrounding of the transmission lines of these towers for the same11.4 miles. The ROW itself traverses lands falling under the jurisdiction of the U.S. Army Corps of Engineers, the cities of Duarte, Irwindale, Baldwin Park, Industry, South El Monte, Montebello and Monterey Parks, and Los Angeles County. Table 3.9-12 provides a summary of the jurisdictions crossed by, or within one-half mile of, the ROW. Existing land uses within one-half mile of Segment 7 are diverse and range from intensive industrial and commercial and services, to residential and open space/recreation. Table 3.9-12 also summarizes the existing land uses and General Plan land use designations within one-half mile of the ROW by milepost. The ROW itself includes extensive swaths of agriculture (predominantly nurseries), as well as open space/undeveloped, open space/recreation, industrial, commercial and services and transportation-communications-utilities uses. The existing Rio Hondo Substation is located between approximately MPs 4.9 and 5.2. Between MPs 1.0 and 3.6 there are five proposed Specific Plans or other development projects within one-half mile of, or crossed by the ROW, as outlined in Table 3.9-12, and the proposed Maglev project is crossed by the ROW at MP 8.2. Additionally, the ROW is within one-half mile of, or crosses several proposed and existing SEAs which are also outlined in Table 3.9-12.

As referenced in Table 3.9-12, Segment 7 traverses the Santa Fe Flood Control Basin and Dam, which falls under the jurisdictional authority and management of the U.S. Army Corps of Engineers; the basin and dam constitute a flood control facility, providing flood protection between the dam itself and the Whittier Narrows Flood Control Basin and Dam (U.S. Army Corps of Engineers, 2009a). The secondary use of the facility is recreation, as leased and operated by the County of Los Angeles. Recreational amenities include a 70-acre lake for boating, swimming and fishing, a children's water play area, picnic areas, trails for biking and hiking, and campsites (County of Los Angeles Department of Recreation and Parks, 2009a). Per the U.S. Army Corps of Engineers' regulations, a Master Plan has been prepared for the Santa Fe Flood Control Basin and Dam, focusing on: (1) regional and ecosystem needs; (2) facility resource capabilities and suitability; and, (3) expressed public interests and desires (U.S. Army Corps of Engineers, 2009b). A youth athletic facility, known as the KARE Youth League Athletic Park, is currently proposed within the Basin; it would include soccer, football, softball and baseball fields as well as basketball courts and a parking lot; also included would be a multi-purpose office/administration building with snack bar and indoor activity rooms, a picnic area and playground, a locker and restroom facility, and lighting structures for night-time activities (U.S. Army Corps of Engineers, 2006).

Segment 8 extends eastward from the Mesa Substation to the Mira Loma Substation. From Segment 8A MP 0.0 to the Chino Substation (Segment 8A MP 28.1 through MP 28.4) the acquisition of new ROW would be required from approximately MP ~~6.9~~ 5.8 to 7.2, and for approximately 0.4 mile south of MP 13.2; the acquisition of expanded ROW by 100 feet would also be needed between approximately MP 11.2~~5~~ and MP 13.2. Segments 8B and 8C begin at the Chino Substation and are approximately 6.8 and 6.4 miles in length, respectively (it is noted that Segment 8C is located in the same ROW and on the same infrastructure as Segment 8A). Segment 8A is approximately 36.2 miles in length. East of the Chino Substation, no new ROW or ROW expansion would be required.

Within the ROW itself, Segment 8A traverses the jurisdictions of the U.S. Army Corps of Engineers, the cities of Monterey Park, Montebello, South El Monte, Pico Rivera, Industry, La Habra Heights, Diamond Bar, Chino Hills, and Chino, and Los Angeles County. The ROW crosses into San Bernardino County at approximately MP 20.6. The eastern-most portion of Segment 8A, from MP 0.0 through 7.0, is similar to Segment 7 in that, within one-half mile of its ROW, it contains a diverse set of existing land uses. This portion of the ROW is surrounded by relatively limited residential uses, but includes tracts of land of various sizes and distributions for commercial and services, transportation-communications-utilities, open space/recreation, public and special use facilities, open space/ undeveloped, industrial, agricultural, water, and electrical power facilities uses. Within the ROW itself existing land uses primarily include open space/ undeveloped, agriculture, open space/recreation, industrial, and transportation-communications-utilities. General Plan land use designations within this portion of Segment 8A are provided in Table 3.9-12. This portion of the ROW additionally traverses through several proposed and existing SEAs, as outlined in Table 3.9-12. Specific plans and other large development plans crossed by, or within one-half mile of the ROW are provided in Table 3.9-9.

As referenced in Table 3.9-12, the Whittier Narrows Flood Control Basin and Dam is traversed by both Segments 7 and 8A. This flood control facility also falls under the jurisdictional authority of the U.S. Army Corps of Engineers and impounds water from the San Gabriel River and Rio Hondo, including water conservation pools (U.S. Army Corps of Engineers, 2009c). As with the Santa Fe Flood Control Basin and Dam, this flood control facility also has a Master Plan, which is currently being updated (U.S. Army Corps of Engineers, 2009b). Additionally, there is a Water Control Manual for the Whittier Narrows Flood Control Basin and Dam, and an Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual for the San Gabriel River (as applicable to both the Whittier Narrows and Santa Fe Flood Control Basins and Dams) (U.S. Army Corps of Engineers, 2009b). The Whittier Narrow Recreation Area in located within the Basin, which is leased and operated by the County of Los Angeles Department of Parks and Recreation. Recreational amenities include fishing lakes, comfort stations, picnic areas, playgrounds, a nature center, an equestrian facility, trails, tennis courts, a multipurpose athletic complex, a military museum, soccer fields, volleyball courts, and archery, skeet, pistol and trap ranges (County of Los Angeles Department of Recreation and Parks, 2009b). The San Gabriel River Discovery Center is currently being planned within the Basin's recreational area; the Center is proposed to present the story of the San Gabriel River watershed and provide public educational and outdoor experiences (San Gabriel River Discovery Center Authority, 2009).

From Segment 8A MP 7.0 to the Chino Substation, land uses within one-half mile of the proposed ROW predominantly include open space/recreation, residential, open space/undeveloped, agriculture, transportation-communications-utilities, educational facilities, public and special use facilities, agriculture, commercial and services, and electrical power facilities. Within the ROW itself existing land uses between approximately MPs 7.0 and 8.8, MPs 9.8 through 11.1, MP 11.5 through MP 13.4 and MP 13.8 through MP 21 are made-up of large tracts of open space/undeveloped and open space/recreation. Existing land uses within the remaining portions of this section of the proposed ROW also include open space/ undeveloped and open space/recreation immediately flanked by developed residential areas as well as agriculture, commercial and services, transportation-communications-utilities and industrial uses. The proposed ROW enters San Bernardino County at approximately MP 20.6; other jurisdictions crossed by the proposed ROW and the General Plan land use designations within one-half mile of it are provided in

Table 3.9-12. Land Uses: South Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
Segment 11					
S 11 MP 24.5 – MP 25.5	Los Angeles County	Los Angeles County	Residential, Open Space/Recreation, Open Space/Undeveloped, Mixed Uses, Electrical Power Facilities	Open Not Developable, Agriculture, Residential, Other Institutions	
S 11 MP 25.5 – MP 28.7	City of Pasadena	City of Pasadena	Residential, Open Space/Recreation, Open Space/Undeveloped, Commercial and Services, Agriculture, Mixed Uses, Educational Facilities, Industrial, Electrical Power Facilities	Open Not Developable, Residential, Regional Retail, Other Institutions, General Industrial, K- 12 Schools, Urban Mixed Categories, General Commercial	- The East Pasadena Specific Plan is located within and along both sides of the ROW between MP 27.2 & MP 27.6 - The East Colorado Boulevard Specific Plan is located within and along both sides of the ROW between MP 27.6 & MP 27.8 - The Goodrich Substation is located between MP 27.2 & MP 27.4
S 11 MP 28.7 – MP 31.0	Los Angeles County	Los Angeles County	Residential, Educational Facilities, Commercial and Services, Transportation-Communications-Utilities, Agriculture, Public and Special Use Facilities, Water, Electrical Power Facilities	Residential, Open Not Developable, Other Institutions, K – 12 Schools, Regional Retail, General Commercial	
S 11 MP 31.0 – MP 31.5	Temple City	Temple City	Residential, Commercial and Services, Industrial, Educational Facilities, Open Space/Recreation, Electrical Power Facilities	General Commercial, Residential, K-12 Schools, Open Not Developable, Light Industry, Other Institutions	
S 11 MP 31.5 – MP 34.5	City of Rosemead, City of San Gabriel	City of Rosemead	Residential, Commercial and Services, Educational Facilities, Industrial, Open Space/Recreation, Open Space/Undeveloped, Transportation-Communications-Utilities, Mixed Uses, Public and Special Use Facilities, Agriculture, Industrial, Electrical Power Facilities	General Commercial, Other Institutions, K-12 Schools, Residential, Urban Mixed Categories, Light Industry	- The El Monte Airport is located approx. 2.8 miles east of MP 32.0 - The Valley Boulevard Sustainability Plan Project is located within ½ mile of the ROW between MP 32.3 & MP 33.0 - The proposed Maglev Project is located within ½ mile of, and crossed by the ROW at MP 33.0
S 11 MP 34.5 – MP 35.2	Los Angeles County	Los Angeles County	Residential, Commercial and Services, Open Space/ Undeveloped, Educational Facilities, Public and Special Use Facilities, Electrical Power Facilities	Residential, Parks/Recreation, Other Institutions	- The Robert D. Cloud and SCE Rosemead Heliports are located approx. 0.6 mile east of MP 35.2

Table 3.9-12. Land Uses: South Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
S 11 MP 35.2 – MP 36.2	City of Monterey Park, City of Montebello	City of Monterey Park	Residential, Commercial and Services, Agriculture, Industrial, Transportation-Communications-Utilities, Educational Facilities, Public and Special Use Facilities, Open Space/Undeveloped, Open Space/Recreation, Electrical Power Facilities	Residential, Open Not Developable, General Commercial, Parks/Recreation, Other Institutions	
Mesa Substation (S 7 MP 15.6 – MP 15.8) (S 8A MP 0.0 – MP 0.2) (S 11 MP 35.9 – MP 36.2)	City of Monterey Park, City of Montebello	City of Monterey Park	Open Space/Recreation, Open Space/Undeveloped, Commercial and Services, Industrial, Transportation-Communications-Utilities, Residential, Educational Facilities, Public and Special Use Facilities, Water, Electrical Power Facilities	Open Not Developable, General Commercial, Residential, Parks/Recreation, Other Institutions	
Segment 7					
S 7 MP 0.0 – MP 1.9	City of Duarte, City of Azusa	City of Duarte	Open Space/Undeveloped, Residential, Transportation-Communications-Utilities, Educational Facilities, Open Space/Recreation, Electrical Power Facilities, Industrial, Mixed Uses, Education Facilities	Open Not Developable, Residential, K-12 Schools, Light Industry, Parks/Recreation, Urban Mixed Uses	- A portion of Specific Plan 02SP 05-01/TTM 062064 is located within ½ mile west of the ROW at MP 1.1 - The Encanto Parkway Specific Plan is located within ½ mile of the ROW between MP 1.7 & MP 1.8 - The Rancho Verde Specific Plan is located within ½ mile of, and crossed by the ROW between MP 1.8 & MP 1.9 - A portion of the proposed San Gabriel SEA is within ½ mile of, and crossed by the ROW between MP 0.0 & MP 0.2 - A portion of the existing Santa Fe Dam Floodplain SEA is within ½ mile of the ROW between MP 1.4 & MP 1.9
S 7 MP 1.9 – MP 7.3	City of Irwindale, City of Duarte, City of Baldwin Park, City of Arcadia, City of El Monte, City of Baldwin Park	City of Irwindale	Residential, Educational Facilities, Transportation-Communications-Utilities, Open Space/Undeveloped, Commercial and Services, Industrial, Mixed Uses, Electrical Power Facilities, Water, Public and Special Use Facilities, Electrical Power Facilities	Residential, Open Not Developable, K-12 Schools, Urban Mixed Categories, General Industrial, Miscellaneous Commercial, Other Institutions, Miscellaneous Industry, Heavy Industry, Light Industry, Regional Retail, General Commercial, Miscellaneous Commercial	- The Las Brisas Specific Plan is located approx. ½ mile northwest of the ROW at MP 1.9 - A portion of the Santa Fe Flood Control Basin (U.S. Army Corps of Engineers) is within ½ mile of, and crossed by the ROW between MP 2.7 & MP 4.4 - The proposed Metro Gold Line Foothill Extension Pasadena to Montclair Project is within ½ mile of, and crossed by the ROW at MP 2.5 - Rio Hondo Substation is located between MP 4.9 & MP 5.2 - The El Monte Airport is located approx. 2 miles west of MP 6.7 - A portion of the existing Santa Fe Dam Floodplain SEA is within ½ mile of the ROW between MP 1.9 & MP 4.1

Table 3.9-12. Land Uses: South Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
S 7 MP 7.3 – MP 8.8	City of Baldwin Park, City of El Monte	City of Baldwin Park	Residential, Commercial and Services, Educational Facilities, Public and Special Use Facilities, Open Space/Recreation, Agriculture, Industrial, Transportation-Communications-Utilities, Electrical Power Facilities	Residential, Miscellaneous Commercial, General Commercial, Other Institutions, Parks/Recreation, Light Industry, Miscellaneous Industry, Heavy Industry, General Industrial, K-12 Schools, Parks/Recreation	- The proposed Maglev Project is within ½ mile of, and crossed by the ROW at MP 8.2
S 7 MP 8.8 – MP 10.3	City of Industry, Los Angeles County, City of El Monte, City of South El Monte	City of Industry	Residential, Commercial and Services, Educational Facilities, Open Space/Recreation, Transportation-Communications-Utilities, Open Space/Undeveloped, Agriculture, Industrial, Electrical Power Facilities	Residential, Regional Retail, Miscellaneous Industry, Open Not Developable, Other Institutions, General Industrial, Heavy Industry	- A portion of the proposed Rio Hondo College Wildlife Sanctuary is within ½ mile of, and crossed by the ROW between MP 10.2 & MP 10.3
S 7 MP 10.3 – MP 13.9	Los Angeles County, City of South El Monte, City of Industry	- Los Angeles County (MP 10.3 – MP 10.8) - City of South El Monte (MP 10.8 – MP 11.4) - Los Angeles County (MP 11.4 – MP 13.9)	Residential, Open Space/Recreation, Educational Facilities, Transportation-Communications-Utilities, Industrial, Open Space/Undeveloped, Agriculture, Commercial and Services, Water, Electrical Power Facilities	Residential, General Commercial, General Industrial, Heavy Industry, Light Industry, Other Institutions, Open Not Developable, Parks/Recreation, Other Institutions	- A portion of the proposed Rio Hondo Wildlife Sanctuary is within ½ mile of the ROW between MP 10.3 and MP 13.9, and crossed by the ROW between MP 10.3 & MP 12.1 and MP 13.4 through MP 13.9 - A portion of the existing Whittier Narrows Dam County Recreation Area SEA is within ½ mile of, and crossed by the ROW between MP 11.1 & MP 13.9 - A portion of the Whittier Narrows Flood Control Dam (U.S. Army Corps of Engineers) and Basin is within ½ mile of, and crossed by the ROW between MP 11.4 & MP 13.7 - The Robert D. Cloud and SCE Rosemead Heliports are located approx. 1 mile north of MP 13.9
S 7 MP 13.9 – MP 15.4	City of Montebello, City of Rosemead, City of South San Gabriel, City of Monterey Park	City of Montebello	Residential, Commercial and Services, Educational Facilities, Industrial, Open Space/Recreation, Public and Special Use Facilities, Open Space/Undeveloped, Transportation-Communications-Utilities, Electrical Power Facilities	Residential, General Commercial, Parks/Recreation, Open Not Developable, K-12 Schools	

Table 3.9-12. Land Uses: South Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
S 7 MP 15.4 – MP 15.8	City of Monterey Park, City of Montebello	City of Monterey Park	Residential, Commercial and Services, Transportation-Communications-Utilities, Open Space/Recreation, Public and Special Use Facilities, Open Space/Undeveloped, Industrial, Electrical Power Facilities	Residential, General Commercial, Open Not Developable, Parks/Recreation, Other Institutions	- Mesa Substation is located at MP 15.8 (see Segment 11, above)
Segment 8					
Segment 8A					
S 8A MP 0.0 – MP 0.3	City of Monterey Park, City of Montebello	City of Monterey Park	Residential, Commercial and Services, Transportation-Communications-Utilities, Open Space/Recreation, Public and Special Use Facilities, Open Space/Undeveloped, Industrial, Electrical Power Facilities	Residential, General Commercial, Open Not Developable, Parks/Recreation, Other Institutions	- Mesa Substation is located at MP 0.0 (see Segment 11, above)
S 8A MP 0.3 – MP 2.1	City of Montebello, City of Monterey Park	City of Montebello	Residential, Commercial and Services, Educational Facilities, Industrial (Oil Field), Open Space/Recreation, Public and Special Use Facilities, Open Space/Undeveloped, Transportation-Communications-Utilities, Water, Electrical Power Facilities	Residential, General Commercial, Parks/Recreation, Open Not Developable, K-12 Schools	
S 8A MP 2.1 – MP 3.8	City of South El Monte, City of Whittier	City of South El Monte	Open Space/Recreation, Open Space/Undeveloped, Agriculture, Transportation-Communications-Utilities, Industrial, Water, Electrical Power Facilities	Open Not Developable, Parks/Recreation, Heavy Industry	- A portion of the existing Whittier Narrows Dam County Recreation Area SEA is within ½ mile of, and crossed by the ROW between MP 2.2 & MP 3.8 - A portion of the Whittier Narrows Flood Control Dam and Basin (U.S. Army Corps of Engineers) are within ½ mile of, and crossed by the ROW between MP 3.2 & 3.8 - A portion of the proposed Rio Hondo College Wildlife Sanctuary is within ½ mile of the ROW between MP 2.2 & MP 2.4 and MP 3.2 through MP 3.8
S 8A MP 3.8 – 4.4	City of Pico Rivera	City of Pico Rivera	Open Space/Recreation, Transportation-Communications-Utilities, Agriculture, Industrial, Commercial and Services, Electrical Power Facilities	Parks/Recreation, Open Not Developable, General Industrial, Heavy Industry	- A portion of the existing Whittier Narrows Dam County Area SEA is within ½ mile of, and crossed by the ROW between MP 3.8 and MP 4.2 - A portion of the Whittier Narrows Flood Control Dam and Basin (U.S. Army Corps of Engineers) is within ½ mile of, and crossed by the ROW between MP 3.8 & MP 4.2 - A portion of the proposed Rio Hondo College Wildlife

Table 3.9-12. Land Uses: South Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
					Sanctuary is within ½ mile of the ROW between MP 3.8 & MP 4.2, and crossed by the ROW between MP 3.8 & MP 3.9
S 8A MP 4.4 – MP 4.6	City of Industry	City of Industry	Industrial, Agriculture, Open Space/Undeveloped, Electrical Power Facilities	General Industrial, Heavy Industry, General Commercial	
S 8A MP 4.6 – MP 11.1	Los Angeles County, City of Whittier	- Los Angeles County (MP 4.6 – MP 8.7) - City of Whittier (MP 8.7 – MP 8.9) - Los Angeles County (MP 8.9 – 9.8) - City of Whittier (MP 9.8 – MP 10.0) - Los Angeles County (MP 10.0 – MP 11.1)	Industrial, Commercial and Services, Transportation-Communications-Utilities, Mixed Uses, Educational Facilities, Open Space/Recreation, Open Space/Undeveloped, Agriculture, Residential, Public and Special Use Facilities, Electrical Power Facilities	Heavy Industry, Open Not Developable, Other Institutions, Residential, General Commercial	- The proposed California High Speed Rail Project is within ½ mile of, and crossed by the ROW at MP 4.7 - A portion of the existing Sycamore-Turnball Canyons SEA is within ½ mile of the ROW between MP 7.4 & MP 7.9 - A portion of the existing Powder Canyon-Puente Hills SEA is within ½ mile of the ROW between MP 6.1 & MP 11.1, and crossed by the ROW between MP 6.9 & MP 8.9 and MP 9.3 through MP 11.1
S 8A MP 11.1 – MP 13.4	City of La Habra Heights, Los Angeles County	City of La Habra Heights	Open Space/Recreation, Residential, Open Space/Undeveloped, Agriculture, Mixed Uses, Electrical Power Facilities	Residential, Open Not Developable	- A portion of the existing Powder Canyon-Puente Hills SEA is within ½ mile of, and crossed by the ROW between MP 11.1 & MP 13.4 - A portion of the existing Powder Canyon – Puente Hills SEA is within ½ mile of, and crossed by the ROW between MP 11.5 & MP 13.4
S 8A MP 13.4 – MP 20.6	Los Angeles County, City of Diamond Bar	Los Angeles County	Open Space/Recreation, Public and Special Use Facilities, Agriculture, Educational Facilities, Transportation-Communications-Utilities, Open Space/Undeveloped, Commercial and Services, Mixed Uses, Electrical Power Facilities	Residential, Open Not Developable, Other Institutions, Agriculture, Transportation	- U.S. Department of Defense property is within ½ mile of the ROW between MP 14.7 & MP 15.5, and crossed by the ROW between MP 15.2 & MP 15.5 - A portion of the Aera Master Plan Community Specific Plan is within ½ mile of the ROW between MP 14.2 & MP 17.7, and crossed by the ROW at MP 14.5, and between MP 15.3 through MP 17.0, and MP 17.1 through MP 17.7 - A portion of the existing Powder Canyon-Puente Hills SEA is within ½ mile of the ROW between MP 13.4 & MP 20.6, and crossed by the ROW between MP 13.4 & MP 13.5, and MP 13.9 through MP 20.6 - A portion of the proposed NAP SEA is within ½ mile of the ROW between MP 13.5 & MP 14.9

Table 3.9-12. Land Uses: South Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
					- A portion of the existing Tonner Canyon-Chino Hills SEA is within ½ mile of the ROW between MP 15.1 & MP 20.6, and crossed by the ROW between MP 15.8 & MP 20.0 - A portion of the Firestone Boy Scout Reservation is located within ½ mile of, and crossed by the ROW between MP 17.7 & MP 20.6
S 8A MP 20.6 – MP 25.2	City of Chino Hills	City of Chino Hills	Residential, Open Space/Recreation, Open Space/Undeveloped, Educational Facilities, Public and Special Use Facilities, Agriculture, Commercial and Services, Mixed Uses, Transportation-Communications-Utilities, Water, Electrical Power Facilities	Open Not Developable, Other Institutions, Agriculture, General Commercial, Residential	- The ROW enters San Bernardino County at MP 20.6 - The Chino Hills Specific Plan is within ½ mile of, and crossed by the ROW between MP 20.6 & MP 25.2
S 8A MP 25.2 – MP 25.4	City of Chino	City of Chino	Residential, Open Space/Recreation, Open Space/Undeveloped, Educational Facilities, Commercial and Services, Transportation-Communications-Utilities, Electrical Power Facilities	Residential, Other Institutions, Regional Retail, Open Not Developable	- The Majestic Spectrum Specific Plan is within ½ mile of the ROW at MP 25.4 - The City of Chino Hills Specific Plan is within ½ mile of the ROW between MP 25.2 & MP 25.4
S 8A MP 25.4 – MP 25.6	City of Chino Hills	City of Chino Hills	Residential, Commercial and Services, Industrial, Open Space/Undeveloped, Open Space/Recreation, Educational Facilities, Public and Special Use Facilities, Agriculture, Transportation-Communications-Utilities, Electrical Power Facilities	Residential, General Commercial, Regional Retail	- The Chino Hills Specific Plan is within ½ mile of, and crossed by the ROW between MP 25.4 & MP 25.6 - The Majestic Spectrum Specific Plan is within ½ mile of the ROW between MP 25.4 & MP 25.6 - The western boundary of Eucalyptus Business Park Specific Plan is within ½ mile of the ROW at MP 25.6
S 8A MP 25.6 – MP 29.9	City of Chino	City of Chino	Industrial, Public and Special Use Facilities, Educational Facilities, Commercial and Services, Residential, Open Space/Undeveloped, Open Space/Recreation, Agriculture, Transportation-Communications-Utilities, Electrical Power Facilities	General Industrial, Light Industry, General Commercial, Residential, Regional Retail, K-12 Schools, Colleges/Junior Colleges, Open Not Developable, Urban Mixed Categories, Utilities, Parks/Recreation	- The Eucalyptus Business Park Specific Plan is within ½ mile of, and crossed by the ROW between MP 25.6 & MP 27.1 - The Majestic Spectrum Specific Plan located within ½ mile of ROW between MP 25.6 & MP 26.0 - The Commons at Chino Hills Specific Plan is within ½ mile of the ROW between MP 25.8 & MP 26.0 - The proposed Maglev Project is within ½ mile of, and crossed by the ROW at MP 26.7 & MP 27.0 - The Chino College Park Specific Plan is within ½ mile of the ROW between MP 27.7 & MP 29.0, and crossed by the ROW between MP 27.7 & MP 28.5

Table 3.9-12. Land Uses: South Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
					- The East Chino Specific Plan is within ½ mile of, and crossed by the ROW between MP 29.0 & MP 29.9 - The California Institution for Men and State Youth Correctional Facility property is within ½ mile of the ROW between MP 26.9 & MP 29.9 - The Chino Substation is located between MP 28.1 & MP 28.4
S 8A MP 29.9 – MP 35.2	City of Ontario	City of Ontario	Agriculture, Open Space/Undeveloped, Residential, Educational Facilities, Public and Special Use Facilities, Mixed Uses, Industrial, Transportation-Communications-Utilities, Open Space/Recreation, Commercial and Services, Electrical Power Facilities	Residential, General Commercial, Other Institutions, Open Not Developable, Retail/Services, Utilities, Light Industry, K-12 Schools	- The Chino Airport is located approx. 1.6 miles south of MP 30.6 - The Los Angeles/Ontario International Airport is located approx. 4.0 miles north of MP 32.9 - The New Model Colony Specific Plan is within ½ mile of, and crossed by the ROW between MP 30.0 & MP 35.2 - The western boundary of Riverside County is within ½ mile of the ROW at MP 35.2 (Mira Loma Substation)
Mira Loma Substation (S 8A MP 35.2) (S 8B MP 6.8) (S 8C MP 6.4)	City of Ontario	City of Ontario	Agriculture, Residential, Open Space/Undeveloped, Commercial and Services, Educational Facilities, Industrial, Transportation-Communications-Utilities, Electrical Power Facilities	Residential, Retail/Services, Light Industry, K-12 Schools	- The footprint of the substation is within the boundaries of the New Model Colony Specific Plan - A U.S. Naval Reservation Station is located approx. 5.0 mile south of the substation
Segment 8B					
S 8B MP 0.0 – MP 1.5	City of Chino	City of Chino	Industrial, Residential, Agriculture, Open Space/Undeveloped, Open Space/Recreation, Educational Facilities, Mixed Uses, Commercial and Services, Water, Electrical Power Facilities	Light Industry, General Industrial, K-12 Schools, Residential, Colleges, Utilities, General Commercial, Open Not Developable	- The Chino Substation is located at MP 0.0 - The proposed Maglev Project is located within ½ mile of the ROW at MP 0.0 - The East Chino Specific Plan is within ½ mile of, and crossed by the ROW between MP 0.5 & MP 1.5 - The Chino College Park Specific Plan northern boundary is within ½ mile of the ROW between MP 0.0 & MP 0.5
S 8B MP 1.5 – MP 6.8	City of Ontario	City of Ontario	Agriculture, Open Space/Undeveloped, Residential, Educational Facilities, Public and Special Use Facilities, Industrial, Transportation-Communications-Utilities, Commercial and Services, Mixed Uses, Electrical Power Facilities	Residential, Other Institutions, Open Not Developable, Retail/Services, Utilities, Light Industry, K – 12 Schools	- The Chino Airport is located approx. 2.0 miles south of MP 2.2 - The Los Angeles/Ontario International Airport is located approx. 3.5 miles north of MP 4.5 - New Model Colony Specific Plan is within ½ mile of the ROW between MP 1.5 & MP 6.8, and crossed by the ROW between MP 1.5 & MP 4.9 and MP 6.0 through MP 6.8 - The western boundary of Riverside County is within ½ mile of MP 6.8 (Mira Loma Substation) - The Mira Loma Substation is located at MP 6.8 (see Segment 8A, above)

Table 3.9-12. Land Uses: South Region

Approximate Location‡	Jurisdiction Within ½ Mile of ROW	Jurisdiction Within ROW‡	Existing Land Uses Within ½ Mile of ROW	General Plan Land Use Designations Within ½ Mile of ROW	Additional Land Use Related Information
Segment 8C					
S 8C MP 0.0 – MP 1.5	City of Chino	City of Chino	Industrial, Residential, Agriculture, Open Space/Undeveloped, Open Space/Recreation, Educational Facilities, Transportation-Communications-Utilities, Commercial and Services, Mixed Uses, Electrical Power Facilities	Light Industry, General Industrial, Urban Mixed Categories, Residential, Colleges, Utilities, General Commercial, K – 12 Schools, Open Not Developable	- The Chino Substation is located at MP 0.0 - The proposed Maglev Project is located within ½ mile of the ROW at MP 0.0 - The East Chino Specific Plan is within ½ mile of, and crossed by the ROW between MP 0.5 & MP 1.5 - The Chino College Park Specific Plan is within ½ mile of the ROW between MP 0.0 & MP 0.5
S 8C MP 1.5 – MP 6.4	City of Ontario	City of Ontario	Agriculture, Open Space/Undeveloped, Residential, Educational Facilities, Public and Special Use Facilities, Industrial, Transportation-Communications-Utilities, Commercial and Services, Mixed Uses, Electrical Power Facilities	Residential, Other Institutions, Open Not Developable, Retail/Services, K – 12 Schools, Utilities, Light Industry	- The Chino Airport is located approx. 1.6 miles south of MP 2.2 - The Los Angeles/Ontario International Airport is located approx. 4.0 miles north of MP 4.5 - New Model Colony Specific Plan is within ½ mile of, and crossed by the ROW between MP 1.5 & MP 6.4 - The western boundary of Riverside County is within ½ mile of MP 6.4 (Mira Loma Substation) - The Mira Loma Substation is located at MP 6.4 (see Segment 8A, above)

‡ Mile Post locations are approximate

Table 3.9-12. This portion of the proposed ROW traverses multiple proposed development projects and Specific Plans, as well as several proposed and existing SEAs, as outlined in Tables 3.9-8 and 3.9-13. The Chino Substation is located between approximately MP 28.1 and 28.4; no modifications to this substation are proposed.

The remainder of Segment 8A (from the Chino Substation to the Mira Loma Substation) is approximately 6.8 miles in length. The predominant existing land use within one-half mile of this portion of the proposed ROW is agriculture. Other existing land uses include residential, industrial, transportation-communications-utilities, open space/undeveloped, electrical power facilities, and comparatively small and scattered parcels of public and special use facilities, educational facilities, commercial and services, open space/recreation, and water. A portion of the eastern boundary of Riverside County is located within one-half mile of MP 35.2 (at the Mira Loma Substation); other jurisdictions crossed by the proposed ROW and the General Plan land use designations within one-half mile of it are summarized in Table 3.9-12. The Chino Airport is located approximately 1.6 miles south of MP 30.6. There are several proposed large development plans and Specific Plans located along this section of the proposed ROW, which are also summarized in 3.9-9. There are no proposed or existing SEAs within this section of the proposed ROW.

Segment 8B is approximately 6.8 miles in length and traverses the jurisdictions of the cities of Chino and Ontario. From MP 0.0 to 1.5 existing land uses within one-half mile of the ROW are primarily residential, although smaller parcels of industrial, agriculture, open space/undeveloped, open space/ recreation, educational facilities, transportation-communications-utilities, commercial and services, water, and electrical power facilities occur as well. From MP 1.5 to the Mira Loma Substation (MP 6.8) the predominant existing land use within one-half mile of the ROW is agriculture. Parcels of open space/ undeveloped, residential, educational facilities, public and special use facilities, industrial, transportation-communications-utilities, commercial and services, water, and electrical power facilities occur as well. Within the ROW itself, existing land uses are primarily agriculture, although between MP 4.9 and MP 5.7 the ROW is immediately flanked by residential uses. The Chino Airport is located approximately 2.0 miles south of MP 2.2. General Plan land use designations and proposed large development plans and Specific Plans along Segment 8B are summarized in Tables 3.9-14 and 3.9-9. There are no proposed or existing SEAs within one-half mile of Segment 8B.

Segment 8C is approximately 6.4 miles in length. The ROW of Segment 8C immediately parallels Segment 8A (it is noted that~~Note:~~ Segment 8C is located in the same ROW and on the same infrastructure as Segment 8A), as described above, up to MP 5.6, and then parallels Segment 8B, also described above, to the Mira Loma Substation.

The Mesa Substation is located within the City of Monterey Park at Segment 7 MP 15.8 (as well as Segment 8A MP 0.0 and Segment 11 MP 36.2). Existing land uses within one-half mile of the substation include a mix of residential, commercial and services, agriculture, industrial, transportation-communications-utilities, educational facilities, public and special use facilities, open space/undeveloped, open space/recreation, and electrical power facilities. The General Plan land use designation for the station is General Commercial; additional General Plan land use designations within one-half mile of the station are summarized in Table 3.9-12. There are no proposed or existing SEAs or proposed large development plans or Specific Plans located within one-half mile of the station.

The Mira Loma Substation is located within the City of Ontario at Segment 8A MP 35.2 (as well as Segment 8B MP 6.8 and Segment 8C MP 6.4). Existing land uses within one-half mile of the station

include agriculture, residential, open space/undeveloped, commercial and services, educational facilities, industrial, transportation-communications-utilities, water, and electrical power facilities. The station is additionally within the boundaries of the New Model Colony development plan, and, as noted above, is within one-half mile of Riverside County. The station's General Plan land use designation is Agriculture; additional General Plan land use designations within one-half mile of the station are summarized in Table 3.9-12.

3.9.2.3 Alternative 3: West Lancaster Alternative

Alternative 3, the West Lancaster Alternative, is located in the North Region in an unincorporated area of Los Angeles County; it is approximately one mile west of the City of Lancaster. This re-route would deviate from Segment 4 of the proposed Project at approximately MP 14.9 and traverse 115th Street southward for an estimated 2.9 miles. It would then turn to the east for an estimated one-half mile until rejoining the proposed Project's Segment 4 at MP 17.9. This alternative would be an estimated 3.4 miles in length. Figure 3.9-5 provides the location of this alternative.

Existing land uses within one-half mile of Alternative 3 include agriculture, rural residential and open space/undeveloped. A small (approximately 4.5 acre) motocross or off-road vehicle track is also located within one-half mile to the east of the ROW on Avenue H. The SCAG General Plan land use designation within one-half mile to the east of this alternative is agriculture. SCAG General Plan land use designation data to the west of the ROW was not available for review; however, under the Los Angeles County Antelope Valley Areawide General Plan this side of the ROW is designated Non-Urban (N1), under which agricultural uses are permitted (Los Angeles County Regional Planning Department, 1986). Consequently, it is assumed that within the SCAG General Plan land use designation classification system, areas within one-half mile to the west of the ROW would be designated agriculture. All other land use-related features associated with this alternative are noted in Table 3.9-7.

3.9.2.4 Alternative 4: Chino Hills Route Alternatives

Alternative 4, the Chino Hills Route Alternatives, is located in the South Region and consists of five routing~~our~~ options ~~(Routes A through D)~~. Each of these routes traverses portions of unincorporated Los Angeles and Orange Counties, the cities of Chino Hills and Brea, and Chino Hills State Park. Under all of the Alternative 4 routing options, upgrades to Segment 8B of the proposed Project (Alternative 2) would still be required. Table 3.9-13 provides a summary of the existing and General Plan land use designations for these routes.

Table 3.9-13. Land Uses: Chino Hills Route Alternatives

Route	Miles[1] Traversed By Jurisdiction		Jurisdiction-Specific General Plan Land Use Designations within ½ Mile of the ROW[‡]	Existing Land Uses Within ½ Mile of the ROW
A	1.6 Miles	Los Angeles County	Open Space; Non-Urban	Open Space/Recreation (Firestone Boy Scout Reservation); Electrical Power Facilities
	1.2 Miles	City of Brea	Very Low Density Residential; Low Density Residential; High Density Residential; Recreational Commercial	Open Space/Undeveloped; Open Space/Recreation; Residential; Electrical Power Facilities
	0.9 Mile	Orange County	Open Space; Open Space Reserve	Open Space/Undeveloped; Agriculture (Grazing); Electrical Power Facilities
	0.2 Mile	City of Chino Hills	Agriculture/Ranches; Rural Residential	Open Space/Undeveloped; Agriculture (Grazing); Electrical Power Facilities
	2.3 Miles	Chino Hills State Park[2]	Natural Open Space Zone; Core Habitat Zone	Open Space/Recreation; Electrical Power Facilities

Table 3.9-13. Land Uses: Chino Hills Route Alternatives

Route	Miles[1] Traversed By Jurisdiction		Jurisdiction-Specific General Plan Land Use Designations within ½ Mile of the ROW‡	Existing Land Uses Within ½ Mile of the ROW
B	1.6 Miles	Los Angeles County	Open Space; Non-Urban	Open Space/Recreation (Firestone Boy Scout Reservation); Electrical Power Facilities
	1.2 Miles	City of Brea	Very Low Density Residential; Low Density Residential; High Density Residential; Recreational Commercial	Open Space/Undeveloped; Agriculture (Grazing);Open Space/Recreation; Residential; Electrical Power Facilities
	0.9 Mile	Orange County	Open Space; Open Space Reserve	Open Space/Undeveloped; Agriculture (Grazing); Electrical Power Facilities
	0.3 Mile	City of Chino Hills[2]	Agriculture/Ranches; Rural Residential; Low Density Residential; Public Open Space	Open Space/Undeveloped; Agriculture (Grazing);Electrical Power Facilities
	4.3 Miles	Chino Hills State Park	Natural Open Space Zone; Core Habitat Zone; Historic Zone; Recreation and Operations Zone	Open Space/Recreation; Electrical Power Facilities
C	1.6 Miles	Los Angeles County	Open Space; Non-Urban	Open Space/Recreation (Firestone Boy Scout Reservation); Electrical Power Facilities
	1.2 Miles	City of Brea	Very Low Density Residential; Low Density Residential; High Density Residential; Recreational Commercial	Open Space/Undeveloped; Open Space/Recreation; Agriculture (Grazing); Residential; Electrical Power Facilities
	0.9 Mile	Orange County	Open Space; Open Space Reserve	Open Space/Undeveloped; Agriculture (Grazing); Electrical Power Facilities
	1.7~~2.3~~ Miles	City of Chino Hills[2]	Agriculture/Ranches; Rural Residential	Open Space/Undeveloped; Agriculture (Grazing); Residential; Electrical Power Facilities (to the Chino Hills State Park boundary only)
	3.3 Miles	Chino Hills State Park[3]	Natural Open Space Zone; Core Habitat Zone	Open Space/Recreation; Electrical Power Facilities (new ROW required)
C Mod	1.6 Miles	Los Angeles County	Open Space; Non-Urban	Open Space/Recreation (Firestone Boy Scout Reservation); Electrical Power Facilities
	1.2 Miles	City of Brea	Very Low Density Residential; Low Density Residential; High Density Residential; Recreational Commercial	Open Space/Undeveloped; Open Space/Recreation; Agriculture (Grazing); Residential; Electrical Power Facilities
	0.9 Mile	Orange County	Open Space; Open Space Reserve	Open Space/Undeveloped; Agriculture (Grazing); Electrical Power Facilities
	1.9 Miles	City of Chino Hills[4]	Agriculture/Ranches; Rural Residential	Open Space/Undeveloped; Agriculture (Grazing); Residential; Electrical Power Facilities (to the Chino Hills State Park boundary only)
	3.5	Chino Hills State Park[5]	Natural Open Space Zone; Core Habitat Zone	Open Space/Recreation; Electrical Power Facilities (new ROW required)
D	1.6 Miles	Los Angeles County	Open Space; Non-Urban	Open Space/Recreation (Firestone Boy Scout Reservation); Electrical Power Facilities
	1.2 Miles	City of Brea	Very Low Density Residential; Low Density Residential; High Density Residential; Recreational Commercial	Open Space/Undeveloped; Agriculture (Grazing);Open Space/Recreation; Residential; Electrical Power Facilities
	0.9 Mile	Orange County	Open Space; Open Space Reserve	Open Space/Undeveloped; Agriculture (Grazing); Electrical Power Facilities
	4.0 Miles	City of Chino Hills[2]	Agriculture/Ranches; Rural Residential; Public Open Space; Low Density Residential	Open Space/Undeveloped; Residential; Agriculture (Grazing); Electrical Power Facilities (to the Chino Hills State Park boundary only)
	1.4 Miles	Chino Hills State Park	Natural Open Space Zone; Recreation and Operations Zone	Open Space/Recreation; Electrical Power Facilities (new ROW required)

[1] Mileage estimates are approximate and based upon conceptual routing maps provided in November 2007 and May 2009.
[2] An additional 4 to 12 acres of land would be required for a new switching station.
[3] New ROW for the re-routing of three~~two~~ existing ~~500-kV~~ transmission lines to the new switching station. Re-routes would remove approximately 8.4 miles of existing transmission lines, including two 2.5 mile segments (of the Lugo-Serrano and Mira Loma-Serrano 500-kV transmission lines) and one 3.4 mile segment (of the Mira Loma-Walnut/Mira Loma-Olinda 220-kV transmission lines).
[4] An additional 4 to 5 acres of land would be required for a new gas-insulated switching station.

[5] Re-routes would remove approximately 8.4 miles of existing transmission lines, including two 2.5 mile segments (of the Lugo-Serrano and Mira Loma-Serrano 500-kV transmission lines) and one 3.4 mile segment (of the Mira Loma-Walnut/Mira Loma-Olinda 220-kV transmission line).
‡ Sources: City of Brea, 2003; City of Chino Hills, 2006; Los Angeles County Regional Planning Department, 2008; Orange County, 2005; California Department of Parks and Recreation, 1999.

The closest public airport to Alternative 4 is the Chino Airport, which is located approximately 3.8 miles northeast of the northeast corner of the Chino Hill State Park boundary. Properties under the jurisdiction of the BLM and Department of Defense are located approximately 1.1 to 1.6 miles northeast and east of the Chino Hills State Park's eastern boundary (please refer to Figures 3.9-3i and 3.9-4i of the TRTP Map and Figure Series Volume). ~~A p~~Private property located north ~~east~~ of Chino Hills State Park was~~as~~ previously used for military purposes and contains contaminated materials requiring remediation.

3.9.2.5 Alternative 5: Partial Underground Alternative

Alternative 5 would follow the same route as the proposed Project except that a four-mile portion of Segment 8A between approximately MPs 21.9 and 25.8 would be installed underground. This alternative would occur in the South Region, within the jurisdictional boundaries of the City of Chino Hills. An existing transmission line which currently is not energized along the underground route would remain in place. The primary components of Alternative 5 include: Gas Insulated Line (GIL) system infrastructure; two aboveground transition stations and three ventilation system structures; an underground tunnel; and, vertical access shafts.

Existing land uses and General Plan land use designations along the four-mile route are summarized in Table 3.9-13 and mapped in Figures 3.9-3 and 3.9-4 of the TRTP Map and Figure Series Volume. In addition to the route itself, implementation of Alternative 5 would require two transition stations which would be located at either end of the route; each would be approximately 1.84 acres in size. The Western Transition Station (S8A, MP 21.9) would be located in an area just west of the current terminus of Eucalyptus Avenue. The site is located within the Pine Valley Estates property boundary, and is approximately 0.2 mile west of the Pine Valley Estates development boundary. The Pine Valley Estates development property is approved for a new housing development and is currently under construction. The western portion of the Pine Valley Estates property, within which the station would be located, is currently open space/undeveloped and is designated Agriculture. The Eastern Transition Station (S8A, MP 25.8) would be located approximately one-half mile west of Pipeline Avenue and adjacent to (north of) an existing flood control channel. Although the Eastern Transition Station would be partially situated in an existing ROW, the current 150-foot width of this ROW would not be sufficient to accommodate the required 250-foot width of the transition station. Due to the location of the flood control channel immediately south of the ROW at this location, installation of the Eastern Transition Station would require that the ROW be expanded to the north. Existing land uses immediately north of the ROW include a car wash operation, a retail business, and a parking lot. The site for the Eastern Transition Station is designated General Commercial.

In addition to the transition stations, three aboveground ventilation system structures would be installed along the length of Alternative 5's underground segment. These structures would be located within the existing Segment 8A ROW. Existing land uses and General Plan land use designations along the four-mile route are summarized in Table 3.9-12 and mapped in Figures 3.9-3 and 3.9-4 of the TRTP Map and Figure Series Volume.

3.9.2.6 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Alternative 6 would follow the same route as the proposed Project, as described in Section 3.9.2.2. However, within the ANF those towers that are located within an estimated two and one-half mile radius of eleven helicopter staging areas would be constructed via helicopter. In total, approximately 148~~3~~ new 500-kV towers would be constructed by helicopter, including 92 ~~87~~ towers along Segment 6, and 56 towers along Segment 11. Construction methods along all other ROW segments and at existing and proposed substations would be identical to the proposed Project.

The location of the 13~~eleven~~ helicopter staging areas (or sites) associated with Alternative 6 are provided in Figure 2.6-1 of Chapter 2 (Description of Alternatives) of this EIR/EIS. Four of these sites are identical to the helicopter staging areas that would be used under Alternative 2; these sites include Alternative 6 Sites #7, 8, 9 and 11, which correspond to Alternative 2 sites SCE #6B, 3B, 7 and 8, respectively. The Alternative 6 helicopter staging areas would be an estimated four acres each. They are all located within the ANF; however, one is located within a private in-holding that is east of Segment 11 at MP 3.75 (Site #2). Table 3.9-14 provides a land use summary of the 13~~ten~~ helicopter staging areas.

The majority of the helicopter staging areas would be located on lands that are currently undeveloped; however, two sites (Sites #7 and 10) include either existing and/or abandoned public and special use facilities, ~~and~~ two staging areas (Sites #1 and 2) are located within one-half mile of residential land uses, and one site (Site #12) is a turn-out of the Angeles Forest Highway and may be used for roadway maintenance activities such as the temporary staging of equipment and road materials. The staging areas are located within the following Places: Soledad Front Country (Sites #1, ~~and~~ 3 and 12); Angeles Uplands (West) (Sites #4, 5, 6, 7 and 10); Angeles High County (Sites #4 and 13); Big Tujunga Canyon (Site #8); and, The Front Country (Site #11). Site #9 is located along the boundary between the Angeles Uplands (West) and The Front Country. The private in-holding staging area (Site #2) is surrounded by the Soledad Front Country.

Nine~~Seven~~ of the staging areas would be located within lands having an ANF zoning of Back Country (see Table 3.9-14), one site is zoned Developed Area Interface (Site #8), and two sites are zoned Back Country Motorized Use Restricted (Sites #4 and 11). Additionally, one site (Site #6) is immediately adjacent to lands zoned Critical Biological (Upper Big Tujunga). The private in-holding site (Site #2) is located adjacent to ANF lands zoned Back Country Motorized Use Restricted; it has a County of Los Angeles General Plan land use designation of Open Not Developable. Sites #1 and 3 are also located within lands having an ANF Special Designation Overlay (the Aliso-Arrastre Middle Special Interest Area), and Site #2 is surrounded by the Aliso-Arrastre Middle Special Interest Area. Figure 3.9-2 at the end of Section 3.9 provides a map of these land use zones and Places within the ANF.

3.9.2.7 Alternative 7: 66-kV Subtransmission Alternative

Alternative 7 would be identical to the proposed Project in the North and Central Regions. However, in the South Region, Alternative 7 would differ from the proposed Project in three aspects, as follows:

- Duck Farm 66-kV Underground Re-Route: At Valley Boulevard (approximately S7, MP 8.8), the existing Rio Hondo-Amador-Jose-Mesa 66-kV subtransmission line, which, under the proposed Project would run parallel to Segment 7, would be placed underground for an estimated 6,000 linear feet (approximately 1.1 miles) to the south to approximately S7 MP 9.9. The line would then transition back above ground; the placement of the undergrounded section would be along the western edge of SCE's existing ROW.

Table 3.9-14. Land Uses: Alternative 6 Helicopter Staging Areas

Segment	Site Number	Approximate Site Location	Existing Land Uses of Site	Existing Land Uses Within ½ Mile of Site	ANF Zoning and Places of Site	ANF Special Designation Overlays of Site
6	1	• West of Angeles Forest Highway at the intersection with Mt. Emma Road; approx. 0.1 mile east of MP 3.0	Open Space/Undeveloped	Residential, Agriculture, Open Space/Undeveloped (Including Recreational Facilities), Electrical Power Facilities	• Back Country • Soledad Front Country	• Aliso-Arrastre Middle Special Interest Area
	5	• Near Forest Road 4N18; approx. 0.1 mile west of MP 9.75	Open Space/Undeveloped	Open Space/Undeveloped (Including Recreational Facilities), Electrical Power Facilities	• Back Country • Angeles Uplands (West)	• None; adjacent to Designated Utility Corridor
	6	• Adjacent and west of Upper Big Tujunga Canyon Road; approx. 0.25 to 0.30 mile west of MP 14.0	Open Space/Undeveloped	Open Space/Undeveloped (Including Recreational Facilities), Electrical Power Facilities	• Back Country; immediately adjacent to [east of] Critical Biological (Upper Big Tujunga) • Angeles Uplands (West)	• None
~~7~~	7	• Approx. 1.8 miles west of MP 16.75	Public and Special Use Facilities (Existing and Abandoned)	Open Space/Undeveloped (Including Recreational Facilities)	• Back Country • Angeles Uplands (West)	• None
	11	• Approx. 0.35 mile west of MP 26	Open Space/Undeveloped	Open Space/Undeveloped (Including Recreational Facilities)	• Back Country Motorized Use Restricted • The Front Country	• None
	12	• Approx. 0.33 mile east of MP 6.7	Transportation-Communications-Utilities (Turn-out of Angeles Forest Highway)	Open Space/Undeveloped (Including Recreational Facilities), Public and Special Use Facilities	• Back Country • Soledad Front Country	• None
	13	• Approx. 0.36 mile southeast of MP 7.4	Open Space/Undeveloped	Open Space/Undeveloped (Including Recreational Facilities), Public and Special Use Facilities	• Back Country • Angeles High Country	• None
11	2	• South of Aliso Canyon Road; immediately east of MP 3.75	Open Space/Undeveloped	Residential, Agriculture, Open Space/Undeveloped (Including Recreational Facilities), Electrical Power Facilities	• Private In-Holding; surrounded by Back Country Motorized Use Restricted and Soledad Front Country • Los Angeles County General Plan Land Use Designation: Open Not Developable	• None; surrounded by Aliso-Arrastre Middle Special Interest Area and adjacent to Designated Utility Corridor
	4	• Approx. 1.6 miles west of MP 8.0	Open Space/Undeveloped	Open Space/Undeveloped (Including Recreational Facilities)	• Back Country Motorized Use Restricted • Angeles Uplands (West)	• None

Table 3.9-14. Land Uses: Alternative 6 Helicopter Staging Areas

Segment	Site Number	Approximate Site Location	Existing Land Uses of Site	Existing Land Uses Within ½ Mile of Site	ANF Zoning and Places of Site	ANF Special Designation Overlays of Site
	8	• Approx. 0.15 mile west/southwest of Big Tujunga Canyon Road and MP 14.5	Open Space/Undeveloped	Open Space/Undeveloped (Including Recreational Facilities), Electrical Power Facilities	• Developed Area Interface • Big Tujunga Canyon	• None
	9	• Approx. 0.1 mile west of S11 MP 19.5	Open Space/Undeveloped	Open Space/Undeveloped (Including Recreational Facilities), Electrical Power Facilities	• Back Country • Boundary between Angeles Uplands (West) and The Front Country	• None
	10	• North of intersection of Lower Big Tujunga Canyon Road and the Angeles Forest Highway; approx. 0.8 mile east/northeast of MP 13.5	Public and Special Use Facilities (Abandoned)	Open Space/Undeveloped (Including Recreational Facilities)	• Back Country • Angeles Uplands (West)	• None
Between 6 and 11	3	• South of Aliso Canyon Road and east of Price Ranch Road; approx. 1.6 miles east of S11 MP 4.2 and 0.85 mile west of S6 MP 4.5	Open Space/Undeveloped	Open Space/Undeveloped (Including Recreational Facilities)	• Back County • Soledad Front Country	• Aliso-Arrastre Middle Special Interest Area

- Whittier Narrows 66-kV Underground Re-Route: At Peck Road (approximately S7, MP 11.4), the existing Jose-Mesa 66-kV subtransmission line, which, under the proposed Project would also parallel Segment 7, would be re-routed and undergrounded in a new ROW for an estimated 3,300 linear feet between approximately S7 MPs 11.4 and 12.025.
- Whittier Narrows 66-kV Overhead Re-Route: At the intersection of North Lincoln Avenue and ~~-~~San Gabriel Boulevard, ~~Junction,~~ located approximately 0.35 mile southeast of Segment 7, MP 13.8 ~~at Segment 8A, MP 2.2,~~ the existing Mesa-Narrows 66-kV and Walnut-Hillgen-Industry-Mesa-Reno 66-kV subtransmission lines would be re-routed from their existing ROWs. Under Option 1 ~~this alternative~~ they would proceed southeast ~~for an estimated 2,580 feet~~ along San Gabriel Boulevard/Durfee Avenue, and then run southeast along Siphon Road for approximately 2,100 feet to the San Gabriel River. The lines would then cross the San Gabriel River and tie back into the existing overhead 66-kV lines located at approximately MP 3.8 of Segment 8A. From the San Gabriel River crossing to Segment 8A ~~P~~MP 3.8 an estimated 1,200 linear feet of new ROW would be needed. Under Option 2, from the same starting point as Option 1, the subtransmission lines would run west along the north side of Durfee Avenue and then re-enter an existing 220-kV ROW at approximately Segment 8A, MP 3.2. The 66-kV lines would then continue southeast along the south side of the existing 220-kV ROW up to the east side of the San Gabriel River (Segment 8A, MP 3.8). A 20-foot expansion of the existing ROW between Segment 8A MP 3.2 and 3.8 would be required. For both options, ~~These two re-routes~~the subtransmission lines would be above ground.

The jurisdictions, existing land uses, General Plan land use designations and proposed and existing SEAs within one-half mile of the Duck Farm 66-kV Underground Re-Route would be identical to Segment 7 for MPs 8.8 through 9.9, as provided in Table 3.9-12 and Figures 3.9-3h and 3.9-4h of the TRTP Map and Figure Series Volume.

Existing land uses in or within one-half mile of the Whittier Narrows 66-kV Underground Re-Route include: residential; commercial and services; educational facilities; industrial; transportation-communications-utilities; electrical power facilities; open space/recreation; agriculture; open space/ undeveloped; and, water (SCAG, 2007; Google Earth, 2008). This underground re-route would fall in or within one-half mile of unincorporated areas of Los Angeles County and the City of South El Monte. General Plan land use designations in or within one-half mile of this re-route for the County of Los Angeles include Open Space - Parks and Recreation and Open Space - Water (Los Angeles County Regional Planning Department, 2008a). General Plan land use designations within the City of El Monte that would fall in or within one-half mile of the re-route include: Mixed Use; Parks; Commercial Manufacturing; Low Density Residential; and, Commercial (City of El Monte, 2006). This re-route would additionally traverse an estimated 0.64 mile of ROW falling under the jurisdiction of the U.S. Army Corps of Engineers between Peck Road and Durfee Avenue (Segment 7 MP 12). The proposed Puente Hills SEA and existing Whittier Narrows Dam County Recreation Area SEA are crossed by this re-route as well.

Existing land uses in or within one-half mile of both ~~the~~ Whittier Narrows 66-kV Overhead Re-Route options (Options 1 and 2) include: residential; commercial and services; industrial; transportation-communications-utilities; electrical power facilities; open space/recreation; agriculture; open space/undeveloped; and, water (SCAG, 2007; Google Earth, 2008). The jurisdictions crossed by, or within one-half mile of these~~is~~ re-route options include unincorporated areas of Los Angeles County, the City of Montebello and the City of Industry; it would also fall within the City of Pico Rivera's Sphere of Influence (Planning Network, 1993). The County of Los Angeles' General Plan land use designations in or within one-half mile of these~~is~~ re-route options include: Transportation Corridor; Suburban High Density Residential; Light Industrial; Open Space - Parks and Recreation; Open Space – Mineral Resources; and, Open Space – Water (Los Angeles County Regional Planning Department, 2008a).Within the City of Montebello, the General Plan land use designations in or within one-half mile of ~~the re-~~

~~route~~Options 1 and 2 –include: General Commercial; Parks, Recreation, Open Space; Residential Low Density; Residential Medium Density; Residential High Density; and Residential Very High Density (Koebig & Koebig, Inc., 1990). The City of Industry's General Plan land use designations that fall within one-half mile of the re-route options include Industrial and Recreation and Open Space (Gruen Associates, et. al., 1971). These~~is~~ re-route options would additionally traverse an estimated 0.86 mile of ROW falling under the jurisdiction of the U.S. Army Corps of Engineers from Lincoln Avenue to Siphon Road and across the San Gabriel River. These~~is~~ re-route options also cross~~es~~ the proposed Puente Hills SEA and existing Whittier Narrows Dam County Recreation Area SEA.

3.9.3 Applicable Laws, Regulations, and Standards

This discussion of applicable regulations, plans, and standards addresses land use, except for those regulations, plans and standards associated with wilderness and recreation and agriculture. Please refer to Sections 3.2 (Agricultural Resources) and 3.15 (Wilderness and Recreation) for the regulations, plans, and standards associated with these subject areas. Additionally, please refer to Section 3.4 (Biological Resources) for the applicable laws, regulations and standards associated with existing and proposed SEAs, HCPs and NCCPs.

The proposed Project and alternatives would traverse or fall within one-half mile of federal, State, and local jurisdictions. The following discussion provides a summary of these jurisdictions and their associated laws, regulations and standards.

3.9.3.1 Federal

As outlined in Section 3.9.2, the proposed Project and its alternatives would traverse the ANF, which is under the jurisdiction of the Forest Service. Additionally, the proposed Project and its alternatives would come in close proximity (within one-half mile) of lands or uses under the jurisdiction of the BLM, and the US Department of Defense (DoD). Additionally, due to the proximity of several airports within the vicinity of the proposed Project and its alternatives, some regulations falling under the authority and administration of the Federal Aviation Administration (FAA) apply as well. The following section outlines the applicable regulations, plans and standards of these federal agencies.

Forest Service Manual

The Forest Service Manual Section 2700 (Special Uses Management) provides direction for the administration of special-use authorizations (SUAs) on NFS lands (Forest Service, 1997). As described in Section 2703.2, the Forest Service is instructed to deny a written request for the use of NFS lands according to the following criteria:

- The proposal is inconsistent with Forest land and resource management plans;
- The proposal is in conflict with other Forest management objectives, or applicable federal statutes and regulations; or
- The proposal can be reasonably accommodated on non-NFS lands, provided however, that First Amendment group uses (freedom of assembly and worship) may not be denied on this basis.

The Forest Service may not authorize the use of NFS lands just because it affords the applicant a lower cost and less restrictive location when compared with non-NFS lands (Forest Service, 1997).

However, additional guidance regarding the management of special uses such as transmission lines across NFS lands has been provided in the Forest Service Manual Region 5 Supplement No. 2700-92-8 (Forest

Service, 1992). As stated in Section 2726.43 of the supplement, the objectives for the management of transmission lines include the following:

- To eliminate or mitigate long-term conflicts between powerlines and the management of NFS lands and resources; and
- To eliminate identified fire and safety hazards.

According to the direction provided in Section 2726.43 for the construction of transmission lines over 35 kV, aerial construction of transmission line structures (as opposed to underground construction) may be authorized, except in those areas where the environmental analysis clearly indicates unacceptable effects on NFS resource and environmental values (Forest Service, 1992). This supplement recognizes that construction costs and operational problems increase substantially for underground construction of transmission lines over 35 kV, and states that the authorizing officer would consider undergrounding only after a thorough assessment of the situation (Forest Service, 1992).

Angeles National Forest Land Management Plan (2005)

The 2005 Angeles National Forest Land Management Plan (Forest Plan) consists of three parts that examine the vision, strategy, and design criteria for the ANF. Part 1 of the Forest Plan provides a "vision" of the ANF as serving as an open space, visual backdrop, recreation destination, and natural environment for a diverse urban population. Part 1 additionally includes a discussion of forest goals and desired conditions for resources, which are linked to the Forest Service National Strategic Plan. The following is a list of goals that pertain to development of the proposed Project across NFS.

National Strategic Plan Goal 4 – Help meet energy resource needs. Consider opportunities for energy development and the supporting infrastructure on forests and grasslands to help meet the nation's energy needs:

- Work with other agencies to identify and designate corridors for energy facilities, improve permit application processing efficiency, and establish appropriate land tenure (including transferability clauses) in easements and other authorizations to provide for long-term project viability.

Forest Goal 4.1b. Administer Renewable Energy Resource developments while protecting ecosystem health.

Forest Goal 7.1. Retain natural areas as a core for a regional network while focusing the built environment into the minimum land area needed to support growing public needs.

Part 2 of the Forest Plan includes the ANF program emphasis and objectives and strategic management direction, which allows the Forest Service to make progress towards its vision as presented in Part 1 of the Forest Plan. Within the strategic management direction, land use zones are designated to show allowable uses and opportunities. Table 3.9-4 summarizes the land use zones within the ANF, and Table 3.9-10 identifies the approximate acreage of each of the land use zones that would be traversed by, or are within one-half mile of the proposed Project and its alternatives.

Part 2 of the Forest Plan additionally contains a suite of special designation overlays to the primary land use zones outlined in Table 3.9-4. Suitable uses established by the land use zones are generally suitable with these overlays unless specifically excluded. When differences between the suitable uses of the land use zones and special designation overlays occur, the more restrictive set of allowable uses apply. Table 3.9-5 summarizes the special designation overlays within the ANF, and Table 3.9-10 identifies the approximate acreage of each special designation overlay areas that would be crossed by, or within one-half mile of the proposed Project and its alternatives.

Part 2 of the Forest Plan also subdivides the ANF into geographical "Places," for which the desired condition and the program emphasis is described for each. Table 3.9-9 provides a summary of the Places that would be traversed by, or within one-half mile of the proposed Project and its alternatives, and Table 3.9-10 identifies the approximate acreage of each Places that would fall within one-half mile of the proposed Project and its alternatives.

Part 2 of the Forest Plan notes the program emphasis and objectives for non-recreation special uses is to manage infrastructure needs to support communities while preserving open space and natural settings. Special uses are authorized only when they cannot be reasonably accommodated on non-NFS lands. Maintaining open space is given priority over accommodating urban needs (Forest Service, 2005a).

Part 2 describes the prospectus (trends and expectations, as well as anticipated resource improvements planned over the next three to five years). The program emphasis and objectives for non-recreation special uses is to manage infrastructure needs to support communities while preserving open space and natural settings. Special uses are authorized only when they cannot be reasonably accommodated on non-NFS lands. Maintaining open space is given priority over accommodating urban needs.

Part 2, Appendix B, of the Forest Plan includes a list of program strategies that the ANF may choose to emphasize to make progress towards achieving the desired conditions and goals of the Forest Plan. The following is a summary of the tactics of the program strategy related to land use and Special Use Authorizations (SUAs) as related to the proposed Project and its alternatives.

Lands 2-Non-Recreation Special-Use Authorizations. Optimize utilization of encumbered NFS land and efficiently administer (SUAs):

- Work with SUA holders to better administer NFS land and reduce administrative cost.
- Require SUAs to maximize opportunities to co-locate facilities and minimize encumbrance of NFS land.

Part 3 of the Forest Plan provides the management and design criteria that the Forest Service is directed to implement to achieve the vision of the ANF, as outlined in Part 1 of the Forest Plan. It includes management standards for: vegetation; aesthetics; fish and wildlife; soil, water, riparian and heritage resources; wild and scenic rivers; cultural and historic resources; geographic Places; other design criteria; and, monitoring.

Federal Aviation Administration, Federal Aviation Regulation Title 14, Part 77

The FAA issues and enforces regulations related to air traffic control and the assignment and use of airspace. The FAA's regulations are found in the Federal Aviation Regulations (FAR). FAR Title 14, Part 77, establishes the standards for determining obstructions in navigable airspace, including height limitations on structures taller than 200 feet or within 20,000 feet (approximately 3.8 miles) of an airport. As outlined in Section 3.9.2, the proposed Project and its alternatives are located near several airports, and would have to comply with the safety requirements established by Title 14 Part 77, as applicable.

The standards and notification requirements of FAR Title 14 Part 77 are intended to: 1) evaluate the effect of the construction or alteration of structures on airport operating procedures; 2) determine if the construction or alteration would result in a potential hazard to air navigation; and, 3) identify measures to enhance safety. The FAA requires notification through the filing of FAA Form 7460-1, Notice of Proposed Construction or Alteration, and Form 117–1, Notice of Progress of Construction or Alteration, if any of the following criteria are met due to implementation of a proposed action (Title 14 Part 77.13) (Federal Aviation Administration, 2007):

- Any construction or alteration [of a structure or object] of more than 200 feet in height above the ground level at its site
- Any construction or alteration [of a structure or object] of greater height than an imaginary surface extending outward and upward at one of the following slopes:
  - 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport with at least one runway more than 3,200 feet in actual length, excluding heliports
  - 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport specified with its longest runway no more than 3,200 feet in actual length, excluding heliports
  - 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport
- Any proposed highway, railroad, or other traverse way for mobile objects, with a height which would exceed the standards of Part 77.13 (a) (1). (2) or (3)
- When requested by the FAA, any construction or alteration [of a structure or object] that would be in an instrument approach area (defined in the FAA standards governing instrument approach procedures) and available information indicates it might exceed a standard of subpart C of this Part [Part 77]
- Any construction or alteration of a structure or object located on a public use airport or heliport that meets the criteria of Part 77.13 (a) (5)

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

The US Department of the Interior, Bureau of Land Management (BLM) is responsible for the management, administration and conservation of over 40 percent of all public lands which are managed by the Federal government. The functions of the BLM are principally outlined in the Federal Land Policy and Management Act (FLPMA) of 1976, as amended (BLM, 2007). The FLPMA directs the BLM to manage and administer public lands on a multiple-use basis, and requires its development and maintenance of, and, when appropriate, revision to, land use and resource management plans (BLM, 2007). The proposed Project and its alternatives fall within the BLM's California District, including areas managed by the Ridgecrest Field Office (Kern County) and the Barstow Field Office (Los Angeles and San Bernardino Counties) (BLM, 2007). Segment 5 (between MP 11.8 and 13.2 and MP13.7 through 13.9) and the Vincent Substation are both within one-half mile of lands managed by the BLM. All of the North Region, and MPs 0.0 through 1.4 of Segment 6 and MPs 0.0 through 1.5 of Segment 11 (in the Central Region) fall within the boundaries of the BLM's West Mojave Desert Plan; however, the West Mojave Desert Plan only applies to lands falling under the BLM's jurisdiction. Additionally, the northeastern-most elements of Alternative 4 (the Chino Hills Route Alternative) are located approximately 1.1 miles southwest of a property falling under the jurisdiction of the BLM. The proposed Project and its alternatives do not directly traverse lands under the jurisdiction of the BLM; consequently, no conflicts with the BLM's land management plans or the FLPMA would occur.

U.S. Department of Defense

There are a number of federal and State laws mandating the development of environmental plans, including land and resource management plans, for military installations (US Department of Defense, 2007). The US Department of Defense (DoD) provides supplemental guidance to these laws at a component-specific level (e.g., the US Air Force, US Army, etc.). In most instances, each DoD component establishes additional compliance guidance to promote uniformity; each component may also obligate its respective installations to prepare additional environmental plans and documents, depending on the nature of its specified mission (DoD, 2007). The proposed Project and its alternatives traverse DoD lands in the South Region between MPs 15.2 and 15.5 of Segment 8A; however, this crossing is located

within an existing SCE easement and no widening of the easement is proposed. Per land use field reconnaissance conducted on December 20, 2008, no access to this property was identified, and no signs indicating its past or current use were posted.

Within the South Region, facilities under the jurisdiction of the DoD are also located approximately 5.8 miles south of the Mira Loma Substation (the Naval Warfare Assessment Station). Additionally, DoD properties are located approximately 1.1 to 1.6 miles northeast and east of the Alternative 4 (the Chino Hills Route Alternatives), as indicated on Sheet 9 of 9 of Figures A-1 and A-2. In the North Region, the proposed Project and its alternatives are located approximately 10 to 16 miles west of Edwards Air Force Base, as outlined in Table 3.9-7, and the Air Force Plant 42 facility, a shared military installation, is located approximately 8.5 miles east of proposed Segment 5 at MP 5.0. Due to the existing SCE easement associated with Segment 8A, and the distance between the proposed Project and its alternatives from the remaining DoD properties, no conflicts with existing land management plans and operations would be anticipated.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) is responsible for the planning, design, construction and operation of water resources and other civil works projects, the design and construction management of military facilities for the U.S. Army and U.S. Air Force, and providing design and construction management support for other U.S. defense departments and federal agencies (USACE, 2008). The Corps' Los Angeles District encompasses 226,000 square miles in four states, protects 420 miles of Southern California, and supports nine military bases (USACE, 2008). Within the proposed Project area, the USACE holds jurisdiction over all "navigable waters of the United States," as well as several flood control basins and dams and associated infrastructure. These flood control facilities include the Santa Fe Flood Control Basin, located along Segment 7 between approximately MP 2.7 and MP 4.4, the Whittier Narrows Flood Control Dam and Basin, located along both Segment 7 between approximately MP 11.4 and MP 13.7 and Segment 8A between approximately MP 3.2 and MP 4.2. USACE lands are also traversed for an estimated 0.2 mile near the Rio Hondo Substation, located along Segment 7 near MP 4.8.

Due to the USACE jurisdictional proximity to Segments 7 and 8A, on November 5, 2008 the Forest Service transmitted a letter the USACE requesting the USACE state their desired level of participation under NEPA. On November 25, 2008 the USACE responded to the Forest Service, and requested to participate in the NEPA environmental review process as a Cooperating Agency.

3.9.3.2 State

California Public Utilities Commission (CPUC)

Pursuant to Article XII of the Constitution of the State of California, the CPUC is charged with the regulation of investor-owned public utilities. The CPUC's General Order (GO) Number 131-D, Section XIV B states that: "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's [CPUC's] jurisdiction. However in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Under GO Number 131-D, no local discretionary permits (e.g., land use permits) for the proposed Project or its alternatives would be required because the CPUC has preemptive jurisdiction over public utilities in California and the Forest Service has jurisdiction over NFS lands. However, SCE would still be required to obtain all ministerial building and encroachment permits from local (County and incorporated cities) jurisdictions, and the

CPUC will ensure that the Project complies with local regulations to the greatest degree feasible to minimize project conflicts with local conditions, in accordance with GO Number 131-D.

California State Lands Commission (CSLC)

Public lands under the CSLC's jurisdiction include sovereign and school lands. Sovereign lands include the beds of California's naturally navigable rivers, lakes and streams, and the State's tide and submerged lands along the coast. School lands are located throughout the State and were originally granted to California by Congress in 1853 to benefit public education. Under the CSLC, the State retains surface and mineral ownership of approximately 469,000 acres of school lands, and retains the mineral rights to an additional 790,000 acres (CSLC, 2007). The CSLC's Land Management Division has primary responsibility for the surface management of all sovereign and school lands in the State, including their leasing and management. Pursuant to the California Code of Regulations, Title 2, Division 3, Chapter 1, Article 2, public and private entities may apply for leases or permits on public lands for a variety of uses, including rights-of-way. The proposed Project ROW and its alternatives do not traverse public lands falling under the jurisdiction of the CSLC. However, the proposed Project ROW is located within one-half mile of the CSLC lands between MP 9.4 and MP 10.2 of Segment 10.

California Department of Parks and Recreation

The California Department of Parks and Recreation manages 280 units throughout the State. Units are classified by statute and can include, but are not limited to, State Parks, State Recreation Areas, State Vehicular Recreation Areas, State Reserves and State Historic Parks. Units of the State Parks system can also include sub-units, such as State Wilderness, Cultural Preserves and Natural Preserves. For the purposes of lands managed by California State Parks, the State is divided into 19 Districts. The Land Use Study Area passes through the Tehachapi District, Angeles District, and Inland Empire District. The proposed Project does not traverse lands under the jurisdiction of the California Department of Parks and Recreation. However, a portion of the existing Antelope Valley California Poppy Reserve, which is under the jurisdiction of California Department of Parks and Recreation and within its Tehachapi District, is located within one-half mile of proposed Segment 4 at MP 12.9.

All routes associated with Alternative 4 (the Chino Hills Route Alternative) would affect lands within Chino Hills State Park (Park or CHSP). The CHSP General Plan (General Plan) was adopted in February 1999 (California Department of Parks and Recreation, 1999). The General Plan identifies four management zones, including the Core Habitat Zone, Natural Open Space Zone, Historic Zone, and Recreation and Operations Zone. The General Plan additionally provides a management zone matrix, which includes the primary goal, resource management activities, carrying capacity, typical visitor activity, public access and range of appropriate facilities for each zone (California Department of Park and Recreation, 1999). Within this matrix, patrol and utility company vehicles and motorized equipment is permitted on designated Park roads and trails within the Core Habitat and Natural Open Space Zones, and vehicles and motorized equipment are allowed on designated Park roads and trails in the Recreation and Operations Zone. Within the General Plan, the series of existing transmission line easements (and associated access roads) which traverse the Park, including those associated with Alternative 4, are noted as being prominent negative visual features which detract from the experience of the Park's visitors; additionally, the General Plan notes that these utility features are of public concern. The General Plan also notes that SCE personnel use several dirt roads in the Park to access gas pipelines and electric transmission lines, and that the maintenance activities, uses, and planning efforts of the California

Department of Parks and Recreation that affect safe access to SCE's facilities are a concern of SCE (California Department of Parks and Recreation, 1999).

3.9.3.3 Local

As noted in Section 3.9.3.2, the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities in the State of California. Therefore, no local discretionary land use permits or local plan consistency evaluations are required. However, local land use plans are evaluated in the Policy Screening Report (Aspen Environmental Group, 2008) to assist the CPUC and Forest Service in determining whether the proposed Project and its alternatives would be consistent with locally adopted land use plans, goals, and policies. The following sections list the local land use plans applicable to jurisdictions traversed or within one-half mile of the proposed Project and its alternatives. Figures 3.9-3 and 3.9-4 of the TRTP Map and Figure Series Volume provide the various jurisdictional boundaries associated with the proposed Project's ROWs.

General Plans

The proposed Project and alternative ROWs would traverse, or come within one-half mile, of the boundaries of numerous cities and counties. As stipulated by California Government Code Section 65300 *et seq.*, cities and counties are required to develop and adopt General Plans to guide local decision-making related to existing and future land use, growth, and other local infrastructure, such as circulation systems, public open space, and other public facilities. In addition to General Plans, the State requires cities and counties to adopt local zoning ordinances (Government Code Section 65800 *et seq.*) to implement their adopted General Plan through development standards and regulations. Pursuant to General Order 131-D, as addressed in Section 3.9.3.2, SCE would be required to obtain all ministerial building and encroachment permits from local jurisdictions, which would inherently require compliance with, or issuance of a variance for deviation from, all applicable local zoning ordinances. Therefore, local zoning ordinances are not addressed further in this discussion. For the purposes of this land use analysis, the following city and county-based General Plans were considered:

- Kern County
- Los Angeles County
- San Bernardino County
- Orange County
- City of Arcadia
- City of Azusa
- City of Baldwin Park
- City of Bradbury
- City of Brea
- City of Chino
- City of Chino Hills
- City of Diamond Bar
- City of Duarte
- City of El Monte
- City of Industry
- City of Irwindale
- City of La Canada Flintridge
- City of La Habra Heights
- City of Lancaster
- City of Monrovia
- City of Montebello
- City of Monterey Park
- City of Ontario
- City of Palmdale
- City of Pasadena
- City of Pico Rivera
- City of Rosemead
- City of San Gabriel
- City of San Marino
- City of South El Monte
- City of Temple City
- City of Whittier

Airport Land Use Plans

In 1967 the California State Legislature authorized the creation of Airport Land Use Commissions (ALUC) to protect the "public health, safety, and welfare by encouraging orderly expansion of airports and the adoption of land use measures that minimize exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses" (California Department of Transportation, 2007). The law requires each County's ALUC to prepare an Airport Land Use Compatibility Plan (ALUCP) with a 20-year planning horizon. The law additionally provides for several alternative processes to the establishment of ALUC's for the adoption of ALUCPs,

one of which calls for local agency (i.e., a county and the cities within it which are affected by operation of an airport) development and adoption of an ALUCP. Under either the ALUC process or one of its alternatives, the primary focus of an ALUCP is on noise and safety as related to land use and land use compatibility. In addition, ALUCs (or their alternative local decision making bodies) make compatibility determinations for compliance of all proposed development around an airport (California Department of Transportation, 2007).

Kern County. The Kern County ALUCP has been developed and adopted at a local level, including Kern County and the incorporated cities of Bakersfield, California City, Delano, Shafter, Taft, Tehachapi and Wasco (Kern County, 1996). The geographic scope for the compatibility review policies and supporting compatibility review criteria contained in the ALCUP apply to the following airports:

- Bakersfield Municipal Airport
- California City Airport
- Delano Municipal Airport
- Elk Hills – Buttonwillow Airport
- Inyokern Airport
- Kern Valley Airport
- Lost Hills Airport
- Meadows Field
- Mojave Airport
- Mountain Valley Airport
- Poso-Kern Airport
- Rosamond Skypark
- Shafter Airport-Minter Field
- Taft-Kern County Airport
- Tehachapi Airport
- Wasco-Kern County Airport

In addition to the above, the ALUCP addresses military aviation operations associated with Edwards Air Force Base, the China Lake Naval Aviation Weapons Station, and the Joint Service Restricted Airspace R-2508 Complex (Kern County, 1996). The ALUCP defines a suite of six influence zones surrounding each airport that relate to the noise and safety risks associated with the types of operations that occur within them. The land use compatibility criteria for each of these influence zones is identified, including prohibited uses, normally acceptable and normally not acceptable uses, and the development conditions (such as the of aviation easements) for proposed development (Kern County, 1996). For each airport addressed in the ACLUP, information related to its specific operations and features is provided, including noise contour maps and maps depicting its influence zones. The proposed Project and its alternatives do not fall within the compatibility zones of any of the airports addressed in the ALUCP; of the applicable airports, the proposed and alternative ROWs are six miles southwest of the Mojave Airport, eight miles southeast of the Fantasy Haven Airport, nine miles west of the Rosamond Airport, and eleven miles west of Edwards Air Force Base. Therefore, implementation of the proposed Project or one of its alternatives would not be anticipated to conflicts with the Kern County ALUCP.

Los Angeles County. Pursuant to Section 21670.2 of the California Public Utilities Code (Chapter 4, Article 3.5), the Los Angeles County Regional Planning Commission has the responsibility for coordinating airport planning of public agencies and adopting an ALUCP (California Environmental Resources Evaluation System, 2007). In December 1991, abbreviated land use compatibility plans for 15 public-use and joint-use airports located in Los Angeles County were adopted. However, realizing the need for a more comprehensive set of airport land use compatibility policies, in 2002 a process to update these plans over a period of several years, subject to funding availability, was initiated (Los Angeles County Regional Planning Commission, 2007). In order to maintain as much consistency as practical among the various plans as they are updated, the update process calls for formatting the compatibility plan for each airport in two documents. The first document, the *Los Angeles County Airport Land Use Commission Review Procedures*, sets forth the review procedures and other policies that are generally applicable to all of the airports in Los Angeles County. This document was completed and adopted in

December 2004 (Los Angeles County Regional Planning Commission, 2007). The second document, as completed, will be specific to each of the 15 public-use and joint-use airports, including:

- Agua Dulce Skypark
- Brackett Field (La Verne)
- Burbank Airport
- Catalina Airport-in-the-Sky
- Compton Airport
- El Monte Airport
- General William J. Fox Airfield (Lancaster)
- Hawthorne Airport
- Los Angeles International Airport
- Long Beach Municipal Airport
- Palmdale Regional Airport
- Santa Monica Municipal Airport
- Torrance Municipal Airport
- Van Nuys Airport
- Whiteman Airport (Pacoima)

The preparation and adoption schedule for each of these airport-specific documents will vary; however, each document will contain all of the applicable land use policies and compatibility criteria contained within the *Los Angeles County Airport Land Use Commission Review Procedures*.

San Bernardino County. As with Kern County, San Bernardino County develops and adopts ALUCPs at a local jurisdictional level (i.e., under an alternative process) which is determined by the location and ownership of each airport; the former San Bernardino County ALUC was decommissioned in either 1993 or 1994 (Squire, 2007). Within San Bernardino County, there are two public-use airports potentially affected by the proposed Project and its alternatives, including the Chino Airport and the Los Angeles/Ontario International Airport.

Chino Airport. The Chino Airport's ALUCP was adopted by the former San Bernardino County ALUC in 1991, and no amendments to it have been made since its adoption (Squire, 2007). The airport is owned by San Bernardino County, but is within the jurisdictional boundaries of the City of Chino. Therefore, any future amendments to this ALCUP will be adopted by the City of Chino, with input from other affected jurisdictions. The adopted ALUCP addresses the airport's existing (as of 1991) and future operations, and identifies designated areas ("referral areas') consisting of various noise, safety and height restriction attributes; a broader referral area for Riverside County is also identified (San Bernardino County Airport Land Use Commission, 1991). Noise, safety (for both aviation hazards and land use and population), as well as other potential impacts are subsequently assessed. Based on these assessments, the ALUCP contains a suite of findings and recommendations of each referral area (San Bernardino County Airport Land Use Commission, 1991).

Los Angeles/Ontario International Airport. The Los Angeles/Ontario International Airport (formerly referred to as Ontario International Airport) is owned and operated by Los Angeles World Airports (LAWA). The airport does not currently have an adopted ALUCP (Schoetzow, 2007; Mejia, 2007). However, the City of Ontario Planning Department is responsible for preparation of the ALUCP and any amendments to it, in consultation with other affected agencies such as LAWA, San Bernardino County, the California Department of Transportation (Caltrans), and the FAA (Schoetzow, 2007; Mejia, 2007). The City of Ontario's Planning Department is currently in the preliminary phases of the ALUCP's development, and anticipates preparation of the draft document in 2008; once finalized, the City of Ontario's City Council will be responsible for its adoption, as well as any amendments to it (Mejia, 2007).

3.9.4 Impact Analysis Approach

3.9.4.1 Criteria for Determining Impact Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that would result from the proposed Project and alternatives. Appropriate criteria have been identified and utilized to make these significance conclusions. The following significance criteria for Land Use were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). Impacts of the proposed Project or alternatives would be considered significant and would require mitigation if:

- Criterion LU1: Preclude a permitted land use, or create a disturbance that would diminish the function of a particular land use.
- Criterion LU2: Conflict with any applicable federal, State or local land use plans, goals, or policies.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.9.4.2 Applicant-Proposed Measures (APMs)

The land use and planning analysis provided in the Proponent's Environmental Assessment (PEA) concludes that implementation of the proposed Project would not result in any potentially significant impacts which would require mitigation (SCE, 2007a). Therefore, no Applicant-Proposed Measures (APMs) for land use and planning are considered part of the proposed Project or factored into the impact analyses presented in this section.

3.9.4.3 Impact Assessment Methodology

There are two main components of the land use analysis: (1) the determination of potential short- and long-term conflicts with, or disruptions or preclusions of, existing and permitted land uses; and, (2) the identification of potential inconsistencies with adopted land use plans, goals, policies or regulations. Impacts on land use could result from various Project-related activities, including: removal or modification of existing facilities; construction of new or replacement transmission lines; construction of expanded substations; establishment of staging areas, pulling and tensioning sites and access roads; and, operation and maintenance of Project-related facilities.

To determine potential impacts, the impact significance criteria established in Section 3.9.4.1 were applied to the activities described in the above paragraph based upon the land use information provided in Sections 3.9.2 and 3.9.3. Impacts are identified as being either short- or long-term in nature. They are numbered under each impact significance criterion, as are applicable mitigation measures. The significance of each impact is also identified according to the following classification:

- Class I: Significant impact that 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 that 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.
- Class III: Adverse, but not 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.

3.9.5 Alternative 1: No Project/Action

Under the No Project/Action Alternative neither the proposed Project (Alternative 2) nor one of its re-routed or structurally changed alternatives (Alternatives 3 though 7) would be implemented. Consequently, associated impacts to land use would not occur. However, in the absence of either the proposed Project or one of its alternatives, the purpose and need for power transmission capabilities would not be met. Under this scenario, it is possible that a similar type of transmission line project would be constructed in the future to meet the power transmission needs of developing wind energy in the Tehachapi Wind Resource Area (TWRA). Due to the location of the TWRA, and the projected need for power in the greater Los Angeles area, such a project would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts to land use.

Environmental conditions of the Land Use Study Area would be expected to change over time, regardless of whether either the proposed Project or one of its physical alternatives is implemented. Therefore, the regional setting and baseline conditions which are discussed in Section 3.9.2 (Affected Environment) would not remain static. The following section describes how land uses in the Land Use Study Area would be expected to change in the future under the No Project/Action Alternative. However, because the potential impacts of the proposed Project and Alternatives 3 through 7 would not occur under the No Project/Action Alternative, the significance criteria described in Section 3.9.4 (Impact Analysis Approach) are not used for this analysis.

North Region

As described in Section 3.9.2, the predominant existing land uses of the North Region include large expanses of undeveloped open space, agriculture and residential development. There are also several large tracts of undeveloped land which are planned for future development. The cities of Palmdale and Lancaster, located along the southern boundary of this region, are both rapidly developing urban areas which include large tracts of residential development, as well as other uses such as commercial, business and industrial development. Under the No Project/Action Alternative it would be expected that this region would continue its rapid rate of urban and suburban development, not only within the Palmdale and Lancaster areas, but also further to the north, along the southern boundary of Kern County. Assuming that growth in this region continues, it is expected that lands which are currently used for rural residential and agricultural purposes, as well as open space/undeveloped areas, would decrease at rates similar to that of development. However, all such development would require site-specific planning (e.g., the development of a Specific Plan, Master Plan, or similar land use planning document) and environmental review and approval prior to its implementation. Therefore, it is assumed that potential impacts to these rural land uses would be identified and mitigated, as feasible and appropriate.

Under the No Project/Action Alternative the existing Antelope-Magdum No. 1, Midway-Vincent No. 3, Antelope-Vincent and Antelope-Mesa transmission lines would continue to operate under their current conditions. Therefore, no new temporary or long-term impacts to existing and planned land uses within or adjacent to their respective ROWs would occur. However, under this alternative Segment 10 and the proposed Whirlwind Substation would not be constructed; thus there would be no corresponding net loss or preclusion of rural residential uses, open space/undeveloped area, or agricultural production. Similarly, there would be no temporary land disturbances due to construction.

Under the No Project/Action Alternative it is assumed that some type of new energy-related transmission would need to be constructed in lieu of the proposed Project or Alternatives 3 through 7. However, the specific location of this new transmission line is not known; consequently, the specific land uses that would be affected by its construction and operation are not known. Due to this uncertainty, it cannot be predicted if the No Project/Action Alternative would temporarily or permanently result in significant impacts to residential and non-residential land uses, or conflict with any applicable federal, State or local land use plans, goals, policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

Central Region

As outlined in Section 3.9.2, the Central Region is primarily located within the ANF, the majority of which is made-up of undeveloped lands used for recreation and natural resource management. Under the No Project/Action alternative, the existing management practices and plans of the USDA Forest Service would be anticipated to be maintained, and no substantial changes to the ANF's existing land use zones, Places, or special designation overlay areas would be expected to occur.

Under this alternative, there would be no expansion of the Vincent Substation, partial or full removal of existing 220-kV transmission lines, or construction of 500-kV new transmission lines in existing ROWs. Additionally, no upgrades to the Gould Substation would occur, and the existing Eagle Rock-Mesa transmission line would not be equipped to accommodate the proposed new Gould-Mesa 220-kV transmission line. Consequently, land disturbances due to the construction of new transmission lines and removal of existing transmission lines and related facilities would not occur. Similarly, no construction-related activities that would temporarily preclude or restrict existing uses of the ANF would occur, including short-term disturbances to residential areas and special use facilities. However, under the No Project/Action Alternative, it is assumed that some type of additional transmission line to serve the greater Los Angeles area would need to be constructed. Because the location of this new transmission line is not known, it cannot be predicted if it would directly or indirectly result in significant impacts to residential and non-residential land uses. Alternatives 2 through 7 would require the permanent allocation of expanded ROW along proposed Segment 11 to a width of 250 feet for an estimated three miles north of the Gould Substation, including new access and spur roads. Although the width of the ROW in this area is variable and unknown, the permanent dedication of additional ROW acreage would be needed. Additionally, expansion of the Vincent Substation would require the permanent disturbance of an estimated 18 acres. Consequently, Alternatives 2 though 7 would result in the permanent loss of lands to ROW and substation uses. As addressed above, under the No Project/Action Alternative it is assumed that a new transmission line would be needed to serve the purpose of either the proposed Project or Alternatives 3 through 7. However, because the specifics of this new transmission line are not known, it is not possible to predict if it would require the permanent loss of existing or planned land uses due to new or expanded ROW and associated substation facilities. Consequently, it cannot be predicted if it would result in significant permanent impacts to residential and non-residential land uses or conflict with any applicable federal, State or local land use plans, goals, policies or regulations.

Under the No Project/Action Alternative, it is assumed that some type of new energy-related transmission would need to be constructed in lieu of the proposed Project or Alternatives 3 through 7. If this transmission line were to traverse the ANF, a new Special Use Authorizations or other approvals from the USDA Forest Service would still be required; however, because the specific of this new transmission line

are not known, it cannot be predicted if there would be a potential conflict (or conflicts) with the ANF's Land Management Plan.

South Region

The majority of the South Region is made up of a complex mix of intensively developed urban uses. Exceptions to this development are open space/undeveloped areas that fringe developed areas; typically they serve as either open space/recreational areas and "green belts," or existing or proposed SEAs. Under the No Project/Action Alternative the intensity of existing development would be expected to either remain the same, or expand into areas that are currently undeveloped. Substantial new development, particularly as related to residential uses and associated commercial and services and business uses, would be expected to occur in the vicinity of the cities of Chino Hills, Chino and Ontario. This new development would likely encroach on lands that are currently used for agricultural purposes or lands which are currently undeveloped.

Under the No Project/Action Alternative the new Gould-Mesa 220-kV transmission line would not be constructed (proposed Segment 11) and the existing Antelope-Mesa 220-kV transmission line would not be removed and replaced with the new Mira Loma-Vincent 500-kV transmission line (proposed Segment 7). Additionally, modifications to, or replacement of, existing transmission line facilities, new or expanded ROW, and new transmission lines would be not be undertaken along proposed Segment 8. Similarly, no upgrades to the Mesa and Mira Loma Substations would occur. Consequently, no construction-related activities that could temporarily preclude, restrict, or otherwise disturb existing or permitted (future) land uses would occur.

Under the proposed Project and its Alternatives 3, 4, 5, 6, and 7, new or expanded ROW would be needed in the South Region. Along proposed (and alternative) Segments 7 and 11 no new ROW or expanded ROW would be needed, although existing towers would be replaced with larger towers. Additionally, Alternative 4 would require the construction of a new switching station, which would result in the permanent disturbance of between 4 to 12 acres of land, depending on the type of type of power transmission technology used, and Alternative 5 would require two new permanent transition stations would be an estimate 1.8 acres each is size.

As with the North Region, under the No Project/Action Alternative it is assumed that if either the proposed Project or Alternatives 3 through 7 is not implemented, some type of replacement (e.g., new) transmission line would be required to serve the greater Los Angeles area. However, because the location and design specifics of this new transmission line are not known, it cannot be predicted is it would significantly impact, directly or indirectly, residential and non-residential land uses, either temporarily or permanently. Similarly, because the new transmission line ROW and its related facilities are not known, it cannot be predicted if it would conflict with any applicable federal, State or local land use plans, goals, policies or regulations.

3.9.5.1 Cumulative Effects Analysis

As discussed above, it is assumed that a similar type of transmission line project would likely be constructed in the future to meet the power transmission needs of developing wind energy in the Tehachapi Wind Resource Area (TWRA), which would introduce similar types of impacts as the proposed Project to land use such as: a preclusion, disruption, or division of planned and permitted land uses; short- or long-term conflicts with surrounding land uses; or, inconsistencies with federal, State or local land use policies or regulations. Construction could potentially contribute to a long-term

cumulative~~ly considerable~~ effect. Operation and maintenance could also cause the long-term disruption of existing and planned residential land uses in combination with other energy projects; however, as with the proposed Project, they would be anticipated to result in a less-than-significant cumulative impact.

3.9.6 Alternative 2: SCE's Proposed Project

The following section describes the proposed Project's impacts on land use, as determined by the impact significance criteria provided in Section 3.9.4.1. Mitigation measures are recommended, as warranted and feasible, to reduce significant impacts to a level of less than significant.

Construction-related impacts refer to activities such as the removal of existing transmission line infrastructure, construction of new transmission lines, placement and use of staging, pulling and tensioning sites, placement and use of both temporary and permanent access roads, and the expansion or modification of substation sites. Operational and maintenance impacts refer to the effects resulting from the types of activities necessary for long-term operation and maintenance of the proposed transmission lines and substations, such as routine inspections and repairs along the ROWs, operation of substations, inspection and repair of permanent access roads, and, in the case of land use, the effects of permanent new or widened ROWs and substation expansions.

3.9.6.1 Direct and Indirect Effects Analysis

Direct and indirect effects associated with Alternative 2 (the proposed Project) are discussed below and summarized in Table 3.9-22 (Summary of Impacts and Mitigation Measures – Land Use).

Preclude a permitted land use, or create a disturbance that would diminish the function of a particular land use (Criterion LU1)

Impact L-1: Construction of the Project would temporarily disrupt, displace, or preclude existing residential land uses.

Some ~~C~~construction-related activities would require the temporary use of lands for purposes other than their existing use. For example, lands that are currently undeveloped or vacant would be used for staging areas, access roads, and pulling, tensioning, and splicing sites. The use of these areas could temporarily restrict access to, or the use of, lands that surround them as well. Construction would additionally cause temporary disturbances due to site-specific access limitations and parking restrictions, increased traffic and congestion along construction routes and detour routes, increased dust generation and noise, and changes in the overall visual character of an area due to the presence of construction-related equipment, personnel, and associated activities.

Primary and secondary staging areas would be selected on the basis of accessibility to construction locations and proximity to transmission line and substation access roads. An area of five to 50 acres in size would be required for each primary staging area. The number and size of the secondary staging areas would be dependent upon a detailed ROW inspection; but they would typically be one to three acres in size and located approximately every five to ten miles along the transmission line alignment. In addition, helicopter staging areas would be required to support helicopter construction of towers within the ANF. The number of wire setup sites used for pulling/tensioner/splicing of conductor wire would vary by segment length and specific construction-related needs. Tables 2.2-2 through 2.2-9 of Chapter 2 (Description of Alternatives) provide the estimated temporary and permanent land disturbance acreages associated with each segment for these features. Table 3.9-15 provides a summary of the anticipated number of wire stringing sites and staging areas by segment.

Table 3.9-15. Summary of Estimated Construction-Related Staging Areas and Wire Setup Sites*
North Region
Segment 10
Approximately 16 new wire setup sites and 5 staging areas
Segment 4
Approximately 28 wire setup sites and 2 staging areas
Segment 5
Approximately 37 wire setup sites and 2 staging areas
Central Region
Segment 6
Approximately 19 wire setup sites, 4 staging areas, and 6 ~~5~~ helicopter staging areas
Segment 11 *(Estimates includes the South Region)*
Approximately 36 wire setup sites, 5 staging areas, and 7 helicopter staging areas
South Region
Segment 7
Approximately 16 wire setup sites and 1 staging area
Segment 8
Approximately 33 wire setup sites and 2 or 3 staging areas

* The estimates provided in this table are based upon preliminary estimates provided the PEA (SCE, 2007a) and are subject to change.

Improvements to existing access and spur roads and the construction of new permanent and temporary access roads would also vary by segment. Additionally, the width of these road types would vary in relation to their purpose, as well as their surrounding topography. Access roads are through roads that run between tower sites along a ROW and serve as the transmission line's main transportation route. Spur roads are roads that lead from access roads and terminate at one or more tower sites. Under some circumstances, the transport of tubular steel poles (TSPs) or lattice steel towers (LSTs) requires larger haul trucks which require additional road area (radius) for turning along access and spur roads. Construction of the proposed Project would require the improvement of some existing access and spur roads in order to accommodate construction-related heavy equipment; the construction of some new access, spur, and radius roads would additionally be needed. Along Segments 6 and 11 implementation of the proposed Project would also involve helicopter construction within the ANF, which would result in temporary land disturbances due to the need for helicopter staging and support areas. Preliminary estimates for the mileage and acreage of new and improved access and spur roads, as well as the acreages needed for the helicopter staging and support areas are provided in Tables 2.2-2 through 2.2-9 of Chapter 2 (Description of Alternatives). The estimated total construction-related (e.g., temporary) and permanent land disturbance ranges for the proposed Project that are provided in Tables 2.2-2 though 2.2-9 is summarized in Table 3.9-16, below.

Table 3.9-16 Summary of Temporary and Permanent Land Disturbances

Region & Segment	Temporary Land Disturbances During Construction (Acres)	Permanent Land Disturbances (Acres)
North Region		
Segment 10 Land Disturbance Range (± 15%)	77.2 – 104.4	20.6 – 27.8
Segment 4 Land Disturbance Range (± 15%)	269.9 – 365.1	35.2 – 47.5
Segment 5 Land Disturbance Range (± 15%)	126.0 – 170.5	9.9 – 13.4
North Region Total Land Disturbance Range (± 15%)	473.1 – 640.0	65.7 – 88.7

Table 3.9-16 Summary of Temporary and Permanent Land Disturbances

Region & Segment	Temporary Land Disturbances During Construction (Acres)	Permanent Land Disturbances (Acres)
Central Region		
Segment 6 Land Disturbance Range (± 15%)		
NFS Lands	108.4 – 146.6	45.5 – 61.6
Non-NFS Lands	27.6 – 37.4	2.1 – 2.8
All Lands	136.0 – 184.0	47.6 – 64.4
Segment 11Land Disturbance Range (± 15%) (*Gould-Vincent Only*)		
NFS Lands	112.3 – 152.0	46.3 – 62.7
Non-NFS Lands	68.6 – 92.8	5.4 – 7.3
All Lands	180.9 – 244.8	51.7 – 70.0
Central Region Total Land Disturbance Range (± 15%)		
NFS Lands	220.7 – 298.6	91.8 – 124.3
Non-NFS Lands	96.2 – 130.2	7.5 – 10.1
All Lands	316.9 – 428.8	99.3 – 134.4
South Region		
Segment 11 Land Disturbance Range (± 15%) (*Gould-Mesa Only*)		
NFS Lands	10.2 – 13.8	0.7 – 1.0
Non-NFS Lands	28.6 – 38.7	0.0 – 0.1
All Lands	38.8 – 52.5	0.7 – 1.1
Segment 7 Land Disturbance Range (± 15%)	121.6 – 164.5	2.2 – 2.9
Segment 8 Land Disturbance Range (± 15%)	301.8 – 408.4	12.7 – 17.2
South Region Total Land Disturbance Range (± 15%)		
NFS Lands	10.2 – 13.8	0.7 – 1.0
Non-NFS Lands	452.0 – 611.6	14.9 – 20.2
All Lands	462.2 – 625.4	15.6 – 21.2
Project-Wide Total ROW Land Disturbance Range (± 15%)		
NFS Lands	230.9 – 312.4	92.5 – 125.3
Non-NFS Lands	1,021.3 – 1,381.8	88.1 – 119.0
All Lands	1,252.2 – 1,694.2	180.6 – 244.3

Construction-related impacts would typically cause direct effects on land uses within approximately 1,000 feet of either side of a given ROW, or within approximately 1,000 feet of staging areas, wire setup sites, substation sites, and new and improved access and spur roads due to the presence of construction crews, the operation of heavy equipment, and associated crew, equipment, and material access (import and export) from these sites. Residents within 1,000 feet of construction could perceive activities as an intrusion of their privacy, and may adjust, limit, or cease some of their daily routines and activities in response to construction. For example, children may be restricted or prohibited from playing in their yards and surrounding environs, and some residents may choose to curtail or stop some or all outdoor-related activities within the boundaries of their property. Access to and from these residential properties may also be restricted during peak construction periods, which may hinder their daily schedules and routines. Indirect effects would also occur at distances greater than 1,000 feet from construction sites due to the placement of temporary access roads, which could cause limited access to some properties, and the need for construction-related detours through neighborhoods which are not directly affected by construction activities. Although these disturbances would be temporary in nature, restrictions and preclusions of, and inconveniences to, the daily routines and activities of local residences due to construction may be considered significant at an individual or family level.

Residential areas in the South Region are typically urban or suburban (single-family and multi-family residences), and have been developed at greater densities (i.e., houses/dwellings per acre) than in the Central and North Region. With the exception of the existing planned community developments in the vicinity of western Lancaster and Palmdale, residential uses in the North and Central Regions are generally rural. However, as referenced above, at an individual or family level, construction-related impacts could still be considered significant regardless of density. Table 3.9-17 below provides a summary of the residential uses associated with each Region.

Table 3.9-17. Summary of Residential Uses By Region

Region	Segment or Substation	Predominant Type of Residential Development
North Region	10	Most rural residential properties within and adjacent to the ROW are undeveloped, although some homes are located within an estimated 1,000 feet of the ROW.
	Whirlwind Substation	The existing land use of the proposed site is open space/undeveloped~~ and residential~~. Agricultural lands ~~f~~surround ~~all within the boundaries of~~ the proposed site.~~ These lands include several structures, one or more of which is likely residential.~~
	4	As with Segment 10, most rural residential uses are undeveloped, although some homes are located within an estimated 1,000 feet of the ROW. Additionally, some agricultural lands likely include rural residential homes and fall within 1,000 feet of the ROW. South of West Avenue I (MP 16.4), there are approximately four to five rural residential homes that fall either immediately adjacent to the ROW centerline, or within an estimated 1,000 feet of it.
	Antelope Substation	The existing land use of the proposed expansion site is open space/undeveloped. Although there are no homes within the proposed expansion site, there is one residential use that falls within 1,000 feet of its boundaries, and several homes within one-half mile of its boundaries.
	5	Existing land uses traversed by the ROW include agriculture, rural residential and suburban residential. At MP 2.0 the ROW traverses directly over agricultural lands with several structures, one or more of which are likely rural residential homes. At MP 3.8 (south of Columbia Way at 75th Street) the ROW centerline falls within 1,000 feet of existing planned development homes (e.g., master planned residential developments). Between MP 7.0 and 8.0 there are several rural residential homes that fall within 1,000 feet of the ROW centerline. Between MP 8.7 and 11.3 there are multiple tracts of single-family (master planned) residential developments under construction. From MP 14.0 to the Vincent Substation there are multiple rural residential homes within 1,000 feet of the ROW centerline, some of which are immediately adjacent to it.
Central Region	Vincent Substation	Existing land use of the proposed expansion site is open space/undeveloped. Several rural residential uses are located within 1,000 feet of the boundaries of the site to the north and west. Additional rural residential home are located within one-half mile of the proposed expansion site to south and southeast.
	6	Between MP 0.0 and 7.0 there are several rural residential homes located within 1,000 feet of the ROW centerline.
	11	(*Segment 11 between MP 0.0 and 24.5*). Between MP 0.1 and 0.3 there are several rural residential properties located within 1,000 feet of the ROW centerline to the north. Between MP 1.0 and 1.5 there are also several rural residences within one-half mile of the ROW centerline, with some falling within 1,000 feet of centerline. Between MP 3.7 and 3.7 there are several rural residences located near or within 1,000 feet of the ROW centerline. Additional areas with urban/suburban residential development within an estimated 1,000 feet of the ROW centerline are located between MPs: 18.7 – 19.1; 20.4 – 20.7; 22.9; and, 23.8 – 24.1. See South Region for the remainder of Segment 11
	Gould Substation	The existing land use of the Gould Substation is electrical power facilities. Urban/suburban residential uses fall within 1,000 feet of the substation's boundaries to the northwest, west, south, and southeast.

Table 3.9-17. Summary of Residential Uses By Region		
Region	Segment or Substation	Predominant Type of Residential Development
South Region	11	(*Segment 11 between MP 24.5 and 36.2*). The ROW centerline falls within an estimated 1,000 feet of urban/suburban residential properties between MPs: 25.2 – 25.8; 26.7 – 27.5; 27.8 – 31.6; 31.7 – 35.8. Between MP 25.2 and 35.8 there are numerous portions of the ROW centerline that fall within an estimated 250 feet or less of residential properties.
	7	The ROW centerline falls within an estimated 1,000 feet of urban/suburban residential properties between MPs: 0.7 – 1.9; 2.0 – 2.2; 6.7 – 11.1; 13.6 – 13.8; and, 14.5 – 15.1. Several portions of the ROW centerline fall within approximately 250 feet or less of residential properties.
	Mesa Substation	The existing land use of the Mesa Substation is electrical power facilities. Urban/suburban residential development is located approximately 1,000 feet from the substation's boundaries to the north and southwest. Additional residential properties are located less than one-half mile from the substation's boundaries to the west and west-southwest.
	8A	The ROW centerline falls within approximately 1,000 feet of both urban/suburban and semi-rural residential uses between MPs: 0.7 – 1.3; 2.1 – 2.3; 8.8 – 11.6; 13.2 – 15.1; 17.1 – 18.1; 21.1 – 21.7; 21.8 – 25.4; 28.9 – 29.7; 33.3 – 33.8; and, 34.3 – 34.5. Several portions of the ROW centerline fall within an estimated 250 feet or less of residential properties.
	8B	The ROW centerline falls within approximately 1,000 feet of residential properties between MPs 0.5 – 1.3 and 4.9 – 6.0. Both of these portions of the ROW have a centerline that falls within estimated 250 feet or less of residential properties.
	8C	The residential areas within 1,000 feet of the Segment 8C centerline are the same as those which are outlined for Segment 8A between its MPs 28.9 through 34.5.
	Mira Loma Substation	The existing land use of the Mira Loma Substation is electrical power facilities. The closest urban/suburban residential uses to the substation are located approximately one-half mile to the north of the substation's northern boundary.

As outlined in Table 3.9-17, construction of the proposed Project would affect numerous residential areas, including rural, semi-rural, urban, and suburban residential uses. Many residential properties are located less than 250 feet away and, in some instances, less than an estimated 150 feet away from areas which would be subject to construction-related activity. Depending on the specific construction activity, work crews at any given location could range between two and 80 persons. Construction activities at or along any given element of the proposed Project would periodically occur between an estimated eight (Segment 10 construction) to 45 months (Vincent and Antelope Substation expansions). Due to the proximity of some residential uses to construction-related activities, in conjunction with the intensity of the workforce and equipment needed and the duration of construction itself, the impacts to residential uses which are outlined above would be considered adverse.

Mitigation Measures for Impact L-1

L-1a **Construction liaison – Property owners.** SCE shall provide a toll-free general phone number, and the name and contact information for a local public liaison (or liaisons) to all affected property owners within 300 feet of construction-related activities. The toll-free access number and the identified local public liaison(s) shall act as ~~the single~~ points of contact and interface between residents and construction crews for that area. The toll-free number and local public liaison(s) shall be available both in person and by phone, as necessary, for at least 14 days prior to the start of any construction-related activities and for up to six months following construction. The local public liaison(s) shall respond to all construction-related questions and concerns within a 72-hour period during construction when contact information is provided. Post-construction, replies shall be made within a two-week period.

SCE shall provide summary documentation of all complaints, comments, and concerns communicated to the liaison every two months for the duration of construction and for one year following the completion of construction. The compliance documentation shall include the name

and address of the person contacting the local public liaison(s), the date of contact, and what actions were taken by the local public liaison(s) to rectify and/or address the complaints, comments or concerns expressed. The compliance documentation shall be submitted to the CPUC throughout the duration of construction and for one year following construction.

L-1b **Advance notification of construction - Property owners.** SCE shall give at least 14 days advance notice of the start of any construction-related activities to potentially affected property owners. The notification shall include the toll-free general phone number, contact information for the local public ~~construction~~ liaison(s) (Mitigation Measure L-1a, Construction liaison – Property owners), including a phone number (or phone numbers), as well as an internet website address where additional information related to construction can be found. Notification shall be provided by: (1) mailing notices to all property owners within 300 feet of all approved ROW segments, construction-related work areas, and substation sites; and, (2) placing notices in local newspapers.

L-1c **Quarterly construction updates - Property owners.** Following publication/transmittal of the advance notification of construction (Mitigation Measure L-1b, Advance notification of construction – Property owners), SCE shall provide all affected property owners with updates and changes to all of the information provided in the pre-construction notification as related to their Segment-specific location. The updates shall be provided every quarter for the duration of all construction-related activities. Post~~, including post~~-construction noticing for restoration activities shall be provided annually. The updates shall continue to provide the toll-free number and the name and phone number of the local public liaison(s) ~~an SCE employed representative~~ to respond to all construction-related questions and concerns. The local public liaison(s) ~~SCE employed representative~~ shall continue to respond to all questions and complaints within a 72-hour period during construction and within two weeks post-construction (Mitigation Measure L-1a, Construction liaison – Property owners).

The updates shall be: (1) mailed to all property owners within 300 feet of all approved ROW segments, construction-related work areas, and substation sites; (2) placed in local newspapers; and, (3) posted on the Project's Internet website (Mitigation Measure L-1b).

CEQA Significance Conclusion

With implementation of Mitigation Measures L-1a through L-1c, above, in conjunction with implementation of the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses would be adverse but mitigable to a level of less than significant (Class II).

Impact L-2: Construction of the Project would temporarily disrupt, displace, or preclude existing non-residential land uses.

As addressed under Impact L-1, above, construction of portions of the proposed Project would require the use of lands for purposes other than their existing uses to accommodate tower placement and removal areas, staging areas, access roads, and pulling, tensioning and splicing sites. Construction-related activities would also temporarily restrict or preclude access to, and potentially the use of, lands adjacent to construction-related work areas. Lands used for construction could additionally be damaged or otherwise impaired to a degree that their existing (e.g., pre-construction) uses are impaired. The intrusion of construction equipment, materials, and personnel typically constitutes an adverse but less than significant impact because it occurs for a limited period of time and does not result in permanent disturbances. However, there are instances where construction-related activities can disrupt or preclude land uses to a significant level even though these disturbances are temporary.

Portions of the proposed ROW itself are used for non-residential uses such as commercial nurseries and commercial and industrial parking lots. Additionally, areas adjacent to the proposed ROW and its associated construction areas are actively used for uses such as commercial centers, public/special use and educational facilities, office and business centers, utilities, and light and heavy industrial operations. In the North Region, mining operations and existing energy generation facilities, including access roads, are located within one-half mile of Segment 10. South the proposed Whirlwind Substation, properties within one-half mile of the proposed ROW include transportation, communications and utility facilities, industrial facilities, electrical power facilities, commercial and services uses, and mixed uses; some of these uses are directly traversed by the proposed ROW. The North Region additionally includes several airports and air fields (public and military); although these airports and airfields are not located within one-half mile of the proposed ROW, some are located in close proximity to it (please refer to Table 3.9-7).

Within the Central Region the proposed Project traverses multiple zones and Places within the ANF, as summarized in Table 3.9-10 and shown in Figure 3.9-2. Within the ANF Segments 6 and 11 additionally fall within one-half mile of several public/special use and mixed use properties, including the: Mill Creek Summit Forest Station (Segment 6, MP 7.3); Shortcut Forest Station (Segment 6, MP 16.5); Angeles Crest Forest Station (Segment 11, MP 17.3); Los Angeles County and USDA Forest Service fire stations and maintenance yards; educational campgrounds and facilities; communication facilities; and other public and private utilities. There are several helipads mapped in the Angeles National Forest Atlas (USDA Forest Service, 2005b) that fall within an estimated two miles of Segments 6 and 11, including facilities near the Mill Creek Summit Forest Station (Segment 6, MP 7.3), Barley Flats (Segment 6, MP 16.7), the Little Gleason Forestry Plantation (Segment 11, MP 7.8), and the Monte Cristo Fire Station (Segment 6, MP 11.5). Additionally, south of the ANF boundary, the Mesa and Camp 2 Heliports are located south of Segment 11 at MP 20.

Although major utility corridors are not considered suitable uses within the Critical Biological, Back Country Non-Motorized, Existing or Recommended Wilderness or Experimental Forest zones per Table 2.1.3 (Suitable Uses Commodity and Commercial Uses, ANF) of the Forest Plan (USDA Forest Service, 2005a), the proposed transmission line upgrades associated with Segments 6 and 11 would be consistent with the designated utility corridors within which their respective ROWs fall; therefore, no impacts would occur due to construction of the proposed Project. The desired condition and program emphasis for each of the Places crossed by the proposed Project are provided in Table 3.9-9. Although the desired condition and program emphasis for each Place do not specifically address transmission lines, construction of Segments 6 and 11 would upgrade existing transmission lines and occur completely within existing designated utility corridors; consequently, construction of the proposed Project would not impact the Places that it traverses.

The proposed Project falls within one-half mile of four designated IRAs in the Central Region (in the ANF), including Strawberry Peak and Arroyo Seco (Los Angeles River) along Segment 11, and the Westfork and West Fork along (of the San Gabriel River) Segment 6 (please refer to Tables 3.9-10 and 3.9-11 as well as Figure 3.9-2). Per the 2001 Roadless Area Conservation Rule (36 Code of Federal Regulations [CFR] Part 294) and recent U.S. District Court decisions and directives, no roads may be constructed or reconstructed within these areas except for public health and safety, and the USDA Forest Service cannot authorize any road construction or reconstruction within these areas through either project-specific decisions or land management plan amendments or revisions. Therefore, the proposed Project would be prohibited from constructing or reconstructing roads within any designated IRAs and no impacts would occur.

Other Special Designation Overlays, as summarized in Table 3.9-5, that are crossed by the proposed Project include two Special Interest Areas (Aliso-Arrastre North and Middle), and one Eligible Wild and Scenic River (the San Gabriel River, West Fork [eligible for recreation only]). The suitable land uses associated with these Special Designations Overlays are generally the same as those of the zone that they are associated with unless specifically excluded; however when differences between a land use zone and a Special Designation Overly occur, the more restrictive set of suitable land uses apply (USDA Forest Service, 2005a). Although the proposed Project traverses the above-referenced Special Designation Overlays, the existing utility corridors within which Segments 6 and 11 would be placed are themselves a Special Designation Overlay, falling under the category of "Other Designations," a subcategory of "Designated Utility Corridor." Construction of Segments 6 and 11, which consists of replacement of, and upgrades to, existing transmission lines within the designated Gould-Vincent and Rio Hondo-Vincent utility corridors, would not conflict with the suitable or existing land uses of these designated utility corridors; consequently, no impacts would occur.

Within the South Region, development both within and adjacent to the proposed ROW increases substantially. Along Segment 11 (South of MP 24.5), lands directly affected by construction predominantly include commercial and service uses, and industrial and mixed uses. Along Segment 7, large tracts of mixed and industrial uses are located within or immediately adjacent to the proposed ROW, and smaller areas of commercial and services and public/special use and educational facilities occur as well. West of MP 7.0, non-residential uses affected by construction of Segment 8A include industrial and mixed uses and public/special use and educational facilities. East of MP 7.0, predominant non-residential (or agricultural) land uses associated with Segments 8A, 8B, and 8C include mixed uses, commercial and service uses, and industrial uses. The South Region additionally includes two heliports and the El Monte, Chino, and Ontario International Airports, as illustrated in Figures 3.9-3h and 3.9-3i of the TRTP Map and Figure Series Volume.

Within the ROW itself, construction-related activities associated with tower erection and removal sites, staging areas, and pulling, tensioning and splicing sites would displace or disrupt non-residential land uses. Access to these uses may be blocked or detoured, thus affecting the delivery and/or shipment of goods and services, as well as customer and employee ingress and egress. Additionally, site-specific operations would be impaired or prohibited at some locations due to the need to clear areas for construction equipment and materials. Following the completion of construction, site-specific uses may be compromised if affected areas are not restored to their pre-construction condition. Although these types of effects would occur in all three Regions, activities in the South Region would affect the greatest number of non-residential uses. In this region, particularly along Segments 7 and 11, the western-most portion of Segment 8A, and that portion of Segment 8A that traverses the City of Chino (approximately MP 25.5 though MP 29.0), there are numerous commercial and industrial uses, such as wholesale and retail nurseries, commercial and industrial parking lots, and material and truck storage and loading areas, that occur within the ROW. These disruptions and displacements of non-residential land uses would be adverse. However, as part of their land agreements, all ~~leaseholders~~license holders allow SCE access to, and use of, the ROW at their own risk, in addition to which SCE provides 30 day advance notification to all ROW ~~leaseholders~~license holders for any planned uses of the ROW.

Construction within an approximate 1,000 feet of either side of (e.g., outside of) the ROW would also result in the same types of effects as described above due to site-specific tower removal, erection, and pulling, tensioning and splicing activities, the need for temporary access roads, road detours and closures, and primary and secondary staging areas. Although the degree of these indirect effects outside of the

ROW would not be expected to be as pronounced as within the ROW itself, impacts to non-residential uses in close proximity to construction zones could still be adverse at a site-specific level. Similar to activities within the ROW itself, these impacts would occur in all three regions, although the greatest number of properties affected would occur in the South Region along Segments 7 and 11 and portions of Segment 8A (approximately MP 0.0 through MP 7.0 and MP 25.5 though MP 29.0).

Construction of the proposed Whirlwind Substation would require the acquisition of approximately 102 to 113 acres of land. The proposed site is currently used for agricultural production. Assuming full acquisition of the property by SCE, construction-related impacts due to the displacement of these existing land uses would not be anticipated; no other non-residential land uses other than open space are located within one-half mile of the site. Expansion of the existing Antelope and Vincent Substations would not fall within one-half mile of uses other than agricultural operations and residential uses; therefore, no direct impacts to other non-residential uses would be expected to occur. Transportation and industrial uses are located within an estimated one-half mile of the proposed Vincent Substation expansion area. However, these uses would be more than 1,000 feet away from the proposed expansion area; consequently, indirect impacts would be less than significant. Proposed upgrades to the Mesa, Gould, and Mira Substations would occur within the confines of the substations' boundaries. However, mixed uses occur within one-half mile of the Gould Substation, while industrial, public/special use facilities, mixed uses, and commercial and services uses occur within 1,000 feet of both the Mesa and Chino Substations. Due to the proximity of proposed expansion and upgrade activities at these sites, the same types of secondary impacts to non-residential uses as described above for the proposed Project's ROW would occur and may be adverse at a site-specific scale.

Although there are no aircraft support facilities (airports, landing strips, heliports, and helipads) located within one-half mile of the proposed Project ROW, tower erection activities could temporarily affect aircraft movement within the vicinity of tower pad locations due to their height. Final tower heights would range between 65 feet and 262 feet, as summarized in Table 3.9-18. Additionally, the construction of 33 towers within the ANF could temporarily affect aircraft movement within the Central Region, as well as those land uses (both non-residential and residential) that are in close proximity to the proposed helicopter staging areas and subject tower sites; these effects may also be adverse at a site-specific scale.

Table 3.9-18. Summary of Estimated Tower Heights By Segment[1]
North Region
Segment 10
• Erect approximately 96 new single-circuit 500-kV lattice steel towers (LSTs) (94-172 feet tall)
Segment 4
• Erect approximately 165 new transmission structures, including: ▪ 88 single-circuit 220-kV LSTs (90-120 feet tall) ▪ 77 single-circuit 500-kV LSTs (113-188 feet tall)
Segment 5
• Erect approximately 67 new single-circuit 500-kV LSTs (113-188 feet tall)
Central Region
Segment 6
• Erect approximately 138 new transmission structures (105 on NFS lands – 99 LSTs and 6 TSPs), including: ▪ 2 single-circuit 220-kV LSTs (90-120 feet tall) ▪ 26 single-circuit 500-kV tubular steel poles (TSPs) (75-200 feet tall) ▪ 106 single-circuit 500-kV LSTs (85-193 feet tall) ▪ 4 three-pole dead-end 500-kV structures (75-80 feet tall)

Table 3.9-18. Summary of Estimated Tower Heights By Segment[1]
Segment 11 *(Estimates include the South Region)*
• Erect approximately 76 new transmission structures (59 LSTs on NFS lands), including: ▪ 2 single-circuit 220-kV poles (120 feet tall) ▪ 7 single-circuit 220-kV LSTs (120-160 feet tall) ▪ 67 single-circuit 500-kV LSTs (100-220 feet tall)
South Region
Segment 7
• Erect approximately 85 new transmission structures, including: ▪ 1 double-circuit 220-kV LST (185 feet tall) ▪ 2 double-circuit 500-kV TSPs (195-200 feet tall) ▪ 2 single-circuit 500-kV LSTs (113-175 feet tall) ▪ 79 double-circuit 500-kV LSTs (147-262 feet tall) • Erect approximately 150 new double-circuit 66-kV subtransmission Light Weight Steel Poles (LWSPs) and TSPs
Segment 8
• Erect approximately 226 new transmission structures, including: ▪ 2 single-circuit 220-kV LSTs (65-75 feet tall) ▪ 57 double-circuit 220-kV LSTs (113-180 feet tall) ▪ 3 single-circuit 500-kV LSTs (128-149 feet tall) ▪ 92 double-circuit 500-kV LSTs (147-255 feet tall) ▪ 2 single-circuit 220-kV TSPs (85-95 feet tall) ▪ 11 double-circuit 220-kV TSPs (75-115 feet tall) ▪ 5 three-pole dead-end 220-kV structures (75-110 feet tall) ▪ 4 single-circuit 500-kV TSPs (120-170 feet tall) ▪ 50 double-circuit 500-kV TSPs (150-195 feet tall) • Erect approximately 55 new double-circuit 66-kV subtransmission LWSPs

[1] The estimates provided above are preliminary and may be subject to change; they are based upon information provided in SCE's PEA, 2007.

As noted in Section 3.9.3, FAR Title 14, Part 77, establishes the standards for determining obstructions in navigable airspace, including height limitations on structures taller than 200 feet or within 20,000 feet (approximately 3.79 miles) of an airport. SCE would be required to file FAA Form 7460-1, Notice of Proposed Construction or Alteration, and Form 117–1, Notice of Progress of Construction or Alteration. The standards and notification requirements of FAR Title 14 Part 77 are intended to: (1) evaluate the effect of the construction or alteration of structures on airport operating procedures; (2) determine if the construction or alteration would result in a potential hazard to air navigation; and, (3) identify measures to enhance safety.

Mitigation Measures for Impact L-2

L-2a **Construction plan provisions – Non-residential property owners.** SCE shall incorporate provisions into its construction plans and schedules to minimize the length of time that construction-related activities occur in areas actively used for non-residential purposes, such as commercial and service uses, industrial uses, public/special uses, and educational facilities. SCE shall ensure that all affected non-residential property owners within 300 feet of the ROW are always provided with at least one point of vehicular (passenger car and truck) and pedestrian access to their respective properties throughout all phases of construction.

Immediately following the completion of construction, SCE shall ensure that all affected non-residential properties and uses affected by construction outside of the ROW are fully restored to their pre-construction conditions.

L-2b **Aircraft flight path and safety provisions and consultations.** Prior to construction, SCE shall consult with the Federal Aviation Administration (FAA) and ensure the filing of all forms and associated specifications per the requirements of Federal Aviation Regulations (FAR) Title 14,

Part 77. In addition, prior to the start of construction, SCE shall consult with all affected Airport Land Use Commissions (or their alternative process) and the FS to ensure that construction, operation, and maintenance of the Project does not conflict with local aircraft operations or associated safety provisions.

CEQA Significance Conclusion

Implementation of Mitigation Measures L-2a and L-2b, above, in conjunction with implementation of the Mitigation Measures L-1a through L-1c and the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), 3.13 (Traffic and Transportation), and 3.14 (Visual Resources), would reduce construction-related impacts to non-residential land uses to a level that is less than significant (Class II).

Impact L-3: Operation and maintenance of the Project would cause long-term disruption of existing and planned residential land uses.

The proposed Project would require either new ROW, or the expansion of existing ROW, along some segments. Additionally, the proposed Project would require the construction of the new Whirlwind Substation and expansion of the existing Antelope and Vincent Substations. Table 3.9-19 (on the following page) provides a summary of these new and expanded ROW areas and substations.

Based upon the estimates provided in Table 3.9-19, the proposed Project's new and expanded ROW, in conjunction with its substation expansion needs, would require an estimated 1,298 acres of land in the North Region, 27 acres of land in the Central Region (including all of Segment 11), and 43.4 acres of land in the South Region (with an estimated 27 acres of ROW abandoned). In addition, the proposed Project would result in the permanent disturbance of an estimated 180.6 to 244.3 acres of land, including an estimated 65.7 to 88.7 acres in the North Region, 99.3 to 134.4 acres in the Central Region, and 15.6 to 17.2 acres in the South Region (please refer to Table 3.9-16).

Within the North Region, these land estimates include 37 miles (approximately 1,167 acres) of new ROW for Segments 10 and 4, and approximately 120 ~~95~~ acres of permanent land disturbance for the new Whirlwind Substation and expanded Antelope and Vincent Substations. Both of these proposed ROWs, as well as the proposed Whirlwind Substation site, would partially fall within the boundaries of the Willow Springs Specific Plan, a large planned residential development located along the southern boundary of Kern County, and a portion of Segment 4 between approximately MP 16.5 and 16.8 would fall immediately adjacent to existing residential properties. The new and expanded substation sites and ROWs would be purchased or leased by SCE and it is assumed that the conditions of these purchases or leases would be made in full agreement with existing property owners. Segment 5 would be located within existing ROW and thus would not preclude existing or planned residential development.

Within the Central Region, a three-mile portion of Segment 11 would require an expansion of the existing ROW to 250 feet; however, this expansion would occur within an existing designated utility corridor. No additional acreage would be needed for upgrades to the Gould Substation. Farther south along Segment 11 (south of MP 24.5) the ROW would not be expanded and its existing towers would be left in place. Along Segment 6, all proposed Project features would occur within existing ROW.

Table 3.9-19. New and Expanded ROW and Substation Sites[1]

Segment	Summary of New or Expanded ROWs and Substations
North Region	
Segment 10	• Approximately 16.8 miles of new 330-foot wide ROW.
Whirlwind Substation	• Acquisition of approximately 102 to 113 acres of land with a permanent land disturbance of approximately 90 ~~65~~ acres.
Segment 4	• Approximately 19.6 miles of new 200-foot wide ROW adjacent to existing ROW.
Antelope Substation	• Acquisition of approximately 18 acres of land with permanent land disturbance of approximately 12 acres.
Segment 5	• No new or expanded ROW. All facilities would be located within a ROW which is 200-feet wide and 17.8 miles long.
Vincent Substation	• Acquisition of approximately 0.2 acres of land with a permanent land disturbance of approximately 18 acres.
Central Region	
Segment 6	• No new or expanded ROW (approximately 27 miles). Existing ROW varies in width between approximately 200 and 1,090 feet.
Segment 11 (*Estimates include the South Region*)	• Approximately 3 miles of expanded ROW to maintain safe clearances from the edge of the ROW due to wire swing of the new 500-kV T/L under wind loading conditions between approximately MP 15.7 and MP 18.7 (Gould Substation). (Expansion would occur within a designated utility corridor). • Remaining facilities would be located within existing ROW (approximately 33 miles) which varies in width between approximately 200 and 1,090 feet.
South Region	
Segment 7	• No New or expanded ROW. All facilities would be located with a ROW which is approximately 15.8 miles long and varies in width between approximately 200 and 500 feet.
Segment 8	• New and expanded ROW along Segment 8A, as follows: - 1.1 miles of relocated ROW between MP 5.8 and 7.2; 240-foot wide ROW - 2.15 miles of expanded ROW between MP 11.2 and 13.3; expansion width of 100 feet (from 150-230 feet to 250-330 feet) - 0.4 miles of new 100-foot wide new ROW starting at MP 13.3 - 0.45 miles of expanded ROW between MP 34 and 34.45; expansion width of 150 feet (from 175 feet to 325 feet) • Remaining facilities along Segments 8A, 8B and 8C would be located within existing ROW which varies in width between approximately 150 and 600 feet.

[1] The estimates provided above are preliminary and may be subject to change; they are based upon information provided in SCE's PEA, 2007.

Within the South Region, an estimated 43.4 acres of new or expanded ROW would be needed, and approximately 1.1 miles of 200-foot wide ROW, or roughly 27 acres, would be abandoned (starting at MP 5.8). Along Segment 7, no new ROW or expanded ROW would be needed. Along Segment 8A, four areas of expanded, new or relocated ROW would be needed, as summarized in Table 3.9-19. No expansion or new ROW would be required for Segments 8B and 8C. Although Segments 7 and 8 would traverse, or immediately flank, several large and small planned residential developments/communities, as outlined in Tables 3.9-8 and 3.9-9, SCE would purchase in full, or otherwise acquire the necessary leases or easements for construction, operation and maintenance of these ROWs. No additional acreage would be required for proposed upgrades to the Mesa and Mira Loma Substations.

With the exception of the substation expansions, it is unknown how much new and expanded ROW acreage would be acquired in fee or easement ~~leased and how much would be purchased in full~~ by SCE. However, regardless of whether these lands are made available by lease, easement, or purchase, SCE's required acquisition of the rights to construct and operate the proposed Project with affected private property owners, in conjunction with its acquisition of the regulatory approvals required for new and expanded ROWs and substation sites, would inherently allow for the preclusion of either future residential development or the expansion of existing residential development.

CEQA Significance Conclusion

The proposed Project's preclusion of, and incompatibility with, current and future residential land uses both within proposed new and expanded ROWs, and adjacent to existing ROWs, would be considered adverse but less than significant (Class III). Therefore, no mitigation measures are required.

Impact L-4: Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses.

As addressed in Section 3.9.2.2, the proposed Project would directly traverse, or fall within one-half mile of lands used for a variety of purposes other than residential, agricultural, or recreational development. Additionally, the proposed Project falls within one-half mile of properties under the ownership or management of State and federal agencies, as well as multiple proposed and existing SEAs. Please refer to Section 3.4 (Biological Resources) for a discussion of short- and long-term impacts related to SEAs, HCPs, and NCCPs.

Segment 10 includes lands used for electrical power generation, mining and utilities (primarily the Los Angeles Aqueduct, which is operated by the Los Angeles Department of Water and Power [LADWP]), and additionally falls within one-half mile of lands managed by the CSLC. The majority of Segments 10 and 4 within Kern County are designated for resource management, residential, and agricultural uses, although some lands traversed by and within one-half mile of Segment 4 near the Skyotee Ranch landing strip are designated Light Industrial. The centerline of Segment 4's ROW also falls within an estimated two miles of the Skyotee Ranch landing strip, and two comparatively small tracts of land used for transportation-communication-utilities (near MP 7) and industrial purposes (near MP 10) also occur within one-half mile of Segment 4. Along Segment 4 the proposed ROW directly traverses a relatively large tract of land designated for mixed urban uses, as well as comparatively smaller tracts of land designated for industrial uses within western Palmdale; it additionally falls within one-half mile of the Antelope Valley California Poppy Reserve near MP 13, which is managed by the State Department of Parks and Recreation. Portions on Segment 5 additionally fall within one-half mile of lands under the jurisdiction of the BLM. Along its crossing of State Highway 14, Segment 5 falls within close proximity to a variety of land uses, including commercial and transportation, communication and utility uses. Existing and planned land uses surrounding the new Whirlwind Substation and proposed expansion areas of the Antelope and Vincent Substations are residential and agricultural.

Within the Central Region the proposed Project would be placed entirely within an existing, designated utility corridor. Additionally, the proposed Project would replace and upgrade existing transmission lines, and would not incrementally add to the number of transmission lines that are currently located within these corridors. Consequently, operation and maintenance of Segments 6 and 11 within the ANF would effectively result in the same activities that occur under existing conditions, and no impacts related to the long-term disruption of existing or planned non-residential land uses would be anticipated to occur.

The South Region contains the greatest number of non-residential land uses directly within and adjacent to the proposed Project's existing, new, relocated, and expanded ROWs, including non-residential uses surrounding its existing substations. As outlined in Table 3.9-19, within the South Region new, expanded or relocated ROW would only occur along Segment 8A within lands designated Other Institutions, Open Not Developable and Residential. In addition to the above, and as summarized under Impact L-2, the proposed Project falls within an estimated four miles of several airports and helipads, and also traverses through lands under the ownership of the DoD at Segment 8A, approximately MP 15.2.

Segments 4, 5, 6, and 7, and the majority of Segments 11 and 8, would be placed either in existing ROWs or adjacent to existing utility ROWs. While the new or replacement towers along these ROWs would increase the bulk of the existing transmission line corridors, they would not permanently preclude existing or planned non-residential land uses or significantly change the character or use of the areas surrounding these ROWs. Segment 10 would require the permanent placement of a new transmission line ROW and the acquisition or lease of an estimated 681 acres of land. However, the northern portion of Segment 10 is used and planned for industrial and power generation facilities; thus, the proposed Project along this segment would not be anticipated to result in significant conflicts with, preclusions of, or changes to existing and planned non-residential uses. The majority of the remainder of Segment 10 consists of existing and planned residential, agricultural and open space (resource management) uses. Potential impacts associated with existing and planned residential uses are addressed above, under Impact L-3. Placement of the proposed Project within areas of Segment 10 which are designated for open space and resource management may limit some activities at some tower-specific locations; however, these limitations would not be anticipated to substantially affect existing and planned non-residential land uses with implementation of Mitigation Measure L-4.

Construction of the proposed Whirlwind Substation and expansion of the Antelope and Vincent Substations would permanently preclude existing and future planned residential uses, as addressed under Impact L-3, above. However, no impacts to non-residential land uses would be anticipated to occur due to the location of these substations either immediately adjacent to existing substation sites, or existing utility infrastructure. Upgrades to the existing Gould, Mesa and Mira Loma Substations would remain within the existing boundaries of these sites and would not be anticipated to permanently affect non-residential land uses.

As noted above, non-residential lands within one-half one mile of the proposed Project fall under the jurisdiction of several State and federal agencies including the CSLC, Department of Water Resources, California Department of Parks and Recreation, BLM, and DoD. Additionally, several airports, heliports and landing strips regulated by the FAA and Airport Land Use Commissions (or their respective alternative processes) are located within 3.79 miles of some elements of the proposed Project. The proposed Project would also traverse numerous local (county and city) jurisdictions. However, no significant preclusions of, or restrictions to, the management and uses of these lands would be anticipated with implementation of Mitigation Measure L-4.

Mitigation Measure for Impact L-4

L-4 **Consult with federal, State, and local agencies.** Prior to construction, SCE shall consult with all federal, State, and local agencies, including local agency consortiums, having jurisdiction over lands within one-half mile of the Project's ROW and ancillary facilities to ensure that no permanent restrictions or preclusions of their land management practices occur. The SCE shall additionally ensure that a liaison to these agencies is available for the operational life of the Project to address and reconcile any future potential conflicts with land management practices. SCE will provide affected agencies with the name and contact information of the liaison and update that contact information as necessary.

CEQA Significance Conclusion

Implementation of Mitigation Measure L-4 would reduce long-term operational and maintenance impacts of the proposed Project to a level of less than significant (Class II).

Conflict with any applicable federal, State, or local land use plans, goals, or policies (Criterion LU2)

The NEPA Regulations require that an Environmental Impact Statement (EIS) contain a discussion of the possible conflicts between a proposed action and the objectives of federal, regional, State, local, and, if applicable, Native American nation (reservation) land use plans, policies and controls (Title 40 of the Code of Federal Regulations [CFR] Part 1502.16[c]). The NEPA Regulations further state that to better integrate an EIS into State or local planning processes, the EIS must discuss any inconsistency of a proposed action with any approved State or local plans and laws. If an inconsistency is identified, the EIS must provide an evaluation of the extent to which the inconsistency can be reconciled (Title 40 CFR Part 1506.2[d]). The CEQA Guidelines (Title 14 of the California Code of Regulations [CCR] Sections 15000 *et seq*.) do not specifically require that a policy analysis be completed for a proposed project or its alternatives. However, Appendix G of the CEQA Guidelines, which contains the State model format for the environmental analysis of an Initial Study, contains an item under the land use and planning assessment that requires the identification of any conflicts that could occur between a proposed project and applicable land use plans, policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect. While a proposed project (or action) may be approved even though an inconsistency with applicable land use plans, policies and goals may occur, both CEQA an NEPA require that the evaluation be made for consideration by decision makers.

Impact L-5: Construction, operation or maintenance of the Project would conflict with relevant federal, State, or local land use plans, goals, or policies.

As outlined in Section 3.9.2.2, the proposed Project traverses multiple jurisdictions, all of which have adopted plans related to land use planning, development, and management. As a preliminary step toward identifying those plans which contain policies and goals specific to the development, operation and maintenance of transmission lines and their associated substations, a policy screening analysis was conducted. Nearly forty plans were reviewed as part of the screening process, the results of which are contained in the proposed Project's Policy Screening Report (Aspen Environmental Group, 2008). Of the various policies, goals and objectives identified in the Policy Screening Report for detailed evaluation, seventeen were directly related to land use and the construction, operation and maintenance of transmission lines. Table 3.9-20 provides the consistency analysis for these seventeen policies, goals and objectives. With the exception of the management goals related to the ANF land use zones, which are summarized in Table 3.9-4, the full text to these policies, goals and objectives is provided in Table 3.9-23.

Table 3.9-20. Consistency with Applicable Land Use Plans and Policies – Proposed Project

Agency	Plan/Policy	Consistency	Explanation
USDA Forest Service, Pacific Southwest Region	Land Management Plan: Angeles National Forest (2005)		
	National Strategic Plan Goal 4 - Help meet energy resource needs	Yes	The Project would utilize existing utility corridors within the ANF to deliver electricity from new wind farms in Eastern Kern County to the Los Angeles Basin. As no new utility corridors would be created on ANF lands, the proposed Project would not conflict with this policy.
	Forest Goal 4.1b - Support use of renewable resources	Yes	The purpose of the proposed Project is to provide the facilities to interconnect and integrate new wind generation in the Tehachapi Wind Resource Area. With wind energy identified in the proponent's purpose and need, the proposed Project is consistent with this policy that encourages the development of alternative energy sources.

Table 3.9-20. Consistency with Applicable Land Use Plans and Policies – Proposed Project

Agency	Plan/Policy	Consistency	Explanation
	Forest Goal 7.1 - Minimize the land area needed to support growing public needs	Yes	This goal states that facilities supporting urban infrastructure needs should be clustered on existing sites or designated corridors, minimizing the number of acres encumbered by Special Use Authorizations (SUAs). As it traverses ANF lands, Segment 11 would occur entirely within the designated Vincent Gould Utility Corridor, and Segment 6 would occur entirely within the designated Vincent Rio Hondo Utility Corridor. In addition, the proposed Project would remove existing LSTs for the Vincent-Pardee No. 1, the Pardee-Eagle Rock, the Vincent-Rio Hondo No. 2, and the Antelope-Mesa transmission lines in order to further minimize the land area needed to support utility infrastructure.
	Developed Areas Interface (DAI) Land Use Zone	Yes	Segment 11 of the proposed Project would traverse a DAI land use zones. As described in Tables 2.1.2 and 2.1.3 of the Land Management Plan, the DAI land use zone permits major utility corridors within designated areas and is also considered suitable for authorized motorized use. Segment 11 would be located entirely within the existing Vincent Gould Utility Corridor, and consequently would be consistent with this land use zone.
	Back Country (BC) Land Use Zone	Yes	Segments 11 and 6 would traverse BC land use zones. As described in Tables 2.1.2 and 2.1.3 of the Land Management Plan, the BC land use zone permits major utility corridors within designated areas and is also considered suitable for authorized motorized use. Segments 11 and 6 would be located entirely within the existing Vincent Gould and Vincent Rio Hondo utility corridors, respectively, and would be consistent with this land use zone.
	Back Country Motorized Use Restricted (BCMUR) Land Use Zone	Yes	Segments 11 and 6 would traverse BCMUR land use zones. As described in Tables 2.1.2 and 2.1.3 of the Land Management Plan, the BCMUR land use zone permits major utility corridors within designated areas and is also considered suitable for authorized motorized use. Segments 11 and 6 would be located entirely within the existing Vincent Gould and Vincent Rio Hondo utility corridors, respectively, and would be consistent with this land use zone.
	Back Country Non-Motorized (BCNM) Land Use Zone	Yes, with USDA Forest Service approval	Segment 6 would be located within the existing Vincent Rio Hondo Utility Corridor that either traverses, or is located adjacent to a BCNM land use zone. Segment 6 would not require the expansion of the existing ROW; consequently, the proposed Project would not conflict with this zoning designation. As described in Table 2.1.2 of the Land Management Plan, authorized motorized use may be permitted only with an exception by the USDA Forest Service. With USDA Forest Service approval, any construction-related activities that may occur within the BCNM zone would be consistent with this designation.
	Critical Biological Area Zone	Yes	Segment 6 would cross Alder Creek of the Upper Big Tujunga Critical Biological Area. However, no project-related activities would occur within Alder Creek itself; all other project-related work would be adjacent to, but not within this zone. The crossing of Alder Creek and project-related work adjacent to Big Tujunga Creek would not alter the biological functionality of this Critical Biological Area, as outlined in Section 3.4 (Biological Resources). Therefore, the proposed Project would be consistent with this land use zone.
	Lands 2 - Non-Recreation Special Use Authorizations	Yes	Segments 11 and 6 fall within the designated Vincent Gould and Vincent Rio Hondo utility corridors, respectively. In order to further minimize the land area needed to support utility infrastructure, the proposed Project would remove existing LSTs for the Vincent-Pardee No. 1, the Pardee-Eagle Rock, the Vincent-Rio Hondo No. 2, and the Antelope-Mesa transmission lines. As such, the proposed Project would not conflict with this policy.

Table 3.9-20. Consistency with Applicable Land Use Plans and Policies – Proposed Project

Agency	Plan/Policy	Consistency	Explanation
Kern County	County of Kern General Plan (March 13, 2007)		
	Appendix B: Rural Community Development Guidelines and Requirements (Land Use) - Compatibility of industrial development within a rural community	Yes	According to the Kern County Eastern Section and Central Section Maps from the Land Use, Open Space, and Conservation Element, the proposed Project route would not fall within any areas designated as Rural Community. However, this Land Use analysis considers the proposed Project's short- and long-term impacts on residential uses, including rural residential uses, and has identified mitigation measures to reduce potentially significant impacts to a level of less than significant. With full implementation of these mitigation measures, the proposed Project would be consistent with this policy. Please refer to Section 3.14 (Visual Resources) for more information on the assessment of light, glare and facility screening.
Los Angeles County	County of Los Angeles General Plan (January 1993)		
	General Goals and Policies 1) Policy 23 - Ensure compatible development in non-urban areas 2) Goal: Conservation of resources and environmental protection.	Yes	Segment 4 would be located across rural portions of northern Los Angeles County, and would require the construction of a new ROW parallel to an existing ROW. However, as the proposed Project would locate the new transmission line in this area adjacent to existing utility infrastructure, it would not introduce a new land use that is inconsistent with existing surroundings. Additionally, this Land Use analysis considers the proposed Project's short- and long-term impacts on residential uses, including rural residential uses, and has identified mitigation measures to reduce potentially significant impacts to a level of less than significant. With full implementation of these mitigation measures, the proposed Project would be consistent with this policy.
	Land Use (Quality, Compatible Design) 1) Policy 14 - Ensure project design is compatible with natural and manmade environment. 2) Goal: To encourage high quality design in all development projects, compatible with, and sensitive to, the natural and manmade environment	Yes	Segments 5, 6, 7, 11, and 8 would be constructed primarily within existing ROWs, while Segment 4 would be constructed in a new ROW that is parallel to an existing transmission line. As new utility infrastructure would be located either within or immediately adjacent to existing industrial land uses (e.g., transmission lines and substations), the proposed Project would be compatible with its surrounding environment. Additionally, Sections 3.8 (Hydrology and Water Quality), 3.7 (Geology, Soils, and Paleontology), 3.16 (Wildfire Prevention and Suppression), and 3.6 Environmental Contamination and Hazards) all provide the APMs and additional mitigation measures necessary to reduce potential impacts related to severe hazard areas, such as flood prone areas, active fault zones, steep hillsides, landslide areas and fire hazards to the maximum extent feasible. With full implementation of these APMs and mitigation measures, the proposed Project would be consistent with this policy.
City of Chino Hills	City of Chino Hills General Plan, adopted September 1994		
	Parks, Recreation and Open Space, Policy 1-18: Require 100-ft. perimeter around developed areas adjacent to open space.	Yes	The proposed Project would include new or expanded ROW along Segments 10 and 4; however, in these areas the transmission line itself would not be within 100 feet of any existing or designated parks, recreational areas, or open space areas. Approximately three miles of expanded ROW north of the Gould Substation would be required along Segment 11 in the ANF; however, this expanded ROW would be located within an existing utility corridor. A ROW relocation would be required along Segment 8A between approximately MP 5.9 and 7; however, the re-routed transmission line would be placed within an existing ROW. Segment 8A would additionally require expanded ROW between approximately MP 11.5 and 13.6 and a new 0.4 mile ROW west of Fullerton Road; existing land uses within both of these areas include open space/undeveloped and open space/recreation. However, in these areas the transmission line would be placed immediately adjacent to existing ROWs, and the width and set backs of the new and expanded ROWs would provide a 100-foot buffer between the transmission line itself and existing and designated land uses. Segment 8A would also require expanded ROW immediately west of the Mira Loma Substation; however, no existing or designated open space areas or parks are located within 100 feet of this area. Therefore, the proposed Project

Table 3.9-20. Consistency with Applicable Land Use Plans and Policies – Proposed Project

Agency	Plan/Policy	Consistency	Explanation
			would be consistent with this policy.
Puente Hills Landfill Native Habitat Preservation Authority	Resource Management Plan (June 2007)		
	Goal Use-2, Protect varied resources and promote an enjoyable and safe environment for visitors.	Yes	The proposed Project would include new and expanded ROW along Segment 8A within the proposed Sycamore-Turnbull Canyons SEA and Powder Canyon-Puente Hills SEA. However, from approximately MP 9 to MP 11.5 existing LSTs would be replaced with LWSPs (tubular steel poles), which would reduce their visual bulk and improve existing visual resource conditions. The new and expanded ROWs would be placed immediately adjacent to existing ROWs, and would provide the set-back needed to protect the public and provide a safe environment. Additionally, all resource-specific impacts associated with the proposed Project have been mitigated, as needed, to the maximum extent feasible. Therefore, the proposed Project would be consistent with this policy.
City of Chino	City of Chino General Plan (Land Use Element amended October 1981; Circulation Element amended February 1992)		
	Circulation Element (Aviation) Goal G3-7 - Land uses in Chino Airport area should fulfill goals and policies of General Plan and Chino Airport Master Plan	Yes	The Project would traverse the Chino Airport Referral Area "C" as designated in the Chino Airport Comprehensive Land Use Plan (San Bernardino County Airport Land Use Commission, 1991). Utilities are considered a "normally acceptable" land use within this referral area (Chino ALUCP, Figure III-9). As described in Section 3.9.3., SCE would be required to file FAA Form 7460-1 (Notice of Proposed Construction or Alteration) and Form 117–1 (Notice of Progress of Construction or Alteration) in order to evaluate the Project's effect on airports and to identify measures to enhance Project safety. Implementation of Mitigation Measures L-2b and L-4 would also ensure that the Project would not conflict with airport or aircraft operations.
	Eucalyptus Business Park Specific Plan (adopted December 18, 1990, revised October 2000)		
	Land Use Element, Objective 2d - Underground utility lines where feasible or provide appropriate landscape buffers	Yes	Within the vicinity of the Eucalyptus Business Park Specific Plan, a portion of the area's existing LSTs would be replaced with LWSPs (tubular steel poles) and approximately 9,500 linear feet of transmission line would be relocated underground. Additionally implementation of the proposed Project would require compliance with all of the mitigation measures outlined in Section 3.14 (Visual Resources) to integrate proposed Project features with its surrounding area and provide appropriate buffers and screening. With full implementation of these design features and the mitigation measures outlined in Section 3.14, the proposed Project would be consistent with this policy.
	East Chino Specific Plan (September 2002)		
	Land Use (Industrial) Policy 3 - Use of setbacks and screenings in buffering residences from industrial uses	Yes	Within the City of Chino Segments 8A, 8B and 8C of the proposed Project would be constructed within existing ROW and would utilize the setbacks and screening that are currently in place. Within the City of Chino the proposed Project would also include the same LST replacements and transmission line undergrounding as described above for the Eucalyptus Business Park Specific Plan. Additionally, implementation of the proposed Project would require compliance with all of the mitigation measures outlined in Section 3.14 (Visual Resources) to integrate proposed Project features with its surrounding area and provide appropriate buffers and screening. With full implementation of these design features and the mitigation measures outlined in Section 3.14, the proposed Project would be consistent with this policy.

Table 3.9-20. Consistency with Applicable Land Use Plans and Policies – Proposed Project			
Agency	Plan/Policy	Consistency	Explanation
City of Ontario	City of Ontario General Plan (adopted September 15, 1992)		
	Community Development Element, Policy 3.2 - Require buffers between incompatible land uses	Yes	Within the City of Ontario, Segments 8A and 8B and the majority of Segment 8C would be constructed within existing ROW and would utilize the same setbacks and screening that are currently in place. While Segment 8C would be require expanded ROW west of the Mira Loma Substation, existing land uses are agricultural, which is considered a compatible land use with transmission lines. Although this portion of Segment 8C is designated residential and is planned for futures residential development, the expanded ROW would utilize the same types of setbacks as Segments 8A and 8B. Additionally, implementation of the proposed Project would require compliance with all of the mitigation measures outlined in Section 3.14 (Visual Resources) to integrate proposed Project features with its surrounding area and provide appropriate buffers and screening. Therefore, the proposed Project would be consistent with this policy.

Forest Service Plans and Policies. Table 3.9-20 provides the analysis of the proposed Project's consistency with the USDA Forest Service's Land Management Plan for the ANF. As outlined in Section 3.9.2.2, within the ANF the proposed Project would traverse the following zones: Back Country Motorized Use Restricted; Back Country Non-Motorized; Back Country; Developed Area Interface; and, Critical Biological Area (Upper Big Tujunga Critical Biological Area). The proposed Project would additionally traverse the Aliso-Arrastre North and Middle Special Interest Areas, the San Gabriel River (West Fork) (an Eligible Wild and Scenic River for recreation), and the Soledad Front Country, Angeles High Country, Angeles Uplands West, Front Country, San Gabriel Canyon, and Big Tujunga Canyon Places. Although construction of the proposed Project would cause short-term impacts to these zones, Special Designation Overlays, and Places, all activities within the ANF would occur within designated utility corridors.

In addition to the above, as part of the proposed Project's approval, and prior to construction, the USDA Forest Service would issue a Special Use Easement, which would involve amending the 2005 ANF Land Management Plan, as necessary, to insure consistency with the USDA Forest Service's management direction for affected areas within the ANF. It is currently anticipated that two~~hree~~ Project-specific amendments would be required for the proposed Project to allow for its inconsistencies with the Land Management Plan's Standards S9 and S10, ~~Scenic Integrity Objectives, Pacific Crest Trail Scenic Standards,~~ and Riparian Conservation Area (RCA) Standards for those RCAs adversely impacted by the proposed Project. The USDA Forest Service would also issue temporary Special Use Permits, as needed, for construction-related activities which would be located outside of the proposed ROW widths to ensure compliance with USDA Forest Service plans and policies. Please refer to Section 2.2.14 (Alternative 2 – Forest Plan Amendments) for a discussion of the required Land Management Plan amendments. Section 3.4 (Biological Resources) and Section 3.14 (Visual Resources) provide additional detail for why these amendments would be necessary.

Following construction, temporary pulling, tensioning and splicing sites, staging areas and access or spur roads would be closed and restored per the requirements of the USDA Forest Service and the applicable mitigation measures specified in Sections 3.4 (Biological Resources), 3.7 (Geology, Soils, and Paleontology), 3.8 (Hydrology and Water Quality), and 3.14 (Visual Resources), and new or existing access and spur roads would be maintained in accordance with the USDA Forest Service's approval. Therefore, the proposed Project would be consistent with the USDA Forest Service land use policies listed in Table 3.9-20 and no impacts would occur.

Local Plans and Policies. Table 3.9-20 presents the proposed Project's consistency with the local land use plans and policies as they relate to transmission lines and associated facilities. Although implementation of the proposed Project would require both new and expanded ROWs and substation sites, these features would not conflict with either the land use plans and policies outlined in Table 3.9-20, or the other land use and management plans and policies presented in the Policy Screening Report. Additionally, as required by the CPUC's General Order No. 131-D, Section XIV B, the CPUC has consulted with all affected agencies regarding land use matters, and implementation of Mitigation Measures L-2b and L-4 would require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur.

CEQA Significance Conclusion

As part of the proposed Project's approval, and prior to construction, the USDA Forest Service would issue a Special Use Easement, which would involve amending the 2005 ANF Land Management Plan, as necessary, to insure consistency with the USDA Forest Service's management direction for affected areas within the ANF. As such, the proposed Project would be consistent with the USDA Forest Service land use policies. In addition, implementation of Mitigation Measures L-2b and L-4 would require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur. Therefore, impacts related to potential conflicts with applicable land use plans, goals, or policies would be mitigated to a level of less than significant (Class II).

3.9.6.2 Cumulative Effects Analysis

Geographic Extent

Land uses directly affected by the proposed Project would include those which are located either adjacent to the proposed Project, currently sited in one of its new or expanded ROWs, or currently sited in one of the new or expanded substation sites. Some land uses that are situated along temporary access roads may be indirectly affected. In order to determine whether affected land uses would be cumulatively impacted by other past or reasonably foreseeable future projects, the geographic extent for the land use cumulative effects analysis includes projects that have been identified within one-half mile of the proposed Project and its alternatives, which is consistent with the Land Use Study Area that was used to identify existing land uses and General Plan land use designations for the proposed Project and its alternatives (please refer to Section 3.9.2); consequently, this study area sufficiently encompasses any residential and non-residential land uses that may be cumulatively affected by the proposed Project and its alternatives.

Existing Cumulative Conditions

Any past project or activity that would preclude the use, or disturb or diminish the function of a particular land use within one-half mile of the proposed Project and its alternatives would contribute to the cumulative condition of the cumulative study area. The following is a description of the existing cumulative conditions, which includes a summary of the Project's regional setting as described in Section 3.9.2.

North Region. The North Region can be characterized by large expanses of undeveloped open space and agriculture with encroaching residential development. In the northern-most portion of the study area, established land uses include mining operations and existing wind energy generation facilities. In the Los Angeles County portion of the North Region, several large tracts of undeveloped land have been planned for future development. Specific development sites include the rapidly growing cities of Palmdale and

Lancaster, which have recently experienced a surge of residential, commercial, business, and industrial development.

Central Region. Located primarily within the ANF, the Central Region consists of undeveloped lands that are used for recreation and natural resource management. Non-recreational uses within this region include some rural residential, commodity, and commercial uses. Past projects and activities within the Central Region generally pertain to the management of roads, recreational uses, fuels (e.g., vegetation), and non-recreation special uses (e.g., national forest access, telecommunication sites, utility corridors). Approximately twelve utility corridors have been designated within the ANF, which include the 18.5-mile Vincent Gould and the 25.3-mile Vincent Rio Hondo corridors.

South Region. The South Region consists of a variety of land uses that range from agricultural and undeveloped open space areas to intensively developed residential, commercial and industrial uses. Numerous tracts of land planned for development or redevelopment are also located within this region. The thirty-three incorporated cities that are located in the Los Angeles County portion of this region, and the six incorporated cities located in the San Bernardino portion, have planned for and integrated utility uses within their development (e.g., transmission line ROWs and associated substations).

Reasonably Foreseeable Future Projects and Changes

The land use cumulative effects analysis utilizes the list approach to determine the potential cumulative effects of the proposed Project. Tables in Chapter 2 of the Draft EIR/EIS note the present and probable future projects within a geographic area, which includes the one-half mile radius of the Land Use Study Area. Any proposed or future project that would potentially preclude the use of, disturb, or diminish the function of a particular land use within this study area may contribute to a cumulative effect.

North Region. In the North Region of the Land Use Study Area, the following energy infrastructure projects have been proposed:

- **Tehachapi Wind Resource Area.** A report is being prepared that will serve as a programmatic analysis for the development of 4,500 MW of wind power in the Tehachapi Mountains of Kern County. The analysis will evaluate the environmental impacts of future wind development, including projects such as the PdV/Manzana Wind Energy Project and the Alta Wind Energy Project.
- **PdV/Manzana Wind Energy Project.** This project would construct a maximum of 300 wind turbines on a 6,435-acre site in the Willow Springs area of Kern County, and would interconnect to the proposed Project's Cottonwind Substation.
- **Alta Wind Energy Center.** This project would have a generation capacity of 1,500 MW, and the viability of the project would depend on the approval of Antelope Transmission Project Segments 1-3 and possibly Segment 10 of the proposed Project. The first couple hundred MW of the Alta project would be built concurrently with the proposed Project in order to allow the Alta project to come on-line as soon as possible.
- **Antelope Transmission Project Segments 1-3.** This project would construct a 25.6-mile 500-kV transmission line between Antelope and Pardee Substations, a 17.8-mile 500-kV transmission line between Antelope and Vincent Substations, a 26.1-mile 500-kV transmission line between Antelope Substation and proposed Substation 1 (in the Mojave Area), and a 9.4-mile 220-kV transmission line between proposed Substation 1 and proposed Substation 2 (in the Monolith Area). The project would traverse the ANF, and would affect existing and planned residential areas that include the cities of Lancaster and Palmdale.

Additional projects include residential development projects that have been proposed in the North Region, specifically within and in close proximity to the cities of Lancaster and Palmdale. In the city of Lancaster, approximately 9,798 single-family lots may be constructed across 4,500 acres. As many as 3,715 single-family lots may also be constructed within the City of Palmdale.

Central Region. Table 2.9-6 in this EIR/EIS lists planned and proposed projects on NFS lands, which include the Los Angeles River District, San Gabriel River Ranger District, and the Santa Clara/Mojave Rivers District of the ANF. However, no specific projects in the Central Region have been identified that would contribute to a cumulative impact on residential or non-residential land uses.

South Region. The cities that are traversed by the proposed Project within San Bernardino and Los Angeles counties have consistently experienced population growth between the years 2000 and 2005, and it is anticipated that the South Region will continue to be characterized by rapid growth. Between the years 2000 and 2030, it is expected that population will increase anywhere between 2.5 percent to 186.5 percent. Table 2.9-4 in this EIR/EIS describes the projects that have been planned or are proposed in the general vicinity of Alternative 2, and the following is a list of those that have been identified within one-half mile of the route. Given the estimated schedule for these projects and their location relative to the Project route, none of the projects listed below are anticipated to contribute to a cumulative impact on residential or non-residential land uses.

Altadena (Los Angeles County)

- Project 85257 (3 single-family lots)

East San Gabriel (Los Angeles County)

- Project TR061866 (10 attached condominiums/townhomes)
- Project TR062863 (21-unit condominium complex)
- Project (TR065808 (19 condominium units)

City of Temple City

- School: 8-classroom preschool at 6529 Rosemead Blvd.
- School: 7-classroom preschool at 6515 Rosemead Blvd.

San Gabriel (Los Angeles County)

- Project R2005-01996 (28 senior apartments)

City of Rosemead

- Mixed-Use: 15 condominiums at 8479 E. Garvey
- Hubert Trieu (6 single-family residential units)
- Ivan Ho (8 single-family residential units)
- Bill Lau (12 single-family residential units)
- Tom Lee (13 single-family residential units)
- Union Pacific Funding (8 single-family residential units)
- Sierra Eagle, LLC (6 single-family residential units)
- Peter and Brenda Jong (8 single-family residential units)

City of Duarte

- Attalla Ranch Project (15-lot residential subdivision)

Los Angeles County

- Aera Master Planned Community (2,935-acre community that includes 3,600 residential units)

Cumulative Impact Analysis

As described in Section 3.9.6.1, land use impacts associated with the proposed Project would result from: a preclusion, disruption, or division of planned and permitted land uses; short- or long-term conflicts with surrounding land uses; or, inconsistencies with federal, State or local land use policies or regulations.

Potential land use impacts that would arise from either construction, operational or maintenance activities would be cumulative in nature~~ly considerable~~ if they combined with similar effects of other projects.

Impact L-1 (Construction of the Project would temporarily disrupt, displace or preclude existing residential land uses) and Impact L-2 (Construction of the Project would temporarily disrupt, displace or preclude existing non-residential land uses) would not contribute to a cumulative~~ly considerable~~ effect. No projects would be constructed at the same time as the proposed Project that would affect the residential or non-residential land uses within 1,000 feet of the proposed Project's construction-related activities. Impact L-1 and Impact L-2 are temporary in nature and would not continue beyond the construction period. As such, Impacts L-1 and L-2 would not potentially combine with the effects of future projects following Project construction (No Impact).

Impact L-3 (Operation and maintenance of the Project would cause long-term disruption of existing and planned residential land uses) would create an incremental effect that is cumulative in nature~~ly considerable~~. As discussed in Section 3.9.6.1, portions of the proposed Project Segments 10 and 4 and the proposed Whirlwind Substation would be constructed within the planned residential development boundaries of the Willow Springs Specific Plan. Segments 4 and 5 would also abut existing or planned residential properties in Los Angeles County. Other energy projects have been proposed that would affect these same land uses. The proposed PdV/Manzana Wind Energy Project would occupy 6,435 acres in the Willow Springs area, which may preclude future residential development. The proposed Antelope Transmission Project Segments 1 through 3 would be constructed parallel to the proposed Project through the existing and future residential communities of Ritter Ranch and Anaverde (City of Palmdale). However, prior to construction of proposed Project Segments 10 and 4, SCE would be required to acquire regulatory approvals for new and expanded ROWs and substation sites, as well as the rights to construct and operate the proposed Project with affected private property owners. In addition, Segment 5 would be located within existing ROW and would not preclude residential development. Given that SCE would purchase or lease new and expanded substation sites and ROWs in full agreement with existing property owners, the Project's incremental contribution to the cumulative impact would be less than significant (Class III).

Impact L-4 (Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses) would create an incremental effect that is cumulative in nature~~ly considerable~~. Non-residential land uses within one-half mile of the proposed Project would include mining, utilities, resource management, transportation, and light industrial uses (please refer to the discussion in Section 3.9.6.1). These land uses are under the jurisdiction of several State and federal agencies that include the California SLC, California DWR, California Department of Parks and Recreation, BLM, and DoD. A number of county and city jurisdictions would also be traversed by the proposed Project. As described above for Impact L-3, other energy projects have been proposed within one-half mile of the proposed Project. The PdV/Manzana Wind Energy Project and the Alta Wind Energy Center may conflict with existing or proposed non-residential land uses in Kern County. The impacts of these projects in combination with the proposed Project would result in a potentially significant cumulative effect on non-residential land uses. However, Mitigation Measure L-4 would reduce the incremental effect of the proposed Project. This mitigation measures would allow the affected agencies to address and reconcile any future potential conflicts that the proposed Project may pose to the management and use of non-residential lands. With implementation of Mitigation Measure L-4 the proposed Project's cumulative impact would be less than significant (Class II).

Impact L-5 (Construction, operation or maintenance of the Project would conflict with applicable federal, State or local land use plans, goals, or policies) would not contribute to a cumulative~~ly considerable~~ effect (Class III). The proposed Project would be consistent with USDA Forest Service land use policies and local land use plans and policies as they relate to transmission lines and associated facilities (please refer to Table 3.9-20 and Section 3.9.6.1), and would be authorized by the USDA Forest Service through it permitting and Forest Plan amendment prior to construction. Additionally, the SCE would be required to implement Mitigation Measures L-2b and L-4 to avoid conflicts with any applicable federal, State or local land use plans, goals, or policies that would be cumulatively considerable.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

As discussed in Section 3.9.6.1, Impact L-1 (Construction of the Project would temporarily disrupt, displace or preclude existing residential land uses), Impact L-2 (Construction of the Project would temporarily disrupt, displace or preclude existing non-residential land uses), and Impact L-5 (Construction, operation or maintenance of the Project would conflict with applicable federal, State or local land use plans, goals, or policies) would not contribute to a long-term cumulatively considerable effect. Impact L-3 (Operation and maintenance of the Project would cause long-term disruption of existing and planned residential land uses) would create an incremental effect that, in combination with other energy projects, would result in a less-than-significant cumulative impact (Class III). Therefore, no mitigation measures are necessary to reduce the incremental effects of Impacts L-1, L-2, L-3, and L-5.

Impact L-4 (Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses) would contribute to an incremental effect that, in combination with other energy projects, would create a potentially significant cumulative impact on non-residential land uses (Class II). However, Mitigation Measure L-4 would reduce the incremental effect of the Project to less than significant (Class II).

3.9.7 Alternative 3: West Lancaster Alternative

The following section provides an evaluation of the potential land use impacts associated with Alternative 3, the West Lancaster Alternative, as described in Section 3.9.2.3. This evaluation is based upon the same land use impact criteria and assessment methodology that were used for the evaluation of the proposed Project, as outlined in Sections 3.9.4.

3.9.7.1 Direct and Indirect Effects Analysis

Preclude a permitted land use, or create a disturbance that would diminish the function of a particular land use (Criterion LU1)

As discussed in Section 3.9.6.1, Project construction would temporarily disrupt, displace, or preclude existing residential land uses (Impact L-1). At a localized scale, construction-related impacts associated with the rural homes situated along the east and west sides of 100th Street between Avenues I and J would be substantially reduced under Alternative 3. Re-routing along this portion of Segment 4 would shift the majority of transmission line construction to the west of these residences by a distance of approximately one-half mile. Therefore, the intensity of construction-related effects on these residential properties would be displaced. However, all other residential properties affected by this alternative in the North, Central and South Regions would remain the same as those described in Section 3.9.6.1 for the proposed Project. Due to the proximity of residential uses to construction-related activities, in conjunction with the intensity of the workforce and equipment needed and the duration of construction itself, impacts to residential uses

would be considered adverse. With implementation of Mitigation Measures L-1a through L-1c, as provided in Section 3.9.6.1, in conjunction with implementation of the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses would be adverse but mitigable to a level that is less than significant (Class II).

Construction of Alternative 3 would temporarily disrupt, displace, or preclude existing non-residential land uses (Impact L-2). Non-residential land uses within one-half mile of Alternative 3 include agriculture and a local motocross or off-road vehicle track which is approximately 4.5 acres in size. The motocross or off-road vehicle track is located approximately the same distance (an estimated 0.3 mile) from the Alternative 3 ROW that it is from the proposed Project ROW; therefore, construction-related impacts to this facility would be the same. Construction-related impacts on agriculture for Alternative 3 are addressed in Section 3.2 (Agricultural Resources). All other construction-related impacts associated with non-residential uses in the North, Center and South Region would be the same for Alternative 3 as described for the Proposed Project (Section 3.9.6.1). These impacts would be considered adverse. However, with implementation of Mitigation Measures L-2a and L-2b, in conjunction with implementation of the Mitigation Measures L-1a through L-1c and the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to non-residential land uses would be mitigated to a level that is less than significant (Class II).

As discussed in Section 3.9.6.1, operation and maintenance of the Project would have the potential to create long-term disruptions to existing and planned residential land uses (Impact L-3). Implementation of Alternative 3 would require the placement of a new 200-foot wide ROW, and increase the total length of proposed Segment 4 by approximately 0.4 mile. The increased length of Segment 4 would not appreciably change the total land area required for implementation of the proposed Project. No other ROW reductions or modifications within the North, Central or South Regions would occur under Alternative 3. Consequently, as with the proposed Project, impacts related to the preclusion or incompatibility with existing and future planned residential development would be adverse but less than significant (Class III) and no mitigation measures are required. It is noted, however, that the proposed Project's long-term impacts to those existing residents located along the east and west sides of 100th Street between Avenues I and J would be substantially reduced under Alternative 3.

Operation and maintenance of Alternative 3 would potentially cause long-term disruption of existing and planned non-residential land uses (Impact L-4). As outlined in Section 3.9.2.3, non-residential land uses within one-half mile of Alternative 3 include agriculture and a local motocross or off-road vehicle track. Following construction, no permanent disruptions to the existing operations of the motocross or off-road vehicle track would be anticipated to occur. Please refer to Section 3.2 (Agricultural Resources) for a discussion of this alternative's effects on agricultural uses. Other than the re-route associated with proposed Segment 4, no other ROW modifications in the North, Central, or South Region would occur. Therefore, the same long-term impacts to existing and planned non-residential land uses that have been identified for the proposed Project, as addressed in Section 3.9.6.1, would occur under Alternative 3. With implementation of Mitigation Measure L-4 no significant preclusions of, or restrictions to, the management and uses of non-residential lands would be anticipated to occur. Impacts would be adverse but mitigable to a level that is less than significant (Class II).

Conflict with any applicable federal, State, or local land use plans, goals, or policies (Criterion LU2)

As discussed in Section 3.9.6.1, the Project would potentially conflict with relevant federal, State, or local land use plans, goals, or policies (Impact L-5). Under Alternative 3, the same land use plans, goals and policies which are outlined for the proposed Project and summarized in Table 3.9-20 would apply. As required by the CPUC's General Order No. 131-D, Section XIV B, the CPUC has consulted with all affected agencies regarding land use matters, and implementation of Mitigation Measures L-2b and L-4 would require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur. Therefore, impacts related to potential conflicts with applicable land use plans, goals, or policies would be mitigated to a level of less than significant (Class II).

3.9.7.2 Cumulative Effects Analysis

Geographic Extent

Implementation of Alternative 3 would increase the total length of proposed Segment by approximately 0.4 mile. However, this minor re-route would remain within the one-half mile radius that was established as both the Land Use Study Area and the cumulative study area identified for the proposed Project. No other ROW reductions or modifications within the North, Central, or South Regions would occur under Alternative 3. As such, the geographic extent for Alternative 3 would be identical to Alternative 2 (please refer to Section 3.9.6.2).

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 3 would be identical to Alternative 2, as described in Section 3.9.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes for Alternative 3 would be identical to Alternative 2, as described in Section 3.9.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 3 would be similar to the proposed Project (Alternative 2). As such, the description in Section 3.9.6.2 of the cumulative impacts from construction, operation and maintenance of Alternative 2 would apply to Alternative 3. The following is a summary of the Alternative 3 cumulative impacts.

No projects would be constructed at the same time as Alternative 3 that would affect the residential (Impact L-1) or non-residential (Impact L-2) land uses within 1,000 feet of construction-related activities. Consequently, Impact L-1 (Construction of the Project would temporarily disrupt, displace or preclude existing residential land uses) and Impact L-2 (Construction of the Project would temporarily disrupt, displace or preclude existing non-residential land uses) from Alternative 3 would not contribute to a cumulative~~ly considerable~~ effect (No Impact).

As the majority of the Alternative 3 route is identical to Alternative 2, this alternative would create an incremental effect on the long-term disruption of existing and planned residential land uses that is cumulative in nature~~ly considerable~~ (Impact L-3). The same energy projects that would affect land uses

along the Alternative 2 route (PdV Wind Energy Project and Antelope Transmission Project Segments 1-3) would also contribute to a cumulative effect under Alternative 3. As discussed in Section 3.9.6.1, SCE would purchase or lease any new and expanded substation sites and ROWs in full agreement with existing property owners. Consequently, the alternative's incremental contribution to the cumulative impact would be less than significant (Class III).

The Alternative 3 route would traverse the same jurisdictions as Alternative 2 and would similarly affect non-residential land uses along the route (Impact L-4). As described for Alternative 2, the PdV Wind Energy Project and the Alta Wind Energy Center may conflict with non-residential land uses in Kern County. While the impacts of these projects in combination with Alternative 3 would result in a potentially significant cumulative effect, Mitigation Measure L-4 would reduce the incremental effect of the alternative to less than significant (Class II).

Alternative 3 traverses the same jurisdictions as Alternative 2, and as such, would be subject to the land use plans, goals, and policies that are applicable to Alternative 2 (Impact L-5). Alternative 3 would be consistent with USDA Forest Service policies and local land use plans and policies as they relate to transmission lines, and would be authorized by the USDA Forest Service through its permitting and Forest Plan amendment processes prior to construction. The SCE would also be required to implement Mitigation Measures L-2b and L-4 to avoid conflicts that would ~~be cumulatively considerable~~cause cumulative impacts (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

As discussed in Section 3.9.6.2, no mitigation measures are recommended to reduce the incremental effects of Impacts L-1, L-2, L-3, and L-5. Impact L-4 (Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses) would contribute to an incremental effect from Alternative 3 that, in combination with other energy projects, would create a potentially significant cumulative impact on non-residential land uses (Class II). However, Mitigation Measure L-4 would reduce this cumulative impact to a level of less than significant.

3.9.8 Alternative 4: Chino Hills Route Alternatives

The following section provides an evaluation of the potential land use impacts associated with Alternative 4, the Chino Hills Route Alternatives. This evaluation is based upon the same land use impact criteria and assessment methodology that were used for the evaluation of the proposed Project, as outlined in Section 3.9.4. Under all of the routing options of Alternative 4, no changes to the land use-related impacts associated with the proposed Project would occur in the North or Central Regions; consequently, the following discussion is focused on land use-related impacts in the South Region as they relate to proposed Segments 8A, 8B and 8C.

3.9.8.1 Direct and Indirect Effects Analysis

Preclude a permitted land use, or create a disturbance that would diminish the function of a particular land use (Criterion LU1)

As discussed in Section 3.9.6.1 for the proposed Project, construction of Alternative 4 would temporarily disrupt, displace, or preclude existing residential land uses (Impact L-1). Under Routes A through D, no construction-related activities would occur along either MP 19.2 though MP 35.2 of proposed Segment 8A, ~~MP 0.0 through MP 6.8 of proposed Segment 8B,~~ or MP 0.0 through MP 6.4 of proposed Segment 8C (it is noted that Segment 8C is located in the same ROW and on the same infrastructure as Segment

8A). However, upgrades to proposed Segment 8B between MP 0.0 and MP 6.8 (in the cities of Chino and Ontario) would still be necessary, although no expanded ROW would be required along proposed Segment 8B between MP 5.65 and MP 6.1 (0.45 miles). As illustrated in Sheet 9 of 9 of Figures A-1 and A-2, all of these proposed segments traverse large tracts of land that include either existing or planned residential uses. Therefore, under the Alternative 4 routes, there would be a significant decrease in the temporary construction-related impacts to residential uses within the cities of Chino Hills, Chino and Ontario as related to proposed Segments 8A and 8C, but construction-related impacts to residential land uses along proposed Segment 8B would still occur and would be the same as for Alternative 2. As with the proposed Project, with implementation of Mitigation Measures L-1a through L-1c (please refer to Section 3.9.6.1), in conjunction with implementation of the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses (Impact L-1) along proposed Segment 8B would be adverse but mitigable to a level of less than significant (Class II).

The following describes the effects of Impact L-1 associated with each of the Alternative 4 routes:

- **Route A:** Under Route A, existing residential uses occur west and north of Chino Hills State Park, as summarized in Table 3.9-13. In this area the transmission line would be placed in an existing ROW, which would be widened by an estimated 150 feet. During construction, residents within an estimated one-half mile of the ROW would be subject to the same types of direct and indirect effects as described for the proposed Project, as outlined in Section 3.9.6.1. However, with implementation of Mitigation Measures L-1a through L-1c (please refer to Section 3.9.6.1), in conjunction with implementation of the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses would be adverse but mitigable to a level of less than significant (Class II).
- **Route B:** This route would maintain the same ROW as Route A west and north of Chino Hills State Park, and, therefore, would temporarily affect residential land uses. However, with implementation of Mitigation Measures L-1a through L-1c, as provided in Section 3.9.6.1, in conjunction with implementation of the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses (Impact L-1) would be adverse but mitigable to a level of less than significant (Class II).
- **Route C:** The original ~~is r~~Route C would follow the same ROW as Routes A and B through Los Angeles and Orange Counties, which includes residential uses, as described above. Route C would additionally include a new ROW and switching station north of Chino Hills State Parks in the City of Chino Hills; rural residential land uses occur within one-half mile of this area and would also be affected by construction-related activities. As with Routes A and B, with implementation of Mitigation Measures L-1a through L-1c (please refer to Section 3.9.6.1), in conjunction with implementation of the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses (Impact L-1) would be adverse but mitigable to a level of less than significant (Class II).
- **Route C Modified:** The Route C Modified would generally follow the same ROW as the original Route C except that a new gas-insulated switching station would be located an estimated 0.4 mile north of Chino Hills State Park and approximately 2,500 feet north of the switching station location under Route C. Impacts to residential land uses would be the same as described for Routes A, B and C. Implementation of Mitigation Measures L-1a through L-1c (please refer to Section 3.9.6.1), in conjunction with implementation of the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses (Impact L-1) would be adverse but mitigable to a level of less than significant (Class II).
- **Route D:** This route would follow the same ROW as Route C leading up to Chino Hills State Park and thus would affect residential land uses within an estimated one-half mile of construction zones. Route D would additionally affect existing residential areas within the City of Chino Hills which are located north of Chino Hills State Park along Ferree Street, Woodview Road, south of Soquel Canyon Parkway and west of

Butterfield Ranch Road. In comparison to Routes A through C, construction of Route D would affect the greatest number of residents during construction. However, with implementation of Mitigation Measures L-1a through L-1c (please refer to Section 3.9.6.1), in conjunction with implementation of the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses (Impact L-1) would be adverse but mitigable to a level of less than significant (Class II).

Construction of Alternative 4 would temporarily disrupt, displace, or preclude existing non-residential land uses (Impact L-2). The following describes the effects of this impact associated with each of the Alternative 4 routes:

- **Routes A and D:** These routes would traverse non-residential lands used for grazing, Chino Hills State Park, and open space (undeveloped) lands east of the Park. Please refer to Sections 3.2 (Agricultural Resources) and 3.15 (Wilderness and Recreation) for an assessment of the construction-related impacts associated with these subject areas. During construction, these two alternatives would temporarily disrupt, displace or preclude operational and maintenance activities within the Park; the duration of these impacts would be anticipated to be the greatest for Route A due to the need to construct a new switching station. The Chino Hills State Park General Plan allows for patrol and utility company vehicles and motorized equipment on designated Park roads and trails within the Core Habitat and Natural Open Space Zones. Utility company vehicles and motorized equipment are also allowed on designated Park roads and trails in the Recreation and Operations Zone. However, the Chino Hills State Park General Plan does not expressly provide any goals, policies or other management directives that would permit the construction of new or expanded utilities within the Park's boundaries, and additionally states that existing transmission lines within the Park are in conflict with its uses and management activities. Consequently, it is anticipated that the California Department of Parks and Recreation would consider construction of Routes A and D a significant impact to both the Park itself and its management and maintenance operations. Although implementation of Mitigation Measures L-1a through L-1c and L-2a and L-2b, in conjunction with the mitigation measures provided in Sections 3.3 (Air Quality), 3.4 (Biological Resources), 3.10 (Noise), 3.13 (Traffic and Transportation), and 3.15 (Wilderness and Recreation), would lessen construction-related impacts within the Park, it is not anticipated that these mitigation measures would reduce impacts to a level of less than significant. Construction-related impacts to non-residential uses within the Park would be significant and unavoidable (Class I).

  Under Route A no other non-residential land uses would be affected. Under Route D the transmission line ROW, a switching station, and an all-weather access road for the switching station would be located east of the Park. Although this area is currently undeveloped, it was previously used as a military weapons testing site and is considered a hazardous waste site. However, assuming that all required environmental clearances (e.g., completion of necessary hazardous materials testing, remediation work, etc.) could be obtained for construction, operation and maintenance within this area, and with implementation of Mitigation Measures L-2a and L-2b impacts to non-residential uses east of the Park would be reduced to a level of less than significant.

- **Route B:** In comparison to Routes A and D, Route B would traverse the greatest distance of land within Chino Hills State Park. Construction-related impacts to non-residential uses within the Park would be significant and unavoidable (Class I).

- **Route C:** Potential construction-related impacts to non-residential land uses east of the original Route C switching station location would be identical to Route D. Although Route B traverses the greatest distance within the Park and Route A would involve a new switching station within the Park, it would be anticipated that construction-related activities associated with Route C would be of a similar or perhaps greater duration than Routes A, ~~and~~ B and D because it would involve the dismantling and re-construction (re-routing) of three existing transmission lines within the Park. Consequently, temporary impacts due to construction within the Park would be equal to or potentially greater than Alternatives A, B and D. As addressed under Routes A, B and D, construction-related impacts to non-residential uses within the Park under Route C would be significant and unavoidable (Class I).

- **Route C Modified:** Construction-related impacts to non-residential land uses under Route C Modified would be nearly identical to those under the original Route C. The location of the new gas-insulated switching station under Route C Modified would be moved to the north by approximately 2,500 feet (in comparison to

the original Route C) and may be smaller in size than the original Route C switching station. However, construction-related activities associated with Route C Modified would be of a similar or potentially greater duration than Routes A, B and D because it would involve the dismantling and re-construction (re-routing) of three existing transmission lines within the Park. Consequently, temporary impacts due to construction within the Park would be equal to or potentially greater than Alternatives A, B and D. As addressed under Routes A, B and D, construction-related impacts to non-residential uses within the Park under Route C Modified would be significant and unavoidable (Class I).

In comparison to the proposed Project, no other changes under these routing options would occur within the South Region. With implementation of Mitigation Measures L-2a and L-2b, as outlined in Section 3.9.6.1, in conjunction with implementation of the Mitigation Measures L-1a through L-1c and the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to non-residential land uses would be reduced to a level of less than significant (Class II).

As illustrated on Sheet 9 of 9 of Figures A-1 and A-2, between MP 19.2 and MP 35.2 of proposed Segment 8A ~~, MP 0.0 through MP 6.8 of proposed Segment 8B,~~ and MP 0.0 through MP 6.4 of proposed Segment 8C, there are multiple tracts of land which are used for non-residential purposes such as commercial and retail services and general, light and heavy industry. Under Routes A through D no construction along these portions of the proposed Project's ROW would occur; therefore, implementation of any of these alternatives would significantly decrease construction-related impacts to non-residential uses within the cities of Chino Hills, Chino and Ontario as related to proposed Segment 8C and proposed Segment 8A east of MP 19.2. However, as noted under Impact L-1, upgrades along proposed Segment 8B between MP 0.0 and MP 6.8 would still be necessary. As with the proposed Project, with implementation of Mitigation Measures L-2a and L-2b, as outlined in Section 3.9.6.1, in conjunction with implementation of the Mitigation Measures L-1a through L-1c and the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to non-residential land uses along proposed Segment 8B would be reduced to a level of less than significant (Class II).

As discussed in Section 3.9.6.1, operation and maintenance of the Project would have the potential to create long-term disruptions to existing and planned residential land uses (Impact L-3). The following describes the effects of this impact associated with each of the Alternative 4 routes:

- **Routes A and B:** Outside of the boundaries of Chino Hills State Park, Routes A and B would be placed in an existing ROW which would be widened by approximately 150 feet. Additionally, Route B would require an estimated four to twelve acres of land for a new switching station, as well as an all-weather access road for the switching station, in an area which is designated for low density residential development. Therefore, future residential uses within the widened ROW west and north of Chino Hills State Park, and within and surrounding the Route B switching station would be permanently precluded. Although Routes A and B would significantly reduce long-term disruptions of existing and planned residential uses between MP 19.2 though MP 35.2 of proposed Segment 8A~~, MP 0.0 through MP 6.8 of proposed Segment 8B,~~ and MP 0.0 through MP 6.4 of proposed Segment 8C, the same long-term effects on residential uses would occur west of MP 19.2 of Segment 8A and between MP 0.0 and MP 6.8 of proposed Segment 8B, as well as ~~along~~ all other portions of the proposed Project in the South, Central and North Regions. As outlined in Section 3.9.6.1 for the proposed Project, restrictions of, and incompatibility with, current and future residential land uses within and adjacent to proposed new and expanded ROWs and substation expansion areas, would be adverse but less than significant (Class III).
- **Routes C, C Modified, and D:** In comparison to Routes A and B, Routes C, C Modified, and D would affect a greater number of residents in the vicinity of Ferree Street, Woodview Road, and areas south of Soquel Canyon Parkway and west of Butterfield Ranch Road (Impact L-3). Additionally, Routes C, C Modified, and D would require an estimated four to twelve acres of land for a new switching station, as well

an all-weather access road for their respective switching stations, in areas which are designated as either Agriculture/ Ranches (Route C and Route C Modified) or Low Density Residential (Route D). As with Routes A and B, these ~~two~~three routes would reduce long-term impacts with existing and planned residential land uses along proposed Segments 8A (MP 19.2 to 35.2)~~B~~ and 8C, although all impacts associated with Segment 8B (6.8 miles) would still occur. ~~and east of MP 19.2 of proposed Segment 8A. However~~In addition, the same impacts as described for the proposed Project would occur along all other segments of Alternative 4. These impacts would be adverse but less than significant (Class III).

Operation and maintenance of Alternative 4 would potentially cause long-term disruption of existing and planned non-residential land uses (Impact L-4). The following describes the effects of this impact associated with each of the Alternative 4 routes:

- **Route A:** This route would require the expansion of approximately 2.3 miles of ROW within Chino Hills State Park by 150 feet. Route A would additionally require the permanent use of between four to 12 acres of land within the Park for a new switching station, as well as the construction of an all-weather road for the switching station. With the addition of these features, Route A would ~~expand transmission line facilities within the Park by~~result in the permanent disturbance of approximately 25.6 – 38.5 acres. This loss of land would be anticipated to cause long-term conflicts with, and disruptions of, existing uses and operations within the Park. Additionally, the placement of these features would be anticipated to conflict with the Park's management of affected Natural Open Space and Core Habitat Zones. These impacts would be significant and unavoidable (Class I). No mitigation measures have been identified that would reduce these impacts to a level of less than significant.

  As addressed above under Impact L-2, Route A would also traverse lands which are currently used for grazing. Please refer to Section 3.2 (Agricultural Resources) for an analysis of the long-term effects on this use which would occur under Route A. No other non-residential land uses occur within one-half mile of Route A, therefore, no other long-term disruptions specific to this would occur.

- **Route B:** Under Route B, approximately 4.3 miles of existing ROW would be widened by an estimated 150 feet in Chino Hills State Park. The expansion would equal approximately 84 acres of new transmission line ROW within the Park. Permanent land disturbance associated with Route B would be approximately 17.5 – 26.2 acres. Although the new transmission line would not be expected to fully preclude or disrupt exiting uses of the Park, the reduction in land would be anticipated conflict with the long-term management of affected portions of the Park's Natural Open Space, Core Habitat, Historic and Recreation and Operations zones. These long-term conflicts would be significant and unavoidable (Class I). No mitigation measures have been identified that would reduce these impact to a level of less than significant.

  As with Route A, Route B would also traverse lands which are currently used for grazing west of the Park and opens space (undeveloped land) east of the Park. Please refer to the Section 3.2 (Agricultural Resources) for an analysis of the long-term effects of Route B on grazing. As noted under Impact L-2, above, east of the Park Route B would involve the construction, operation and maintenance of a transmission line, switching station, and all-weather access road for the switching station on property which was previously used as a military weapons testing site and is considered a hazardous waste site. However, assuming that all required environmental clearances for could be obtained for construction, operation and maintenance within this area (e.g., completion of necessary hazardous materials testing, remediation work, etc.) long-term impacts to non-residential uses east of the Park would be less than significant. No other non-residential land uses occur within one-half mile of Route B.

- **Route C:** Implementation of the original Route C would result in the construction of approximately 3.1 miles of new ROW through Chino Hills State Park; 1.5 miles of this new ROW would be 330 feet in width and 1.6 miles would be 480 feet in width. Implementation of Route C would additionally involve construction of an all-weather access road traversing through the Park to a new switching station located along the Park's western boundary. During construction an estimated 377.6 – 566.5 acres would be temporarily disturbed and after restoration activities, approximately 24.4 – 36.6 acres would be permanently disturbed under Route C. Implementation of Route C would additionally remove and restore approximately 5.9 miles of existing 500/220-kV ROW within the Park. Per the mitigation measures specified in Sections 3.4 (Biological Resources) and 3.14 (Visual Resources), these lands would be fully restored following transmission line removal. These restored lands would also be located within the Park's Core Habitat and Natural Open Space

zones. Although the new and re-routed transmission lines would not be expected to fully preclude or disrupt exiting uses of the Park, they would be anticipated conflict with the long-term management of affected portions of the Park's Natural Open Space and Core Habitat zones. These long-term conflicts would be significant and unavoidable (Class I). No mitigation measures have been identified that would reduce these impacts to a level of less than significant. It is noted, however, that the net gain in restored lands under this routing option would be preferable to the net losses that would occur under Routes A, B and D.

Impacts to non-residential land uses west of the Park, including a new switching station and an all-weather access road to the station, would involve lands used for grazing. Please refer to Section 3.2 (Agricultural Resources) for a discussion of these impacts.

Lands north of the Park traversed by the original Route C are also considered to be of significant natural resource value, as well as aesthetic value. They additionally act as a buffer to the Park's inner core habitat areas. As such, the California State Department of Parks and Recreation has indicated that these lands have been identified for future acquisition and incorporation into the Park. Implementation of Route D would substantially degrade the value of these lands, and could prevent their purchase and incorporation into the Park by the California State Department of Parks and Recreation.

- **Route C Modified:** Implementation of the Modified Route C option would result in the construction of approximately 3.0 miles of new ROW through Chino Hills State Park. An estimated 1.5 miles of this new ROW would be 150 feet in width, and approximately 1.5 miles of the new ROW would be 225 feet in width; consequently, during construction an estimated 360.6 – 540.7 acres would be temporarily disturbed and an estimated 41.3 – 61.9 acres would be permanently disturbed following restoration. Similar to the original Route C, an estimated 4.0 miles of existing 500/220-kV ROW within the Park would be restored. Although the new and re-routed transmission lines would not be expected to fully preclude or disrupt exiting uses of the Park, they would be anticipated conflict with the long-term management of affected portions of the Park's Natural Open Space and Core Habitat zones. These long-term conflicts would be significant and unavoidable (Class I). No mitigation measures have been identified that would reduce these impacts to a level of less than significant. It is noted, however, that the net gain in restored lands under this routing option would be preferable to the net losses that would occur under Routes A, B and D. In comparison to the original Route C, Route C Modified would result in a slightly greater acreage of lands temporarily and permanently disturbed; therefore, Route C Modified would not be preferable to the original Route C. As with the original Route C, Route C Modified would also degrade the natural resource, aesthetic and habitat buffer value of the lands north of the Park, and could prevent their future acquisition and incorporation into the Park by the California State Department of Parks and Recreation.

  Route D: Under Route D approximately 1.4 miles of expanded transmission line ROW would be placed within the Chino Hills State Park, traversing the Park's Recreation and Operations and Natural Open Space zones, equaling approximately 26 acres. As with the other routes, Route D would not be expected to fully preclude or disrupt exiting uses of the Park; however, it would be anticipated to conflict with the long-term management of affected portions of the Park's Recreation and Operations and Natural Open Space zones. These long-term conflicts would be significant and unavoidable (Class I). No mitigation measures have been identified that would reduce these impacts to a level of less than significant. As with the original Route C and Route C Modified, Route D would degrade the natural resource, aesthetic and habitat buffer value of the lands north of the Park, which could prevent their future acquisition and incorporation into the Park by the California State Department of Parks and Recreation. Impacts to other non-residential uses outside of the Park would be the same as those addressed under Route B.

In comparison to the proposed Project, no other changes under Routes A through D would occur in the South Region. Under the Alternative 4 routes, no new transmission lines would be constructed along proposed Segments ~~8B and~~ 8C, or east of MP 19.2 of proposed Segment 8A. Therefore, Routes A through D would significantly decrease any long-term impacts to non-residential uses within the cities of Chino Hills, Chino and Ontario, as related to proposed Segment 8A east of MP 19.2 and Segment 8C. However, upgrades along proposed Segment 8B would still be necessary in the cities of Chino and Ontario, although expanded ROW between MP 5.65 and MP 6.1 (0.45 mile) would not be required. All other ~~other~~ long-term non-residential land use~~s~~ impacts (with the exception of proposed Segment~~s 8B and~~

8C, and lands east of MP 19.2 along proposed Segment 8A), would be the same as described in Section 3.9.6.1.

Conflict with any applicable federal, State, or local land use plans, goals, or policies (Criterion LU2)

As discussed in Section 3.9.6.1, the Project would potentially conflict with relevant federal, State, or local land use plans, goals, or policies (Impact L-5). Alternative 4 would be located within the same jurisdictions as the proposed Project along Segments 4, 5, 6, 7, 10 and 11. However, under Alternative 4 lands under the jurisdiction of Orange County and the City of Brea would also be traversed. ~~, and~~While no jurisdictions associated with proposed Segment~~s~~ ~~8B and~~ 8C or east of MP 19.2 of proposed Segment 8A would be affected as part of Alternative 4, the necessary upgrades to proposed Segment 8B would still affect the cities of Chino and Ontario. Therefore, the land use plans and policies associated with the cities of Chino and Ontario, as provided in Table 3.9-20, would still~~not~~ apply to Alternative 4. Table 3.9-21 provides the consistency analysis for applicable goals of the Chino Hills State Park General Plan; the full text to these goals is provided in Table 3.9-23. As outlined in the Policy Screening Report, no policies, goals or objectives associated with the General Plans for Orange County and the City of Brea were identified for further evaluation; Alternative 4 would not conflict with either one of these planning documents.

Table 3.9-21. Consistency with Applicable Land Use Plans and Policies – Alternative 4

Agency	Plan/ Goal	Consistent?	Explanation
California Department of Parks and Recreation	Chino Hills State Park General Plan, February 1999		
	Natural Resources, Buffers	No	Alternative 4 would require the expansion of existing ROW or the creation of new ROW through the CHSP. Additionally, Route A would require a new switching station within the Park, while Routes B through C would require a new switching station immediately adjacent to the Park. The purpose of this goal is to protect the Park from manmade features which conflict with the Park's natural setting, uses and resources. The construction, operation and maintenance of either a new transmission line or switching station within or adjacent to the Park would not be consistent with this goal.
	Natural Resources, Bio-corridors	No	All routing options under Alternative 4 would require an all-weather (e.g., paved) road for maintenance and operation of a switching station. Under Alternative 4A the all-weather road would be located directly within the Park. Under Alternatives 4B, the original 4C, 4C Modified and 4D the all-weather road would be located immediately adjacent to the Park. The all-weather road under any routing option, but particularly under Route 4A, would further degrade/impede local and regional cumulative wildlife movement and thus would not be consistent with the Park's goals and guidelines for biocorridors.
	Aesthetic Resources	No	Alternative 4 would require either the expansion of an existing ROW or the creation of new ROW through the CHSP. Additionally, Route A would require a new switching station within the Park. As outlined in Section 3.14 (Visual Resources), impacts within the Park would be significant and unavoidable (Class I). Additionally, as noted in this Land Use analysis operation and maintenance of Alternative 4 would be anticipated to create significant and unavoidable conflicts with the Park's management. Alternative 4 would not be consistent with this guideline, which is intended to reduce existing transmission line features within the Park and discourage any new transmission lines.
	Develop-ment	No	With the exception of the Park's lower campground area, CHSP contains no paved roads. The all-weather road required for Route 4A would result in permanent land disturbances within the Park, including the removal of habitat. The all-weather road and switching station under Route 4A would also reduce the Park's natural resource and aesthetic values. As such, Route 4A would not be consistent with the Park's General Plan goal for roads and trails development.

California Department of Parks and Recreation Plans and Policies. Table 3.9-21 provides the goals of the Chino Hills State Park General Plan that would be applicable to Alternative 4. Table 3.9-23, located at the end of this section, provides the full language of these goals, as well as their implicated policies and implementing guidelines. As outlined in Table 3.9-21, implementation of Alternative 4 would not be consistent with the Chino Hills State Park General Plan. In order to achieve consistency, the Chino Hills State Park General Plan would require amendment; the amendment would subsequently require approval by the State Parks and Recreation Commission. Because the CPUC's General Order No. 131-D, Section XIC B does not apply to State agencies with jurisdiction over facilities constructed for public utilities, consistency with the Chino Hills State Park General Plan is required. Therefore, the existing inconsistency between Alternative 4 and the Chino Hills State Park General Plan would be considered significant and unavoidable impact (Class I). Although implementation of Mitigation Measure L-4 would apply to this impact, it would not, in itself, reduce this effect to a level of less than significant. No other mitigation measures have been identified that would reduce this General Plan inconsistency to a level of less than significant.

Local Plans and Policies. As noted above, through the Policy Screening Report evaluation process, no policies, goals or objectives associated with the General Plans for Orange County and the City of Brea were identified for further evaluation; Alternative 4 would not conflict with either of these planning documents. In the South Region, the remainder of Alternative 4's ROW and its associated facilities would be identical to the proposed Project. Table 3.9-20 presents the proposed Project consistency with the land use plans within the South Region. As outlined in Table 3.9-20, no conflicts with the land use and management plans and policies associated with the South Region would occur under Alternative 4. Additionally, as required by the CPUC's General Order No. 131-D, Section XIV B, the CPUC has consulted with Orange County and the City of Brea regarding implementation of Alternative 4, and Mitigation Measures L-2b and L-4 would require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur. Therefore, impacts related to conflicts with applicable land use plans, goals, or policies would be mitigated to a level of less than significant (Class II).

3.9.8.2 Cumulative Effects Analysis

Geographic Extent

Alternative 4 would be identical to the proposed Project (Alternative 2) in the North and Central Regions of the Land Use Study Area, and as such would utilize the same geographic extent for cumulative effects in these regions. In the South Region, Alternative 4 would diverge from Alternative 2 in southeastern Los Angeles County, and would traverse lands ~~uses~~ under the jurisdiction of CHSP, Los Angeles County, Orange County, and the cities of Brea and Chino Hills, as well as the cities of ~~. The cities of~~ Chino and Ontario due to the transmission line upgrades that would still be necessary along proposed Segment 8B. ~~that are traversed by the proposed Project would not be affected by Alternative 4.~~ The geographic extent for Alternative 4 would include land uses and projects within one-half mile of the route as it diverges from Alternative 2 at Segment 8A MP 19.2 until its termination point within or near CHSP, as well as those land uses within one-half mile of proposed Segment 8B between MP 0.0 and MP 6.8. Please refer to Section 3.9.2.4 for a description of Routes A through D of Alternative 4.

Existing Cumulative Conditions

In the North and Central Regions, the existing cumulative conditions for Alternative 4 would be identical to the conditions described for Alternative 2 (please refer to Section 3.9.6.2).

As discussed for Alternative 2 (the proposed Project), the South Region consists of a variety of land uses that range from agricultural and undeveloped open space areas to intensively developed residential, commercial and industrial uses. The incorporated cities and unincorporated county areas that are affected by Alternative 4 have planned for, and integrated utility uses within their development plans (e.g., transmission ROWs and related substations). Utility easements and access roads have also been designated within the CHSP for the operation and maintenance of transmission lines, gas lines, and water pipelines.

Reasonably Foreseeable Future Projects and Changes

No reasonably foreseeable future projects have been identified along Routes A through D of Alternative 4 that were not already described in Section 3.9.6.2. Please refer to Section 3.9.6.2 for a discussion of future projects in the vicinity of Alternative 2 and Alternative 4.

Cumulative Impact Analysis

Under Alternative 4, the cumulative effects associated with Impacts L-1 and L-3 would be identical to Alternative 2, while the effects of Impacts L-2, L-4 and L-5 would be greater. The following is a summary of the Alternative 4 cumulative impacts that describes the similarities and differences between it and the proposed Project.

No projects would be constructed at the same time as Routes A through D of Alternative 4 that would affect the residential (Impact L-1) land uses within 1,000 feet of construction-related activities. Consequently, Impact L-1 (Construction of the Project would temporarily disrupt, displace or preclude existing residential land uses) would not contribute to a cumulative~~ly considerable~~ effect.

In the North and Central Regions, Alternative 4 is identical to Alternative 2 (the proposed Project). Consequently, this alternative would create an incremental effect on the long-term disruption of existing and planned residential land uses that is cumulative in nature~~ly considerable~~ (Impact L-3). Other energy projects such as the PdV Wind Energy Project and the Antelope Transmission Project Segments 1 through 3 would contribute to a cumulative effect under Alternative 4. However, as discussed in Section 3.9.6.1, SCE would avoid a conflict with existing or planned residential uses through the purchase or lease of any new and expanded substation sites and ROWs in full agreement with existing property owners. Consequently, this alternative's incremental contribution to the long-term disruption of existing and planned residential uses would be less than significant (Class III).

Under Alternative 4, short- and long-term impacts to non-residential land uses (Impacts L-2 and L-4) would be identical to Alternative 2 in the North and Central Regions. The incremental effects of Alternative 4 would combine with the effects of the PdV Wind Energy Project and the Alta Wind Energy Center to impact non-residential land uses in Kern County. However, in the South Region, construction of Routes A through D through the CHSP would conflict with existing uses and operations of CHSP, including the management of affected Natural Open Space and Core Habitat Zones (Impact L-2). Additionally, Routes A through D would result in permanent~~ly~~ land disturbance estimated to be ~~between~~ a minimum of 301.5 acres (Route B) and a maximum of 446.2 acres (Route C Modified), as follows: ~~an estimated 185 to 265~~309.7 - 422.8 acres (Route A), 301.5 - 410.6 acres (Route B), 308.4 - 420.9 acres (Route C), 325.3 - 446.2 acres (Route C Modified), and 308.6 - 421.1 acres (Route D)~~ acres of land~~.

Consequently, construction, operation and maintenance of Alternative 4, Routes A through D, in combination with other proposed energy projects, would result in a significant and unavoidable cumulative impact to non-residential uses (Impacts L-2 and L-4) (Class I). No mitigation measures have been identified that would reduce Alternative 4's incremental contribution to these cumulative impacts.

~~Alternative 4 traverses the same jurisdictions as Alternative 2 in the North and Central Region.~~ While Alternative 4, Routes A through D, would avoid the cities of Chino and Ontario as related to proposed Segment 8C and that portion of proposed Segment 8A east of MP 19.2, it would still affect lands traversed by proposed Segment 8B between MP 0.0 (Chino Substation) and MP 6.8 (Mira Loma Substation), with the exception that an expanded ROW would not be necessary between proposed Segment 8B MP 5.65 and MP 6.1 (0.45 mile). ~~that are traversed by Alternative 2,~~ As such, the plans and policies from the following ~~additional~~ jurisdictions would be applicable to ~~this a~~Alternative 4 east of MP 19.2 of proposed Segment 8A: the CHSP; Los Angeles County, Orange County; and the cities of ~~the City of~~ Brea, ~~; and, the City of~~ Chino Hills, Chino and Ontario. As discussed in Section 3.9.8.1, Routes A through D would conflict with the Chino Hills State Park General Plan, and an amendment would be required by the State Parks and Recreation Commission to achieve consistency (Impact L-5). Additionally, the expansion of existing ROW or the creation of new ROW within the CHSP may facilitate the siting of future transmission lines within the Park, which would further conflict with the following goals and guidelines of the CHSP General Plan: (1) to protect the Park from manmade features, to reduce existing transmission line features within the Park; and, (2) to discourage any new transmission lines (please refer to Table 3.9-21). Consequently, the incremental effect of Alternative 4, in combination with potential future transmission projects, would result in a significant and unavoidable cumulative impact related to consistency with applicable federal, State or local land use plans, goals, or policies (Impact L-5) (Class I). No mitigation measures have been identified that would reduce the severity of this impact.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

As discussed in Section 3.9.6.2, Impact L-1 (Construction of the proposed Project would temporarily disrupt, displace or preclude existing residential land uses) would not contribute to a cumulatively ~~considerable~~ effect. Impact L-3 (Operation and maintenance of the Project would cause long-term disruption of existing and planned residential land uses) would create an incremental effect that, in combination with other energy projects, would result in a less-than-significant cumulative impact (Class III). No mitigation measures are recommended to reduce the incremental effects of Impacts L-1 and L-3.

Impacts L-2 (Construction of the Project would temporarily disrupt, displace or preclude existing non-residential land uses), L-4 (Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses), and L-5 (Construction, operation or maintenance of the Project would conflict with applicable federal, State or local land use plans, goals, or policies) would potentially combine with the effects of other projects to create a significant and unavoidable impact (Class I). No mitigation measures have been identified that would reduce Alternative 4's incremental contribution to these cumulative impacts.

3.9.9 Alternative 5: Partial Underground Alternative

The following section provides an evaluation of the potential land use impacts associated with Alternative 5, the Partial Underground Alternative, as described in Section 3.9.2.5. This evaluation is premised on the same impact criteria and methodology that were applied to the proposed Project, as outlined in Section 3.9.4. Under this alternative, no changes to the impact analysis associated with the proposed Project

would occur in the North or Central Regions. Additionally, no changes to the impact analysis associated with the South Region's Segments 7, 8B, 8C and 11 would occur, nor would there be any changes to the impact analysis for the majority of Segment 8A. Consequently, the following discussion is focused on the land use-related impacts associated with Segment 8A between MPs 21.9 to 25.8, where the transmission line would be placed underground.

3.9.9.1 Direct and Indirect Effects Analysis

Preclude a permitted land use, or create a disturbance that would diminish the function of a particular land use (Criterion LU1)

As discussed in Section 3.9.6.1, Project construction would temporarily disrupt, displace, or preclude existing residential land uses (Impact L-1). Under Alternative 5 existing residential uses occur within 1,000 feet of the ROW along its entire length. However, construction-related activities would be limited to the Western and Eastern Transition Stations, the three above-ground ventilation structures, a marshalling yard, and an electrical component assembly area located at the Eastern Transition Station. During construction residents within an estimated one-half mile of these sites would be subject to the same types of direct and indirect effects as described in Section 3.9.6.1for the proposed Project. With implementation of Mitigation Measures L-1a through L-1c (please refer to Section 3.9.6.1) and the pre-construction and construction phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to residential land uses would be adverse but mitigable to a level of less than significant (Class II).

Construction of Alternative 5 would temporarily disrupt, displace, or preclude existing non-residential land uses (Impact L-2). The majority of land uses adjacent to MPs 21.9 to 25.8 of Segment 8A include open space/undeveloped areas, parks and recreational facilities, and single family residential homes. However, east of approximately MP 25.3 there are commercial and services uses adjacent to both sides of the ROW. To accommodate the Eastern Transition Station, the existing ROW north of an existing flood control channel would need to be expanded by 100 feet, for a total ROW width of 250 feet. The expanded ROW and construction of the Eastern Transition Station would require the removal of a commercial car wash, a retail business, and a portion of a parking lot. Although it is assumed that SCE would make all efforts to purchase the property needed for construction of the Eastern Transition Station, it is feasible that the owner (or owners) of both the property and the affected businesses would not agree to, or be willing to negotiate, SCE's proposed acquisition agreement (or agreements). Under this scenario, implementation of Alternative 5 would likely require that the CPUC exercise eminent domain. Eminent domain allows for the take of private property by a government agency either for its own purpose, or for delegation to a third party for the purpose of a public use, need or benefit. The take of the property and businesses affected by Alternative 5 through eminent domain would be considered an unavoidable and significant impact (Class I).

Other non-residential uses affected by construction Alternative 5 would be the same as described in Section 3.9.6.1 for the proposed Project. With implementation of implementation of Mitigation Measures L-1a through L-1c and L-2a and L-2b, in conjunction with the pre-construction and construction-phase mitigation measures provided in Sections 3.3 (Air Quality), 3.10 (Noise), and 3.13 (Traffic and Transportation), construction-related impacts to non-residential uses would be reduced to a level of less than significant.

As discussed in Section 3.9.6.1, operation and maintenance of the Project would have the potential to create long-term disruptions to existing and planned residential land uses (Impact L-3). Operational and maintenance activities associated with Alternative 5 would primarily occur underground, with access to the transmission line occurring at the two transition stations. The Western Transition Station would be located within the boundaries of Pine Valley Estates, and approximately three-tenths of a mile west of the boundary of the Pine Valley Estates Development. The Pine Valley Estates Development is a residential project that is currently under construction. However, the station would be predominantly located within the boundaries of existing ROW in an area that is undeveloped and is expected to remain largely as undeveloped; thus, its operation and maintenance would not be expected to substantially disrupt or displace existing or planned residential uses. The three above-ground ventilation structures would be placed within existing ROW; consequently, their operation and maintenance would not disrupt or displace existing or planned residential uses. Although the Eastern Transition Station would be located near existing residential homes, the site is currently fully developed with non-residential land uses; therefore, its operation and maintenance would not be anticipated to substantially disrupt or displace any existing or planned residential land uses. Restrictions or disruptions of existing and planned residential land uses due to the operation and maintenance of Alternative 5 would be similar to the proposed Project; as outlined in Section 3.9.6.1, these impacts would be adverse but less than significant (Class III).

Operation and maintenance of Alternative 5 would potentially cause long-term disruption of existing and planned non-residential land uses (Impact L-4). As addressed under Impact L-2, above, operation and maintenance of Alternative 5 would require the permanent removal of two existing commercial and services uses, including a car wash and retail store. Additionally, a portion of a parking area for commercial and services uses would be removed. The permanent removal of these uses would be considered a significant and unavoidable impact (Class I) if the properties are taken through the CPUC's exercise of eminent domain. Other non-residential uses affected by construction Alternative 5 would be the same as described in Section 3.9.6.1 for the proposed Project. Implementation of Mitigation Measure L-4, as outlined in Section 3.9.6.1, would reduce the long-term operational and maintenance impacts on non-residential uses to a level of less than significant.

Conflict with any applicable federal, State, or local land use plans, goals, or policies (Criterion LU2)

As discussed in Section 3.9.6.1, the Project would potentially conflict with relevant federal, State, or local land use plans, goals, or policies (Impact L-5). Under Alternative 5, the same land use plans, goals and policies which are outlined in Section 3.9.6.1 and Table 3.9-20 for the proposed Project would apply. As required by the CPUC's General Order No. 131-D, Section XIV B, the CPUC has consulted with all affected agencies regarding land use matters, and implementation of Mitigation Measures L-2b and L-4 would require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur. Therefore, impacts related to potential conflicts with applicable land use plans, goals, or policies would be mitigated to a level of less than significant (Class II).

3.9.9.2 Cumulative Effects Analysis

Geographic Extent

Alternative 5 would be identical to the proposed Project (Alternative 2) in the North and Central Regions of the Land Use Study Area, and as such would utilize the same geographic extent for cumulative effects

in these regions. In the South Region, Alternative 5 would also be identical to the proposed Project except that the transmission line would be undergrounded between MPs 21.9 to 25.8 along Segment 8A. Therefore, the geographic extent for cumulative effects in the South Region would also be the same as for the proposed Project. Please refer to Section 3.9.6.2 for the cumulative effects geographic extent for both the proposed Project and Alternative 5.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 5 would be identical to the conditions described for the proposed Project; please refer to Section 3.9.6.2 for a discussion of these conditions.

Reasonably Foreseeable Future Projects and Changes

Please refer to Section 3.9.6.2 for a discussion of future projects in the vicinity of Alternative 5, which are identical to the proposed Project.

Cumulative Impact Analysis

Under Alternative 5, the cumulative effects associated with Impacts L-1, L-3 and L-5 would be identical to the proposed Project, while the effects of Impacts L-2 and L-4 would be greater. The following is a summary of the Alternative 5 cumulative impacts that describes the similarities and differences between it and the proposed Project.

No projects would be constructed at the same time as Alternative 5 that would affect the residential (Impact L-1) land uses within 1,000 feet of construction-related activities. Consequently, Impact L-1 (Construction of the Project would temporarily disrupt, displace or preclude existing residential land uses) would not contribute to a cumulative~~ly considerable~~ effect (No Impact).

In the North and Central Regions, Alternative 5 is identical to the proposed Project. Consequently, this alternative would create an incremental effect on the long-term disruption of existing and planned residential land uses that is cumulative in nature~~ly considerable~~ (Impact L-3). Other energy projects such as the PdV Wind Energy Project and the Antelope Transmission Project Segments 1 through 3 would contribute to a cumulative effect under Alternative 5. However, as discussed in Section 3.9.6.1, SCE would avoid a conflict with existing or planned residential uses through the purchase or lease of any new and expanded substation sites and ROWs in full agreement with existing property owners. Consequently, this alternative's incremental contribution to the long-term disruption of existing and planned residential uses would be less than significant (Class III).

Under Alternative 5, short- and long-term impacts to non-residential land uses (Impacts L-2 and L-4) would be identical to Alternative 2 in the North and Central Regions. The incremental effects of Alternative 5 would combine with the effects of the PdV Wind Energy Project and the Alta Wind Energy Center to impact non-residential land uses in Kern County. However, in the South Region, along Segment 8A, construction of Alternative 5 could require the take of commercial and services uses via eminent domain. If eminent domain is required for construction, operation and maintenance of this alternative, it would result in a significant and unavoidable cumulative impact to non-residential uses (Impacts L-2 and L-4) (Class I). No mitigation measures have been identified that would reduce Alternative 5's incremental contribution to these cumulative impacts.

Alternative 5 traverses the same jurisdictions as the proposed Project in all three Regions, and, as such, would be subject to the same land use plans, goals and policies that are applicable to the proposed Project (Impact L-5). Alternative 5 would be consistent with USDA Forest Service polices and local land use

plans and policies as they related to transmission lines and associated facilities; thus, it would not create a conflict that would be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

As described for the proposed Project in Section 3.9.6.2, Alternative 5 would not contribute to a cumulative significant effect related to the temporary disruption, displacement or preclusions of existing residential land uses (Impact L-1) Impact L-3 (Operation and maintenance of the Project would cause long-term disruption of existing and planned residential land uses) would create an incremental effect that, in combination with other energy projects, would result in a less than significant cumulative impact (Class III). As addressed in Section 3.9.9.1, the construction, operation and maintenance of Alternative 5 would not result in any impacts related to conflicts with relevant federal, State or local land use plans, goals or policies (Impact L-5); consequently it would not contribute to any significant cumulative impacts. Based upon the above, no mitigation measures are required or recommended to reduce the incremental effects of Impacts L-1, L-3 and L-5.

Impacts L-2 (Construction of the Project would temporarily disrupt, displace or preclude existing non-residential land uses) and L-4 (Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses) would potentially combine with the effects of other projects to create a significant and unavoidable impact (Class I). No mitigation measures have been identified that would reduce Alternative 5's incremental contribution to these cumulative impacts.

3.9.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

3.9.10.1 Direct and Indirect Effects Analysis

Preclude a permitted land use, or create a disturbance that would diminish the function of a particular land use (Criterion LU1)

As addressed in Section 3.9.2.6, two of the helicopter staging areas (Sites #1 and 2) are within one-half mile of existing residential land uses. Several rural residential homes within a private in-holding of the ANF are located northwest of Site #1, which is adjacent to MP 3.0 of Segment 6; the closest of these homes to the western boundary of the staging area is approximately 0.3 mile away. Several rural residential homes are also located west and southeast of Site #2; these homes are also located within a private in-holding of the ANF. The closest homes are located an estimated 800 to 950 feet from the western boundary of the site; rural residential homes located southeast of the site are an estimated 0.3 mile away or more. As discussed in Section 3.9.6.1, Project construction would temporarily disrupt existing residential land uses (Impact L-1), and residents located within an estimated one-half mile of these two sites would be subject to the same types of direct and indirect effects as described in Section 3.9.6.1for the proposed Project. These residents, and other residents located within two and one-half miles of Sites 1 and 2, would also be subjected to increased noise levels and air quality emissions for the duration of Project construction. Please refer to Sections 3.10 (Noise) and 3.3 (Air Quality) for an assessment of noise and air quality effects of helicopter construction within the ANF. However, construction-related disruptions to residential land uses would be temporary in nature, and, with implementation of Mitigation Measures L-1a through L-1c, impacts would be mitigated to a level of less than significant (Class II). Outside of the ANF, all other temporary residential land use impacts associated

with Alternative 6 would be the same as described for the proposed Project, as outlined in Section 3.9.6.1.

As outlined in Table 3.9-14, six~~four~~ of the helicopter staging areas (Sites #1, 2, 7, ~~and~~ 10, 12 and 13) either include, or are within one-half mile of, non-residential land uses including agriculture (Sites #1 and 2) and existing and/or abandoned public and special use facilities (Sites #7, ~~and~~ 10, 11 and 12). As with the disruptions to residential land uses (Impact L-1), construction of Alternative 6 would temporarily disrupt non-residential land uses (Impact L-2). Agricultural uses associated with Sites #1 and 2 predominantly include horse ranching and livestock. The public and special use facilities associated with Site #7 include an existing helipad and unoccupied structures and facilities associated with a former U.S. Air Force missile site; the public and special use facilities associated with Site #10 include an abandoned USDA Forest Service overlook. Site #12 is likely used periodically as a staging/storage area in support of road maintenance activities associated with the Angeles Forest Highway, and Site #13 is in close proximity to the ANF Mill Creek Summit Station, which includes a helipad and fire station (USDA Forest Service, 2005b). As with the proposed Project, construction of Alternative 6 could temporarily disrupt or diminish the use of these existing non-residential land uses by blocking or partially blocking access. Additionally, site-specific operations could be impaired or prohibited due to the need to clear areas for construction equipment and materials, including pulling and tensioning sites. Following the completion of construction, site-specific uses may be compromised if affected areas are not restored to their pre-construction condition. The non-residential land uses associated with, and/or within one-half mile of the helicopter staging areas, as well as other non-residential land uses located within two and one-half miles of the staging areas (for tower construction), would also be subjected to increased noise levels and air quality emissions for the duration of Project construction (please refer to Sections 3.10 [Noise] and 3.3 [Air Quality] for an assessment of noise and air quality effects of helicopter construction). Although these construction-related disruptions would be adverse, they would be temporary in nature, and, with implementation of Mitigation Measure L-2a in conjunction with Mitigation Measures L-1a through L-1c, impacts would be would be mitigated to a level of less than significant (Class II). Although the use of Site #7 would likely require the demolition of at least one structure, all structures removed from this helicopter staging area are currently abandoned; consequently, no temporary or permanent impacts associated with their displacement would be anticipated to occur. Please refer to Section 3.15 (Wilderness and Recreation) for an assessment of potential impacts associated with recreational and wilderness uses within the ANF. Outside of the ANF, all other temporary non-residential land use impacts associated with Alternative 6 would be the same as described for the proposed Project, as discussed in Section 3.9.6.1.

As noted above, one helicopter staging area (Site #7) includes an existing Los Angeles County Sherriff Department's helipad and one site (Site #13) is in close proximity to the ANF Mill Creek Summit Station, which also has a helipad (USDA Forest Service, 2005b). Additionally, implementation of Alternative 6 would involve thousands of helicopter overflights, landings and takeoffs, both within the helicopter staging areas and along the ROWs of Segments 6 and 11 for construction of the 148~~19~~ tower locations (please refer to Section 2.6.2, Alternative 6 Construction). Construction-related activities associated with Alternative 6 could conflict with the Los Angeles County Sherriff Department's and USDA Forest Service's helicopter flight activities, including both routine operations and emergency response efforts. Additionally, FAA Advisory Circular (AC 91-36 C), prohibits the landing of helicopters within the boundaries of ANF lands, and "Visual Flight Rules (VFR) Flight Near Noise Sensitive Areas," requires that all aircraft maintain a minimum altitude of 2,000 feet above the surface of lands designated as Wilderness Area, with the land surface considered to be "the highest terrain within 2,000 feet laterally of

the route of flight, or the uppermost rim of a canyon or valley." Temporary conflicts with the helicopter activities of the Los Angeles County Sherriff Department and the FAA's AC 91-36 C would be adverse. However, with implementation of Mitigation Measure L-2b, an exemption for the FAA's AC 91-36 C may be feasible, and, with additional consultation with the Los Angeles County Sherriff Department and USDA Forest Service, mechanisms and protocols to avoid potential conflicts with its helicopter operations would be expected to be identified and agreed upon. Impacts would therefore be anticipated to be mitigable to a level of less than significant (Class II).

Operations and maintenance of Alternative 6 would involve periodic inspections, approximately once per year, via helicopter and/or truck. In comparison to the proposed Project, Alternative 6 would likely result in a greater number of helicopter inspections due to the number of towers that would not be accessible by truck. However, the long-term operation and maintenance of Alternative 6 would not differ substantially from either existing conditions or the proposed Project, as addressed in Section 3.9.6.1. Therefore, Alternative 6's preclusion of, or incompatibility with, current and future residential land uses (Impact L-3) would be considered adverse but less than significant (Class III). Outside of the ANF, all other long-term residential land use impacts associated with Alternative 6 would be the same as described for the proposed Project, as discussed in Section 3.9.6.1.

Within the ANF, Alternative 6 would reduce the miles of new and/or upgraded roads by over~~approximately~~ 14 miles in comparison to the proposed Project. As such, construction of Segment 6 would result in approximately five acres of permanent disturbance (plus or minus a 20 percent range of four to six acres), and construction of Segment 11 would result in approximately eight acres of permanent disturbance (plus or minus a 20 percent range of six to ten acres). Within the ANF, Alternative 6's reduction in permanent land disturbances, in comparison to the proposed Project, would reduce potential long-term disruptions with existing and planned non-residential land uses (Impact L-4). However, conflicts between the use of helicopters for operations and maintenance and the Los Angeles County Sherriff Department's and USDA Forest Service's routine and emergency helicopter operations within the ANF could occur. Additionally, operations and maintenance of Alternative 6 may periodically conflict with, or otherwise impede, other operations within the ANF, such as ranger stations, fire stations, and private and public communication and utility facilities. Although the adversity of these conflicts would vary on a case-by case basis, implementation of Mitigation Measure L-2a would be anticipated to reduce the long-term impacts associated with non-residential land uses to a level of less than significant (Class II). Outside of the ANF, all other temporary non-residential land use impacts associated with Alternative 6 would be the same as described for the proposed Project, as discussed in Section 3.9.6.1.

Conflict with any applicable federal, State, or local land use plans, goals, or policies (Criterion LU2)

Under Alternative 6, the same land use plans, goals and policies which are outlined in Section 3.9.6.1 and Table 3.9-20 for the proposed Project would apply. As required by the CPUC's General Order No. 131-D, Section XIV B, the CPUC has consulted with all affected agencies regarding land use matters, and implementation of Mitigation Measures L-2b and L-4 would require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur. Similarly, implementation of Mitigation Measures L-2b and L-4 would be anticipated to minimize or avoid potential conflicts with the Los Angeles County Sherriff Department's and USDA Forest Service's routine and emergency response helicopter provisions and policies, as well as with the FAA's AC 91-36

C. Therefore, impacts related to potential conflicts with applicable land use plans, goals, or policies would be mitigated to a level of less than significant (Class II).

3.9.10.2 Cumulative Effects Analysis

Geographic Extent

Implementation of Alternative 6 would be identical to Alternative 2 (the proposed Project), except that approximately 148~~19~~ towers within the ANF would be constructed by helicopter, which would require the use of 13~~ten~~ temporary helicopter staging areas. Nine~~Seven~~ of the ~~ten~~thirteen helicopter staging areas are located within the established Land Use Study Area. The remaining three staging areas (Sites #3, 4 and 7) are located an estimated and 0.85 mile to 1.8 miles from the centerline of the Project's ROW, which fall outside to the defined the Land Use Study Area (which is within one-half mile of the Project's ROW and its associated new and expanded substations). Site #3 is located approximately 0.85 mile from the centerline of Segment 6 and 1.6 miles from the centerline of Segment 11, Site #7 is located an estimated 1.8 miles from the centerline of Segment 6, and Site #4 is located approximately 1.6 miles west of the centerline of Segment 11. As addressed in Section 3.9.6.2 (Cumulative Effects Analysis for the proposed Project), within the ANF no specific projects have been identified that would contribute to a cumulative impact on residential or non-residential land uses. As such, the geographic extent for cumulative effects analysis of Alternative 6 is considered to be identical to Alternative 2 (please refer to Section 3.9.6.2).

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 6 would be identical to Alternative 2, as described in Section 3.9.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes for Alternative 6 would be identical to Alternative 2, as described in Section 3.9.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 6 would be similar to the proposed Project (Alternative 2). As such, the description in Section 3.9.6.2 of the cumulative impacts from construction, operation and maintenance of Alternative 2 would apply to Alternative 6. The following is a summary of the Alternative 6 cumulative impacts.

No projects would be constructed at the same time as Alternative 6 that would affect the residential (Impact L-1) or non-residential (Impact L-2) land uses within 1,000 feet of construction-related activities. Consequently, Impact L-1 (Construction of the Project would temporarily disrupt, displace or preclude existing residential land uses) and Impact L-2 (Construction of the Project would temporarily disrupt, displace or preclude existing non-residential land uses) from Alternative 6 would not contribute to a cumulative~~ly considerable~~ effect (No Impact).

As the Alternative 6 route is identical to Alternative 2, Alternative 6 would create an incremental effect on the long-term disruption of existing and planned residential land uses that is cumulative in nature~~ly considerable~~ (Impact L-3). The same energy projects that would affect land uses along the Alternative 2 route (PdV Wind Energy Project and Antelope Transmission Project Segments 1-3) would also contribute to a cumulative effect under Alternative 6. As discussed in Section 3.9.6.1, SCE would purchase or lease any new and expanded substation sites and ROWs in full agreement with existing property owners.

Consequently, Alternative 6's incremental contribution to the cumulative impact would be less than significant (Class III).

The Alternative 6 route would traverse the same jurisdictions as Alternative 2, and would similarly affect non-residential land uses along the route (Impact L-4). As described for Alternative 2, the PdV Wind Energy Project and the Alta Wind Energy Center may conflict with non-residential land uses in Kern County. While the impacts of these projects in combination with Alternative 6 would result in a potentially significant cumulative effect (Class II), Mitigation Measure L-4 would reduce the incremental effect of the alternative to less than significant (Class II).

Alternative 6 traverses the same jurisdictions as Alternative 2, and as such, would be subject to the land use plans, goals, and policies that are applicable to Alternative 2 (Impact L-5). Alternative 6 would be consistent with USDA Forest Service policies and local land use plans and policies as they relate to transmission lines, and would be authorized by the USDA Forest Service through its permitting and Forest Plan amendment processes prior to construction. The SCE would also be required to implement Mitigation Measures L-2b and L-4 to avoid other land use-related regulatory or policy conflicts that would be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

As discussed in Section 3.9.6.2, no mitigation measures are recommended to reduce the incremental effects of Impacts L-1, L-2, L-3, and L-5. Impact L-4 (Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses) would contribute to an incremental effect from Alternative 6 that, in combination with other energy projects, would create a potentially significant cumulative impact on non-residential land uses (Class II). However, Mitigation Measure L-4 would reduce this cumulative impact to a level of less than significant.

3.9.11 Alternative 7: 66-kV Subtransmission Alternative

3.9.11.1 Direct and Indirect Effects Analysis

Preclude a permitted land use, or create a disturbance that would diminish the function of a particular land use (Criterion LU1)

As addressed in Section 3.9.6.1, construction of the Project would result in short-term disruptions, displacements or preclusions of existing residential and non-residential land uses (Impacts L-1 and L-2). Along the Duck Farm 66-kV Underground Re-Route residential homes are located less than 1,000 feet from the proposed underground ROW. Along the Whittier Narrows 66-kV Underground Re-Route residential land uses fall within 1,000 feet of the ROW along Farmer Avenue (located northwest of Durfee Avenue), and within one-half mile of the ROW within a neighborhood that is bound by Lexington Gallitan Road, Farmer Avenue, Fawcett Avenue, and Andrews Street; this neighborhood is also located northwest of Durfee Avenue. Existing residential land uses within one-half mile~~400 to 1,000 feet~~ of the northern-most point of the Whittier Narrows 66-kV Overhead Re-Route Options 1 and 2 are located along Hazel Avenue and Darlington Street, which are north-northwest of Segment 7 MP 13.8~~4.3~~ and Segment 8 MP 2.2; existing residential land uses are also located within one-quarter to one-half mile of Option 1~~the ROW~~ in a neighborhood flanked by Highway 19 to the west, the San Gabriel River Parkway to the east and Kruse Road to the north. This area is located south-southwest of Segment 8A between MP 3 and MP 4. Existing non-residential land uses associated with the Whittier Narrows 66-kV Underground Re-Route

and Whittier Narrows 66-kV Overhead Re-Route options are outlined in Section 3.9.2.7; Table 3.9-12 summarizes the non-residential land uses of the Duck Farm 66-kV Underground Re-Route.

Although construction of the Duck Farm 66-kV Underground Re-Route would result in additional temporary land disturbances, this subtransmission line would remain within the same existing utility ROW of the proposed Project. Additionally, the duration of construction-related activities along this re-route would not be anticipated to be appreciably different from the proposed Project. Consequently, construction-related impacts of this underground re-route would be the same as for the proposed Project (please refer to Section 3.9.6.1). Construction of the Whittier Narrows 66-kV Underground Re-Route options would also result in additional temporary land disturbances, and, in comparison to the proposed Project, would result in new construction-related impacts to existing land uses along and adjacent to Peck and Durfee Roads. However, with implementation of Mitigation Measures L-1a, L-1b, L-1c, L-2a and L-2b, these temporary impacts to residential and non-residential land uses would be considered less than significant (Class II). In comparison to the proposed Project, construction of the Whittier Narrows 66-kV Overhead Re-Route both options would also result in new temporary impacts to those land uses located along, and adjacent to, San Gabriel Boulevard/Durfee Avenue, and Option 1 would additionally result in temporary impacts to land uses along Siphon Road and the San Gabriel River crossing. Option 2 would require an expanded ROW width of 20 feet along Segment 8A between MPs 3.2 and 3.8. ~~This re-route would~~Option 1 would ~~also~~ require approximately ~~1,200~~ 1,600 linear feet of new ROW for the San Gabriel River crossing. However, assuming that SCE is able to secure the land needed for the new ROW, construction related disturbances along ~~this~~ these re-route options would be anticipated to be the same as for the proposed Project, and, with implementation of Mitigation Measures L-1a, L-1b, L-1c, L-2a and L-2b, short-term impacts to residential and non-residential land uses would be considered less than significant (Class II). All other construction-related impacts to residential and non-residential land uses (Impacts L-1 and L-2) in the North, Central and South Regions would be the same as for the proposed Project.

Operation and maintenance of the Duck Farm 66-kV Underground Re-Route would occur within the same ROW as the proposed Project, and would not be anticipated to require additional activities that could increase long-term preclusions of, disturbances to, or incompatibilities with existing and planned residential land uses (Impact L-3). Similarly, operation and maintenance of the Whittier Narrows 66-kV Underground Re-Route and Whittier Narrows 66-kV Overhead Re-Route options would not be anticipated to appreciably add to any long-term preclusions of, disturbances to, or incompatibilities with residential land uses (Impact L-3). Impacts would be considered adverse but not significant (Class III). Additionally, it is noted that the partial removal (e.g., undergrounding) of the existing Hondo-Amador-Jose-Mesa 66-kV and Jose-Mesa 66-kV subtransmission lines would likely be considered a beneficial impact to those residents that are adjacent to their respective ROWs. All other long-term impacts to existing and planned residential land uses (Impact L-3) in the North, Central and South Regions would be the same as for the proposed Project, as addressed in Section 3.9.6.1.

As addressed in Section 3.9.2.7 and Table 3.9-12, the ROWs associated with Alternative 7 would directly traverse, or be in close proximity to, several non-residential land uses. However, operation and maintenance of this alternative would be identical to the proposed Project. Consequently, Alternative 7 would not be expected to either substantially increase or add to long-term effects on existing and planned non-residential land uses in comparison to the proposed Project (Impact L-4). With implementation of Mitigation Measure L-4, impacts would be considered less than significant (Class II). As with the discussion for the long-term effects on residential land uses, above, the partial undergrounding of the

existing Hondo-Amador-Jose-Mesa 66-kV and Jose-Mesa 66-kV subtransmission lines would likely be considered a net benefit to the non-residential land uses that are adjacent to their respective ROWs. All other long-term impacts to existing and planned residential land uses (Impact L-3) in the North, Central and South Regions would be the same as for the proposed Project (please refer to Section 3.9.6.1).

Conflict with any applicable federal, State, or local land use plans, goals, or policies (Criterion LU2)

As discussed in Section 3.9.6.1, the proposed Project would potentially conflict with relevant federal, State, or local land use plans, goals, or policies (Impact L-5). Under Alternative 7, the same land use plans, goals and policies that are outlined for the proposed Project and summarized in Table 3.9-20 would apply. As required by the CPUC's General Order No. 131-D, Section XIV B, the CPUC has consulted with all affected agencies regarding land use matters, and implementation of Mitigation Measures L-2b and L-4 would require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur. Therefore, impacts related to potential conflicts with applicable land use plans, goals, or policies would be mitigated to a level of less than significant (Class II).

3.9.11.2 Cumulative Effects Analysis

Geographic Extent

Implementation of Alternative 7 would be identical to the proposed Project, except that portions of the existing Hondo-Amador-Jose-Mesa 66-kV and Jose-Mesa 66-kV subtransmission lines would be placed underground (with a 3,300 linear foot re-routing of a segment of the Jose-Mesa 66-kV subtransmission line to the northeast), and portions of the existing Mesa-Narrows 66-kV and Walnut-Hillgen-Industry-Mesa-Reno 66-kV subtransmission lines would be re-routed~~ to the southwest~~. However, none of the attributes associated with Alternative 7 would deviate more than an estimated 2,250 linear feet from the proposed Project's ROWs (Segments 7 and 8A). As such, the geographic extent for the cumulative effects analysis of Alternative 7 is considered to be identical to the proposed Project (please refer to Section 3.9.6.2).

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 7 would be identical to the proposed Project, as described in Section 3.9.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes for Alternative 7 would be identical to the proposed Project, as described in Section 3.9.6.2.

Cumulative Impact Analysis

No projects would be constructed at the same time as Alternative 7 that would affect the residential (Impact L-1) or non-residential (Impact L-2) land uses within 1,000 feet of construction-related activities. Consequently, Impact L-1 (Construction of the Project would temporarily disrupt, displace or preclude existing residential land uses) and Impact L-2 (Construction of the Project would temporarily disrupt, displace or preclude existing non-residential land uses) from Alternative 7 would not contribute to a cumulative~~ly considerable~~ effect (No Impact).

As the majority of the Alternative 7 route is identical to the proposed Project (Alternative 2), this alternative would create an incremental effect on the long-term disruption of existing and planned residential land uses that is cumulative in nature~~ly considerable~~ (Impact L-3). The same energy projects that would affect land uses along the Alternative 2 route (PdV Wind Energy Project and Antelope Transmission Project Segments 1-3) would also contribute to a cumulative effect under Alternative 7. As discussed in Section 3.9.6.1, SCE would purchase or lease any new and expanded substation sites and ROWs in full agreement with existing property owners. Consequently, the alternative's incremental contribution to the cumulative impact would be less than significant (Class III).

Alternative 7 would traverse the same jurisdictions as the proposed Project and would similarly affect non-residential land uses along the route (Impact L-4). As described for Alternative 2 (the proposed Project), the PdV Wind Energy Project and the Alta Wind Energy Center may conflict with non-residential land uses in Kern County. While the impacts of these projects in combination with Alternative 7 would result in a potentially significant cumulative effect (Class II), Mitigation Measure L-4 would reduce the incremental effect of the alternative to less than significant (Class II).

Alternative 7 traverses the same jurisdictions as the proposed Project, and as such, would be subject to the same land use plans, goals, and policies that are applicable to the proposed Project (Impact L-5). Alternative 7 would be consistent with USDA Forest Service policies and local land use plans and policies as they relate to transmission lines, and would be authorized by the USDA Forest Service through its permitting and Forest Plan amendment processes prior to construction. The SCE would also be required to implement Mitigation Measures L-2b and L-4 to avoid conflicts that would be cumulatively considerable (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

As discussed in Section 3.9.6.2, no mitigation measures are recommended to reduce the incremental effects of Impacts L-1, L-2, L-3, and L-5. Impact L-4 (Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses) would contribute to an incremental effect from Alternative 7 that, in combination with other energy projects, would create a potentially significant cumulative impact on non-residential land uses (Class II). However, Mitigation Measure L-4 would reduce this cumulative impact to a level of less than significant.

3.9.12 Impact Significance Summary

Table 3.9-22 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on Land Use. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.9.6 through 3.9.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.9.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Table 3.9-22. Summary of Impacts and Mitigation Measures – Land Use

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
L-1: Construction of the Project would temporarily disrupt, displace, or preclude existing residential land uses.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	L-1a: Construction liaison – Property owners. L-1b: Advance notification of construction - Property owners. L-1c: Quarterly construction updates - Property owners.
L-2: Construction of the Project would temporarily disrupt, displace, or preclude existing non-residential land uses.	N/A	Class II	Class II	Class I	Class I	Class II	Class II	Yes	L-2a: Construction plan provisions – Non-residential property. L-2b: Aircraft flight path and safety provisions and consultations.
L-3: Operation and maintenance of the Project would cause long-term disruption of existing and planned residential land uses.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended.
L-4: Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses.	N/A	Class II	Class II	Class I	Class I	Class II	Class II	Yes	L-4: Consult with federal, State and local agencies.
L-5: Construction, operation or maintenance of the Project would conflict with relevant federal, State, or local land use plans, goals, or policies.	N/A	Class II	Class II	Class I	Class II	Class II	Class II	Yes	L-2b: (see Impact L-2) L-4: (see Impact L-4)

N/A = Not Available.

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands. However, no Class I impact would occur under Alternatives 2 through 7 on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts

Table 3.9-23. Applicable Policies, Goals, and Objectives

Agency	Plan/Policy	Text
USDA Forest Service, Pacific Southwest Region	Land Management Plan: Angeles National Forest (2005)	
	National Strategic Plan Goal 4 - Help meet energy resource needs	Consider opportunities for energy development and the supporting infrastructure on forests and grasslands to help meet the nation's energy needs: - Work with other agencies to identify and designate corridors for energy facilities, improve permit application processing efficiency, and establish appropriate land tenure (including transferability clauses) in easements and other authorizations to provide for long-term project viability.
	Forest Goal 4.1b - Support use of renewable resources	Administer Renewable Energy Resource developments while protecting ecosystem health.
	Forest Goal 7.1 - Minimize land area needed to support growing public needs	Retain natural areas as a core for a regional network while focusing the built environment into the minimum land area needed to support growing public needs.
	Developed Areas Interface (DAI) Land Use Zone	(Summarized in Table 3.9-4)
	Back Country (BC) Land Use Zone	(Summarized in Table 3.9-4)
	Back Country Motorized Use Restricted (BCMUR) Land Use Zone	(Summarized in Table 3.9-4)
	Back Country Non-Motorized (BCNM) Land Use Zone	(Summarized in Table 3.9-4)
	Lands 2 - Non-Recreation Special Use Authorizations (SUAs)	Optimize utilization of encumbered NFS land and efficiently administer SUAs: - Work with SUA holders to better administer NFS land and reduce administrative cost. - Require SUAs to maximize opportunities to co-locate facilities and minimize encumbrance of NFS land.
Kern County	County of Kern General Plan (March 13, 2007)	
	Appendix B: Rural Community Development Guidelines and Requirements (Land Use) - Compatibility of industrial development within rural community	Heavy industrial use would not appear compatible with the intent and purpose of the rural community designation. Development Standards: 1. All industrial development should be reviewed pursuant to accepted community scale, architecture, and compatibility with surrounding uses. 2. Industrial light and glare shall comply with the established community light and glare standards. 3. Outside storage should be appropriately screened on all sides.
Los Angeles County	County of Los Angeles General Plan (January 1993)	
	General Goals and Policies, Policy 23 - Ensure compatible development in non-urban areas	Ensure that development in non-urban areas is compatible with rural lifestyles, does not necessitate the expansion of urban service systems, and does not cause significant negative environmental impacts or subject people and property to serious hazards.
	Land Use (Quality, Compatible Design) Policy 14 - Ensure project design is compatible with natural and manmade environment	Direct urban development and revitalization efforts to protect natural and man-made amenities and to avoid severe hazard areas, such as flood prone areas, active fault zones, steep hillsides, landslide areas and fire hazards.

Table 3.9-23. Applicable Policies, Goals, and Objectives

Agency	Plan/Policy	Text
City of Chino Hills	City of Chino Hills General Plan, adopted September 1994	
	Parks, Recreation and Open Space, Policy 1-18: Require 100-ft. perimeter around developed areas adjacent to open space.	Continue to require 100 foot perimeter around developed areas adjacent to open space.
City of Chino	Eucalyptus Business Park Specific Plan (adopted December 18, 1990, revised October 2000)	
	Land Use Element, Objective 2d (Industrial) - Integrate SCE Easement	Integrate the SCE easement and San Antonio Creek Channel into the Eucalyptus Business Park Specific Plan area as an area amenity. (i) Provide for "wind row" style planting of tall vertical trees parallel to SCE easements to reduce the visual prominence of transmission towers. (iii) Provide trail connections along the SCE easements and San Antonio Creek Channel. (iv) Encourage crop production and horticultural activities within the SCE easement.
	Land Use Element 2d (Visual Image and Development Character) – Encourage undergrounding of utility lines	Create enriched, stimulating retail, office, industrial, and recreational environments, intermixed within a cohesive entity. (iii) Wherever feasible, utility lines shall be placed underground, including undergrounding of existing utility lines. Where it is not possible to underground utility lines, appropriate landscape buffers shall be provided.
City of Chino	East Chino Specific Plan (September 2002)	
	Land Use Policy 3 (Industrial) Use of setbacks and screenings in buffering residences from industrial uses	Light industrial areas shall be an appropriate buffer between residential uses and general industrial uses so long as adequate setbacks and screening are provided.
City of Ontario	City of Ontario General Plan (adopted September 15, 1992)	
	Community Development Element, Policy 3.2 - Require buffers between incompatible land uses	Require adequate buffering between potentially incompatible land uses, especially between residential development and industrial uses.
Puente Hills Landfill Native Habitat Preservation Authority	Resource Management Plan (June 2007)	
	Goal Use-2	Enforce protection of the varied resources and promote an enjoyable and safe environment for visitors.
California State Parks	Chino Hills State Park General Plan, February 1999	
	Natural Resources, Buffers	*Implicated Policy*: Land uses outside park boundaries can cause significant impacts on parklands. Possible impacts include exotic plant infestations, chemical pollution, predation and competition from domestic pets, wildfire, artificial light and noise, and loss of foraging or nesting habitat. Buffers, such as dedicated open space and agricultural lands, are low-intensive-use areas between the park's boundary and adjacent developments that help to separate conflicting land uses and protect natural habitats from destructive impacts. Goal: Establish, maintain, and protect buffers adjacent to Chino Hills State Park.
		Goal: Establish, maintain, and protect buffers adjacent to Chino Hills State Park.
		Implementing Guidelines: - The Department will work with adjacent landowners, neighbors, and local jurisdictions to provide for necessary buffers adjacent to park boundaries. - The Department will assist local jurisdictions in the development of plant palettes for proposed projects in the vicinity of the park.
	Natural Resources,	*Implicated Policy:* Protecting biocorridors and facilitating the movement of animals and

Table 3.9-23. Applicable Policies, Goals, and Objectives

Agency	Plan/Policy	Text
	Biocorridors	dispersal of plant seed within Chino Hills State Park, and between the park and other wildland areas, is imperative to maintain ecosystem health and support regional conservation.
		Goal: Maintain and enhance the movement of native animals through the park and regional ecosystem. Visitors will gain an understanding of the importance of biocorridors and management efforts at the park aimed at supporting wildlife movement in the region.
		Implementing Guidelines: - Biocorridors within Chino Hills State Park that interconnect the park and its core habitat areas to other protected lands are of the highest priority for protection. - The collection of baseline information and the monitoring of the health and function of core areas and biocorridors are high management priorities for the park. An emphasis should be placed on measuring the effects of human uses on the integrity of the system. - Biocorridors will be recognized when there is enough information to indicate the necessity or importance of these connections to the movement of wildlife between Chino Hills State Park and other wildland areas. The adequacy and effectiveness of these habitat linkages will be monitored by tracking and documenting the presence, distribution, movement, and habitat associations of the representative species using them. - The Department will actively work with local jurisdictions, transportation agencies, and regulatory agencies in the planning of future transportation projects. The Department will discourage the fragmentation and isolation of habitat by such projects and ensure that adequate mitigation measures are incorporated into all road improvement and construction projects. The Department will advocate measures that consider known information on wildlife use of biocorridors, principles of conservation biology, and other professionally accepted design criteria. An emphasis should be placed on the maintenance of habitat linkages and construction of under-crossings and bridges that allow full wildlife movement between the affected areas. - The Department will support and work towards the preservation, protection, and enhancement of the lands that make up the Coal Canyon, Sonome and Tonner Canyons, and Prado Basin biocorridors. Efforts will be directed towards enhancing wildlife habitat linkages so as to accommodate as many different native species as possible. Enhancement tools may include: - - restoring or expanding native habitat to facilitate wildlife movement; - -installing fencing to direct wildlife into underpasses or culverts and away from roads and freeways; - - limiting vehicular use of underpasses to daytime use by land management agencies and emergency vehicles only; - - widening of underpasses; - - removing lighting in underpasses to make crossing more conducive to wildlife; - - removing all or some of the pavement in underpasses; - - reducing noise impacts by erecting structures to block freeway noise.
	Aesthetic Resources	*Implicated Policy*: Visitors to Chino Hills State Park enjoy many aesthetic qualities inherent to the park's natural conditions. Some of these include open space, sounds of nature, and scenic views. Impacts to aesthetic qualities are, at times, created by developments, activities, or land uses, within or outside the park, that are incompatible with these qualities.
		Goal: Protect scenic features from man-made intrusions and preserve the visitor's experience of the natural landscape by minimizing adverse impacts to aesthetic resources.
		Implementing Guidelines: - Unnecessary structures such as interior fences and signs will be removed. The Department will work with utility companies to remove electric lines that are no longer used and are not considered historic resources. - The Department will work to reduce the negative impacts of utility easements in the park. All utility companies will be encouraged to reduce the impacts by consolidating easements into fewer or smaller corridors, or by placing the equipment underground.

Table 3.9-23. Applicable Policies, Goals, and Objectives

Agency	Plan/Policy	Text
		The Department will work with utility companies to remove unnecessary utility roads and reduce road widths, and will discourage any new easements within the park unless mitigated to benefit park resources. - Ridgeline and knoll developments outside the park that adversely affect significant views will be discouraged. The Department will work with park neighbors and local government to review and plan adjacent developments in a manner that protects views. - Tranquility and the sounds associated with the park's natural resources will be preserved. Unnatural sounds that adversely affect park resources, values, or visitors' enjoyment will be prevented or minimized. - The Department will cooperate with park neighbors and local government agencies to minimize the intrusion of artificial light into the night scene, recognizing that darkness and the night sky play significant roles in the overall visitor experience. Artificial outdoor lighting within the park will be limited to basic safety requirements and shielded when and where possible.
	Development	*Implicated Policy:* Chino Hills State Park offers public facilities for visitor use and education, as well as maintenance and operational facilities for park management.
		Goal: Provide essential visitor services and operations facilities to enhance the visitor's experience and at the same time maintain the park's natural, cultural, and aesthetic values
		Implementing Guidelines for Roads and Trails: - The Department will study the feasibility of realigning existing roads to avoid sensitive habitat when and where possible, with an emphasis on riparian areas. The benefits of reducing the current adverse effects on sensitive habitat by realigning roads will be balanced against the possible adverse effects of new road construction on alternative alignments. - Road maintenance standards will be developed and implemented in cooperation with utility companies. These standards will be designed to maintain natural drainage patterns, reduce erosion and stream siltation, and minimize road widths and impacts to aquatic habitats. - When road or trail conditions are such that further use is either unsafe or would result in significant impacts to natural or cultural resources, the affected routes will be closed until appropriate repairs are made or conditions change. - The Department will seek the input and cooperation of local jurisdictions, park neighbors, and significant user groups to develop and implement a trails management plan. This plan will address pedestrian access points, trailhead parking facilities, the trail system and connections to regional trails, trail maintenance, and appropriate recreational uses of trails.

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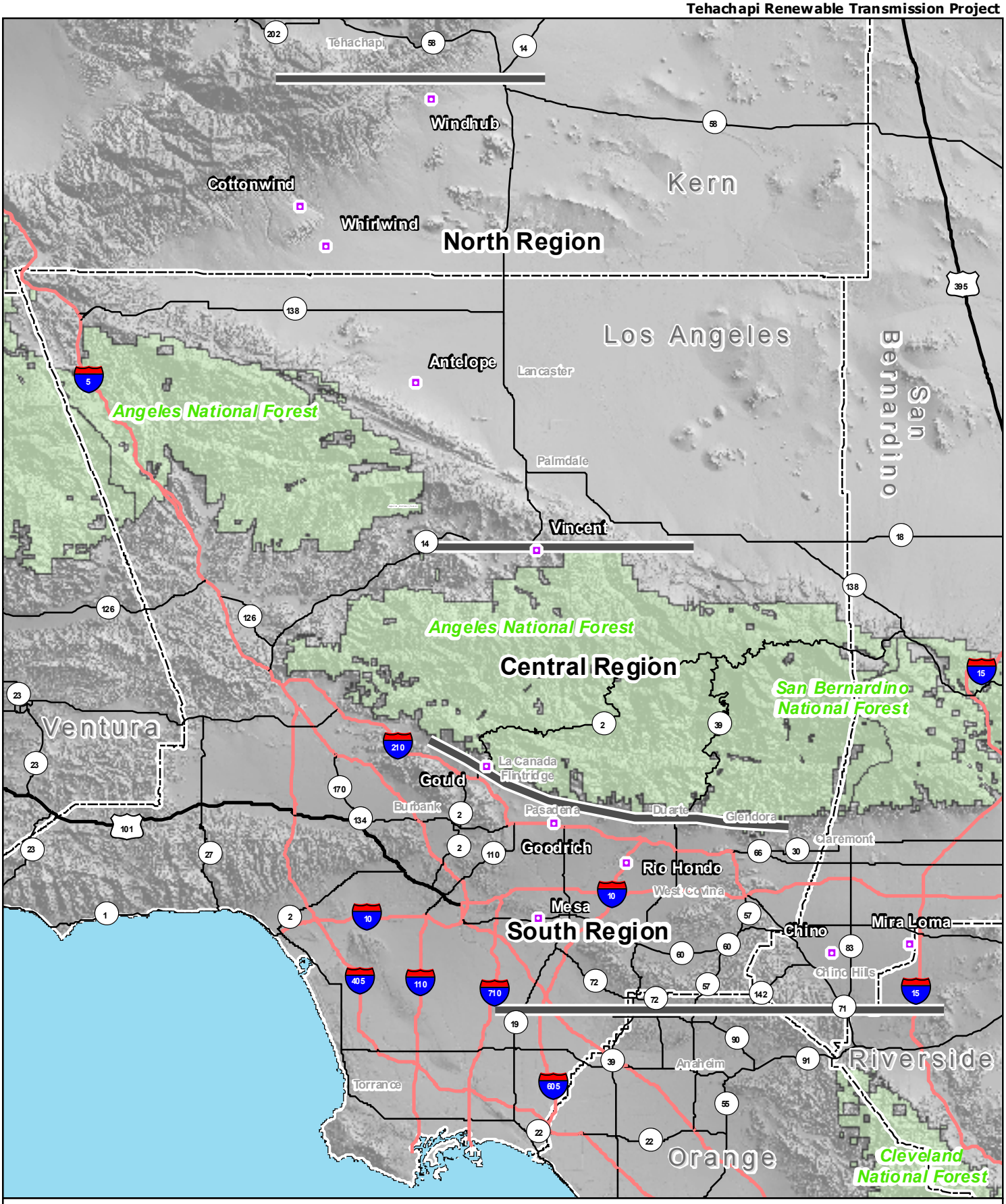


Aspen Environmental Group

Substation

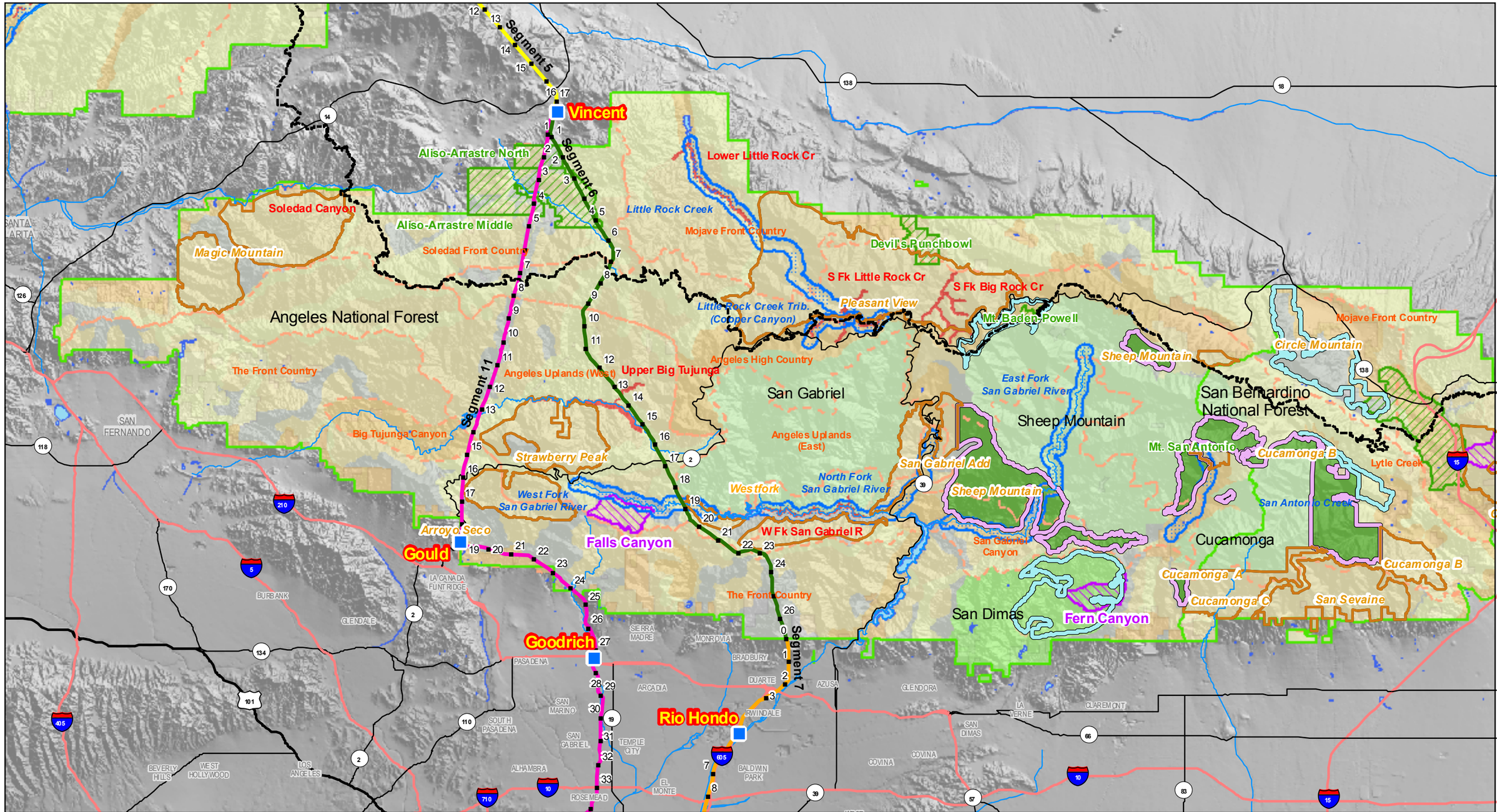
TRTP Region Boundaries

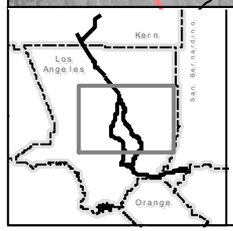
0 2.5 5 10 15 20 Miles

SCE, 2007,
USDA Forest Service, 2007

Figure 3.9-1

Land Use Study Area





Aspen Environmental Group

1" = 4 miles

1:253,440

0 1 2 3 4 5 Miles

Pacific Crest Trail
National Forest Boundary
Wild and Scenic River (eligible)
Research Natural Areas
Special Interest Areas
Places

Land Use Zones
Back Country
Back Country Motorized Use Restricted
Back Country, Non-Motorized
Critical Biological
Developed Area Interface
Existing Wilderness
Experimental Forest
Recommended Wilderness

Inventoried Roadless Areas
Rx no construction, recommended wilderness
Rx no construction
Rx allows construction

Proposed TRTP Routes
Segment 5
Segment 6
Segment 7
Segment 11
Substations

SCE, 2007, USDA Forest Service, 2007

Figure 3.9-2

Angeles National Forest Land Use Zones, Places, and Roadless Areas

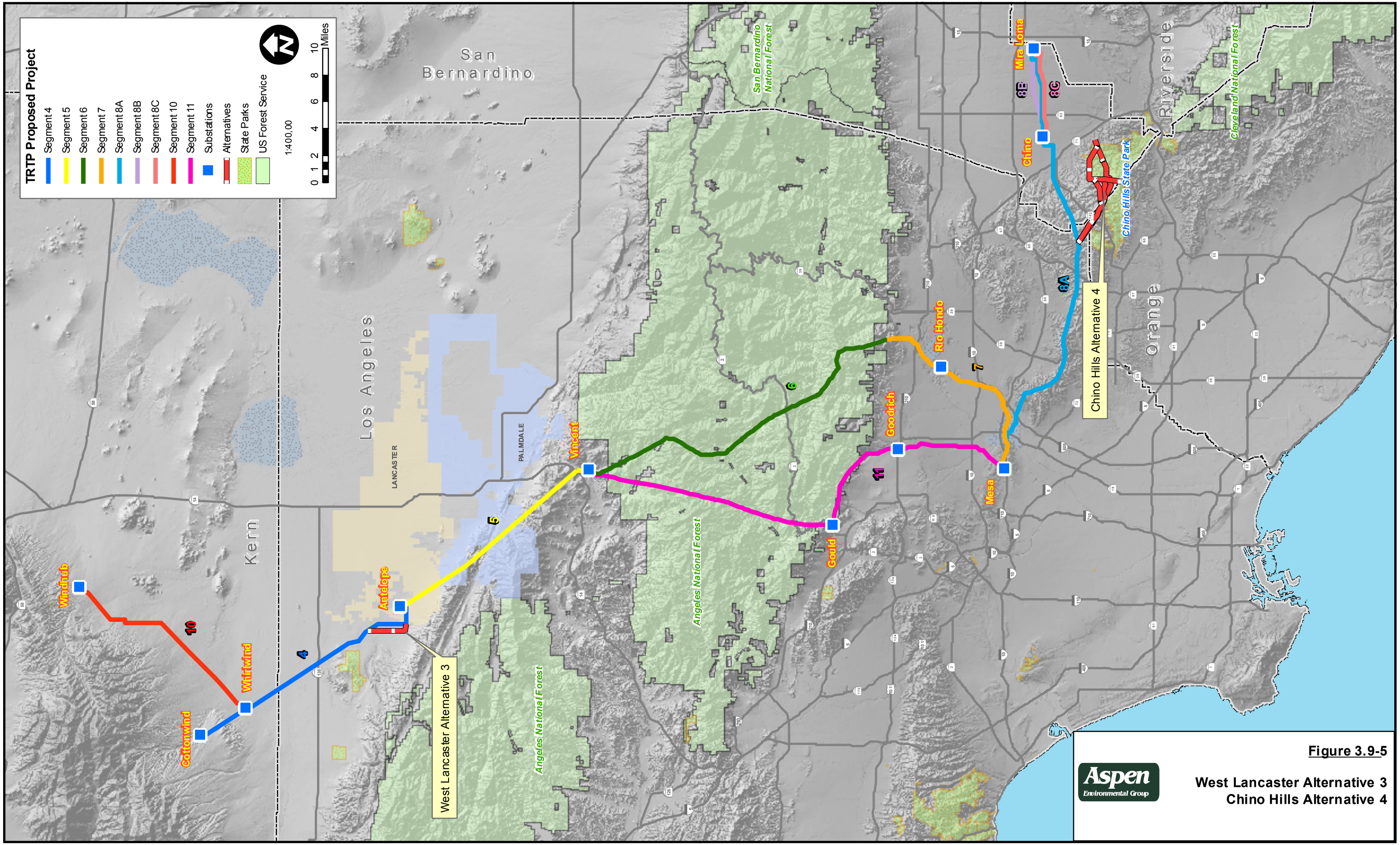


Figure 3.9-5

West Lancaster Alternative 3
Chino Hills Alternative 4

3.10 Noise

3.10.1 Introduction

This section describes effects on noise that would be caused by implementation of the proposed TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to noise are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with implementation of the Project.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received that identified issues and concerns with the Project. The following issues related to noise were raised during scoping:

- Property owners in the Chino Hills area expressed concern with the potential for 24-hour "humming" and "buzzing" from electrical lines.
- County of Los Angeles had concern with how the Project would impact county parks and whether or not a park patron's experience would be compromised with the construction of the 500-kV towers.
- Agencies and residents also expressed concern with the use of helicopters to construct towers, and how the noise associated with aircraft would impact recreationists and wildlife.

Noise-related concerns that are relevant to recreation, including the effects that Project-related noise would have on park patrons' recreational experiences, are addressed in the Wilderness and Recreation analysis for TRTP, which is presented as Section 3.15 of this EIR/EIS. Similarly, noise-related concerns that are relevant to wildlife and biological resources are addressed in the Biological Resources analysis for TRTP, which is presented as Section 3.4 of this EIR/EIS. Therefore, this analysis addresses direct noise concerns and potential impacts, including the corona noise noted above as a public scoping issue.

Summary and Comparison of Alternatives

Table 3.10-1 on the following page presents some key factors related to noise for the proposed Project and each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.10-1 are not necessarily impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.10.4.1 (Criteria for Determining Impact Significance) are described in Sections 3.10.6 through 3.10.11.

3.10.2 Affected Environment

In the following noise analysis, data was extensively used from the TRTP Noise Technical Report, dated December 2007 (CH2MHill, 2007), which is provided in Appendix K of this Final EIR/EIS. Ambient noise surveys were conducted at 14 representative locations to assess the existing ambient noise levels of the representative locations from July 31, 2007, through August 3, 2007; and from August 13, 2007, through August 15, 2007. Continuous unattended long-term monitoring stations were established at 12 locations between Palmdale (North Region) and Chino Hills (South Region). Because long-term monitoring locations were unavailable in the northern rural area of the

Table 3.10-1. Summary Comparison of Environmental Issues – Noise

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills Route)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Construction noise would substantially disturb sensitive receptors (Impact N-1)	Because unspecified transmission upgrades would be required, it is assumed these activities would generate construction noise similar to Alternative 2.	Sensitive noise receptors within close proximity ~~(200 feet)~~ to construction activities would be disturbed by substantial construction noise (i.e. results in an ambient noise increase of at least 5 dBA).	Slightly fewer sensitive receptors in the City of Lancaster would be subjected to construction noise than Alternative 2.	Fewer sensitive residential receptors within the City of Chino Hills would be subject to construction noise than Alternative 2.	Because of underground tunnel construction within the City of Chino Hills, construction noise would affect fewer sensitive receptors within the City of Chino Hills than Alternative 2.	Construction of additional helicopter staging areas and the increased use of helicopters would substantially increase construction noise. Small increase in the number of sensitive receptors subjected to construction noise in and around the ANF.	Slightly increased construction noise would occur in the areas where subtransmission lines would be re-routed or installed underground.
Construction noise levels would violate local standards (Impact N-2)	Because unspecified transmission upgrades would be required, it is assumed these activities would generate construction noise similar to Alternative 2.	Construction would not comply with noise ordinances adopted by the Cities of Baldwin Park, Duarte, La Habra Heights, Pasadena, and South El Monte.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations (Impact N-3)	Substantial noise effects would occur for any noise sensitive uses near possible new substations and new transmission facilities, which could result in operational and maintenance (O&M) noise, including corona noise.	Corona noise modeled for Alternative 2 indicates that corona noise would substantially increase (i.e. more than 5 dBA above existing ambient noise) along Segments 4, 5, 6, 7, 8, 10, and 11, with fewer sensitive noise receptors present along 10, 6 and 11 (in the ANF).	Same as Alternative 2; however, due to the rerouting of the T/L in the City of Lancaster, slightly fewer sensitive receptors would be subjected to corona noise in the City of Lancaster.	Same as Alternative 2; however, by rerouting the proposed T/L through more rural areas of the City of Chino Hills, fewer sensitive residential receptors would be subjected to corona noise.	Same as Alternative 2; however, because a transmission segment would be placed underground within the City of Chino Hills, operational corona noise would affect fewer sensitive receptors.	Same as Alternative 2.	Same as Alternative 2; however, would avoid some amount of operational corona noise from 66-kV subtransmission lines along the two 66-kV underground segments.
Operational noise levels would violate local standards (Impact N-4)	Violations could occur similar to Alternative 2.	Operational noise would not comply with noise ordinances adopted by the County of Los Angeles and the Cities of Chino, South El Monte, and Whittier.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

proposed Project, short-term attended measurements were collected at two locations in the northern Antelope Valley. The existing noise environment, including noise sensitive receptors, ambient noise, and corona noise, for each segment of the proposed Project is described below. The study area for the noise environment is defined as the area extending 2,000 feet from each side of the centerline of the proposed alignment or 2,000 feet from the perimeter of each substation.

3.10.2.1 Regional Setting

To describe environmental noise at the regional and local levels, and to assess impacts on areas sensitive to community noise, a frequency weighting measure that simulates human perception is customarily used. The frequency weighting scale known as A-weighting best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A weighted decibel scale (dBA) is cited in most community noise goals. Decibels are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. Figure 3.10-1 (Typical Range of Common Sounds Heard in the Environment) illustrates typical ranges of common sounds heard in the community noise environment.

The community noise environment and the consequences of human activities cause noise levels to be widely variable over time. For simplicity, sound levels are usually best represented by an equivalent level over a given time period (L_{eq}) or by an aggregated level occurring over a 24-hour day-night period (Ldn). The L_{eq}, or equivalent sound level, is a single value for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually one hour. The Ldn, or day-night sound level, is equal to the 24-hour equivalent sound level (in dBA) with a 10 dBA penalty applied to nighttime sounds occurring between 10:00 p.m. and 7:00 a.m. The community noise equivalent level (CNEL) is a metric similar to Ldn in that it is a 24-hour equivalent level in dBA that includes a 5 dBA penalty to evening sounds (between 7:00 p.m. and 10:00 p.m.) along with the 10 dBA nighttime penalty.

The proposed Project and alternatives would be located within both urban and rural areas of Los Angeles County, Kern County, and San Bernardino County. Community noise levels are usually closely related to the intensity of nearby human activity. Figure 3.10-2 (Outdoor Day/Night Sound Levels in Different Areas) illustrates the typical noise levels of varying types of land use. Noise levels are generally considered low when ambient levels are below an Ldn of 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In pristine wilderness areas, the Ldn noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the Ldn is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas (e.g., downtown areas), and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse to public health (U.S. EPA, 1974).

The surrounding land uses dictate what future noise levels would be considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding daytime levels. In rural areas away from roads and other human activity, the day-to-night difference can be considerably less. Areas with full-time human occupation that are subject to nighttime noise are often considered objectionable because of the likelihood of disrupting sleep. Noise levels above 45 dBA at night can result in the onset of sleep interference effects. At 70 dBA, sleep interference effects become considerable (U.S. EPA, 1974).

3.10.2.2 Alternative 2: SCE's Proposed Project

Existing Noise Conditions

A wide range of noise sources occurs near the proposed Project route. Within the proposed route ROW, existing transmission lines create corona noise that sounds like crackling and humming~~, are the most notable noise sources in the immediate vicinity of the corridor~~. The noise from corona discharge and similar electrical phenomena associated with high-voltage power transmission is heard near an energized line as a crackling or hissing sound. This noise increases with the voltage of the line, irregularities on the conductor surface caused either by age or moisture, and wet ambient meteorological conditions, when high humidity, fog, or rain occur. Surrounding land uses contribute many other noise sources at various locations along the route, as described in detail for each segment below.

Occupied noise-sensitive land uses are dispersed along the Project corridor as part of the residential development near the route. Notable noise-sensitive land uses along the route are school facilities, park facilities, cemetery use, and residential homes. Other sensitive uses are designated as recreation areas, and are identified accordingly. These uses are affected by both existing mobile and non-mobile noise sources such as transportation facility use, commercial/industrial development, and adjacent residential uses. Table 3.10-2 (Ambient Noise Levels along Proposed Project Route) presents the results of the ambient noise measurements taken along the route. Locations of the noise measurements are shown in Figures 5.2-1 and Figure 5.2-2 of the TRTP Noise Technical Report (CH2MHill, 2007), which is provided in Appendix K of this Final EIR/EIS.

Table 3.10-2. Ambient Noise Levels along Proposed Project Route

Location		Survey Period	L_{eq} (24-hour)	L_{max}	L_{min}	Primary Noise Sources and Nearby Transmission Line Sources
#	Description					
1[1]	Backus Road, Kern County (Segment 10)	August 1, 2007 9:15 a.m.	45.0	N/A	N/A	Traffic from Tehachapi Willow Springs Road.
2[1]	170th Avenue and Rosamond Boulevard, City of Rosamond (Segment 10)	August 1, 2007 9:52 a.m.	40.0	N/A	N/A	Traffic from Rosamond Boulevard.
3	Parkwood Drive, City of Palmdale (Segment 5)	July 31, 2007 to August 1, 2007	71.0	78.0	57.0	Traffic from residential street use and nearby construction activities. A number of existing transmission lines are located near the reading location.
4	Vincent Substation (Segment 9)	July 31, 2007 to August 1, 2007	50.0	55.0	45.0	Traffic from SR 14. A number of existing transmission lines are located near the reading location.
5	Valley View Park, City of Duarte (Segment 7)	August 14, 2007 to August 15, 2007	57.0	70.0	39.0	Traffic from residential street use and park activities.
6	Rose Hills Memorial Park Cemetery, City of Whittier (Segment 8)	August 14, 2007 to August 15, 2007	48.0	53.0	45.0	Cemetery activities. Two 220-kV transmission lines are located near the reading location.
7	Mesa Substation (Segment 9)	August 14, 2007 to August 15, 2007	59.0	63.0	52.0	Traffic from SR 60 and Potrero Grande Drive. Two 220-kV transmission lines are located near the reading location.
8	Skyline trail, City of Hacienda Heights (Segment 8)	August 14, 2007 to August 15, 2007	50.0	57.0	43.0	Traffic from residential street use. A number of existing transmission lines are located near the reading location.
9	Thoroughbred Street, City of Ontario	August 2, 2007 to August 3, 2007	52.0	58.0	47.0	Traffic from residential street use. Two 220-kV transmission lines are located near the reading

Table 3.10-2. Ambient Noise Levels along Proposed Project Route

Location #	Location Description	Survey Period	L_{eq} (24-hour)	L_{max}	L_{min}	Primary Noise Sources and Nearby Transmission Line Sources
	(Segment 8)					location.
10	Pacific Crest Trail, Angeles National Forest (Segment 11)	July 31, 2007 to August 1, 2007	41.0	49.0	26.0	Los Angeles County Fire Camp activities. Two high elevation 220-kV transmission lines are located near the reading location.
11	Crossroads Park, City of Chino Hills (Segment 8)	August 2, 2007 to August 3, 2007	55.0	60.0	45.0	Traffic from Chino Hills Parkway and park activities. One 220-kV transmission line is located near the reading location.
12	Edam Street and Avila Avenue, City of Chino (Segment 8)	August 2, 2007 to August 3, 2007	53.0	60.0	43.0	Traffic from residential street use. Two 220-kV transmission lines are located near the reading location.
13	Eaton Blanche Park, City of Pasadena (Segment 11)	August 14, 2007 to August 15, 2007	51.0	61.0	43.0	Traffic from residential street use and park activities. One 220-kV double-circuit, two 66-kV, and one 220-kV single-circuit transmission line are located near the reading location.
14	Sally Tanner Park, City of Rosemead (Segment 11)	August 14, 2007 to August 15, 2007	53.0	57.0	47.0	Traffic from Mission Drive and nearby Water Bureau maintenance yard use. One 220-kV double-circuit, two 66-kV, and one 220-kV single-circuit transmission line are located near the reading location.

Notes: All measurements are in dBA.
N/A: Data is not available
1 Denotes short-term measurement, 10 minute reading in duration.
All other measurements were 24-hour in duration.
Source: Tehachapi Renewable Transmission Project Noise Technical Report, December 2007

Existing Transmission Line Corona Noise Levels. The electrical effects of high-voltage transmission lines fall into two broad categories: corona effects and electric field effects. Corona is the ionization of the air that occurs at the surface of the energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and production of ozone. The amount of corona produced by a transmission line is a function of the voltage of the line, the diameter of the conductor (or bundle of conductors), the elevation of the line above sea level, the condition of the conductor and hardware and the local weather conditions. Corona typically becomes a design concern for transmission lines at 345 kilovolts (kV) and above and is less noticeable on lines operated at lower voltages.

The electric field gradient that causes corona is the rate at which the strength of the electric field changes with distance and is directly related to the line voltage. The electric field gradient is greatest at the surface of the conductor. Large-diameter conductors have lower electric field gradients at the conductor surface and, hence, for identical line voltage larger conductor generates lower corona noise than smaller conductors. Irregularities (such as nicks and scrapes on the conductor surface) or sharp edges on suspension hardware concentrate the electric field at these locations and, thus, increase the electric field gradient and corona at these spots. Similarly, contamination on the conductor surface, such as dust or insects, can cause irregularities that are a source for corona. Corona also increases at higher elevations where the density of the atmosphere is less than at sea level. Raindrops, snow, fog, hoarfrost, and condensation accumulated on the conductor surface are sources of surface irregularities that can increase corona. During fair weather, the number of these sources of surface irregularities is lower and the corona effect is also low.

Corona generates audible noise during operation of transmission lines. The noise is generally characterized as a crackling, hissing, or humming noise. The noise is most noticeable during wet

conductor conditions such as rain or fog. Audible noise from transmission lines is often masked by the background noise at locations beyond the edge of the ROW particularly where the line runs near a source of background noise such as a freeway. However, during wet weather, the number of these sources of surface irregularities increases (for instance due to rain drops standing on the conductor and energized hardware) and corona effects are greater. During wet conditions or foul weather conditions, the conductor will produce the greatest amount of corona noise. However, during heavy rain the ambient noise generated by the falling raindrops will typically be greater than the noise generated by corona.

Existing corona noise was calculated at six representative locations along each segment of the proposed Project. The existing audible noise produced by corona at selected locations along the proposed Project route are listed in Table 3.10-3, and the locations are shown in Figures 5.3-1 through 5.3-5 of the TRTP Noise Technical Report (CH2MHill, 2007), which is provided in Appendix K of this Final EIR/EIS.

Table 3.10-3. Existing Audible Corona Noise along Proposed Project Route

Existing Corona Noise Location No.	Proposed Project Segment	Existing Audible Corona Noise at Edge of ROW (dBA)		Parameters Considered During Existing Corona Noise Determination
		Wet Weather Conditions	Fair Weather Conditions	
1	10	N/A	N/A	No existing line is present in the corridor; therefore, there is no corona-related noise, and modeling was not warranted.
2	6	<20.0 – 24.0	<20.0	The Existing Scenario that was modeled consisted of two 220-kV single-circuit lattice steel towers (LSTs) and one single-circuit LST to be built to 500-kV specifications and operated at 220 kV. Corona modeling inputs included 15 total conductors, of which 9 are energized phases and 6 are ground wires. An elevation of 4,900 feet above mean sea level (msl) was used for Location 2.
3	8	N/A	N/A	The existing line in Chino Hills is currently idle (not energized); therefore, there is no corona-related noise, and modeling was not warranted.
4	7	22.0 – 25.0	<20.0	The Location 4 Existing Scenario was modeled with one 220-kV double-circuit LST and one 220-kV single-circuit LST. The corona modeling inputs included 12 total conductors, of which 9 are energized phases and 3 are ground wires. An elevation of 1,400 feet above msl was used for Location 4.
5	South of Vincent Substation	<20.0 – 22.0	<20.0	The Location 5 Existing Scenario was modeled with eight 220-kV single-circuit LSTs. The corona modeling inputs included 40 total conductors, of which ~~24~~ 18 are energized phases, six are non-energized phases, and 16 are ground wires. An elevation of 3,225 feet above msl was used for Location 5.
6	8	23.0 – 25.0	<20.0	The Location 6 Existing Scenario was modeled with one 220-kV double-circuit LST and one 220-kV single-circuit LST. The corona modeling inputs included 12 total conductors, of which 9 are energized phases and 3 are ground wires. An elevation of 700 feet above msl was used for Location 6.
7	4	50.0 – 51.0	25.0 – 26.0	The Location 7 Existing Scenario was modeled with one 500-kV single-circuit LST and two 220-kV single-circuit LSTs. Corona modeling inputs included 15 total conductors, of which 9 are energized phases and 6 are ground wires. An elevation of 2,600 feet was used for Location 7.

Source: Tehachapi Renewable Transmission Project Noise Technical Report, December 2007
N/A: No Existing Transmission Lines Location

A summary of noise conditions along each segment of the proposed Project route is presented below. While the following descriptions include a summary of sensitive noise receptors located along each segment by land use type, a complete list of sensitive receptors located along each segment is provided in

Table 5.3-4 and shown in Figures 5.4-1 and 5.4-2 of the TRTP Noise Technical Report (CH2MHill, 2007), which is provided in Appendix K of this Final EIR/EIS.

Segment 4

Ambient Noise Levels. Segment 4 starts at the future ~~Cottonwind~~ Drycreekwind Substation location and ends at the existing Antelope Substation. The noise measurements taken at the junction of 170th Avenue and Rosamond Boulevard, Noise Measurement Location 2 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), are representative of the noise levels in the Segment 4 study area and other less developed rural locations. The L_{eq} noise level measured during one daytime 10-minute period at this site was 40 dBA.

Calculated existing transmission line corona noise along this segment is represented at Existing Corona Noise Location 7 from Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route). Existing fair weather corona noise varies between 25 and 26 dBA at the edge of the study area while rainy weather corona noise was estimated to vary between 50 and 51 dBA at the edge of the study area.

Noise-Sensitive Receptors. There are very few residences along the Segment 4 study area. There are no hospitals, libraries, schools, places of worship, or other facilities in the study area. The setting is rural and undeveloped in nature and includes agricultural farmlands.

Segment 5

Ambient Noise Levels. Segment 5 starts at the existing Antelope Substation and ends at the existing Vincent Substation. The Segment 5 study area passes through or near the western limits of the cities of Lancaster and Palmdale. The noise measurements taken at the end of Parkwood Drive, Noise Measurement Location 3 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), in a residential area next to the existing transmission line along the southern portion of the Segment 5 is representative of noise levels along this segment. The hourly L_{eq} noise level measured over a 24-hour period was 71 dBA. The monitoring results were likely elevated by high winds and construction activities in the distance (approximately 0.25 mile away) that were noted during field visits. Under calmer conditions the expected noise level would be lower. The monitoring location was located above the residential area, near the side of a hill. In the vicinity of State Route (SR) 14 near the southerly end of Segment 5, noise levels are louder due to SR 14 traffic.

Existing Corona Noise Location 4 from Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route) represents existing transmission line corona noise along this segment. While Existing Corona Noise Location 4 is located along Segment 7, the characteristics of the existing transmission lines along both Segment 5 and Segment 7 are similar. Existing fair weather corona noise was estimated to be less than 20 dBA at the edge of the study area, while rainy weather corona noise was estimated to range from 22 dBA to 25 dBA.

Noise-Sensitive Receptors. Noise-sensitive uses encountered near the route and work areas along Segment 5 include residential areas and a long-term care facility. In addition, multiple large-scale residential developments are proposed or under construction along the segment.

Segment 6

Ambient Noise Levels. Segment 6 starts at the existing Vincent Substation and ends at the southern boundary of the Angeles National Forest (ANF) and is located almost entirely within the ANF. The setting is rural at the north end of the segment and generally undeveloped open space across the ANF.

The primary noise receptors along this segment are recreational use within the ANF. No noise measurements were conducted along Segment 6; however, the ambient noise measurement conducted in the ANF portion of Segment 11, Noise Measurement Location 10 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), is representative of the noise level along this segment. The hourly L_{eq} noise levels measured over a 24-hour period are expected to be 41 dBA along this segment.

Existing Corona Noise Location 2 from Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route) represents existing transmission line corona noise along this segment. While Existing Corona Noise Location 2 is located along Segment ~~11~~ 6, the characteristics of the existing transmission lines of both segments are similar. Existing fair weather corona noise was estimated to be less than 20 dBA at the edge of the study area, while rainy weather corona noise was estimated to range from less than 20 dBA to 24 dBA.

Noise-Sensitive Receptors. In addition to residences near the Angeles Forest Highway immediately south of the Vincent Substation (not within the ANF), there are several residences within the ANF on private inholdings. Other than these residential receptors, there are no hospitals, libraries, schools, places of worship, or other sensitive receptors in the Segment 6 study area.

Segment 7

Ambient Noise Levels. Segment 7 starts at the northern, undeveloped boundary of Duarte before emerging into the populated residential area of Duarte and ends at the existing Mesa Substation. A noise measurement was conducted along this segment in a residential area, Noise Measurement Location 5 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route). The hourly L_{eq} noise levels measured over a 24-hour period at this site measured 57 dBA.

Existing Corona Noise Location 4 from Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route) represents existing transmission line corona noise along this segment. Existing fair weather corona noise was estimated to be less than 20 dBA at the edge of the ~~study area~~ ROW, while existing rainy weather corona noise was estimated to range from 22 dBA to 25 dBA.

Noise-Sensitive Receptors. Noise-sensitive receptors along Segment 7 include residences, schools, healthcare facilities, and nature and wildlife preserves and parks.

Segment 8

Ambient Noise Levels. Segment 8 starts near the existing Mesa Substation and ends at the existing Mira Loma Substation. This segment traverses highly developed and densely populated areas of the Los Angeles metropolitan area. Noise measurement surveys were conducted along this segment in residential areas, Noise Measurement Locations 9 and 12 from Table 3.10-2 (Ambient Noise Levels Along Proposed Project Route), and in parks and open space areas, Noise Measurement Locations 6 and 8 from Table 3.10-2. The hourly L_{eq} noise levels measured over 24-hour periods ranged from 43 to 60 dBA at these locations.

Existing Corona Noise Locations 3 and 6 ~~and 8~~ from Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route) represent existing transmission line corona noise along this segment. Existing fair weather corona noise was estimated to be less than 20 dBA at the edge of the study area, while rainy weather corona noise was estimated to range from 23 dBA to 25 dBA. The existing transmission line along this segment is not energized near Existing Corona Noise Location 3; therefore, there is no existing corona noise at this location.

Noise-Sensitive Receptors. Noise-sensitive receptors along Segment 8 include residences, residential neighborhoods, schools, healthcare facilities, and nature and wildlife preserves and parks.

Segment 9 (Substations)

Ambient Noise Levels. Segment 9 includes construction of the new Whirlwind Substation, expansion of the Antelope and Vincent Substations (the only substations where the proposed Project has the potential to change the noise levels), and minor upgrades of the Mesa, Gould, and Mira Loma Substations. SR 14 is located less than one mile from the Vincent Substation. The Mesa Substation is near SR 60 and Potrero Grande Road and the surrounding area is affected by noise from these roads. Noise measurements were conducted next to the Vincent and Mesa substations, Noise Measurement Locations 4 and 7 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route). The hourly L_{eq} noise levels measured over 24-hour periods was 50 dBA at the Vincent Substation site and 59 dBA at the Mesa Substation site.

Existing transformer noise at the Vincent Substation results in 51 dBA at the closest residence, while at the Antelope Substation the existing transformer noise at the closest residence is 46 dBA (CH2MHill, 2007). In addition to the substation noise from the transformers, there is existing noise from the transmission lines entering, leaving, and within the substation. Existing Corona Noise Location 5 from Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route) represents existing transmission line corona noise within this segment. Existing fair weather corona noise was estimated to be less than 20 dBA at the transmission line. Rainy weather corona noise was estimated to range from 28 dBA at 50 feet from the transmission line to less than 20 dBA at 2,000 feet from the line.

Noise-Sensitive Receptors. Several sensitive noise receptors are located in the general vicinity of the Antelope, Vincent, and Mesa Substations. The area near the Vincent Substation is rural in character, and is surrounded by scattered residences. Furthermore, a residential area is located to the north of the Mesa Substation.

Segment 10

Ambient Noise Levels. Segment 10 starts at the Windhub Substation and ends at the proposed new Whirlwind Substation. The noise measurements conducted along this segment at the west paved terminus of Backus Road and at the junction of Rosamond Boulevard and 170th Street, Noise Measurement Locations 1 and 2 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), are considered to be generally representative of the noise levels along Segment 10. The L_{eq} noise levels measured over 10-minute periods were 45 dBA at Noise Reading Location 1 and 40 dBA at Noise Reading Location 2.

There are no existing transmission lines along this segment of the proposed alignment and, therefore, there is no existing corona noise.

Noise-Sensitive Receptors. Few residences are located along Segment 10. There are no hospitals, libraries, schools, places of worship, or other facilities. The setting is rural and undeveloped in nature and includes agricultural farmlands.

Segment 11

Ambient Noise Levels. Segment 11 starts at the existing Vincent Substation and ends at the existing Mesa Substation. Most of the northern portion of Segment 11 is located within the ANF. The noise measurements conducted along this segment were collected at the Pacific Crest Trail in the ANF and residential areas outside the ANF, as shown by Noise Measurement Locations 10, 13, and 14 from Table

3.10-2 (Ambient Noise Levels along Proposed Project Route). The hourly L_{eq} noise levels measured over a 24-hour period ranged from 41 dBA at Noise Reading Location 10, from 51 dBA at Noise Reading Location 13, and 53 dBA at Noise Reading Location 14.

Existing Corona Noise Locations 2 and 4 from Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route) represents existing transmission line corona noise along this segment. While Existing Corona Noise Location 2 is located along Segment 6 and Existing Corona Noise Location 4 is located along Segment 7, the characteristics of the existing transmission lines along these segments are similar. Existing fair weather corona noise was estimated to be less than 20 dBA at the edge of the study area, while existing rainy weather corona noise was estimated to range from 22 dBA to 25 dBA.

Noise-Sensitive Receptors. The setting is rural at the north end of the segment. There are no residences, hospitals, libraries, schools, places of worship, or other facilities near the alignment in the ANF. The primary noise receptors along this segment are people hiking or camping in the ANF, and residences located near Vincent Substation. The southern portion of Segment 11 enters La Cañada Flintridge and the northern end of Pasadena and continues south into populated areas in the San Gabriel Valley. Noise receptors located south of the ANF on this segment include residences, industries, businesses, schools, and hospitals.

Noise Modeling Results

Noise generated by construction activities, substation operation, and transmission line operation was modeled and presented in the TRTP Noise Technical Report (CH2MHill, 2007), which is provided in Appendix K of this Final EIR/EIS. The following summarizes these noise modeling results.

Temporary Construction Noise

Construction noise at any specific receptor is dominated by the closest and loudest equipment, and the types and numbers of construction equipment near any specific receptor location would vary over time. In order to make reasonably conservative estimates of construction noise, construction equipment noise levels at various distances were used based on levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance).

Table 3.10-4. Estimated Construction Equipment Noise Levels Versus Distance

Distance from ROW or Substation Property Line (ft)	L_{eq} Noise Level (dBA)
50	83.0
100	79.0
200	74.0
400	69.0
800	63.0
1,600	58.0
3,200	52.0
6,400	46.0

Source: Tehachapi Renewable Transmission Project Noise Technical Report, December 2007

Substation Operational Noise

The following presents the predicted noise levels from the Vincent, Antelope, and Whirlwind Substations (the only substations where the proposed Project has the potential to result in a change in noise levels).

- ***Vincent.*** Modifications to the Vincent Substation include one new Static VAR Compensator (SVC) that is anticipated to result in a noise level of 60 dBA or less at the fence line. The closest residents are located approximately 400 feet from the fence line. At this distance the noise level from the SVC is predicted to be 46 dBA and is anticipated to increase the substation noise level by 2 dBA to 53 dBA.
- ***Antelope.*** The closest residence to the proposed SVC location is approximately 3,000 feet. Project modifications to the Antelope Substation include one new SVC that is anticipated to result in 65 dBA or less at the fence line. At 3,000 feet from the fence line, the noise level from the SVC is predicted to be 42 dBA. This is anticipated to result in less than a 2 dBA increase to 48 dBA at the closest residence to the SVC.
- ***Whirlwind.*** No residences have been identified within 3,000 feet of any of the proposed locations for the Whirlwind Substation. The new Whirlwind Substation would include four single-phase 373-megavolt amperes (MVA) transformers. The predicted noise level from these transformers is 40 dBA at 3,000 feet.

Corona Noise

Seven locations from the proposed Project were selected for future corona noise modeling. Future corona noise was calculated at seven representative locations along each segment of the proposed Project. Figures 6-1 through 6-10 from the TRTP Noise Technical Report (CH2MHill, 2007), which is provided in Appendix K of this Final EIR/EIS, show the location of each existing corona noise location number and proposed Project segment. For comparison purposes, these locations are identical to those showing existing corona noise as presented above in Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route). The results of the modeling are summarized below in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route).

Table 3.10-5. Modeled Future Audible Corona Noise along Proposed Project Route

Corona Modeling Location #	Proposed Project Segment	Modeled Future Audible Corona Noise at Edge of ROW (dBA)		Parameters Considered During Corona Noise Modeling
		Wet Weather Conditions	Fair Weather Conditions	
1	10	52.0 - 55.0	27.0 - 30.0	One 500-kV single-circuit LST was modeled for the Location 1 proposed scenario. The corona modeling inputs included five total conductors, of which three are energized phases and two are ground wires. The elevation used in the corona modeling for Location 1 was 3,150 feet.
2	6	47.0 - 60.0	22.0 – 35.0	The Location 2 proposed scenario was modeled with one 220-kV single-circuit LST, one single-circuit LST to be built to 500-kV specifications and operated at 220 kV, and one 500-kV single-circuit LST. Corona modeling inputs included 15 total conductors, of which 9 are energized phases and 6 are ground wires. An elevation of 4,900 feet was used for Location 2.
3	8	56.0 – 58.0	32.0 – 35.0	The Location 3 proposed scenario was modeled with one split-phased 500-kV double-circuit tubular steel pole (TSP), with both circuits energized. Corona modeling inputs included eight total conductors, of which six are energized phases and two are ground wires. The elevation used in the Corona modeling for Location 3 was 950 feet.
4	7	51.0 – 54.0	26.0 – 29.0	The Location 4 LST proposed scenario was modeled with one 220-kV double-circuit LST, with the right side de-energized, and one 500-kV double-circuit LST. The 500-kV double-circuit LST is to be built to 500-kV specifications, and operated at 220 kV on the left and operated at 500 kV on the right. The corona modeling inputs included 15 total conductors, of which 9 are energized phases, 3 are de-energized phases, and 3 are ground wires. An elevation of 1,400 feet was used for Location 4. The Location 4 TSP proposed scenario was modeled with one 220-kV double-circuit LST, with the right side de-energized, and one 500-kV double-circuit TSP. The 500-kV double-circuit TSP is to be built to 500-kV specifications, and operated at 220 kV on the left and operated at

Table 3.10-5. Modeled Future Audible Corona Noise along Proposed Project Route

Corona Modeling Location #	Proposed Project Segment	Modeled Future Audible Corona Noise at Edge of ROW (dBA)		Parameters Considered During Corona Noise Modeling
		Wet Weather Conditions	Fair Weather Conditions	
				500 kV on the right. The corona modeling inputs included 15 total conductors, of which 9 are energized phases, 3 are de-energized phases, and 3 are ground wires. An elevation of 1,400 feet was used for Location 4.
5	South of Vincent Substation	49.0	24.0	The Location 5 proposed scenario was modeled with the following eight transmission lines: • Six 220-kV single-circuit LSTs • One single-circuit TSP, to be built to 500-kV specifications and operated at 220 kV • One 500-kV single-circuit TSP The corona modeling inputs included 38 total conductors, of which 24 are energized phases and 14 are ground wires. An elevation of 3,225 feet was used for Location 5.
6	8	51.0 – 52.0	26.0 - 27.0	One 220-kV double-circuit LST and one 500-kV double-circuit LST, with the right side de-energized, were modeled for the Location 6 proposed scenario. The corona modeling inputs included 15 total conductors, of which 9 are energized phases, 3 are de-energized phases, and 3 are ground wires. The elevation used in the corona modeling for Location 6 was 700 feet
7	4	52.0 – 56.0	26.0 – 31.0	The Location 7 proposed scenario was modeled with two 500-kV single-circuit LSTs and two 220-kV single-circuit LST. Corona modeling inputs included 20 total conductors, of which 12 are energized phases and 8 are ground wires. An elevation of 2,600 feet was used for Segment 4.

Source: Tehachapi Renewable Transmission Project Noise Technical Report, December 2007

Maintenance Noise

Maintenance activities associated with substations and transmission lines would typically result in noise levels below those associated with construction-related activities, and are anticipated to involve fewer pieces of heavy equipment, occur less frequently, and to be of shorter duration. Maintenance activities are primarily inspection-related (for example, annual inspection of the transmission line from vehicles or helicopters). Other maintenance activities include washing of insulators to ensure proper function and would be conducted on an as-needed basis, but are anticipated to occur less than once per year.

3.10.2.3 Alternative 3: West Lancaster Alternative

Alternative 3 is identical to the proposed Project, except for one deviation along Segment 4. This alternative would re-route the new 500-kV T/L in Segment 4 along 115th Street West rather than 110th Street West. This alternative would deviate from the proposed route at approximately S4 MP 14.9,where the new 500-kV T/L would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route traverses through undeveloped land with scattered residential use along West Avenue I and J and would increase the overall distance of Segment 4 by approximately 0.4 mile.

Existing Noise Condition

The Alternative 3 re-route would occur within Project Segment 4, which starts at the future Cottonwind Substation location and ends at the existing Antelope Substation. The noise measurements taken at the

junction of 170th Avenue and Rosamond Boulevard, Noise Measurement Location 2 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route) are representative of the noise levels in the Alternative 3 re-route study area and other less developed rural locations. The L_{eq} noise level measured during one daytime 10-minute period at this site was 40 dBA.

Noise-Sensitive Receptors. There are very few residences along the Alternative 3 re-route area. There are no hospitals, libraries, schools, places of worship, or other facilities in the study area. The setting is rural and undeveloped in nature and includes agricultural farmlands.

3.10.2.4 Alternative 4: Chino Hills Route Alternatives

Under Alternative 4, the proposed transmission line would follow the same route as the proposed Project along all segments of the proposed Project except Segment 8. Alternative 4 would diverge from the proposed Project route at S8A MP 19.2 and turn to the southeast, crossing through part of Orange County before entering San Bernardino and the Chino Hills State Park (CHSP). In addition, the proposed upgrades required for Segment 8B of Alternative 2 between Chino and Mira Loma Substations are also required for Alternative 4, with the exception that no new ROW would be needed along Segment 8B.

As mentioned, the proposed routes for Alternative 4 would cross through parts of Orange County and San Bernardino County, which the proposed Project would not enter. The routing options for Alternative 4 would also cross through the CHSP, which is managed by the California Department of Parks and Recreation, with assistance from the Chino Hills State Park Interpretive Association (CHSPIA), a non-profit volunteer organization (CHSPIA, 2007). The five~~four~~ different routing options (Routes A through D, including 4C Modified) which are included under Alternative 4 are discussed in further detail below.

Route A

Ambient Noise Levels. This alternative would deviate from the proposed Project route at Segment 8 Mile Post (MP) 19.2 and run parallel to the existing Walnut/Olinda-Mira Loma 220-kV transmission line for 6.2 miles, 2.3 miles of which would be within the CHSP. Route A would be situated within an existing utility corridor, but would require that the corridor be widened by 150 feet along the length of Route A. It is assumed in this analysis that the noise measurement taken at Crossroads Park in the City of Chino Hills, Noise Measurement Location 11 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), is considered representative of the noise levels in the Alternative 4 Route A study area due to the proximity of the locations and the similar less developed rural nature of the locations. The L_{eq} noise level measured during one 24-hour period at Measurement Location 11 from 3.10-2 (Ambient Noise Levels along Proposed Project Route) was 55 dBA.

Noise-Sensitive Receptors. The setting is rural and undeveloped in nature. There are very few residences along the Route A study area, with the only residential units being low density rural residences within the City of Brea. There are no hospitals, libraries, schools, places of worship, or other facilities within 0.25 mile of the Route A ROW. The major sensitive receptors along Route A would be recreational facilities located within the CHSP. Those include mostly a number of multi-use trails all within one mile of the proposed Route A ROW.

Route B

Ambient Noise Levels. Route B would follow the same path as Route A into CHSP, but instead of terminating at a new switching station, Route B would continue to just beyond the eastern Park boundary, eventually terminating at a new switching station outside of the CHSP. As with the Route A alternative, it

is assumed in this analysis that the noise measurement taken at Crossroads Park in the City of Chino Hills, Noise Measurement Location 11 from 3.10-2 (Ambient Noise Levels along Proposed Project Route), is considered representative of the noise levels in the Alternative 4 Route B study area due to the proximity of the locations and the similar less developed rural nature of the locations. The L_{eq} noise level measured during one 24-hour period at Measurement Location 11 from 3.10-2 (Ambient Noise Levels along Proposed Project Route) was 55 dBA.

Noise-Sensitive Receptors. The setting is rural and undeveloped in nature. There are very few residences along the Route B study area, with the only residential units being low density rural residences within the City of Brea. There are no hospitals, libraries, schools, places of worship, or other facilities within 0.25 mile of the Route B ROW. The major sensitive receptors along Route B would be recreational facilities located within the CHSP, including a number of multi-use trails all within one mile of the proposed Route B ROW.

Route C

Ambient Noise Levels. The proposed original Route C alternative would involve the construction of a new transmission line just north of the CHSP, the re-routing of two existing lines within the CHSP, and the removal of existing transmission lines from within the CHSP. As with the Route A alternative, it is assumed in this analysis that the noise measurement taken at Crossroads Park in the City of Chino Hills, Noise Measurement Location 11 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), is considered representative of the noise levels in the Route C study area due to the proximity of the locations and the similar less developed rural nature of the locations. The L_{eq} noise level measured during one 24-hour period at Measurement Location 11 from Table 3.10-2 was 55 dBA.

Noise-Sensitive Receptors. The setting is rural and undeveloped in nature. There are very few residences along the original Route C study area, with the only residential units being low density rural residences within the City of Brea. There are no hospitals, libraries, schools, places of worship, or other facilities within 0.25 mile of the Route C ROW. Although the new transmission line associated with Route C would not make any direct crossings of recreational resources within the CHSP, a number of multi-use trails are located within one mile of the proposed Route C ROW.

Route C Modified

Ambient Noise Levels. The proposed Route C Modified is very similar to the original Route C, described above, with the exception that the switching station would located on Aerojet property approximately 2,500 feet northwest of the location proposed under the original Route C. As such, transmission line configurations and access roads to the new switching station for Route C Modified would be altered to account for relocation of the switching station. Re-routing of the same transmission lines described under Route C would occur under Route C Modified; however, the 500-kV reroute would occur utilizing one set of double-circuit 500-kV towers rather than two sets (in parallel) of single-circuit 500-kV towers. As with the original Route C alternative, it is assumed in this analysis that the noise measurement taken at Crossroads Park in the City of Chino Hills, Noise Measurement Location 11 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), is considered representative of the noise levels in the Route C Modified study area due to the proximity of the locations and the similar less developed rural nature of the location. The L_{eq} noise level measured during one 24-hour period at Measurement Location 11 from Table 3.10-2 was 55 dBA.

Noise-Sensitive Receptors. The setting for Route C Modified is similar to original Route C and is rural and undeveloped in nature. There are very few sensitive receptors within proximity the Route C Modified area, with the only nearby receptors being rural residences within the City of Brea. There are no hospitals, libraries, schools, places of worship, or other facilities within 0.25 mile of the Route C Modified transmission line ROW. However, the new transmission line associated with Route C Modified would require reroutes of existing transmission lines from within CHSP in proximity of recreational resources within the CHSP.

Route D

Ambient Noise Levels. The proposed Route D alternative would follow the same path as the proposed Route C alternative, but instead of terminating at a switching station at approximately Segment 8 MP 24.7, Route D would continue to follow the northern boundary of CHSP for approximately 2.4 miles, before crossing through part of the Park in a southeasterly direction and terminating at a new switching station just outside the eastern Park boundary. As with the Route A alternative, it is assumed in this analysis that the noise measurement taken at Crossroads Park in the City of Chino Hills, Noise Measurement Location 11 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), is considered representative of the noise levels in the Route D study area due to the proximity of the locations and the similar less developed rural nature of the locations. The L_{eq} noise level measured during one 24-hour period at Measurement Location 11 from Table 3.10-2 was 55 dBA.

Noise-Sensitive Receptors. The setting is rural and undeveloped in nature. There are very few residences along the Route D study area, with the only residential units being low density rural residences within the City of Brea and the City of Chino Hills. There are no hospitals, libraries, schools, places of worship, or other facilities within 0.25 mile of the Route D ROW. The major sensitive receptors along Route D would be recreational facilities located within the CHSP, including a number of multi-use trails all within one mile of the proposed Route D ROW.

3.10.2.5 Alternative 5: Partial Underground Alternative

The proposed route for Alternative 5 (Partial Underground Alternative) would not diverge from that of the proposed Project and therefore, the Affected Environment for Alternative 5 would be identical to the Affected Environment for the proposed Project, as described in Section 2.2 (Alternative 2: SCE's Proposed Project).

Ambient Noise Levels. The Alternative 5 (Partial Underground Alternative) underground location would follow the same path as the proposed Project within Segment 8. For the purposes of this analysis, it is assumed that the noise measurement taken at Edam Street and Avila Avenue within the City of Chino (Segment 8), Noise Measurement Location 12 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), is representative of the noise levels along the underground portion of Alternative 5, due to the similarity in residential development and density of the locations. The L_{eq} noise level measured during one 24-hour period at Measurement Location 12 from Table 3.10-2 was 53 dBA.

Existing Corona Noise Locations 3 and 6 ~~6 and 8~~ from Table 3.10-3 (Existing Audible Corona Noise along Proposed Project Route) represent existing transmission line corona noise along this segment. Existing fair weather corona noise was estimated to be less than 20 dBA at the edge of the study area, while rainy weather corona noise was estimated to range from 23 dBA to 25 dBA.

Noise-Sensitive Receptors. Noise-sensitive receptors along the Alternative 5 route include a number of residences, private country club, education facilities, open space and recreational area, and public/special use facilities.

3.10.2.6 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

The proposed route for Alternative 6 (Maximum Helicopter Construction in the ANF Alternative) would be identical to that of the proposed Project. This alternative would differ from Alternative 2 in that construction of Alternative 6 would utilize helicopter construction within the ANF to the maximum extent feasible, which would require the establishment and use of helicopter staging areas along Segments 6 and 11 within the ANF.

Ambient Noise Levels. As shown in Table 2.6-1 (Candidate Helicopter Staging Areas in the ANF), which is presented in Chapter 2 (Description of Alternatives) of this EIR/EIS, indicates that all potential helicopter staging areas would be located within the ANF on NFS lands, with the exception of one private in-holding site which SCE plans to use for pulling/stringing of the proposed Project (site number 2 from Table 2.6-1) regardless of helicopter construction as proposed with Alternative 6. As these jurisdictions are identical to those of Alternative 2 (proposed Project), the Affected Environment for Alternative 6 would be identical to that of the proposed Project, as described in Section 2.2 (Alternative 2: SCE's Proposed Project). It is assumed for the purposes of this analysis that the noise measurements taken for Segment 11 of the proposed Project are representative of the noise levels near the Alternative 6 helicopter staging areas due to the similarity in rural development within the ANF. These ambient noise measurements were taken at the Pacific Crest National Scenic Trail in the ANF and residential areas outside the ANF, as shown by Noise Measurement Locations 10, 13, and 14 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route). The hourly Leq noise levels measured over a 24-hour period ranged from 41 dBA at Noise Reading Location 10, from 51 dBA at Noise Reading Location 13, and 53 dBA at Noise Reading Location 14.

Noise-Sensitive Receptors. Noise-sensitive receptors in the vicinity of the Alternative 6 helicopter staging areas and flight paths include mostly open space and recreational areas with some dispersed residences, as discussed in Chapter 2 (Description of Alternatives) and shown in Table 2.6-1 (Candidate Helicopter Staging Areas in the ANF).

3.10.2.7 Alternative 7: 66-kV Subtransmission Alternative

Alternative 7 is identical to the proposed Project except that implementation of this alternative would result in:

- installing one mile of the 66 kV portion of Segment 7 underground (from S7- MP 8.9 – S7-MP 9.9),
- rerouting and undergrounding an approximately 0.8-mile portion of Segment underground (from S7- MP 8.9 – S7-MP 9.9), and
- routing the 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8.

Ambient Noise Levels. As shown in Figures 2.7-1 (Alternative 7: Duck Farm 66-kV Underground) and 2.7-2 (Alternative 7: Whittier Narrows 66-kV Underground and Overhead Re-Routes), which are presented in Chapter 2 (Description of Alternatives), the re-routed portions of the 66 kV lines of this alternative deviate only slightly from equivalent portions of Segment 7 and Segment 8 of the proposed Project. Because the jurisdictions traversed by Alternative 7 are identical to those traversed by the proposed Project, the Affected Environment for Alternative 7 would be identical to that described for

the proposed Project in Section 3.10.2.2 (Alternative 2: SCE's Proposed Project). It is assumed for the purposes of this analysis that noise measurement location 12 from Table 3.10-2 (Ambient Noise Levels along Proposed Project Route) within Segment 8 of Alternative 2 is representative of the existing ambient noise levels near the proposed Alternative 7 subtransmission line routes due to the similarity in urban development and proximate location of the ambient measurement. As shown in Table 3.10-2 (Ambient Noise Levels along proposed Project Route), the hourly Leq noise levels measured over a 24-hour period at this location was 53 dBA.

Noise-Sensitive Receptors. Noise-sensitive receptors along the re-routed and underground portions of this alternative include residences, schools, and parks. Specifically, South El Monte High School is located approximately 300 feet from the nearest underground portion of Segment 7 that would be located along Durfee Avenue.

3.10.3 Applicable Laws, Regulations, and Standards

3.10.3.1 Federal

United States Environmental Protection Agency (US EPA)

There are no federal noise standards that directly regulate environmental noise. Table 3.10-6 (Examples of Protective Noise Levels Recommended by U.S. EPA) provides a summary of recommended noise levels for protecting public health and welfare with an adequate margin of safety. With regard to noise exposure of workers, the federal Occupational Safety and Health Administration (OSHA) establishes regulations to safeguard the hearing of workers exposed to occupational noise (29 CFR Section 1910.95, Code of Federal Regulations).

Table 3.10-6. Examples of Protective Noise Levels Recommended by U.S. EPA

Effect	Maximum Level	Exterior or Interior Area
Hearing loss	$L_{eq}(24) < 70$ dB	All areas.
Outdoor activity interference and annoyance	$L_{dn} < 55$ dB	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
	L_{eq} (24) < 55 dB	Outdoor areas where people spend limited amounts of time, such as schoolyards, playgrounds, etc.
Indoor activity interference and annoyance	$L_{dn} < 45$ dB	Indoor residential areas.
	$L_{eq}(24) < 45$ dB	Other indoor areas with human activities such as schools, etc.

Source: USEPA, 1974

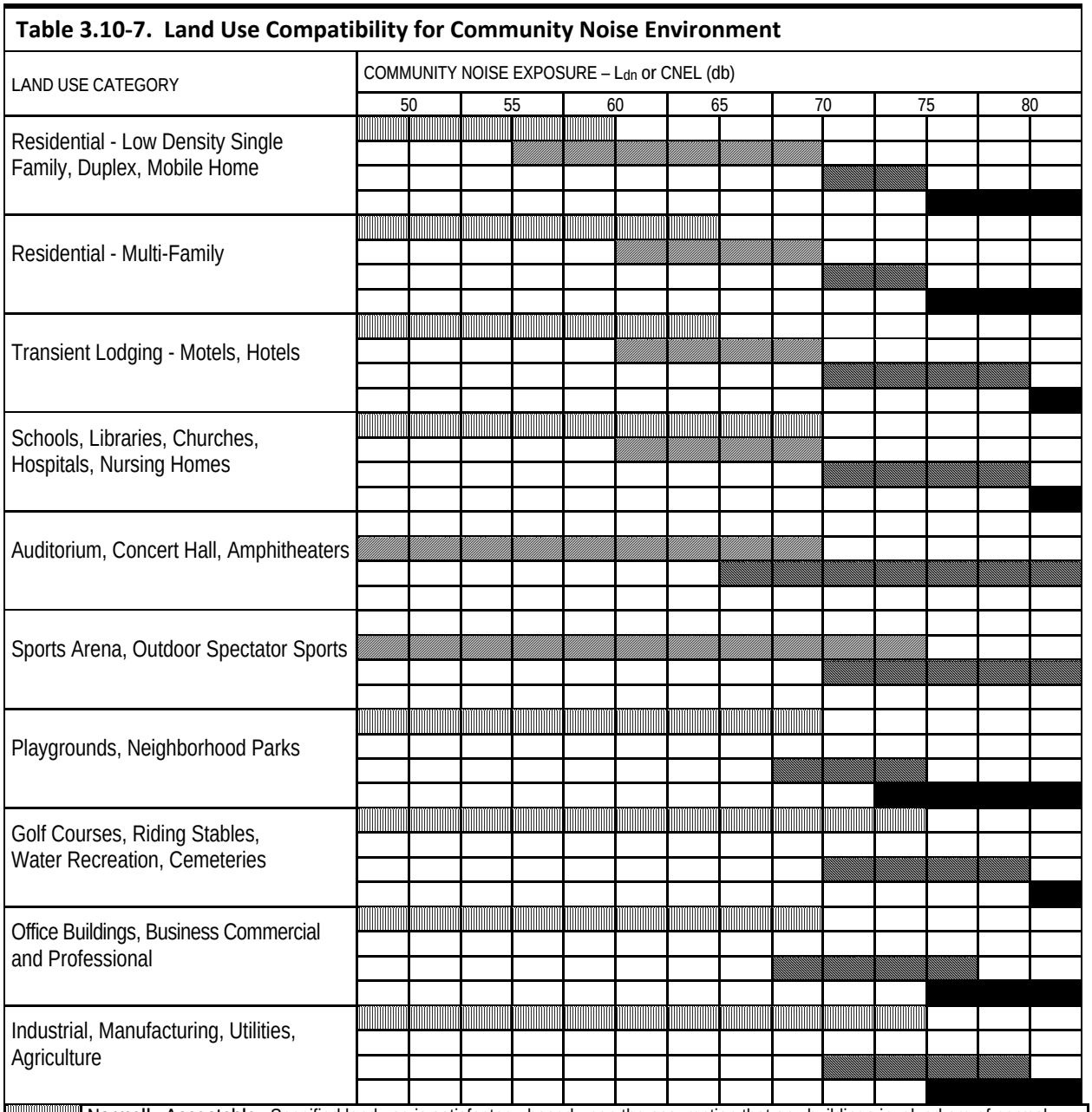
Angeles National Forest (ANF)

The existing 2005 ANF Land Management Plan (2005 Forest Plan), which regulates policy-driven requirements on National Forest System (NFS) lands in the ANF, does not explicitly identify noise as an issue and does not suggest any specific noise strategies, standards, or regulations. (USDA, 2005) The Forest Plan addresses the need to reduce conflicts with recreation in the Forest, including as related to noise; however, as previously noted, Project impacts related to recreation, including those related to noise, are discussed in the Wilderness and Recreation analysis presented in Section 3-15 of this EIR/EIS. The Forest Plan additionally addresses the need to reduce disturbance to wildlife and biological resources in the Forest, including as related to noise; however, as with recreation, any impacts to wildlife and biological resources that would occur as a result of Project-related noise are addressed in full detail in the Biological Resources analysis presented in Section 3-4 of this EIR/EIS.

3.10.3.2 State

The State of California requires each local government to perform noise surveys and implement a noise element as part of its general plan (OPR, 2003). Table 3.10-7 (Land Use Compatibility for Community Noise Environment) shows the State guidelines for evaluating the compatibility of various land uses as a function of noise exposure.

Table 3.10-7. Land Use Compatibility for Community Noise Environment



	Normally Acceptable. Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable. New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Table 3.10-7. Land Use Compatibility for Community Noise Environment

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE – L_{dn} or CNEL (db)						
	50	55	60	65	70	75	80
	Clearly Unacceptable. New construction or development should generally not be undertaken.						

Source: OPR, 2003

3.10.3.3 Local

Each local government aims to protect its residents from intrusive noise during both construction and operational activities. Due to the high number of local jurisdictions traversed by the proposed Project and alternatives (20 cities within 3 counties), many local General Plan policies and Municipal Code noise ordinances aimed to reduce noise impacts to receptors apply to both construction and operational noise generated by the proposed Project and alternatives. These applicable policies and ordinances are identified and analyzed for consistency below in impact discussions NOI-1 and NOI-2 for the proposed Project and alternatives.

3.10.4 Impact Analysis Approach

3.10.4.1 Criteria for Determining Impact Significance

NEPA does not require that significance conclusions be made for predicted environmental impacts; however, in order to satisfy CEQA requirements for this joint EIR/EIS, this noise analysis includes conclusions regarding the significance of each identified noise impact that would result from the proposed Project and alternatives. The following significance criteria for noise were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). Noise impacts of the proposed Project or an alternative would be considered significant and would require mitigation to reduce significance if one of the following criteria is met:

- Criterion NOI1: A substantial temporary or periodic increase in ambient noise levels during construction in the vicinity of sensitive receptors above levels existing without the Project.
- Criterion NOI2: A permanent and substantially higher level of ambient noise source in the vicinity of sensitive receptors.

As mentioned, significance conclusions for individual impacts are not required for compliance with NEPA and therefore, conclusions presented in the following analysis are provided for the purposes of CEQA only. Consistent with CEQA significance Criteria NOI1 and NOI2, presented above, two of the primary determinants in whether a noise impact would be significant include: 1) a substantial increase of ambient noise levels, and 2) the presence of sensitive noise receptors.

Noise Threshold. Given that environmental noise levels vary widely over time, an increase in ambient noise levels of three dBA is the minimum change that is perceptible and recognizable by the human ear. An increase in day-night environmental noise levels of more than five dBA (Ldn or CNEL) is considered to be a substantial increase. Intermittent noise sources that are temporary or periodic may also be substantial over shorter durations if it is determined that increases over five dBA could occur. For the purposes of this noise analysis, a predicted (modeled) change in ambient noise of five dBA or more is considered to be substantial.

Sensitive Noise Receptors. The potential significance of a predicted identified noise impact is directly related to the presence and proximity of sensitive noise receptors. Sensitive noise receptors can include

private residences, schools, churches, and medical facilities, as well as any other land uses that are generally considered to be more susceptible to noise disturbance than other uses. If it is predicted that a substantial increase in ambient noise level would occur (i.e. greater than five dBA) but no sensitive noise receptors are present, the identified impact would not be considered to be significant.

3.10.4.2 Applicant-Proposed Measures (APMs)

Applicant-Proposed Measures (APMs) that address potential noise impacts were identified by SCE in the Proponent's Environmental Assessment (PEA). Table 3.10-8 presents the APMs that are relevant to the issue area of noise. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. Therefore, the following discussions of impact analysis assume that all APMs will be implemented as defined in Table 3.10-8.

Table 3.10-8. Applicant-Proposed Measures – Noise

APM NOI-1	Limit Hours and Days for Construction. SCE would comply with all applicable noise ordinances pertaining to construction hour limitations. In the event that construction must occur outside the allowable work hours, a variance would be obtained.
APM NOI-2	Substation Noise Minimization. SCE would conduct noise studies at substations where noise emitting equipment is proposed (e.g., Antelope and Vincent substations). The results of these studies would be used to determine appropriate noise minimization measures, such that no local noise ordinance limits would be exceeded. Measures to accomplish this may include specifying quieter equipment from the manufacturer, installing noise control devices, and installing sound barriers and enclosures.
APM NOI-3	Advance Notification. SCE would provide advanced notification of construction to the pertinent businesses and residences when appropriate and feasible.
APM NOI-4	Establish Toll Free Number. SCE would establish a toll free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers.

In addition to the APMs identified in Table 3.10-8, mitigation measures are also recommended in the following impact analysis where it has been determined that the identified APMs would not fully mitigate the impacts for which they are presented.

3.10.4.3 Impact Assessment Methodology

The methodology used in this noise analysis was developed and presented in the TRTP Noise Technical Report (CH2MHill, 2007), which is provided in Appendix K of this Final EIR/EIS. This analysis first established baseline noise conditions for the affected environment along the Project ROW, as presented above in Section 3.10.2. This affected environment, representative of baseline conditions, included a description of ambient noise measurements, a calculation of existing transmission line corona discharge noise generated within the ROW, and an identification of sensitive noise receptors along the route. Baseline conditions were evaluated for their potential to be affected by construction activities as well as operation and maintenance activities for the proposed Project and alternatives. This noise analysis is based on information presented in SCE's PEA regarding construction and maintenance activities, as well as information presented in the TRTP Noise Technical Report regarding operational corona noise. For the purposes of this analysis, operational noise is represented by the modeled corona discharge noise that would be generated by the new transmission line and substation facilities, as calculated in the TRTP Noise Technical Report (CH2MHill, 2007).

3.10.5 Alternative 1: No Project/Action

The No Project/Action Alternative includes the assumption that existing transmission lines and power plants would continue to operate. The effects that these facilities cause on the existing environment would not change, so no new impacts would occur from continuing operation of the existing transmission lines and power plants. Also, under the No Project/Action Alternative, the proposed Project would not be constructed, so the impacts associated with construction and operation of the Project would not occur. As such, the No Project/Action Alternative would avoid construction-related or operational noise changes associated with the proposed Project and all identified alternatives (Alternatives 3 through 7), including permanent increases in audible corona noise along the ROW. However, under the No Project/Action Alternative, construction of new facilities would be required as described below.

As indicated in Section 2.1 (Alternative 1: No Project/Action), some currently unknown plan would need to be developed to provide the transmission upgrades necessary to interconnect renewable generation projects in the Tehachapi area and to also address the existing transmission problems south of Lugo Substation. Similarly, other yet unspecified transmission upgrades would presumably be proposed in the future to provide the needed capacity and reliability to serve growing electrical load in the Antelope Valley. To interconnect wind projects in the Tehachapi area, it is possible that other electrical utilities with transmission facilities in the area, such as LADWP, might purchase some of the power from Tehachapi wind developers and integrate it into their system. Another possibility is for the development of a private transmission line, similar to the existing Sagebrush line that could connect wind projects to the electrical grid. However, at this time, the Lead Agencies do not know what alternate transmission schemes might be proposed in the future to accomplish the Project objectives if the proposed Project is not implemented.

The noise impacts of these required No Project actions would depend on their locations, which cannot be predicted. New construction activities and operating facilities would need to comply with local noise ordinances and the local licensing process, which would include strategies to reduce noise and noise-related impacts. Substantial temporary construction and long-term operational noise impacts could occur to any noise sensitive uses near possible power plants, substations, and new transmission facilities. Therefore, it is likely that under the No Project/Action Alternative, similar short-term and temporary construction noise impacts and adverse operational noise impacts similar to those described below for the proposed Project would occur.

3.10.6 Alternative 2: SCE's Proposed Project

3.10.6.1 Direct and Indirect Effects Analysis

The following section describes the proposed Project's noise impacts, as determined by the significance criteria listed in Section 3.10.4.1. As previously described, the significance of each identified impact is determined based on whether a substantial increase in ambient noise would occur (i.e. equal to or greater than five dBA Ldn), considered in conjunction with the presence and proximity of sensitive noise receptors. Mitigation measures are introduced where ~~necessary~~ possible in order to reduce significant impacts~~to less-than-significant levels~~.

Substantial temporary or periodic increase in ambient noise levels during construction in the vicinity of sensitive receptors above existing levels (Criterion NOI1)

Impact N-1: Construction noise would substantially disturb sensitive receptors.

Construction of the proposed Project would involve the use of heavy equipment, including helicopters, to transport material and install transmission line towers, conductors, and substation facilities for electrical tie-ins. Cranes and other heavy equipment would be used in the erection of towers and installation of conductors. Grading would be required for staging areas, transmission line tower foundation pads, conductor pull areas, and in creating spur roads and/or improving access along some roads. In addition, grading would be required at proposed new (Whirlwind) and expanded substations (Vincent). Due to these construction activities, construction ~~noise~~ would result in temporary yet substantial increases in ambient noise levels in the vicinity of the proposed Project route, substation locations, marshalling yards, staging locations, and along all access routes. ~~All noise-sensitive receptors located within approximately 200 feet of construction activities would be affected by this construction noise.~~ Construction of the proposed Project would result in noise levels (L_{eq}) ranging from greater than 83 dBA at 50 feet from the noise source to 52 dBA from approximately 3,200 feet from the edge of the ROW, as shown in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance).

Mobile construction noise would be generated by vehicle and helicopter use. All materials associated with construction efforts would be delivered by truck or helicopter to established marshalling yards. Delivery activities requiring major street use would be scheduled to occur during off-peak traffic hours. In the event that there are no existing access roads to tower locations, approximately one or two small helicopters would be used to transport equipment to tower sites for conductor and associated hardware removal. These mobile noise sources, and particularly the helicopters, would generate substantial noise that would affect nearby sensitive receptors.

A large, heavy lift helicopter would be used for removal of the existing 220-kV towers. It is estimated that the small helicopter would generally operate from Monday through Friday for up to 8 hours per day, while the large helicopter would operate approximately 6 to 8 hours per day. Helicopter staging areas would include SCE-identified staging areas (such as Fox Field or Rio Hondo Substation), material and equipment yards, and positions along the utility corridors that have previously been used for this purpose and that SCE has determined are safe locations for landing, and those identified for Alternative 2 in Table 2.6-1 (Candidate Helicopter Staging Areas in the ANF), which is presented in Chapter 2 (Description of Alternatives). In addition, it is anticipated that a helicopter may be used for installation of new 500-kV LSTs or TSPs. The location of staging areas would likely change as work progresses to minimize the length of required helicopter trips. The number of towers to be constructed by helicopter and the time required for the construction would depend upon final engineering, the determination of the appropriate construction methods to be used by SCE's contractor, and the construction schedule ultimately prepared by SCE's contractor. Sensitive noise receptors located in the vicinity of helicopter staging areas and along helicopter flight paths would be affected by substantial temporary noise increases generated by the helicopters.

All helicopter construction activities included under the proposed Project would be conducted in compliance with regulations and restrictions applicable to aircraft, including as set forth by the Federal Aviation Administration (FAA), the USDA Forest Service, and all other applicable agencies. As such, helicopters used for Project construction would not land within the boundaries of designated Wilderness Areas (WAs), including the San Gabriel WA which is adjacent to the east of a portion of Segment 6.

Temporary construction noise from helicopters used in the construction of select transmission towers for the proposed Project would potentially disturb recreationists and wildlife along the length of Segments 6 and 11 in the ANF, as respectively discussed in the Wilderness and Recreation analysis (Section 3.15) and the Biological Resources analysis (Section 3.4).

Ground-borne vibration generated by construction vehicles, equipment, and related activities may also affect sensitive noise receptors. Some construction activities such as blasting, pile-driving, and operating heavy earth-moving equipment can cause ground borne vibration that results in perceptible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. However, there is relatively little of this type of construction activity associated with the proposed Project. Typically, ground-borne vibration attenuates rapidly with distance from the source of vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source (FTA, 1995). ~~It is anticipated that no sources of ground-borne vibration would affect sensitive noise receptors outside of the work areas~~.

Mitigation Measures for Impact N-1

N-1a **Implement Best Management Practices for construction noise.** SCE shall ~~comply with local noise rules, standards, and/or ordinances by implementing~~ implement the following noise-suppression techniques, at a minimum, to avoid possible violations of local rules, standards, and ordinances during construction:

- On construction equipment, use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- Install temporary sound walls or acoustic blankets around stationary noise sources (e.g., generators, pumps) to shield adjacent sensitive receptors. Where feasible, these sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts.
- Minimize unnecessary construction vehicle idling time (see also Mitigation Measure AQ-1g, Restrict diesel engine idling to 5 minutes). The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. A "common sense" approach to vehicle use shall be applied; if a vehicle is not required for use immediately or continuously for construction activities, its engine shall be shut off. (Note: Certain equipment, such as large diesel powered vehicles, require extended idling for warm-up and repetitive construction tasks and would therefore not be subject to being shut off when not in use.)

N-1b **Avoid sensitive receptors during mobile construction equipment use.** SCE shall route all construction traffic and helicopter flight away from residences, schools, and recreational facilities to the maximum extent feasible.

CEQA Significance Conclusion

Noise and vibration from ~~C~~construction equipment ~~noise~~ would result in a substantial increase in noise levels (greater than five dBA) in areas located within ~~220 feet~~ close proximity of construction activities along the proposed Project ROW. The proposed Project route is linear and construction in any one location along the ROW would only occur for a limited time before moving to another location along the ROW. SCE would implement the following APMs to reduce the effects of construction noise on sensitive receptors during construction: NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number). These APMs would require the construction contractor to comply with all applicable noise ordinances pertaining to construction hour limits, provide advance notice of the construction schedule to nearby residents and provide a public liaison, post notices

along the Project ROW and at work sites to ensure that all surrounding uses are made aware of the proposed construction in advance, and to provide a toll free telephone number for Project information and noise complaints.

To further reduce noise impacts from stationary construction equipment, Mitigation Measure N-1a (Implement Best Management Practices for construction noise) is required. This mitigation measure would ensure that stationary construction equipment noise that is audible to sensitive noise receptors would be reduced to the maximum extent feasible. In addition, Mitigation Measure N-1b (Avoid sensitive receptors during mobile construction equipment use) is also required in order to ensure that mobile construction noise generated by the use of ground-based vehicles as well as helicopters would reduce impacts to sensitive noise receptors to the maximum extent feasible.

Despite the implementation of these APMs and mitigation measures, maximum construction noise levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance) would substantially exceed ambient noise conditions along the proposed Project route, which are presented in Table 3.10-2 (Ambient Noise Levels along Proposed Project Route), and would affect sensitive noise receptors throughout the Project area. The presence of sensitive noise receptors along each segment of the proposed Project is described in Section 3.10.2.2 (Affected Environment: Alternative 2). Sensitive noise receptors are not located along every Project segment and therefore this impact would either not occur or would occur to a lesser magnitude for some Project segments (such as Segments 6 and 11 in the ANF). However, in accordance with CEQA, impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. Therefore, the CEQA impact significance determination for this impact is representative of the Project's overall affect.

Although construction noise would be temporary and would be reduced by implementation of APMs NOI-1, NOI-3, and NOI-4, and Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use), the level of construction noise would be substantially higher than ambient noise and would disturb sensitive receptors ~~located within 200 feet of construction activities~~. Impact N-1 would be significant and unavoidable (Class I).

Impact N-2: Construction noise levels would violate local standards.

A thorough review of all applicable ANF, county and city General Plans and Noise Control Ordinances was completed for all jurisdictions traversed by the proposed Project. Table 3.10-9 (Noise Policy Compliance Table – Construction) presents a consistency analysis of the proposed Project to these applicable noise ordinances and policies.

Table 3.10-9. Noise Policy Compliance Table - Construction

Applicable Policy	Compliance Analysis
ANF Land Management Plan	
The 2005 Forest Plan does not explicitly identify noise as an issue and does not suggest any specific noise strategies, standards, or regulations. Therefore, no violations of the 2005 Forest Plan would occur as a direct result of the noise levels associated with construction activities allowed through a Special Use authorization for the ANF.	Based on the noise levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), light-duty helicopters and trucks that would be used during construction activities would generate noise levels of approximately 83 dBA at 50 feet and approximately 74 dBA at 200 feet, respectively. These temporary construction noise levels would affect passive recreational activities, as addressed in the Wilderness and Recreation analysis (Section 3.15) and wildlife habitat values as addressed in the Biological Resources analysis (Section 3.4). Management direction for recreation and wildlife

Table 3.10-9. Noise Policy Compliance Table - Construction	
Applicable Policy	Compliance Analysis
	habitat in the ANF is provided in the 2005 Forest Plan and discussed in the respective issue area sections of this EIR/EIS.
Kern County General Plan Noise Element	
~~No noise policies apply during construction.~~ No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the Noise Element of the Kern County General Plan.	~~Construction activities would be compliant with the Kern County General Plan Noise Element.~~ Not Applicable
San Bernardino County General Plan Noise Element	
~~No noise policies apply during construction.~~ No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the Noise Element of the San Bernardino County General Plan.	Construction activities would be compliant with the San Bernardino County General Plan Noise Element Not Applicable
San Bernardino County Municipal Code Noise Ordinance	
Construction noise is exempt if the activities occur between 7:00 a.m. and 7:00 p.m. on any day except Sundays and holidays.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this San Bernardino County ordinance.
Los Angeles County Municipal Code Noise Control Ordinance	
For construction noise, the Noise Control Ordinance of Los Angeles County prohibits construction activities between weekday hours of 7:00 p.m. and 7:00 a.m. or at any time on Sundays or holidays (Section 12.08.440, Part A) if it may cause a disturbance at a nearby residential or commercial property.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this Los Angeles County ordinance.
Exterior noise standards for designated land use zones and time intervals (Section 12.08.390) during construction. ▪ Single Family Residential: Exterior Noise Level not to exceed 75 dBA from mobile construction equipment or 60 dBA from stationary construction equipment ▪ Multi-Family Residential: Exterior Noise Level not to exceed 80 dBA from mobile construction equipment or 65 dBA from stationary construction equipment ▪ Semi-Residential/Commercial: Exterior Noise Level not to exceed 85 dBA from mobile construction equipment or 70 dBA from stationary construction equipment	Based on noise levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), only single-family residences located within 200 feet and multi-family residences located within approximately 75 feet of construction areas could be subject to violations of this ordinance. To ensure construction equipment noise impacts to sensitive receptors would be reduced to the maximum extent feasible, Mitigation Measures N-1a and N-1b would be required. However, construction noise within residential areas would violate the Los Angeles County standard.
City of Baldwin Park General Plan	
It is unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device (between the hours of 7:00 p.m. of one day and 7:00 a.m. of the next day) in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance unless beforehand a permit therefore has been duly obtained from the Department of Public Works	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Baldwin Park General Plan policy.
Exterior noise standards for designated land use zones during construction. ▪ Residential Zone R-1: Exterior Noise Level not to exceed 55 dBA from 7am to 7pm and 45 dBA from 7pm to 7am	Based on levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), R-1 zone residences located within approximately 2,000 feet, RG and R-3 zone residences located within approximately 1,000 feet, commercial zone structures located within approximately

Table 3.10-9. Noise Policy Compliance Table - Construction

Applicable Policy	Compliance Analysis
▪ Residential Zone RG and R-3: Exterior Noise Level not to exceed 60 dBA from 7am to 7pm and 55 dBA from 7pm to 7am ▪ Commercial Zone: Exterior Noise Level not to exceed 65 dBA from 7am to 7pm and 60 dBA from 7pm to 7am ▪ Industrial Zone: Exterior Noise Level not to exceed 70 dBA from 7am to 7pm and 70 dBA from 7pm to 7am	600 feet, and industrial zone structures located within approximately 200 feet of construction areas could be subject to violations of this ordinance. To ensure construction equipment noise impacts to sensitive receptors would be reduced to the maximum extent feasible, Mitigation Measures N-1a and N-1b would be required. However, construction noise would occur within closer distances to these sensitive receptors along the proposed route. Therefore, noise generated during construction activities would be not be compliant with this City of Baldwin Park General Plan policy.
City of Chino Municipal Code Noise Ordinance	
Construction noise is exempt if the noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property or during authorized seismic surveys, provided said activities do not take place outside the hours for construction as defined in Section 15.44.030 of this code, and provided the noise standard of sixty-five dBA plus the limits specified in Section 9.40.040(B) as measured on residential property and any vibration created does not endanger the public health, welfare and safety.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Chino ordinance.
Construction shall occur only between the hours of 7 a.m. and 8 p.m. Monday through Saturday, with no construction allowed on Sundays and Federal holidays.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Chino ordinance.
City of Chino Hills Municipal Code Noise Ordinance	
Construction shall only take place between 7:00 a.m. and 7:00 p.m. on weekdays and between 8:00 a.m. and 6:00 p.m. on Saturdays, excluding federal holidays.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Chino Hills ordinance.
City of Duarte Municipal Code Noise Ordinance	
It is unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device (between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day) in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance unless beforehand a permit therefore has been duly obtained from the Department of Public Services.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Duarte ordinance.
Exterior noise standards for designated land use zones during construction. ▪ Residential Zone R-1 and R-2: Exterior Noise Level not to exceed 55 dBA from 7am to 9pm and 45 dBA from 9pm to 7am ▪ Residential Zone R-3 and R-4: Exterior Noise Level not to exceed 55 dBA from 7am to 9pm and 50 dBA from 9pm to 7am ▪ Commercial Zone: Exterior Noise Level not to exceed 60 dBA from 7am to 9pm and 55 dBA from 9pm to 7am	Based on levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), R-1 through R-4 zone residences located within approximately 2,000 feet, commercial zone structures located within approximately 1,000 feet, and industrial zone structures located within approximately 600 feet of construction areas could be subject to violations of this ordinance. To ensure construction equipment noise impacts to sensitive receptors would be reduced to the maximum extent feasible, Mitigation Measures N-1a and N-1b would be required. However, construction noise would occur

Table 3.10-9. Noise Policy Compliance Table - Construction	
Applicable Policy	Compliance Analysis
▪ Industrial and Light Manufacturing Zone: Exterior Noise Level not to exceed 70 dBA from 7am to 9pm and 70 dBA from 9pm to 7am	within closer distances to these sensitive receptors along the proposed route resulting in construction noise levels exceeding City of Duarte dBA thresholds. Therefore, noise generated during construction activities would be not be compliant with this City of Duarte ordinance.
City of Industry Municipal Code Noise Ordinance	
~~No noise policies apply during construction.~~ A review of the City of Industry Municipal Code did not identify any applicable policies or regulations pertaining to construction noise levels or limitations.	~~Construction activities would be compliant with the City of Industry ordinances~~ Not Applicable
City of Irwindale Municipal Code Noise Ordinance	
It is unlawful for any person to willfully make or continue, or cause to be made or continued any noise at a level which exceeds by more than 5 dBA of the ambient base level and is unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device violating the following exterior noise standards for designated land use zones during construction beforehand a permit therefore has been duly obtained from the Department of Public Services: ▪ Residential Zone: Exterior Noise Level not to exceed 50 dBA from 7am to 10pm and 50 dBA from 10pm to 7am ▪ Commercial Zone: Exterior Noise Level not to exceed 55 dBA from 7am to 10pm and 50 dBA from 10pm to 7am ▪ Industrial Zone: Exterior Noise Level not to exceed 60 dBA from 7am to 10pm and 70 dBA from 10pm to 7am	The portion of Segment 7 located in the City of Irwindale is not located within 500 feet of a residential zone. Therefore, construction activities would be compliant with this City of Irwindale ordinance.
City of La Canada Flintridge Municipal Code Noise Ordinance	
Any construction or repair work of any kind which makes loud noises exceeding a decibel level of 65 dBA as measured from any adjacent residential property line may be allowed during the following hours: ▪ Monday – Friday 7 a.m. to 6 p.m. ▪ Saturday 9 a.m. to 5 p.m. ▪ None allowed on Sunday and Holidays. During daylight savings time the following times shall be obeyed: ▪ Monday – Friday 7 a.m. to 7 p.m. ▪ Saturday 9 a.m. to 5 p.m. ▪ None allowed on Sunday and Holidays.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of La Canada Flintridge ordinance.
City of La Habra Heights Municipal Code Noise Ordinance	
Construction equipment or activities (including demolition, grading, site preparation, etc.) is prohibited weekdays and Saturdays between the hours of 7 p.m. and 7 a.m., or at any time on Sundays or holidays unless specifically exempted.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of La Habra Heights ordinance.
Construction noise between 7 a.m. and 7 p.m. shall not be louder than 65 dBA.	Based on levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), construction activities would generate noise louder than 65 dBA. Therefore, noise generated during construction activities would be not be compliant with this City of La Habra Heights ordinance.

Table 3.10-9. Noise Policy Compliance Table - Construction

Applicable Policy	Compliance Analysis
The operation of any internal combustion engine or other equipment without a proper muffler or other factory installed noise attenuation equipment is prohibited.	Mitigation Measure N-1a includes the following: "On construction equipment, use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer ". With the incorporation of this measure, construction activities would be compliant with this City of La Habra Heights ordinance.
Any device that creates vibration that is above the vibration perception threshold of any individual (motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz) at or beyond the property boundary of the source if on private property or at 150 feet from the source if on a public space or public ROW is prohibited.	Man-made vibration issues are usually confined to short distances (i.e., 500 feet or less) from the source. Based on the distance of the ROW and receptors from vibration construction activities, and Mitigation Measures N-1a and N-1b specified to ensure construction equipment noise impacts to sensitive receptors would be reduced to the maximum extent feasible, it is assumed vibration impacts during construction would be less than the specified threshold. With incorporation of these measures, construction activities would be compliant with this City of La Habra Heights ordinance.
City of Lancaster General Plan	
~~No noise policies apply during construction.~~ No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the City of Lancaster General Plan.	~~Construction activities would be compliant with the City of Lancaster General Plan Noise Element.~~ Not Applicable
City of Lancaster Municipal Code Noise Ordinance	
Prohibition against performing construction activities between the hours of 8:00 p.m. and sunrise, and all day on Sundays (Section 8.24.040). In addition, the operation of loud construction activities (e.g., earth moving, jack hammering, drilling, etc.) is prohibited within 500 feet of an occupied dwelling from 8:00 p.m. until sunrise.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Lancaster ordinance.
City of Montebello Municipal Code Noise Ordinance	
Prohibits the blowing of any mechanical whistle attached to a stationary location except to give notice of the time to begin or stop work, or as a warning of fire danger or upon the request of proper city authorities.	It is assumed that during construction mechanical whistles attached to a stationary location would not be used except to give notice of the time to begin or stop work, or as a warning of fire danger. Construction activities would be compliant with this City of Montebello ordinance.
Prohibits noise sources associated with construction, demolition, grading repair or remodeling of any real property other than between the hours of 7 a.m. and 8 p.m. on weekdays (Monday through Friday) and 9 a.m. to 6 p.m. on Saturdays, Sundays, and legal holidays.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Montebello ordinance.
Prohibits the creation of noise adjacent to any school, institution of learning, church or court while the same are in use, or adjacent to any medical facility, including but not limited to, a hospital, medical office, clinic, or any location where medical treatment is rendered, which unreasonable interferes with the workings of such institution, or which unreasonably disturbs the occupants of or visitors to these structures.	To ensure construction equipment noise impacts to sensitive receptors would be reduced to the maximum extent feasible, Mitigation Measures N-1a and N-1b would be required. However, construction noise would occur within close distances to these sensitive receptors in the residential areas along the proposed route. Therefore, noise generated during construction activities would be not be compliant with this City of Montebello ordinance.

Table 3.10-9. Noise Policy Compliance Table - Construction

Applicable Policy	Compliance Analysis
Prohibits any pile driver, pneumatic hammer, bulldozer or other construction vehicles, motorized hoists or other devices operated between the hours of 8 p.m. and 7 a.m.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Montebello ordinance.
City of Monterey Park Municipal Code Noise Ordinance	
~~No noise policies apply during construction.~~ No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the City of Monterey Park Municipal Code Noise Ordinance.	~~Construction activities would be compliant with the City of Monterey Park Municipal Noise Code Ordinance.~~ Not Applicable
City of Ontario Municipal Code Noise Ordinance	
Construction noise is exempt if the activities occur between 7:00 a.m. and 6:00 p.m. on any day or between 9:00 a.m. and 6:00 p.m. on Saturday or Sunday.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Ontario ordinance.
City of Palmdale General Plan	
~~No noise policies apply during construction.~~ No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the City of Palmdale General Plan.	~~Construction activities would be compliant with the City of Palmdale General Plan Noise Element.~~ Not Applicable
City of Palmdale Municipal Code Noise Ordinance	
Prohibition against performing construction activities between the hours of 8:00 p.m. and 6:30 p.m.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Palmdale ordinance.
City of Pasadena Municipal Code Noise Ordinance	
Exterior noise standards for designated land use during construction: ▪ Noise District I: Exterior Noise Level not to exceed 50 dBA from 6am to 11pm and 40 dBA from 11pm to 6am ▪ Noise District II: Exterior Noise Level not to exceed 55 dBA from 6am to 11pm and 45 dBA from 11pm to 6am ▪ Noise District III: Exterior Noise Level not to exceed 60 dBA from 6am to 11pm and 50 dBA from 11pm to 6am	Based on levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), construction activities would generate noise louder than 60 dBA. Therefore, noise generated during construction activities would be not be compliant with this City of Pasadena ordinance.
No person shall operate any pile driver, power shovel, pneumatic hammer, derrick power hoist, forklift, cement mixer or any other similar construction equipment within a residential district or within a radius of 500 feet there from in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance at any time other than as listed below: ▪ From 7 am to 7 pm Monday through Friday ▪ From 8 am to 5 pm on Saturday ▪ Operation of any of the listed construction equipment is prohibited on Sundays and Holidays	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Pasadena ordinance.

Table 3.10-9. Noise Policy Compliance Table - Construction	
Applicable Policy	Compliance Analysis
It is unlawful for any person to operate any powered construction equipment if the operation of such equipment emits noise at a level in excess of 85 dBA when measured within a radius of 100 feet from such equipment.	Based on levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), noise levels would be approximately 83 dBA within approximately 50 feet of construction areas and 79 dBA within 100 feet of construction areas. Therefore, construction activities would be compliant with this City of Pasadena ordinance.
It is unlawful to create any noise on any street, sidewalk, or public place adjacent to any school, institution of learning, or church while the same is in use or adjacent to any hospital, which noise unreasonably interferes with the workings of such institution or which disturbs or unduly annoys patients in the hospital, provided conspicuous sings are displayed in such streets, sidewalk or public place indicating the presence of a school, church or hospital.	To ensure construction equipment noise impacts to sensitive receptors would be reduced to the maximum extent feasible, Mitigation Measures N-1a and N-1b would be required. However, construction noise would occur within close distances to these sensitive receptors in the residential areas along the proposed route. Therefore, noise generated during construction activities would be not be compliant with this City of Pasadena ordinance.
City of Pico Rivera Municipal Code Noise Ordinance	
~~No noise policies apply during construction.~~ No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the City of Pico Rivera Municipal Code Noise Ordinance.	~~Construction activities would be compliant with the City of Pico Rivera Municipal Noise Code Ordinance.~~ Not Applicable
City of Rosemead Municipal Code Noise Ordinance	
No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the City of Rosemead Code Noise Ordinance	Not Applicable
City of San Gabriel Municipal Code Noise Ordinance	
No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the City of San Gabriel Municipal Code Noise Ordinance ~~No noise policies apply during construction.~~	~~Construction activities would be compliant with the City of San Gabriel Municipal Noise Code Ordinance.~~ Not Applicable
City of South El Monte Municipal Code Noise Ordinance	
No person shall operate or permit the operation of any device or machine that creates a vibration above the vibration perception threshold when measured at or beyond the property boundary of the source.	Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source. Based on the distance of the ROW and receptors from vibration construction activities, and Mitigation Measures N-1a and N-1b specified to ensure construction equipment noise impacts to sensitive receptors would be reduced to the maximum extent feasible, it is assumed vibration impacts during construction would be less than the specified threshold. With the incorporation of these measures, construction activities would be compliant with this City of South El Monte ordinance.
No person shall operate or permit the operation of any mechanically powered saw, sander, drill, grinder, lawn or garden tool, or any tool involved in any manufacturing process, so as to create a noise disturbance across a real property boundary line of property developed entirely of partially for residential use.	Based on levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), noise generated during construction from equipment would likely travel across the ROW and construction zones and be perceptible to residential receptors. Due to the proximity of residential receptors within the City of South El Monte to the proposed Project, it is assumed construction activities would not be compliant with this City of South El Monte ordinance.
City of Temple City Municipal Code Noise Ordinance	
~~No noise policies apply during construction.~~ No applicable policies or regulations pertaining to construction noise levels or limitations were identified in the City of Temple City Municipal Code Noise Ordinance	~~Construction activities would be compliant with the Temple City Municipal Noise Code Ordinance.~~ Not Applicable

Table 3.10-9. Noise Policy Compliance Table - Construction

Applicable Policy	Compliance Analysis
City of Whittier Municipal Code Noise Ordinance	
Maximum noise levels for nonscheduled, intermittent, short-terr operation (less than 10 days) of **mobile equipment**: ▪ Single Family Residential: Exterior Noise Level not to exceed 75 dBA from 7am to 7pm and 60 dBA from 7pm to 7am ▪ Multi Family Residential: Exterior Noise Level not to exceed 80 dBA from 7am to 7pm and 65 dBA from 7pm to 7am ▪ Residential/Commercial: Exterior Noise Level not to exceed 85 dBA from 7am to 7pm and 70 dBA from 7pm to 7am	With implementation of APM NOI-3, SCE would provide advanced notification of construction to the pertinent businesses and residences when appropriate and feasible. Therefore, all construction would be scheduled. Construction activities would be compliant with this City of Whittier ordinance.
Maximum noise levels for nonscheduled, intermittent, short-terr operation (less than 10 days) of **stationary equipment**: ▪ Single Family Residential: Exterior Noise Level not to exceed 60 dBA from 7am to 7pm and 50 dBA from 7pm to 7am ▪ Multi Family Residential: Exterior Noise Level not to exceed 65 dBA from 7am to 7pm and 55 dBA from 7pm to 7am ▪ Residential/Commercial: Exterior Noise Level not to exceed 70 dBA from 7am to 7pm and 60 dBA from 7pm to 7am	With implementation of APM NOI-3, SCE would provide advanced notification of construction to the pertinent businesses and residences when appropriate and feasible. Therefore, all construction would be scheduled. Construction activities would be compliant with this City of Whittier ordinance.
Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7 p.m. and 7 a.m., or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line.	With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Construction activities would be compliant with this City of Whittier ordinance.
Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment, daily, including Sundays and legal holidays, all hours is 85 dBA.	Based on levels presented in Table 3.10-4 (Estimated Construction Equipment Noise Levels Versus Distance), noise levels would be approximately 83 dBA within approximately 50 feet of construction areas and 79 dBA within 100 feet of construction areas. Therefore, construction activities would be compliant with this City of Whittier Municipal Code ordinance.

Source: References for each agency's policies and ordinances are presented in Chapter 8 (References).

CEQA Significance Conclusion

Construction noise would result in a substantial increase (greater than five dBA) in ambient noise levels along the Project route and would not be compliant with several local standards, as discussed above in Table 3.10-9 (Noise Policy Compliance Table – Construction). SCE would implement the following APMs to reduce construction noise levels: NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number). Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use), which are introduced under Impact N-1, would also be implemented to reduce construction noise levels.

In addition, Mitigation Measure L-2b (Aircraft flight path and safety provisions and consultations), which is introduced and described in the Land Use analysis (Section 3.9) of this EIR/EIS, would also be required in order to ensure that all appropriate agencies, including the FAA, are consulted with prior to the onset of helicopter operations, thereby ensuring that policies and regulations applicable to helicopter use for Project construction are fully observed.

However, despite implementation of the Project APMs and mitigation measures listed above, the level of construction noise would violate several local noise ordinances and standards, as described above in Table 3.10-10 (Noise Policy Compliance Table – Construction). This impact would not occur along Segments 6 and 11 in the ANF because the 2005 Forest Plan does not address noise levels in the Forest; however, as previously described and in accordance with CEQA, impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. Therefore, because local plan violations would occur regardless of mitigation measure implementation, Impact N-2 would be significant and unavoidable (Class I).

A permanent and substantially higher level of ambient noise source in the vicinity of sensitive receptors (Criterion NOI2)

Impact N-3: Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations.

Noise from operation of the proposed Project would come from two primary sources: electrical and related equipment (e.g., transformers and fans) at the substations, and corona discharge associated with the 500-kV and 220-kV transmission lines. Noise would also be generated by vehicles and equipment during routine inspection and maintenance of the transmission line, which would be accomplished primarily by truck, but may also require helicopter access in some locations. Routine maintenance and inspection would occur on average once a year.

Corona and Substation Noise

As discussed in Section 3.10.2.2 (Affected Environment: Alternative 2), corona noise generated during fair weather conditions is less than that generated during wet weather conditions. It should be noted that existing ambient noise measurements taken along the proposed Project ROW, as shown in Table 3.10-~~3~~ 2 (Existing Audible Corona Noise along Proposed Project Route), were conducted under fair weather conditions, and higher levels would be expected under rainy conditions. Foul weather or rainy conditions occur periodically and seasonally each year along the proposed Project alignment and while they are considered a temporary and periodic condition, these periods would result in the maximum operational noise levels and are used as the basis for this operational evaluation in order to analyze worst-case operational noise scenario.

The following discussion analyzes the potential for operational noise to represent a substantial increase from existing ambient noise levels, and to affect sensitive noise receptors along each segment of the proposed Project. This analysis is based on a comparison of existing ambient noise with the results of operational noise modeling, as well as consideration of the presence and proximity of sensitive noise receptors, as described in Section 3.10.2 (Affected Environment).

Segment 4. The overall existing ambient noise measured along this segment was 40 dBA, while existing wet weather corona noise was estimated to vary between 50 and 51 dBA at the edge of the ROW along Segment 4. Future corona noise along Segment 4 of the proposed Project route is characterized by corona modeling at Location 7, as presented in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route), and was determined to range between 52 to ~~55~~ 56 dBA at the edge of the ROW. ~~This operational noise level does not represent a substantial increase over existing conditions.~~ Therefore, the increase in operational corona noise generated by the proposed Project along this segment would substantially increase existing ambient noise conditions.

Segment 5. The overall existing ambient noise measured along this segment was found to be 71 dBA, while existing transmission line corona noise along this segment was found to range between 22 dBA to 25 dBA at the edge of the ROW. Future corona noise along Segment 5 of the proposed Project route is characterized by corona modeling at Location~~s 3,~~ 4, ~~and 6,~~ as presented in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route), and was determined to range between 51 and 54 dBA at the edge of the ROW. Therefore, the increase in operational corona noise generated by the proposed Project along this segment would substantially increase existing ambient noise conditions. Noise-sensitive receptors along Segment 5 include residential areas and a healthcare facility, as well as numerous proposed residential developments.

Segment 6. The measured ambient noise level of this segment was found to be 41 dBA, while the range of existing wet weather corona noise at the edge of the ROW is between less than 20 to 24 dBA. The range of future corona noise along Segment 6 of the proposed Project route is characterized by corona modeling at Location~~s~~ 2~~and 4~~, as presented in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route), and was determined to range between 47 and 60 dBA at the edge of the ROW. These modeling results represent an ambient noise level increase between 25 and 36 dBA. In comparison with the accepted noise threshold of 5 dBA representing a substantial increase in ambient levels, as described in Section 3.10.4.1 (Criteria for Determining Impact Significance), this modeled increase in operational corona noise generated along Segment 6 of the proposed Project is considered to be substantial. However, as discussed in Section 3.10.2.2 (Affected Environment: Alternative 2), with the exception recreational receptors (addressed in Section 3.15), wildlife receptors (addressed in Section 3.4), and some scattered residences immediately south of Vincent Substation (not in the ANF) and several scattered residential units within the ANF on private land inholdings, no additional sensitive receptors have been identified along Segment 6. Therefore, although the Project would introduce a substantial increase in corona noise levels along Segment 6, this change from existing ambient conditions would affect minimal sensitive noise receptors. As previously mentioned, any disturbance that may occur to recreationists or wildlife as a result of this increase in corona noise along Segment 6 are addressed in the Wilderness and Recreation analysis (Section 3.15) and the Biological Resources analysis (Section 3.4), respectively. These noise-sensitive receptors along Segment 6 would be affected by a substantial increase in ambient noise levels.

Segment 7. The measured ambient noise level of this segment was found to be 57 dBA, while the range of existing wet weather corona noise at the ROW edge is between 22 dBA to 25 dBA. The range of future corona noise along Segment 7 of the proposed Project is characterized by corona modeling at Location 4, as presented in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route), and was determined to range between 51 and 54 dBA at the edge of the ROW. Therefore, the increase in operational corona noise generated by the proposed Project along this segment would substantially increase existing ambient noise conditions. Noise-sensitive receptors along Segment 7 include residences, schools, healthcare facilities, and other land uses that would be affected by a substantial increase in ambient noise levels.

Segment 8. The measured ambient noise level of this segment varied from approximately 43 to 60 dBA, while the range of existing wet weather corona noise at the ROW edge ranges from 23 dBA to 25 dBA. The range of future corona noise along Segment 8 of the proposed Project is characterized by corona modeling at Locations 3 and 6, as presented in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route), and was determined to range between 51 and ~~54~~ 58 dBA at the edge of the ROW. Therefore, the increase in operational corona noise generated by the proposed Project along

this segment would substantially increase existing ambient noise conditions. Although parts of Segment 8 are rural with minimal sensitive noise receptors in the area, there are numerous noise-sensitive receptors along some portions of Segment 8, including residences, schools, and healthcare facilities, among others.

Segment 9 (Substations). The following presents the predicted noise levels from the Whirlwind, Antelope, and Vincent Substations (the only substations where the proposed Project has the potential to change the noise levels perceptibly beyond the fence lines of the substation).

- The new Whirlwind Substation would include four single-phase 373-MVA transformers. The predicted noise level from these transformers is 40 dBA at 3,000 feet. No receptors are located within 3,000 feet of any of the proposed locations for the Whirlwind Substation.
- Proposed Project modifications to the Antelope Substation include one new SVC that is anticipated to result in noise levels of approximately 65 dBA or less at the fence line. The closest receptors are approximately 1,500 feet from the location of the proposed SVC. At this distance, the noise level from the SVC is anticipated to be approximately 42 dBA. Implementation of the Antelope Substation expansion would result in a less than a 2-dBA increase of the noise level to 48 dBA at the closest residence to the SVC.
- Proposed Project modifications to the Vincent Substation include one new SVC that is anticipated to result in noise levels of approximately 60 dBA or less at the fence line. The closest receptors are located approximately 400 feet from the fence line. At this distance, the noise level from the SVC is predicted to be 46 dBA and is anticipated to increase the substation noise level by two dBA to 53 dBA.

The permanent increase in noise associated with operation of Segment 9 would be approximately two dBA or less. Therefore, the permanent increase in noise levels due to operation of the proposed Project within this segment would not result in a substantial increase over existing conditions.

Segment 10. The measured ambient noise level of this segment was found to range between 40 and 45 dBA. There are no existing transmission lines in this segment of the proposed alignment and, therefore, there is no existing corona noise. The range of future corona noise along Segment 10 of the proposed Project is characterized by corona modeling at Location 1, as presented in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route), and was determined to range between 52 and 55 dBA at the edge of the ROW. Therefore, the increase in operational corona noise generated by the proposed Project along this segment would substantially increase existing ambient noise conditions. However, as discussed in Section 3.10.2.2 (Affected Environment: Alternative 2), Segment 10 is situated in a rural and undeveloped area that is primarily characterized as agricultural; there are not considered to be any sensitive noise receptors along this segment of the Project.

Segment 11. The measured ambient noise level of this segment was found to range between 51 and 53 dBA. Existing rainy weather transmission line corona noise at the northern portion of this segment of the proposed alignment to the Gould Substation (the portion of the transmission line in the ANF) was estimated to range from less than 20 dBA to 24 dBA. Existing rainy weather transmission line corona noise at the southern portion of this segment of the proposed alignment from Gould Substation to Mesa Substation was estimated to range from 22 dBA to 25 dBA. The range of future corona noise along Segment 11 of the proposed Project is characterized by corona modeling at Locations ~~13 and 14~~ 2 and 4, as presented in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route), and was determined to range between 47 and 60 dBA at the edge of the ROW. Therefore, the increase in operational corona noise generated by the proposed Project along this segment would substantially increase existing ambient noise conditions. Minimal sensitive noise receptors along the portion of Segment 11 that is located within the ANF would be affected by this increase in ambient noise levels. However, for the portion of Segment 11 that is located south of the ANF, sensitive noise receptors in the vicinity include the few residences along Segment 10, industries, businesses, schools, and hospitals.

Noise from Inspection and Maintenance Activities

Routine inspection and maintenance of the transmission lines and substation facilities would be accomplished with ground access crews periodically. This would cause short-term or intermittent increases in noise along the ROW of each segment and within substation boundaries. Routine inspection and maintenance activities would not occur on weekdays between the hours of 7 p.m. and 7 a.m. or on Sundays or legal holidays, with the exception of emergency repairs. Any noise associated with inspections and maintenance would be temporary and would not increase the existing ambient noise conditions of the proposed Project ROW or substation locations.

CEQA Significance Conclusion

Corona noise generated by operation of the proposed Project along Segments 4, 5, 6, 7, 8, 10, and 11 would result in permanent and substantial increases to existing ambient noise levels along these segments, with the accepted standard of five dBA representing a substantial increase. Of these segments, a minimal number of sensitive noise receptors would be affected along most of Segments 6 and 11 in the ANF, with the exception of scattered residences south of Vincent Substation (not in ANF) and several scattered residential units within the ANF on private land inholdings. However, as previously described and in accordance with CEQA, impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. There is no feasible mitigation available to reduce or eliminate the permanent operational corona noise that would be generated by the proposed Project. Therefore, Impact N-3 would be significant and unavoidable (Class I).

Impact N-4: Operational noise levels would violate local standards.

A thorough review of all applicable ANF, county and city General Plans and Noise Control Ordinances was completed for all jurisdictions traversed by the proposed Project. Table 3.10-10 (Noise Policy Compliance Table – Operation) presents a consistency analysis of the proposed Project with applicable noise ordinances and policies.

Table 3.10-10. Noise Policy Compliance Table – Operation

Applicable Policy	Compliance Analysis
ANF Land Management Plan	
No noise policies apply during operation.	~~Operational activities would be in compliance with the 2005 Forest Plan.~~ Not Applicable
Kern County General Plan Noise Element	
Design or arrange industrial use operations so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}	Segments 9 (substations) and 10 would be located within Kern County and subject to this General Plan Noise Element Policy. Corona noise at proposed Project Segment 9 substations would be: 40 dBA at 3,000 feet at the new Whirlwind Substation (no receptors are located within 3,000 feet), 65 dBA or less at the Antelope Substation fence line, and 60 dBA or less at the Vincent Substation fence line. Under future wet weather conditions, corona noise within proposed Project Segment10 was modeled to be between 52 and 55 dBA at the edge of the ROW. Therefore, the proposed Project would be in compliance with this Kern County General Plan Noise Element Policy.

Table 3.10-10. Noise Policy Compliance Table – Operation

Applicable Policy	Compliance Analysis
San Bernardino County General Plan Noise Element	
Exterior noise standards for residential or other noise sensitive receptors during operation. ▪ Exterior Noise Level not to exceed 55 dBA Leq or 75 dBA Lmax 7am to 10pm ▪ Exterior Noise Level not to exceed 45 dBA Leq or 65 dBA Lmax 10pm to 7am	Segment 8 would be located within San Bernardino County and subject to this General Plan Noise Element Policy. Under future wet weather conditions, the range of future corona noise along Segment 8 would be between ~~51 and 54~~ 56 and 58 dBA at the edge of the ROW. Therefore, the proposed Project would be in compliance with this San Bernardino County General Plan Noise Element Policy.
San Bernardino County Municipal Code Noise Ordinance	
Exterior noise standards for residential or other noise sensitive receptors during operation. ▪ Exterior Noise Level not to exceed 55 dBA Leq for more than 30 minutes of an hour between 7am to 10pm	Segment 8 would be located within San Bernardino County and subject to this General Plan Noise Element Policy. Under future wet weather conditions, the range of future corona noise along Segment 8 would be between ~~51 and 54~~ 56 and 58 dBA at the edge of the ROW. Therefore, the proposed Project would be in compliance with this San Bernardino County ordinance.
Los Angeles County Municipal Code Noise Control Ordinance	
Exterior noise standards for designated land use zones and time intervals (Section 12.08.390) during operation. ▪ Noise sensitive area: Exterior Noise Level not to exceed 45 dBA at anytime ▪ Residential properties: Exterior Noise Level not to exceed 45 dBA 10:00 pm to 7:00 am (nighttime) or 50 dBA 7:00 am to 10:00 pm (daytime)	Segments 4, 5, 6, 7, 8, 9 (substations) and 11 would be located within Los Angeles County and subject to this ordinance. Under future wet weather conditions, corona noise at the edge of the ROW within these proposed Project Segments was modeled to be: ▪ Segment 4: 52 to ~~55~~ 56 dBA ▪ Segment 5: 51 to 54 dBA ▪ Segment 6: 47 to 60 dBA ▪ Segment 7: 51 to 54 dBA ▪ Segment 8: ~~51 and 54~~ 56 and 58 dBA ▪ Segment 9 (Substations): - 40 dBA at 3,000 feet at Whirlwind Substation; - 65 dBA or less at Antelope Substation fence line; - 60 dBA or less at Vincent Substation fence line ▪ Segment 11: 47 to 60 dBA Therefore, the proposed Project would not be in full compliance with this Los Angeles County ordinance.
City of Baldwin Park General Plan	
Exterior noise standards for designated land use during operation ▪ Residential Receptors: Exterior Noise Level not to exceed 65 dBA at anytime ▪ Schools, Parks, Playgrounds: Exterior Noise Level not to exceed 65 dBA	Segment 7 would be located within the City of Baldwin Park and subject to this General Plan Noise Element Policy. Under future wet weather conditions, the range of future corona noise along Segment 7 would be between 51 and 54 dBA at the edge of the ROW. Therefore, the proposed Project would be in compliance with this City of Baldwin Park General Plan Noise Element Policy.
City of Chino Municipal Code Noise Ordinance	
Exterior noise standards for residential land use during operation. ▪ Maximum of 30 minute exposure: Exterior Noise Level not to exceed 55 dBA from 7am to 10pm and 50 dBA from 10pm to 7am ▪ Maximum of 15 minute exposure: Exterior Noise Level not to exceed 60 dBA from 7am to 10pm and 55 dBA from 10pm to 7am ▪ Maximum of 5 minute exposure: Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 60 dBA from 10pm to 7am ▪ Maximum of 1 minute exposure: Exterior Noise Level not to exceed 70 dBA from 7am to 10pm and 65 dBA from 10pm to 7am	Segment 8 would be located within the City of Chino and subject to this ordinance. Under future wet weather conditions, the range of future corona noise along Segment 8 would be between ~~51 and 54~~ 56 and 58 dBA at the edge of the ROW. Therefore, the proposed Project would not be in compliance with this City of Chino ordinance based on potential 30-minute exposure thresholds.

Table 3.10-10. Noise Policy Compliance Table – Operation

Applicable Policy	Compliance Analysis
▪ Any time period exposure: Exterior Noise Level not to exceed 75 dBA from 7am to 10pm and 70 dBA from 10pm to 7am	
Section 9.40.040(B) states it is unlawful for any person at any location within the incorporated area of the city to create any noise on property controlled by such person which causes the noise level when measured on any other property to exceed the noise standard plus 5 dBA for a cumulative period of more than fifteen minutes in any hour.	As discussed in Section 3.10.2.2, the measured ambient noise level of Segment 8 varied from approximately 43 to 60 dBA, while the range of existing wet weather corona noise at the ROW edge ranges from 23 dBA to 25 dBA. Under future rainy weather conditions, the range of future corona noise at the Segment 8 ROW edge with implementation of the proposed Project is characterized by corona modeling at Location 3 in Table 3.10-5 (Modeled Future Audible Corona Noise along Proposed Project Route) and would be between ~~51 and 54~~ 56 and 58 dBA. Therefore, the increase in operational corona noise generated by the proposed Project could substantially increase existing ambient noise conditions by more than 5 dBA for a cumulative period of more than fifteen minutes in any hour. Therefore, the proposed Project would not be in full compliance with this City of Chino ordinance.
City of Chino Hills Municipal Code Noise Ordinance	
~~No noise policies apply during operation.~~ A significant noise impact is any noise that exceeds the City standard by 5 dBA for a cumulative period of more than five minutes in any hour; or by 10 dBA for a cumulative period of more than five minutes in any hour; or by 15 dBA for a cumulative period of more than one minute in any hour; or by 20 dBA for any period of time.	~~Operational activities would be compliant with City of Chino Hills Municipal Code Noise Ordinance.~~ Segment 8 would be located within the City of Chino Hills and would be subject to this ordinance. The measured ambient noise level of this segment varied from approximately 43 to 60 dBA. Under future wet weather conditions, the range of future corona noise along Segment 8 would be between 56 and 58 dBA at the edge of the ROW. Therefore, the proposed Project would not be in compliance with this City of Chino Hills ordinance based on potential cumulative 5-minute exposure thresholds.
City of Duarte Municipal Code Noise Ordinance	
No noise policies apply during operation.	--
City of Industry Municipal Code Noise Ordinance	
No noise policies apply during operation.	~~Operational activities would be compliant with City of Industry Municipal Code Noise Ordinance.~~ Not Applicable
City of Irwindale Municipal Code Noise Ordinance	
No noise policies apply during operation.	~~Operational activities would be compliant with City of Irwindale Municipal Code Noise Ordinance.~~ Not Applicable
City of La Canada Flintridge Municipal Code Noise Ordinance	
No noise policies apply during operation.	~~Operational activities would be compliant with City of La Canada Flintridge Municipal Code Noise Ordinance.~~ Not Applicable
City of La Habra Heights Municipal Code Noise Ordinance	
No noise policies apply during operation.	~~Operational activities would be compliant with City of La Habra Heights Municipal Code Noise Ordinance.~~ Not Applicable
City of Lancaster General Plan	
Exterior noise standards for designated land use during operation ▪ Residential Receptors: Exterior Noise Level not to exceed 65 dBA at anytime ▪ Schools: Exterior Noise Level not to exceed 65 dBA at classrooms or 70 dBA at playgrounds	Segments 9 (substations) and 10 would be located within the City of Lancaster and subject to this ordinance. Corona noise at proposed Project Segment 9 substations would be: 40 dBA at 3,000 feet at the new Whirlwind Substation, 65 dBA or less at the Antelope Substation fence line, and 60 dBA or less at the Vincent Substation fence line. Under future wet weather conditions, corona noise within proposed Project Segment10 was modeled to be between 52 and 55 dBA at the edge of the

Table 3.10-10. Noise Policy Compliance Table – Operation	
Applicable Policy	Compliance Analysis
	ROW. Therefore, the proposed Project would be in compliance with this City of Lancaster ordinance.
City of Lancaster Municipal Code Noise Ordinance	
No noise policies apply during operation.	Not Applicable ~~Operational activities would be compliant with City Lancaster Municipal Code Noise Ordinance.~~
City of Montebello Municipal Code Noise Ordinance	
No noise policies apply during operation.	Not Applicable ~~Operational activities would be compliant with City of Montebello Municipal Code Noise Ordinance.~~
City of Monterey Park Municipal Code Noise Ordinance	
Exterior noise standards for designated land use during operation: ▪ Residential Zone: Exterior Noise Level not to exceed 55 dBA from 7am to 10pm and 50 dBA from 10pm to 7am ▪ Commercial Zone: Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 55 dBA from 10pm to 7am ▪ Industrial Zone: Exterior Noise Level not to exceed 70 dBA anytime	Segment 8 and Mesa Substation (Segment 9) would be located within the City of Monterey Park and subject to this ordinance. Under future wet weather conditions, corona noise at the edge of the ROW within these proposed Project Segments was modeled to be: ▪ Segment 8: ~~51 and 54~~ 56 and 58 dBA ▪ Noise at Mesa Substation is not expected to be perceptibly changed as a result of the Project Therefore, the proposed Project would be in compliance with this City of Monterey Park ordinance.
Increases in noise levels are permitted in accordance with the following: ▪ 5 dBA increase permitted for 15 minutes per hour ▪ 10 dBA increase permitted for 5 minutes per hour ▪ 15 dBA increase permitted for 1 minutes per hour ▪ 20 dBA increase permitted for less than one minute per hour	Segment 8 and Mesa Substation (Segment 9) would be located within the City of Monterey Park and subject to this ordinance. Under future wet weather conditions, corona noise at the edge of the ROW within these proposed Project Segments was modeled to be: ▪ Segment 8: ~~51 and 54~~ 56 and 58 dBA ▪ Noise at Mesa Substation is not expected to be perceptibly changed as a result of the Project Therefore, the proposed Project would be in compliance with this City of Monterey Park ordinance.
City of Ontario Municipal Code Noise Ordinance	
Exterior noise standards for designated land use during operation ▪ Single Family Residential, School, day care center, hospital, church, library, or museum Zone: Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 45 dBA from 10pm to 7am ▪ Multi Family Residential Zone: Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 50 dBA from 10pm to 7am ▪ Commercial Zone: Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 60 dBA from 10pm to 7am ▪ Residential portion of mixed use and Industrial Zone: Exterior Noise Level not to exceed 70 dBA anytime	Segment 8 would be located within the City of Ontario and subject to this ordinance. Under future wet weather conditions, the range of future corona noise along Segment 8 would be between ~~51 and 54~~ 56 and 58 dBA at the edge of the ROW. Therefore, the proposed Project would be in compliance with this City of Ontario ordinance.
City of Palmdale General Plan	
Exterior noise standards for designated land use during operation ▪ Residential Receptors: Exterior Noise Level not to exceed 65 dBA at anytime ▪ Schools, Hospitals, Nursing Home, Commercial: A noise level which does not jeopardize health, safety, and welfare of visitors	Segment 5 would be located within the City of Palmdale and subject to its policies. Under future wet weather conditions, the range of future corona noise along Segment 5 would be between 51 and 54 dBA at the edge of the ROW. Therefore, the proposed Project would be in compliance with this City of Palmdale policy.
City of Palmdale Municipal Code Noise Ordinance	
No noise policies apply during operation.	Not Applicable ~~Operational activities would be compliant with City of Palmdale Municipal Code Noise Ordinance.~~

Table 3.10-10. Noise Policy Compliance Table – Operation	
Applicable Policy	Compliance Analysis
City of Pasadena Municipal Code Noise Ordinance	
No noise policies apply during operation.	Not Applicable ~~Operational activities would be compliant with City of Pasadena Municipal Code Noise Ordinance.~~
City of Pico Rivera Municipal Code Noise Ordinance	
No person shall make, cause or suffer, or permit to be made, upon any premises owned, occupied or controlled by him, any unnecessary noises or sounds which are physically annoying to persons of ordinary sensitiveness, or which are so harsh or so prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to the inhabitants of any neighborhood	Segment 8 would be located within the City of Pico Rivera and subject to this ordinance. Under future wet weather conditions, the range of future corona noise along Segment 8 would be between ~~51 and 54~~ 56 and 58 dBA at the edge of the ROW. This dBA level is not considered to be a level causing any discomfort or annoyance to receptors. Therefore, the proposed Project would be in compliance with this City of Pico Rivera ordinance.
City of Rosemead Municipal Code Noise Ordinance	
Exterior noise standards for designated land use during operation: ▪ Single-, double-, or multiple-family residential: Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 45 dBA from 10pm to 7am ▪ Commercial: Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 60 dBA from 10pm to 7am ▪ Industrial or Manufacturing: Exterior Noise Level not to exceed 70 dBA anytime	Segment 7 would be located within the City of Rosemead and subject to this ordinance. Under future wet weather conditions, the range of future corona noise along Segment 7 would be between 51 and 54 dBA at the edge of the ROW. Therefore, during the evening hours, the proposed Project could violate evening noise standards and not be in compliance with this City of Rosemead ordinance.
City of San Gabriel Municipal Code Noise Ordinance	
It shall be unlawful for any person to run or operate, or permit to be run or operated, any mechanical, electrical, electronic, hydraulic, or wind-driven equipment, fan, pump, compressor, blower, motor, engine, machine, or other similar apparatus, whether as owner, agent, employee, lessee, or other person having the charge thereof, which causes, or is likely to cause, any loud, excessive, unnecessary, or unusual continued or intermittent noise, or any noise which annoys, disturbs, injures, or endangers the comfort, repose, health, peace, or safety of others within the city unless such noise is muffled effectually and the apparatus is either equipped with a muffler device in constant operation and properly maintained to deaden such noise, or the apparatus is enclosed in a room, building, or other enclosure sufficiently insulated to deaden such noise	Segment 11 would be located within the City of San Gabriel and subject to this ordinance. Under future wet weather conditions, the range of future corona noise along Segment 11 would be between 47 and 60 dBA at the edge of the ROW. This dBA level is not considered to be a level causing any discomfort or annoyance to receptors. Therefore, the proposed Project would be in compliance with this City of San Gabriel ordinance.
City of South El Monte Municipal Code Noise Ordinance	
Exterior noise standards for designated land use during operation ▪ Commercial Receptors: Exterior Noise Level not to exceed 55 dBA from 10 p.m. to 7 a.m. or 60 dBA from 7 a.m. to 10 p.m. ▪ Manufacturing Zone: Exterior Noise Level not to exceed 70 dBA at any time	Segment 7 would be located within the City of South El Monte and subject to this ordinance. Under future wet weather conditions, the range of future corona noise along Segment 7 would be between 51 and 54 dBA at the edge of the ROW. Therefore, the proposed Project would be in compliance with this City of South El Monte ordinance.
Shall not exceed the exterior noise limit for the land use or zone as specified in the above table plus 5 dBA for a cumulative period of more than fifteen minutes in any hour; or the exterior noise limit for the land use or zone as specified in the above table plus 10 dBA for a cumulative period of more than five minutes in any hour; or the exterior noise limit for the land use or zone as specified in the above table plus 15 dBA for a cumulative period of more than one minute in any hour; or the exterior noise limit for the land use or zone as specified in the above table plus 20 dBA for any period of time.	As discussed in Section 3.10.2.2, the range of existing wet weather corona noise at the ROW edge ranges from 22 dBA to 25 dBA. Under future rainy weather conditions, the range of future corona noise at the Segment 7 ROW edge with implementation of the proposed Project would be between 51 and 54 dBA. Therefore, the increase in operational corona noise generated by the proposed Project could substantially increase existing ambient noise conditions by more than 5 dBA for a cumulative period of more than fifteen minutes in any hour. Therefore, the proposed Project would not be in full compliance with this City of South El Monte ordinance.

Table 3.10-10. Noise Policy Compliance Table – Operation	
Applicable Policy	Compliance Analysis
City of Temple City Municipal Code Noise Ordinance	
The following activities in or around any commercial or industrial use, whether such use is a permitted use or one allowed by a conditional use permit, is hereby declared to be a public nuisance: ▪ Loud noises between 10 p.m. and 6 a.m., as well as, excessive truck traffic	Segment 11 would be located within Temple City and subject to this ordinance. Under future wet weather conditions, the range of future corona noise along Segment 11 would be between 47 and 60 dBA at the edge of the ROW. This dBA level is not considered to be a level classified as a nuisance to receptors (refer to Figure 3.10-1 for average noise levels considered acceptable). Therefore, the proposed Project would be in compliance with this Temple City ordinance.
City of Whittier Municipal Code Noise Ordinance	
Exterior noise standards for designated land use during operation ▪ One and Two Family Residential: Exterior Noise Level not to exceed 50 dBA from 7am to 10pm and 45 dBA from 10pm to 7am ▪ Multi Family Residential and Public Space: Exterior Noise Level not to exceed 55 dBA from 7am to 10pm and 50 dBA from 10pm to 7am ▪ Commercial: Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 60 dBA from 10pm to 7am ▪ Industrial: Exterior Noise Level not to exceed 70 dBA anytime	Segment 8 would be located within the City of Whittier and subject to this ordinance. Under future wet weather conditions, the range of future corona noise along Segment 8 would be between ~~51 and 54~~ 56 and 58 dBA at the edge of the ROW. Therefore, the proposed Project would not be in full compliance with this City of Whittier ordinance for single-family residences from 10pm to 7am.

CEQA Significance Conclusion

Corona noise generated by the proposed Project would not be in compliance with noise standards of Los Angeles County, or the Cities of Chino, Chino Hills~~Monterey Park~~, Rosemead, South El Monte, and Whittier. This impact would not occur along Segments 6 and 11 in the ANF because the 2005 Forest Plan does not address noise levels in the Forest; however, as previously described and in accordance with CEQA, impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. No feasible mitigation is available to reduce or eliminate the corona noise that would be generated by the proposed Project. Therefore, because Project operation would result in local plan violations regardless of mitigation measure implementation, Impact N-4 would be significant and unavoidable (Class I).

3.10.6.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to noise is generally limited to areas within approximately 0.25 mile of the proposed Project route and substation locations. This area is defined as the geographic extent of the cumulative noise impact area because noise impacts would generally be localized, mainly within approximately 600 feet from any noise source. However, cumulative effects are analyzed for all projects within 0.25 mile of the proposed Project route to represent the most adverse conditions. As cumulative development within 0.25 mile can contribute substantial daily vehicle traffic noise to areas depending on trip distribution and average daily traffic that can impact long-term ambient noise levels, all projects within 0.25 mile are considered. At distances greater than 0.25 mile, impulse or helicopter noise would be briefly audible and steady construction noise from the proposed Project would generally dissipate into quiet background noise levels.

Existing Cumulative Conditions

The character of the area along the Project route varies from rural to urbanized. The most urbanized areas along the proposed Project route are those located south of the ANF. With the exception of NFS lands in the ANF, development is occurring throughout the Project study area and as a result, increases in ambient noise levels are anticipated as additional future development projects are approved and population growth occurs.

Ambient Noise Levels. Cumulative noise levels within the counties of Los Angles, Kern, and San Bernardino will continue to include an expanded number of sources of man-made noise, mainly due to increased road-way traffic, air traffic, and other human activity including construction projects and an expanded geographic area of impact as urbanization spreads and population grows. Approved, pending and reasonably foreseeable projects would add to the future expected noise levels throughout the geographic area. However, varying noise levels would continue to occur depending on the proximity to human activity. Rural communities or unpopulated lands will remain the quietest.

Noise-Sensitive Receptors. With the exception of NFS lands in the ANF, cumulative conditions will introduce new residences and other sensitive receptors to areas near the proposed Project. Approved, pending and reasonably foreseeable residential projects would bring an increased number of noise-sensitive uses to the area.

Reasonably Foreseeable Future Projects and Changes

As discussed above, ongoing development throughout the cumulative effects area for noise is dominated by residential developments, clustered in and around community developments on non-NFS lands. This trend in residential development is also representative of reasonably foreseeable future projects in the cumulative effects area, as supported by the aggressive population growth forecasted throughout the Project Area. Reasonably foreseeable future projects within the Project Area are expected to be characteristic of past and ongoing projects. Most projects in the cumulative scenario are limited in their geographic extent. Projects in the cumulative scenario become more or less relevant along the length of the proposed Project route, based on their proximity to the proposed Project ROW and substations and, therefore, to the potential for cumulative interactions.

Cumulative Impact Analysis

Impacts of the proposed Project would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The potential for noise impacts of the proposed Project to combine with the effects of other projects within the geographic scope of the cumulative analysis is described below.

- **Construction noise would substantially disturb sensitive receptors (Impact N-1).** Proposed Project construction would temporarily substantially increase ambient noise levels in the vicinity of the ROW and would disturb sensitive receptors. Similarly, construction activities associated with other projects in close proximity to the proposed Project could potentially occur at the same time as the proposed Project and also disturb nearby sensitive receptors. Sensitive receptors located directly adjacent to multiple construction sites would experience temporary noise impacts from construction activities. When construction activities of the proposed Project and other nearby projects occur concurrently, the combined effect of construction noise would be cumulatively significant. APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number) as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use) would reduce the proposed Project's contribution to cumulative impacts, but not to a less-

than-significant level. Therefore, Impact N-1 would combine with impacts of other past, present and reasonably foreseeable projects to result in a significant cumulative impact (Class I).

- **Construction noise levels would violate local standards (Impact N-2).** Proposed Project construction would temporarily substantially increase ambient noise levels in the vicinity of the ROW and would violate local noise standards. Similarly, construction activities associated with other projects in close proximity to the proposed Project could potentially occur at the same time as the proposed Project also violating local standards and increasing construction noise to nearby sensitive receptors. When construction activities of the proposed Project and other nearby projects occur concurrently, the combined effect of construction noise would be cumulatively significant. APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number) as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use) would reduce the proposed Project's contribution to cumulative impacts, but not to a less-than-significant level. Therefore, Impact N-2 would combine with impacts of other past, present and reasonably foreseeable projects to result in a significant cumulative impact (Class I).
- **Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations in the vicinity of sensitive receptors. (Impact N-3).** Sensitive receptors located directly adjacent to the proposed Project would be disturbed by operational noise generated by the proposed Project. Past residential, commercial and industrial projects (including the existing transmission lines in the proposed ROW) have resulted in the development of residences, businesses, roadways, and other noise-generating uses along the proposed Project route. These past projects have introduced people, automobile and truck traffic, and industrial land uses that have resulted in increased noise within the developed portions of the proposed ROW. Similarly, several of the future projects identified to be constructed within 0.25 mile of the proposed Project, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario would also be expected to result in noise-generating uses and vehicle traffic that would disturb sensitive receptors. Corona noise from the proposed Project would combine with noise from past, present, and reasonably foreseeable projects within 0.25 mile to result in a cumulative significant impact to sensitive receptors (Class I).
- **Operational noise levels would violate local standards (Impact N-4).** Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines. Residential receptors located directly adjacent to the proposed Project would be impacted by operational noise from the transmission ROW. Because the operational noise generated by the proposed Project alone would result in an increase to the ambient noise levels at sensitive receptor locations along the lines, additional further development and vehicle-related traffic within proximity of these receptors would combine with this impact to further increase ambient noise levels. There is not sufficient information to assess the degree to which the numerous present and foreseeable residential development projects, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario would generate traffic noise impacting ambient conditions. Therefore, the combined effect of operational corona noise combined with other noise sources located within close proximity to the proposed transmission line and substation facilities to noise sensitive receptors would be cumulatively significant and likely further impact sensitive receptors and further escalate ambient noise conditions in excess of identified local policies and ordinance standards. Therefore, it is considered likely that this impact of the proposed Project would combine with similar impacts of other projects to result in a cumulative operational noise impact. While the proposed Project would not generate substantial corona noise along each of the Project segments, the proposed Project's cumulative contribution to an elevation in ambient noise levels is considered to be significant and unavoidable (Class I).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.10.6.1 would help to reduce the proposed Project's contribution to cumulative impacts. One additional mitigation measure that may reduce cumulative noise impacts would include coordination with the City of Lancaster and all other affected jurisdictions to stagger construction schedules to the extent feasible for construction projects occurring within 0.25 mile of the Project. This effort would reduce the potential for cumulative increases in ambient

noise levels to occur during construction; however, it would result in longer periods of construction noise nuisance, which may in effect be considered by the communities to be worse than higher noise levels over a shorter duration. Therefore, such a mitigation measure for cumulative construction noise impacts is not recommended. No additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for the issue area of Noise.

3.10.7 Alternative 3: West Lancaster Alternative

3.10.7.1 Direct and Indirect Effects Analysis

The following section describes the noise impacts associated with Alternative 3, as determined by the significance criteria listed in Section 3.10.4.1. Mitigation measures are introduced where ~~necessary~~ possible in order to reduce significant impacts ~~to less-than-significant levels~~.

Substantial temporary or periodic increase in ambient noise levels during construction in the vicinity of sensitive receptors above existing levels (Criterion NOI1)

Construction noise impacts associated with Criterion NOI1 for Alternative 3 would be the same as those impacts associated with this analysis for the proposed Project, as presented in Section 3.10.6.1. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line that would affect slightly fewer sensitive receptors than the proposed Project, overall impacts to sensitive noise receptors along the approximate 170-mile long transmission route would be the same as identified in Section 3.10.6.1. These impacts and their associated mitigation measures that fall under Criterion NOI1 are summarized in the following paragraphs. Please see Section 3.10.6.1 for a detailed description of these impacts, as they are the same as the proposed Project.

Impact N-1 (Construction noise would substantially disturb sensitive receptors) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.10.6.1). As described in Section 3.10.6.1, Impact N-1 would occur at various locations along the transmission route, particularly in areas of concentrated residential development or near recreational resources. Construction noise would temporarily substantially increase ambient noise levels in the vicinity of the proposed Project route, substation locations, and along all transport access routes. All noise-sensitive receptors located within ~~approximately 225 feet~~ close proximity to ~~of~~ construction activities would be impacted by construction noise. As such, Alternative 3 would require implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use), to reduce the effects of construction noise on sensitive receptors during construction to the maximum extent possible. However, even with implementation of the mitigation measures listed above and described in detail in Section 3.10.6.1, Impact N-1 for Alternative 3 would be significant and unavoidable (Class I).

Impact N-2 (Construction noise levels would violate local standards) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.10.6.1). As described in Section 3.10.6.1, noise generated during construction would violate several local noise standards and policies. Alternative 3 would result in the same type and intensity of construction noise in the same jurisdictions as the proposed Project. Although construction noise would be temporary and would be reduced by implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment

use), and L-2b (Aircraft flight path and safety provisions and consultations), the level of construction noise would violate several local noise ordinances and standards, as described above in Table 3.10-9 (Noise Policy Compliance Table – Construction). Therefore, Impact N-2 for Alternative 3 would be significant and unavoidable (Class I).

A permanent and substantially higher level of ambient noise source in the vicinity of sensitive receptors (Criterion NOI2)

Operation of Alternative 3 would be identical to that of the proposed Project with the exception that a portion of Segment 4 would be in a slightly different location than that of the proposed Project. Therefore, operational noise impacts associated with Criterion NOI2 for Alternative 3 would be the same as those impacts associated with this analysis for the proposed Project, as presented in Section 3.10.6.1. These impacts and their associated mitigation measures that fall under Criterion NOI2 are summarized in the following paragraphs. Please see Section 3.10.6.1 for a detailed description of these impacts, as they are the same as the proposed Project.

Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.10.6.1). As described in Section 3.10.6.1, corona noise generated by the proposed Project along Segments 4, 5, 6, 7, 8, 10, and 11 would substantially increase existing ambient noise conditions to sensitive receptors located along the ROW of these segments. Because there is no feasible mitigation to reduce or eliminate the corona noise that would be generated by Alternative 3, Impact N-3 for Alternative 3 would be significant and unavoidable (Class I).

Impact N-4 (Operational noise levels would violate local standards) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.10.6.1). As described in Section 3.10.6.1, corona noise generated by Alternative 3 would not be in compliance with noise standards of Los Angeles County, and the Cities of Chino, Chino Hills, Rosemead, South El Monte~~Monterey Park~~, and Whittier. Because there is no feasible mitigation to reduce or eliminate the increased corona noise that would be generated by Alternative 3, Impact N-4 for Alternative 3 would be significant and unavoidable (Class I).

3.10.7.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 3 (West Lancaster Alternative). This alternative consists of a brief re-route of the proposed transmission line just north of Antelope Substation, which would add approximately 0.4 mile to the length of the route. The remainder of this alternative route (south of Antelope Substation) would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. The re-routed portion of the Alternative 3 route generally parallels the proposed Project route to the west. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 3 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Alternative 3 only differs from the proposed Project for a very small portion of the proposed route in the City of Lancaster, near Antelope Substation. This area is still encompassed by the geographic extent of

the cumulative analysis defined for Alternative 2 in Section 3.10.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 3 is exactly the same as that for Alternative 2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 3 are exactly the same as for Alternative 2, as described in Section 3.10.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 3 would be exactly the same as Alternative 2, described in Section 3.10.6.2.

Cumulative Impact Analysis

The minor re-route of the proposed Project transmission line associated with Alternative 3 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 3 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.10.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

As with the proposed Project, mitigation measures introduced for Alternative 3 in Section 3.10.7.1 would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for noise.

3.10.8 Alternative 4: Chino Hills Route Alternatives

3.10.8.1 Direct and Indirect Effects Analysis

The following section describes the noise impacts associated with Alternative 4, as determined by the significance criteria listed in Section 3.10.4.1. Mitigation measures are introduced where ~~necessary~~ possible in order to reduce significant impacts ~~to less-than-significant levels~~.

As identified in Section 3.10.2.4 (Chino Hills Route Alternatives), Routes A through D, including Route C Modified, of Alternative 4 each traverse rural, undeveloped areas in the CHSP. These alignments through the CHSP would avoid introducing Project noise impacts to sensitive receptors along the eastern portion of Segment 8A and along Segment 8C, but these alternative alignments would be located in close proximity to sensitive noise receptors in the form of recreational trails in and around the CHSP. Noise-related disturbances to recreational activities, including within the CHSP, area addressed in the Wilderness and Recreation analysis ~~for TRTP~~, which is presented as Section 3.15 of this EIR/EIS. Substantial temporary or periodic increases in ambient noise levels during construction (Criterion NOI1) are described below.

Impact N-1 (Construction noise would substantially disturb sensitive receptors) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.10.6.1), with the exception that substantially fewer residential noise receptors would be affected along the eastern portion of Segment 8A and along Segment 8C. These residential receptors~~, that~~ would be avoided by ~~this~~ the proposed alternative routing through the CHSP. Although each of the ~~four~~ five routes of Alternative 4 would affect substantially fewer sensitive receptors than Segment 8 of the proposed Project, impacts to sensitive

receptors from construction noise would be significant under all ~~four~~ five routes because noise-sensitive recreation receptors would be located within close proximity ~~approximately 225~~ ~~feet~~ of construction activities and would be exposed to noise from construction. In addition, Routes A through D, including Route C Modified, of Alternative 4 would each require the construction of a number of access roads to tower and construction staging locations. While the precise number and location of access roads required for each route of Alternative 4 are not known at this time, construction of these access roads would be similar to that of access roads required for construction of the proposed Project. Therefore, noise impacts during construction of access roads could occur to sensitive receptors located along access road routes.

Project noise impacts that would occur between Windhub Substation (the northern-most Project feature) and Segment 8A MP 19.2, where Alternative 4 deviates from the proposed Project route, would be the same as those identified in Section 3.10.6.1 for the proposed Project. East of S8A MP 19.2, Alternative 4 would avoid noise impacts along Segments 8A and 8C that would be introduced under the proposed Project, but it would introduce new noise impacts to recreational receptor areas within the CHSP. Noise impacts along Segment 8B between Chino and Mira Loma Substations would be the same as those identified in Section 3.10.6.1 for Alternative 2.

As described in Section 3.10.6.1, Impact N-1 would occur at various locations along the remaining Alternative 4 transmission route, particularly in areas of concentrated residential development. Construction noise would temporarily substantially increase ambient noise levels in the vicinity of the ~~proposed Project~~ route, substation locations, and along all transport access routes (including new access roads). As such, each route of Alternative 4 would require implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use), to reduce the effects of construction noise on sensitive receptors during construction to the maximum extent possible. However, even with implementation of the mitigation measures listed above and described in detail in Section 3.10.6.1, Impact N-1 for Alternative 4 would be significant and unavoidable (Class I), for all Alternative 4 routes.

Impact N-2 (Construction noise levels would violate local standards) would be the same under each route of Alternative 4 as it would for the proposed Project (please see Section 3.10.6.1). In addition to the jurisdictions listed in Table 3.10-9, all ~~four~~ five routes of Alternative 4 would traverse the following jurisdictions that are not crossed by the proposed Project: City of Brea, Orange County, and the State of California Park System – Chino Hills State Park. As such, in addition to those polices analyzed in Table 3.10-9 (Noise Policy Compliance Table – Construction), the additional policies analyzed in Table 3.10-11 (Alternative 4 Noise Policy Compliance Table – Construction) would apply to Alternative 4 Routes A through D, including Route C Modified. As part of the California State Park System, the CHSP is managed under the direction of the California Public Resources Code (PRC), which mandates per Section 5002.2 that a general plan be prepared and implemented prior to the development of any new facilities within a State Park. The existing General Plan for CHSP was approved in February of 1999, and serves as a management document for the CHSP. All management Goals and Guidelines from the CHSP General Plan were reviewed and no specific noise guidelines relevant to this noise analysis were identified. Therefore, only policies pertaining to noise within the City of Brea and Orange County Municipal Codes are included in this analysis.

Table 3.10-11. Alternative 4 Noise Policy Compliance Table – Construction	
Applicable Policy	Compliance Analysis
Orange County Municipal Code Noise Ordinance	
Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday.	APM NOI-1 would be required for Alternative 4. With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Therefore, construction activities would be compliant with this Orange County ordinance.
City of Brea Municipal Code Noise Ordinance	
Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday.	APM NOI-1 would be required for Alternative 4. With implementation of APM NOI-1, SCE would ensure that construction activities would either comply with local noise ordinances pertaining to daily construction activity timing, or SCE would obtain a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. Therefore, construction activities would be compliant with this City of Brea ordinance.

This alternative introduces ~~four~~ five re-routes to a portion of Segment 8 of the proposed transmission line that would each result in temporary noise impacts to substantially fewer residential sensitive receptors than the proposed Project, but these alternative alignments would be located in close proximity to sensitive noise receptors in the form of recreational trails in and around CHSP. However, impacts to sensitive noise receptors along the approximate 170-mile long remaining transmission route would be identical to those identified in Section 3.10.6.1 for the proposed Project. As described in Section 3.10.6.1, noise generated during construction would violate several local noise standards and policies. Alternative 4 would result in the same type and intensity of construction noise in the same jurisdictions as the proposed Project, as well as the three additional jurisdictions discussed above. Although construction noise would be temporary and would be reduced by implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), the level of construction noise would violate several local noise ordinances and standards, as described above in Table 3.10-9 (Noise Policy Compliance Table – Construction). Therefore, Impact N-2 for each of the routes under Alternative 4 would be significant and unavoidable (Class I).

A permanent and substantially higher level of ambient noise source in the vicinity of sensitive receptors (Criterion NOI2)

Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.10.6.1), with the exception that fewer residential noise receptors would be affected along the eastern portion of Segment 8A and along Segment 8C. As identified in Section 3.10.2.4 (Chino Hills Route Alternatives), Routes A through D, including Route C Modified, traverse rural, undeveloped areas but would be located in close proximity to sensitive noise receptors in the form of recreational trails in and around CHSP. The operational corona noise generated by each of the Alternative 4 routing options through the CHSP would introduce substantially increased ambient noise conditions to sensitive recreational receptors in the Park. Noise-related disturbance to recreational activities is addressed in the Wilderness and Recreation analysis, which is presented as Section 3.15 of this EIR/EIS.

As with the proposed Project, operational corona noise under Alternative 4 would be significant along Segments 4, 5, 6, 7, 10, and 11. Therefore, although fewer residential receptors would be subjected to corona noise under each route of Alternative 4, impacts to sensitive receptors from corona noise would be significant. Because there is no feasible mitigation to reduce or eliminate the corona noise that would be generated by Alternative 4, Impact N-3 for Alternative 4 would be significant and unavoidable (Class I).

Impact N-4 (Operational noise levels would violate local standards) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.10.6.1), with the exception that this alternative would be subject to standards of three jurisdictions that are not applicable to the proposed Project. In addition to the jurisdictions listed in Tables 3.10-9 and 3.10-10, all ~~four~~ five routes of Alternative 4 would traverse the following jurisdictions that are not crossed by the proposed Project: City of Brea, Orange County, and the State of California Park System – CHSP. As such, in addition to those policies analyzed in Table 3.10-10 (Noise Policy Compliance Table – Operation), the additional policies analyzed in Table 3.10-11 (Alternative 4 Noise Policy Compliance Table – Operation) would apply to Alternative 4 Routes A through D, including Route C Modified. As described above, all management Goals and Guidelines from the CHSP General Plan were reviewed and no specific noise guidelines relevant to this noise analysis were identified. Therefore, only new policies pertaining to noise within the City of Brea and Orange County Municipal Codes are analyzed.

Table 3.10-12. Alternative 4 Noise Policy Compliance Table – Operation

Applicable Policy	Compliance Analysis
Orange County Municipal Code Noise Ordinance	
Exterior noise standards for designated land use zones during operation. ▪ Exterior Noise Level not to exceed 55 dBA from 7am to 10pm and 50 dBA from 10pm to 7am It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed: (1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or (2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or (3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or (4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or (5) The noise standard plus twenty (20) dB(A) for any period of time. In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.	Within Segment 8, it is assumed that corona noise generated by Alternative 4 would be identical to that which is estimated to be produced by the proposed Project. Under future wet weather conditions, the range of future corona noise along each route of Alternative 4 would be between ~~51 and 54~~ 56 to 58 dBA at the edge of the ROW. Therefore, corona noise would violate the dBA nighttime threshold level of 50 dBA and would not be in compliance with this Orange County ordinance.

Table 3.10-12. Alternative 4 Noise Policy Compliance Table – Operation	
Applicable Policy	Compliance Analysis
City of Brea Municipal Code Noise Ordinance	
Exterior noise standards for designated land use zones during operation. ▪ Exterior Noise Level not to exceed 55 dBA from 7am to 10pm and 50 dBA from 10pm to 7am	Within Segment 8, it is assumed that corona noise generated by Alternative 4 would be identical to that which is estimated to be produced by the proposed Project. Under future wet weather conditions, the range of future corona noise along each route of Alternative 4 would be between ~~51 and 54~~56 to 58 dBA at the edge of the ROW. Therefore, corona noise would violate the dBA nighttime threshold level of 50 dBA and would not be in compliance with this City of Brea ordinance.

Project noise impacts that would occur between Windhub Substation (the northern-most Project feature) and Segment 8A MP 19.2, where Alternative 4 deviates from the proposed Project route, and along Segment 8B between Chino and Mira Loma Substations, would be identical to the proposed Project and impacts would be identical to those identified in Section 3.10.6.1. As described in Section 3.10.6.1, corona noise would not be in compliance with noise standards of Los Angeles County, and the Cities of Chino, Chino Hills, Rosemead, South El Monte, ~~Monterey Park,~~ and Whittier. Because there is no feasible mitigation to reduce or eliminate the increased corona noise that would be generated by Alternative 4, Impact N-4 for the entire Alternative 4 route would be significant and unavoidable (Class I).

3.10.8.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 4 (Chino Hills Route Alternatives). Alternative 4 would require the same types of construction activities to build and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 4 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the re-routed portion of the alternative. With regards to Alternative 4, any incremental increases or decreases in the Project's contribution to the cumulative scenario would result from the location of the alternative alignments associated with Routes A, B, C, C Modified, and D.

Geographic Extent

The geographic extent of the cumulative effects analysis for Alternative 4 is the same as the extent of the regional setting for Alternative 4, as presented in Section 3.10.2.4 except that it also includes the jurisdictions of Orange County, the City of Brea, and CHSP.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 4 are the same as for Alternative 2, as described in Section 3.10.6.2, with the exception that the re-routed portion of this alternative is located in a less developed and more rural area than the portion of Segment 8 that it would replace.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 4 would be the same as Alternative 2, described in Section 3.10.6.2.

Cumulative Impact Analysis

As identified in Section 3.10.2.4, Routes A through D, including Route C Modified, all contain sensitive noise receptors in the form of residential and recreational uses. While the overall number of residential noise receptors subject to construction noise would be decreased along Segment 8 of Alternative 4, impacts to sensitive receptors from both construction and operational noise would be significant both within Segment 8 and the Project as a whole, under all ~~four~~ five Chino Hills Alternative options.

Because this alternative introduces a re-route of part of Segment 8 of the proposed transmission line that would result in noise impacts to fewer sensitive residential receptors than the proposed Project, the cumulative contribution to noise impacts along the segment of proposed Project Segment 8 avoided by the Alternative 4 re-routes would be eliminated. However, overall cumulative impacts to sensitive receptors along the Segment 8 re-route ROWs and the remaining segments of the entire transmission route would be the same as identified in Section 3.10.6.1. Therefore, the following impacts would be cumulative in nature~~ly considerable~~ and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact N-1 (Construction noise would substantially disturb sensitive receptors), Impact N-2 (Construction noise levels would violate local standards), Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations), and Impact N-4 (Operational noise levels would violate local standards).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 4 in Section 3.10.8.1 would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for noise.

3.10.9 Alternative 5: Partial Underground Alternative

3.10.9.1 Direct and Indirect Effects Analysis

The following section describes the noise impacts associated with Alternative 5, as determined by the significance criteria listed in Section 3.10.4.1. Mitigation measures are introduced where ~~necessary~~ possible in order to reduce significant impacts. ~~to less-than-significant levels.~~

Substantial temporary or periodic increase in ambient noise levels during construction in the vicinity of sensitive receptors above existing levels (Criterion NOI1)

Impact N-1 (Construction noise would substantially disturb sensitive receptors) for Alternative 5 would be nearly identical to that of the proposed Project, as presented in Section 3.10.6.1, with the exception of the underground segment. Construction of the underground segment as part of Alternative 5 of the proposed transmission line would avoid temporary noise impacts to a number of sensitive receptors within the City of Chino Hills as compared to the proposed Project. Under this alternative, a large underground tunnel would be constructed; therefore construction noise that would be perceptible to nearby sensitive receptors would be limited to the ends of the tunnel, and this alternative would avoid aboveground construction activities between the two points. Receptors between these tunnel access points would not be subject to any temporary noise from construction, with the possible exception of construction vehicles accessing the tunnel access points through the area. However, while construction noise would be eliminated at receptors between the two tunnel access points, construction noise would be elevated at receptors near the tunnel entrances due to the increased duration of construction vehicle use at these two locations. In addition,

underground construction would require 20- to 30-acre marshalling yards for construction staging. Possible locations for such a marshalling yard might include vacant warehouses in the area. Impacts to sensitive receptors along the rest of the approximately 170-mile transmission line would be identical to those identified in Section 3.10.6.1 for the proposed Project.

As such, Alternative 5 would require implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use), to reduce the effects of construction noise on sensitive receptors during construction to the maximum extent possible. However, even with implementation of the mitigation measures listed above and described in detail in Section 3.10.6.1, Impact N-1 for Alternative 5 would be significant and unavoidable (Class I). It should be noted that tunneling activities could generate vibration impacts. However, as detailed design of the proposed tunnel are unavailable at this time, the level of potential construction equipment vibration impacts on receptors is unknown and is considered potential to occur.

Impact N-2 (Construction noise levels would violate local standards) for Alternative 5 would be identical to that of the proposed Project (please see Section 3.10.6.1). While Alternative 5 would avoid aboveground construction activities along the underground segment of the proposed transmission route in the City of Chino Hills, it would not avoid all receptors within the City boundary. Therefore, Alternative 5 would cross the same jurisdictions with applicable noise standards to receptors subject to construction noise as the proposed Project. As shown in Table 3.10-9 (Noise Policy Compliance Table – Construction), construction noise associated with Project construction would be in compliance with City of Chino Hills policies, therefore Alternative 5 would also be in compliance with City of Chino Hills policies. However, as described in Section 3.10.6.1, noise generated during construction of the rest of the Alternative 5 route (which is identical to that of the proposed Project) would violate several of the local noise standards and policies identified in Table 3.10-9 (Noise Policy Compliance Table – Construction). Although construction noise would be temporary and would be reduced by implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), and Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), the level of construction noise would violate several local noise ordinances and standards, as described above in Table 3.10-9 (Noise Policy Compliance Table – Construction). Therefore, Impact N-2 for Alternative 5 would be significant and unavoidable (Class I).

A permanent and substantially higher level of ambient noise source in the vicinity of sensitive receptors (Criterion NOI2)

Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations) would be the same for Alternative 5 as identified for the proposed Project, as presented in Section 3.10.6.1, with the exception of the underground segment. Construction of the underground segment of Alternative 5 would avoid permanent noise impacts to a number of sensitive receptors within the 3.5-mile underground segment of transmission line within the City of Chino Hills as compared to the proposed Project. Receptors along the underground segment of transmission line would not be subject to any corona noise because any corona noise that would occur would be located within a tunnel underground. However, while operational corona noise would be eliminated at these receptors, operational noise along the rest of the transmission route would be the same as identified in Section

3.10.6.1. As described in Section 3.10.6.1, operational corona noise would result in significant impacts along Segments 4, 5, 6, 7, 8, 10, and 11. In addition to corona noise, two sources of ventilation noise - fans (motors) and the air moving in (inlet) and out (outlet)- would occur from underground operation; however, SCE has indicated that the system would be designed to minimize velocities in order to minimize the noise. Because there is no feasible mitigation to reduce or eliminate the corona noise that would be generated by Alternative 5, Impact N-3 for Alternative 5 would be significant and unavoidable (Class I).

Impact N-4 (Operational noise levels would violate local standards) for Alternative 5 would be identical to that of the proposed Project as identified in Section 3.10.6.1. While Alternative 5 would avoid permanent operational corona noise impacts along the underground segment of the route in the City of Chino Hills, it would not avoid all receptors within the City boundary. Therefore, Alternative 5 would be subject to the same applicable noise standards in the same jurisdictions as the proposed Project. As described in Section 3.10.6.1, corona noise generated by the proposed transmission line would not be in compliance with noise standards of Los Angeles County, and the Cities of Chino, Chino Hills, Rosemead, South El Monte, ~~Monterey Park,~~ and Whittier. Corona noise was found to be in compliance with City of Chino Hills policies; therefore Alternative 5 would not alter the analysis of City of Chino Hills policies analyzed in Table 3.10-12 (Noise Policy Compliance Table – Operation). Because there is no feasible mitigation to reduce or eliminate the increased corona noise that would be generated by Alternative 5, Impact N-4 for Alternative 5 would be significant and unavoidable (Class I).

3.10.9.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 5 (Partial Underground Alternative). Based on the identical route and similarity of Alternative 5 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, Alternative 5 has the potential to increase or decrease certain cumulative impacts as a result of the underground portion of the alternative. With regards to Alternative 5, any incremental increases or decreases in the Project's contribution to the cumulative scenario would result from the location of the underground segment associated with Alternative 5.

Geographic Extent

Although a portion of Alternative 5 would be located underground, the transmission route is identical to that of the proposed Project. Therefore, the geographic extent of the cumulative analysis for Alternative 5 is exactly the same as that for Alternative 2

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 5 are exactly the same as for the proposed Project, as described in Section 3.10.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 5 would be exactly the same as the proposed Project, described in Section 3.10.6.2.

Cumulative Impact Analysis

Because approximately 3.5 miles of transmission line would be placed underground for Alternative 5, operational corona noise would not contribute to cumulative scenario along this portion of the Project within the City of Chino Hills. However, cumulative construction noise impacts would be elevated at the two tunnel access locations as a result of a high number of construction vehicles entering and exiting these locations. As a whole, the remaining portions of the transmission line route would result in identical cumulative impacts as those described in Section 3.10.6.2 for the proposed Project. Along those areas, the following impacts would be cumulative in nature~~ly considerable~~ and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact N-1 (Construction noise would substantially disturb sensitive receptors), Impact N-2 (Construction noise levels would violate local standards), Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations), and Impact N-4 (Operational noise levels would violate local standards).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 5 in Section 3.10.9.1 would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for noise along areas of the transmission line route not placed underground.

3.10.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

3.10.10.1 Direct and Indirect Effects Analysis

The following section describes the noise impacts associated with Alternative 6, as determined by the significance criteria listed in Section 3.10.4.1. Mitigation measures are introduced where ~~necessary~~ possible in order to reduce significant impacts~~to less-than-significant levels~~.

Substantial temporary or periodic increase in ambient noise levels during construction in the vicinity of sensitive receptors above existing levels (Criterion NOI1)

Impact N-1 (Construction noise would substantially disturb sensitive receptors) for Alternative 6 would be identical to that of the proposed Project, as presented in Section 3.10.6.1 with the exception of Segment 6 and the ANF area of Segment 11. Construction of the helicopter staging areas and increased use of helicopters during construction of Alternative 6 would increase temporary noise impacts to a number of sensitive receptors within and around the ANF as compared to the proposed Project. Under this alternative, large helicopter staging areas would be constructed, therefore resulting in construction noise that would be perceptible to nearby sensitive receptors that would not be generated under the proposed Project. In addition, the delivery and removal of construction materials (mainly tower components) to and from the helicopter staging areas would introduce large vehicle noise on surrounding roadways, thereby subjecting sensitive receptors along these routes to an increase in temporary periodic vehicle noise. Sensitive receptors located in proximity to the helicopter staging areas and along the helicopter flight paths would be subject to noise from helicopter use. The noise generated by helicopters and perceived by sensitive noise receptors would increase as the height of helicopter flight increases. Therefore, the construction noise levels experienced by sensitive receptors located near helicopter staging areas identified for Alternative 6 in ~~, such as those identified in~~ Table 2.6-1 (Candidate Helicopter Staging

Areas in the ANF), which is presented in Chapter 2 (Description of Alternatives), would be higher than construction noise levels experienced by receptors located farther away from the helicopter staging areas.

Alternative 6 would require implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use), to reduce the effects of construction noise on sensitive receptors during construction to the maximum extent possible. Although construction-related noise disturbance would be temporary, the use of helicopters for construction in the ANF would increase disturbance to sensitive noise receptors including recreational users and wildlife along Segments 6 and 11, particularly in the vicinity of the helicopter staging areas and along the helicopter flight paths. As discussed for the proposed Project, noise-related impacts to recreation and wildlife are addressed in the Wilderness and Recreation analysis (Section 3.15) and the Biological Resources analysis (Section 3.4), respectively. Also as described for the proposed Project and presented in Section 3.10.2 (Affected Environment), sensitive noise receptors are not located along every Project segment and therefore, this impact would not occur or would occur to a lesser magnitude for some Project segments (such as Segments 6 and 11 in the ANF, where sensitive noise receptors other than recreationists and wildlife are minimal). However, in accordance with CEQA, impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. Therefore, the CEQA impact significance determination for this impact is representative of the Project's overall affect. Implementation of the APMs and mitigation measures listed above and described in detail in Section 3.10.6.1 would help to reduce construction noise impacts to sensitive receptors; however, Impact N-1 for Alternative 6 would be significant and unavoidable (Class I).

Impact N-2 (Construction noise levels would violate local standards) for Alternative 6 would be identical to that of the proposed Project (please see Section 3.10.6.1), including with regard to compliance with FAA regulations through coordination with the FAA and other relevant agencies. Helicopters are not permitted to land within the boundaries of a designated Wilderness Area, including the San Gabriel WA along Segment 6. As with the proposed Project, it may be necessary for helicopters to fly at low altitudes to accommodate helicopter construction of some towers along Segment 6, which would introduce the potential for recreationists in the San Gabriel WA and nearby areas of the ANF to be disturbed by noise from low-flying helicopters. As previously mentioned, noise-related impacts to recreational activities are fully addressed in the Wilderness and Recreation analysis (Section 3.15) of this EIR/EIS. Additionally, mitigation introduced under the proposed Project would also be applied under Alternative 6 in order to avoid Project violation or conflict with policies or regulations applicable to helicopter use, including as set forth by the FAA.

Alternative 6 would cross the same local jurisdictions as the proposed Project and is therefore subject to the same local noise standards and policies. As shown in Table 3.10-9 (Noise Policy Compliance Table – Construction), construction noise would violate several local noise ordinances and standards. Although the affects of construction noise would be temporary and would be reduced through implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), the level of construction noise generated under Alternative 6 would still violate several local noise ordinances and standards, as described above in Table 3.10-9 (Noise Policy Compliance Table – Construction). Additionally, in accordance with CEQA,

impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. Therefore, the CEQA impact significance determination for this impact is representative of the Project's overall affect. Impact N-2 for Alternative 6 would be significant and unavoidable (Class I).

A permanent and substantially higher level of ambient noise source in the vicinity of sensitive receptors (Criterion NOI2)

Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations) under Alternative 6 would be identical to the proposed Project, as presented in Section 3.10.6.1. Once constructed, the operational noise conditions under Alternative 6 would not differ from the proposed Project conditions, and would affect the same sensitive noise receptors at the same levels as identified in Section 3.10.6.1 for the proposed Project. As discussed, operational corona noise would result in substantial increases from existing ambient noise along Segments 4, 5, 6, 7, 8, 10, and 11. Because there is no feasible mitigation available to reduce or eliminate operational corona noise, Impact N-3 for Alternative 6 would be significant and unavoidable (Class I).

Impact N-4 (Operational noise levels would violate local standards) for Alternative 6 would be identical to the proposed Project, as discussed in Section 3.10.6.1. Alternative 6 would be subject to the same jurisdictional noise standards for operational noise as would the proposed Project. Furthermore, as described above for Impact N-3, corona noise generated by the proposed transmission line would not be in compliance with noise standards of Los Angeles County, and the Cities of Chino, Chino Hills, Rosemead, South El Monte, ~~Monterey Park,~~ and Whittier. Because there is no feasible mitigation to reduce or eliminate the increased corona noise that would be generated by Alternative 6, Impact N-4 for Alternative 6 would be significant and unavoidable (Class I).

3.10.10.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 6 (Maximum Helicopter Construction within the ANF Alternative). Based on the identical route and similarity of Alternative 6 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, Alternative 6 has the potential to increase certain cumulative construction impacts as a result of the construction of helicopter staging areas and the increased use of helicopters associated with construction of the alternative.

Geographic Extent

Although the helicopter staging areas are outside the scope of Alternative 2 (proposed Project), the transmission route is identical to that of Alternative 2. As the helicopter staging areas are located within jurisdictions (mainly the ANF) evaluated for cumulative impacts of Alternative 2, the geographic extent of the cumulative analysis for Alternative 6 is exactly the same as that for Alternative 2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 6 are exactly the same as for the proposed Project, as described in Section 3.10.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 6 would be exactly the same as the proposed Project, described in Section 3.10.6.2.

Cumulative Impact Analysis

The construction of required helicopter staging areas and increased use of helicopters during construction associated with Alternative 6 would result in an increased contribution to cumulative construction noise impacts when coupled with other construction and development near the helicopter staging areas and helicopter flight paths. With that exception, the remaining portions of the transmission line route would result in identical cumulative impacts as those described in Section 3.10.6.2 for Alternative 2 (proposed Project). Therefore, the following impacts would be cumulative in nature~~ly considerable~~ and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact N-1 (Construction noise would substantially disturb sensitive receptors), Impact N-2 (Construction noise levels would violate local standards), Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations), and Impact N-4 (Operational noise levels would violate local standards).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 6 in Section 3.10.10.1 would help to reduce the Alternative 6 incremental contribution to cumulative impacts. No additional mitigation measures have been identified to reduce cumulative impacts of Alternative 6 to a less-than-significant level.

3.10.11 Alternative 7: 66-kV Subtransmission Alternative

3.10.11.1 Direct and Indirect Effects Analysis

The following section describes the noise impacts associated with Alternative 7, as determined by the significance criteria listed in Section 3.10.4.1. Mitigation measures are introduced where ~~necessary~~ possible in order to reduce significant impacts~~to less-than-significant levels~~.

Substantial temporary or periodic increase in ambient noise levels during construction in the vicinity of sensitive receptors above existing levels (Criterion NOI1)

Impact N-1 (Construction noise would substantially disturb sensitive receptors) for Alternative 7 would be identical to that of the proposed Project, as presented in Section 3.10.6.1 with the exception of those locations within Segment 7 and Segment 8 where 66-kV subtransmission line routing would occur. Construction related to two 66-kV circuits (Mesa-Narrows and Walnut-Hillgen-Industry-Mesa-Reno lines) along Segment 8 and one 66-kV circuit in Section 7 (Whittier Narrows 66-kV Overhead Re-Route) would be similar to that of the proposed Project. Two portions of the 66-kV subtransmission line sections along Segment 7 would be constructed underground. Underground construction of these 66-kV subtransmission lines would be completed by traditional duct bank~~direct bury~~ methods along the majority of the underground alignment with the exception of one channel crossing, which would require boring. This additional construction required for underground placement of the 66-kV subtransmission line would result in an increase to both stationary and mobile construction equipment noise used along these routes. Sensitive receptors along the re-routed and underground portions of this alternative include residences, a highs school, and parks within the Whittier Narrows Recreation Area. Trenching required for installation of the underground portions of this alternative would result in increased truck trips to haul excavated

material from the alignment. These truck trips could generate noise levels that could impact receptors along truck routes. The remainder of the Alternative 7 route would result in identical construction noise impacts as those described above for the proposed Project, in Section 3.10.6.1.

Alternative 7 would require implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), to reduce the effects of construction noise on sensitive receptors during construction to the maximum extent possible. South El Monte High School is located approximately 300 feet from the nearest underground portion of Segment 7 that would be located along Durfee Avenue. Construction noise along this portion Segment 7 would result in a substantial increase to existing ambient noise for this sensitive receptor. Furthermore, construction noise would be significant within the Whittier Narrows Recreation Area and the River Commons or Duck Farm Project area. Construction noise impacts for the remainder of the route would be identical to those described above for the proposed Project. As described for Alternative 2, even with implementation of the mitigation measures listed above and described in detail in Section 3.10.6.1, Impact N-1 regarding construction noise impacts to sensitive receptors for Alternative 7 would be significant and unavoidable (Class I).

Impact N-2 (Construction noise levels would violate local standards) for Alternative 7 would be identical to that of the proposed Project, as described in Section 3.10.6.1. While Alternative 7 would include both underground construction activities and new routes for 66 kV subtransmission lines within Segment 7 and Segment 8, as shown in Figures 2.7-1 (Alternative 7: Duck Farm 66-kV Underground) and above ground construction of 66 kV overhead routes as shown in 2.7-2 (Alternative 7: Whittier Narrows 66-kV Underground and Overhead Re-Routes), both of which are presented in Chapter 2 (Description of Alternatives), Alternative 7 would cross the same jurisdictions with applicable noise standards to receptors subject to construction noise as the proposed Project. Based on the distance of the proposed Alternative 7 subtransmission lines to any residential development, as shown in Figures 2.7-1 (Alternative 7: Duck Farm 66-kV Underground) and 2.7-2 (Alternative 7: Whittier Narrows 66-kV Underground and Overhead Re-Routes), it is ~~not~~ anticipated that noise generated during construction from equipment would travel across the ROW and construction zones and be perceptible to ~~sensitive~~ residential receptors. South El Monte High School is located approximately 300 feet from the nearest underground portion of Segment 7 that would be located along Durfee Avenue. Furthermore, construction noise would be significant within the Whittier Narrows Recreation Area and the River Commons or Duck Farm Project area. As such, construction noise along this portion Segment 7 would result in a substantial temporary increase to existing ambient noise for ~~this~~ these sensitive receptors. Therefore, construction activities associated with Alternative 7 would not be in compliance with the City of South El Monte Municipal Code Noise Ordinance as analyzed in Table 3.10-9 (Noise Policy Compliance Table – Construction). The remainder of the Alternative 7 transmission line (including a portion of Segment 7 located within the City of South El Monte) would be identical to that analyzed above for the proposed Project and would result in violations of applicable construction noise policies as shown in Table 3.10-9 (Noise Policy Compliance Table – Construction). Therefore Alternative 7 would not alter the analysis of City of South El Monte policies analyzed in Table 3.10-9 (Noise Policy Compliance Table – Construction) and would violate applicable construction noise policies.

Although construction noise would be temporary and would be reduced by implementation of APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll

Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), the level of construction noise that would be generated under Alternative 7 would violate several local noise ordinances and standards, as described above in Table 3.10-9 (Noise Policy Compliance Table – Construction) for Alternative 7 as a whole. Therefore, Impact N-2 for Alternative 7 would be significant and unavoidable (Class I).

A permanent and substantially higher level of ambient noise source in the vicinity of sensitive receptors (Criterion NOI2)

Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations) for Alternative 7 would be similar to that analyzed above for the proposed Project. Once operational, the proposed 66 kV subtransmission lines are not expected to result in significant operational noise due to the underground placement of two of the lines (Rio Hondo-Amador-Jose-Mesa and the Jose-Mesa 66-kV subtransmission lines) nearest residential receptors. Although South El Monte High School would be located approximately 300 feet from one of the underground portions of Segment 7, noise generated from this portion of the line would not be perceptible above ground. ~~and the distance of sensitive receptors from~~ The above ground 66-kV subtransmission line routes along Segment 8 (Mesa-Narrows 66-kV and Walnut-Hillgen-Industry-Mesa-Reno 66-kV) and one 66-kV circuit in Section 7 (Whittier Narrows 66-kV Overhead Re-Route would be located within the Whittier Narrows Recreation Area and the River Commons or Duck Farm Project area and could impact ambient noise levels. However, due to the small amount of operational corona discharge noise associated with a 66 kV subtransmission line, these reroutes are not expected to increase the existing ambient noise levels of these receptors. Operational noise along the rest of the Alternative 7 transmission route would be the same as that analyzed for the proposed Project in Section 3.10.6.1. As described in Section 3.10.6.1, operational corona noise would result in significant operational noise impacts within Segments 4, 5, 6, 7, 8, 10, and 11. Because there is no feasible mitigation to reduce or eliminate the corona noise that would be generated by Alternative 7 as a whole, Impact N-3 for Alternative 7 would be significant and unavoidable (Class I).

Impact N-4 (Operational noise levels would violate local standards) for Alternative 7 would be similar to that of the proposed Project as identified in Section 3.10.6.1. While Alternative 7 would result in no permanent operational corona noise impacts along the 66-kV subtransmission routes, the remainder of the Alternative 7 transmission line (including a portion of Segment 7 located within the City of South El Monte) would continue to expose a number of sensitive receptors to significant noise impacts associated with operational corona noise. Therefore, Alternative 7 would be subject to the same applicable noise standards in the same jurisdictions as the proposed Project. As described in Section 3.10.6.1, operational corona noise generated by the proposed transmission line would not be in compliance with a number of applicable noise standards, including the City of South El Monte. Therefore Alternative 7 would not alter the policies analyzed in Table 3.10-12 (Noise Policy Compliance Table – Operation). Because there is no feasible mitigation to reduce or eliminate the increased corona noise that would be generated by Alternative 7 as a whole, Impact N-4 for Alternative 7 would be significant and unavoidable (Class I).

3.10.11.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 7 (66-kV Subtransmission Alternative). Based on the similar route of Alternative 7 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, Alternative 7 has the potential

to increase certain cumulative construction impacts as a result of the increased noise from underground construction.

Geographic Extent

Although Alternative 7 includes three 66-kV segments that deviate from the proposed Project route, these subtransmission routes are located near and within the same jurisdictions to those of the proposed Project. Therefore, the geographic extent of the cumulative analysis for Alternative 7 is the same as that for the proposed Project.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 7 are the same as for the proposed Project, as described in Section 3.10.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 7 would be exactly the same as the proposed Project, described in Section 3.10.6.2.

Cumulative Impact Analysis

The placement of two 66-kV subtransmission lines underground associated with Alternative 7 would increase the potential contribution to cumulative construction noise impacts to any receptors near these construction routes, including residences, parks, and South El Monte High School. Once operational, these underground 66-kV subtransmission lines are expected to have no cumulative contribution to operational noise due to the underground placement of two of the lines (Rio Hondo-Amador-Jose-Mesa and the Jose-Mesa 66-kV subtransmission lines). The above ground 66-kV subtransmission line routes along Segment 8 (Mesa-Narrows 66-kV and Walnut-Hillgen-Industry-Mesa-Reno 66-kV) and one 66-kV circuit in Section 7 (Whittier Narrows 66-kV Overhead Re-Route) would be located within the Whittier Narrows Recreation Area and the River Commons or Duck Farm Project area and could impact ambient noise levels. However, due to the small amount of operational corona discharge noise associated with a 66 kV subtransmission line, these reroutes are not expected to increase the existing ambient noise levels of these receptors. Therefore, these overhead 66 kV subtransmission lines reroutes would not result in a cumulative contribution to a permanent increase in ambient noise levels of the area.

As a whole, the remaining portions of the transmission line route would result in identical cumulative noise impacts as those described in Section 3.10.6.2 for the proposed Project. Along those areas, noise impacts would be cumulative in nature~~ly considerable~~ and would combine with similar noise impacts of nearby cumulative projects to result in noise impacts that would be significant and unavoidable (Class I): Impact N-1 (Construction noise would substantially disturb sensitive receptors), Impact N-2 (Construction noise levels would violate local standards), Impact N-3 (Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations), and Impact N-4 (Operational noise levels would violate local standards).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 7 in Section 3.10.11.1 would help to reduce this alternative's incremental contribution to cumulative noise impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts of Alternative 7 to a less-than-significant level.

3.10.12 Impact Significance Summary

Table 3.10-13 summarizes the direct and indirect noise impacts of the proposed Project and alternatives. It is important to note that as a result of the varying presence and proximity of sensitive noise receptors along the alignment of the proposed Project and alternatives, the occurrence and significance of each identified noise impact is variable for each of the Project segments (Segments 4 through 11). The presence of sensitive noise receptors along the following Project segments is considered to be minimal and as a result, the significance of noise impacts in these areas would be less than in areas where sensitive noise receptors are located in closer proximity to the Project alignment: Segments 10 and 4 in the North Region, Segments 6 and 11 in the Central Region (ANF), and parts of Segment 8 in the South Region.

Along Segments 6 and 11 in the ANF, the primary sensitive noise receptors present include recreationists and wildlife; however, as previously described, potential noise-related disruptions to recreationists are addressed in the Wilderness and Recreation analysis (Section 3.15) of this EIR/EIS, while potential noise-related disruptions to wildlife are addressed in the Biological Resources analysis (Section 3.4) of this EIR/EIS. There are minimal dispersed residences located along Segments 6 and 11 in the ANF, and no other sensitive noise receptors have been identified. However, in accordance with CEQA, impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. Therefore, the CEQA impact significance determinations provided below in Table 3.10-13 are indicative of the entire Project's impact. The "NFS Lands" column in Table 3.10-13 is used to identify whether an impact would be expected to occur on NFS lands in the ANF. As previously described, the occurrence of noise impacts is dependent upon the presence of sensitive noise receptors and therefore, where an impact has been identified as not occurring on NFS lands, it is because sensitive receptors (besides recreationists and wildlife) that would potentially be affected by Project noise have not been identified on NFS lands.

The direct and indirect effects of the Project and alternatives have been fully described in the preceding Sections 3.10.6 through 3.10.11. Alternative 1 (No Project/No Action) impacts are fully described in Sections 3.10.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in Table 3.10-13.

Table 3.10-13. Summary of Impacts and Mitigation Measures – Noise

Impact	CEQA Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
N-1: Construction noise would substantially disturb sensitive receptors.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	Yes*	N-1a: Implement Best Management Practices for construction noise. N-1b: Avoid sensitive receptors during mobile construction equipment use. ~~L-2b: Aircraft flight path and safety provisions and consultations.~~
N-2: Construction noise levels would violate local standards.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	No	N-1a ~~(see Impact N-1)~~ N-1b ~~(see Impact N-1)~~ L-2b: Aircraft flight path and safety provisions and consultations.~~(see Impact N-1)~~

Table 3.10-13. Summary of Impacts and Mitigation Measures – Noise

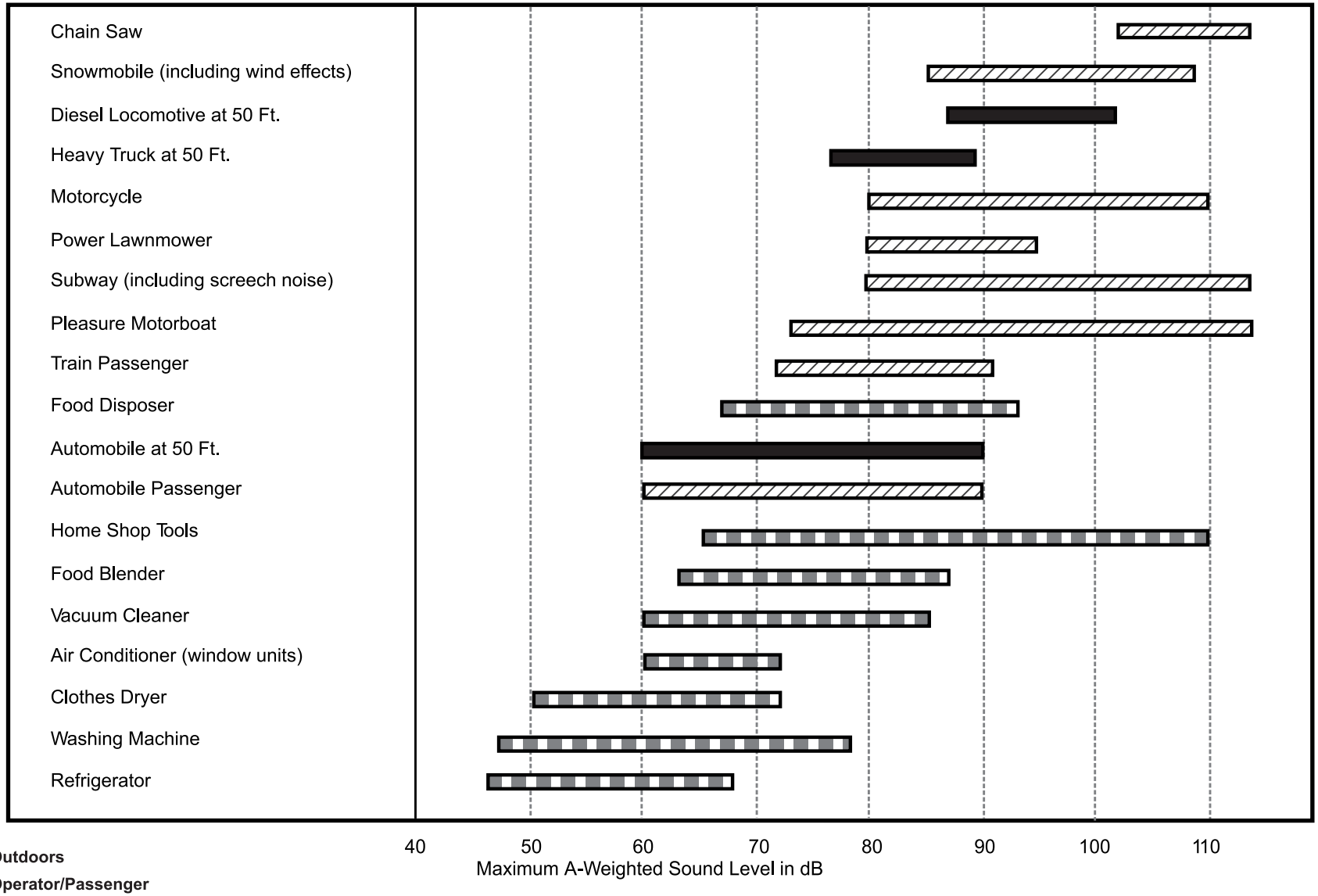
Impact	CEQA Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
N-3: Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	Yes	None available
N-4: Operational noise levels would violate local standards.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	No	None available

N/A = Not Available.

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ As described in the text preceding this table, sensitive noise receptors on NFS lands in the ANF include recreationists, wildlife, and dispersed residences; although effects to recreationists and wildlife are respectively discussed in the Wilderness and Recreation analysis (Section 3.15) and the Biological Resources analysis (Section 3.4), construction noise under the proposed Project and each alternative would be substantial (i.e. would increase ambient noise by more than five dBA) and would therefore have the potential to affect other sensitive noise receptors on NFS lands in the ANF, including dispersed residences.

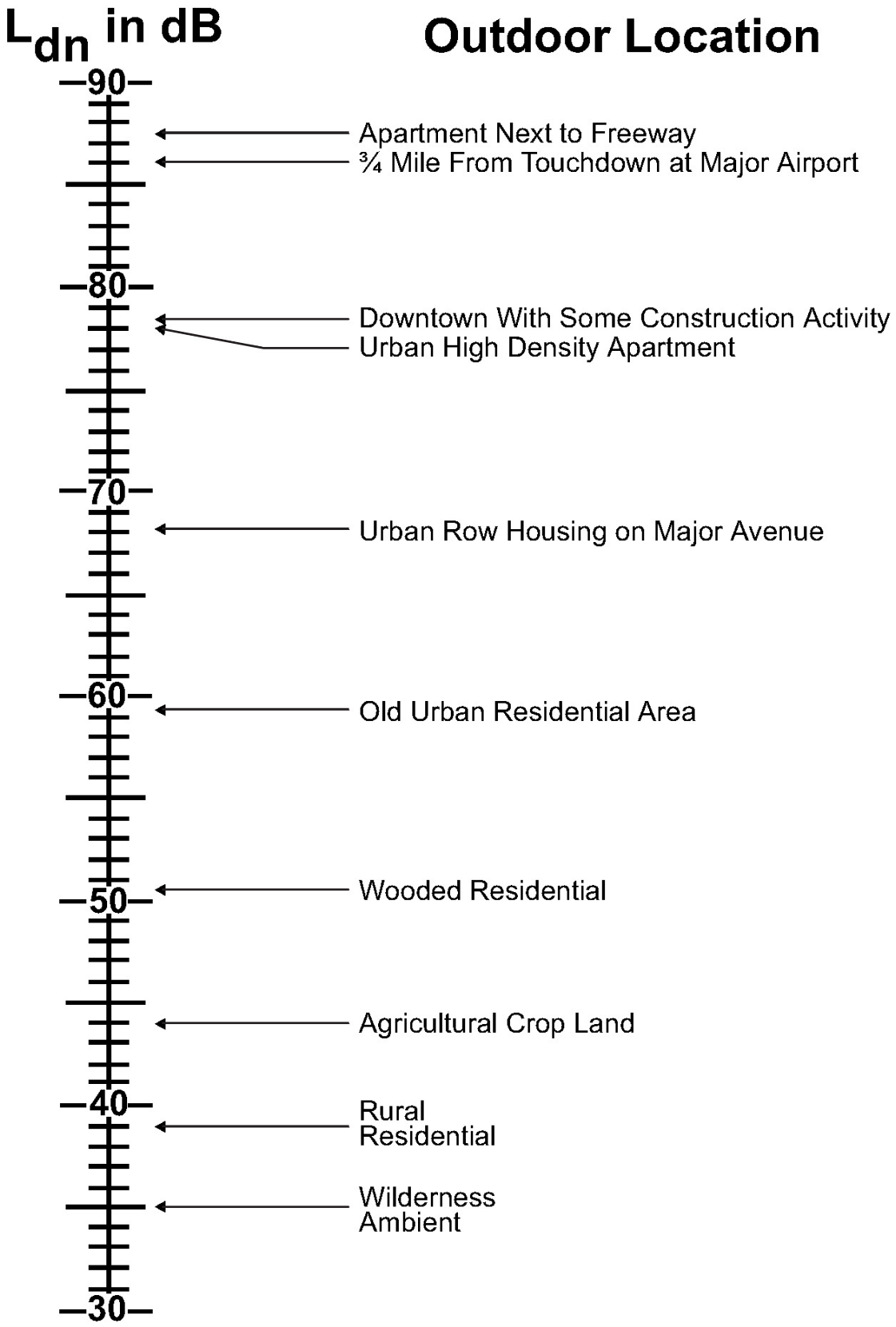
As noted in Table 3.10-13, Impacts N-2 and N-4 would not occur on NFS lands because the 2005 Forest Plan does not specifically address noise regulation and therefore, neither construction nor operation and maintenance would have the potential to violate noise policies or standards on NFS lands. However, these impacts are considered to be Class I (significant and unavoidable) for the Project as a whole because, in accordance with CEQA, impact significance determinations must be provided for the overall project, and not for individual segments of the project. As described in Sections 3.10.5 through 3.10.11, numerous local noise standards would be affected by the Project as well as each of the identified Project alternatives and therefore, the CEQA impact significance determination is representative of the Project's overall affect. Please see Table 3.10-1 (Summary Comparison of Environmental Issues/Impacts – Noise) at the beginning of this issue area analysis for a more descriptive summary comparison of the predicted noise impacts for the proposed Project and each of the Project alternatives.



Source: USEPA, 1978. Protective Noise Levels Condensed Version of EPA Levels Document

Figure 3.10-1

Typical Range of Common Sounds Heard in the Environment



Source: USEPA, 1978. Protective Noise Levels
Condensed Version of EPA Levels Document

Figure 3.10-2
Outdoor Day/Night Sound Levels in Different Areas

3.11 Public Services and Utilities

3.11.1 Introduction

This section describes the public services and utility systems that would be affected by the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. All of this input is summarized in the Scoping Report and Comment Analysis published by the CPUC and Forest Service in November 2007. Relevant issues raised during the scoping process are summarized below.

- Fire protection and the ability of emergency aircraft to reach communities in the ANF and Chino Hills would be negatively impacted due to higher double-circuit towers.
- Mitigation measures for fire hazards.
- Undergrounding the T/L would allow easier access for emergency services in the ANF.
- The T/L could be a fire hazard under low humidity and high wind conditions [in the City of Chino Hills].
- The Project would cause poor access for emergency response services along Segment 8A.
- Underground utility lines would be disrupted because of the Project.
- Construction of Segment 8A poses a fire and safety hazard to homes and residents.
- All new electrical structures and supply cables within Consolidated Fire Protection District shall be in compliance with Title 32 of the county code.
- The EIR/EIS should consider maintenance of brush clearance around towers within the ANF and other areas classified as High Severity Fire Zones.
- Consider the recycling of construction waste generated from the replacement of transmission lines, towers, and other transmission components.

Summary and Comparison of Alternatives

Table 3.11-1 on the following page presents some key factors related to public services and utility systems for each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.11-1 are not necessarily impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.11.4.1 (Criteria for Determining Impact Significance) are described in Sections 3.11.5 through 3.11.11.

Table 3.11-1. Summary Comparison of Environmental Issues – Public Services and Utilities

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (Proposed Action)	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7
Emergency services would be needed if an accident or other emergency incident occurs at a construction site (Impact PSU-1)	The construction of new generating sources would create additional impacts to existing utilities and service systems that may be similar to the Project.	Hazardous conditions introduced through Project construction could require emergency response services, such as fire fighting capabilities.	Same as Alternative 2.	Varied terrain in CHSP could impede or complicate emergency response, if an accident were to occur due to hazardous conditions during construction.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Temporary lane closures during the construction period would interfere with emergency response vehicles (Impact PSU-2)	Same as above.	Project construction would require that some roads be temporarily closed to provide access for construction vehicles and equipment.	Same as Alternative 2.	CHSP routing options would avoid temporary lane closures in the cities of Chino and Ontario, but may introduce new road closures in the City of Chino Hills and the CHSP that could impede emergency access.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Transmission line towers would impede emergency aircraft response (Impact PSU-3)	Same as above.	Increased height of towers used in Segments 6, 11, 7 and 8A could impede or complicate emergency aircraft response, should such services be required.	Same as Alternative 2.	Increase height towers used in the CHSP could impede or complicate emergency aircraft response, should such services be required.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Utility systems would be temporarily disrupted during the construction period (Impact PSU-4)	Same as above.	Project construction may require existing utility systems to be temporarily removed from service.	May avoid potential disruption to utility systems associated with planned development in Lancaster.	CHSP routing options would avoid potential utility system disruptions in the cities of Chino and Ontario, but may introduce disruptions to existing utility systems in the vicinity of the Alternative 4 routes in Chino Hills.	Potential for rolling blackouts in the case a Gas Insulated Line (GIL) system failure occurs.	Same as Alternative 2.	Same as Alternative 2.

Table 3.11-1. Summary Comparison of Environmental Issues – Public Services and Utilities

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (Proposed Action)	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7
Public Works maintenance yards would be disrupted during the construction period (Impact PSU-5)	Same as above.	Access to the following Public Works maintenance yards located in the Project ROW would be blocked during construction: RD557A Road Maintenance Yard; Eaton Yard Flood Maintenance Yard; MD1 Road Maintenance Yard.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption (Impact PSU-6)	Same as above.	Watering during Project construction would require a portion of the available water supply.	Same as Alternative 2.	Watering in the CHSP may require more water than the equivalent portions of the proposed Project route.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Additional wastewater would be generated during Project construction and operation (Impact PSU-7)	Same as above.	Wastewater generated through Project construction would be treated by existing wastewater facilities.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Additional solid waste would be generated during Project construction and operation (Impact PSU-8)	Same as above.	Solid waste generated through Project construction would be disposed of in existing landfill facilities and recycled to the extent possible.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
The amount of waste material recycled during construction activities would not adhere to State standards (Impact PSU-9)	Same as above.	Waste materials generated during Project construction would be recycled to the greatest extent possible and would adhere to State standards.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

3.11.2 Affected Environment

This analysis examines public services and utility provisions for the proposed Project route. Government agencies have recently categorized data pertaining to utility systems as sensitive critical infrastructure information (including location, capacity, and type). As a result, public access to these data is generally restricted for security reasons, and only information that is readily and publicly accessible is presented in this section.

The proposed Project and alternatives area is served by public service and utility systems in Kern County, Los Angeles County, the Angeles National Forest (ANF), and incorporated cities within Los Angeles County and San Bernardino County. A variety of regional and local purveyors in these areas provide and maintain public services and utility systems associated with fire and police protection, schools, hospitals, natural gas, electricity, water, solid waste collectors and facilities, and public works facilities.

The regional setting for the proposed Project and alternatives includes parts of Kern County, the Angeles National Forest, Los Angeles County (incorporated and unincorporated), and San Bernardino County (incorporated and unincorporated). The Project is also located within one-half mile of Riverside County (at Mira Loma Substation) and Orange County (along the proposed ROW for Segment 8A). The vast majority of incorporated cities located within the Project Regions are situated in the South Region. Two cities (Palmdale and Lancaster) are located in the North Region and thirty-two cities are located in the South Region. There are no cities in the Central Region (which encompasses the ANF).

3.11.2.1 Alternative 2: SCE's Proposed Project

Public Services

Fire Protection

Angeles National Forest

The USDA Forest Service manages National Forest System (NFS) lands, and has primary wildland fire suppression responsibility on NFS lands. The Southern California Geographic Coordination Center (GACC) has responsibility for the mobilization of federal resources with the sphere of influence of the ANF. This geographic area runs from the Stanislaus National Forest (in the Sierra Nevada) to the Cleveland National Forest (east of San Diego) and the staffing noted below is based on fire season (averages five to six months per year). During extended attack of wildland fires, federal resources may be mobilized from across the nation in support of these incidents; however, for the purposes of evaluating local capabilities to respond to a local wildfire, only resources within the GACC are considered. The GACC operates 154 Fire Engines, 24 Hand Crews, 3 Dozers, 15 Helicopters, 7 Airtanker Bases, and 5 Airtactical Planes.

In addition, the USDA Forest Service has a Mutual Aid agreement with the Los Angeles County Fire Department (LACFD) to provide fire services and the California Department of Forestry has contracts with the LACFD to protect privately owned forestlands, watersheds, and rangelands referred to as State Responsibility Areas (SRAs). The LACFD consists of more than ~~3,700~~ 4,700 sworn and civilian personnel and is divided into three Regional Emergency Operations Bureaus, consisting of: North Operations Bureau, Central Operations Bureau, and the East Operations Bureau. The proposed Project is located within all three regions. The LACFD operates 9 divisions, ~~20~~ 21battalions, ~~158~~ 170 fire stations,

and ~~11~~ 10 fire suppression camps in the ~~2,296~~ 2,305-square mile service area, and answers over ~~234,000~~ 250,000 emergency calls annually.

Potentially Affected Fire Protection Services

In the event of a fire emergency all fire stations in the affected county would respond as needed in accordance with the California Master Mutual Aid Agreement, Section 8561 of the California Government Code. Table 3.11-2 details the emergency resources available to the Kern County Fire Department, LACFD, and the incorporated cities in Los Angeles County and San Bernardino County.

Table 3.11-2. ~~Potentially Affected~~ Fire Protection Services by Jurisdiction

Fire Protection Agency	Jurisdiction	Segment	Equipment	Personnel	Approximate Response Time (In Minutes)
Kern County Fire Department - Battalion I					
Station 11	Keene	10, 4	1- fire engine 2 - 4x4 patrols 1- water tender 1- helicopter	1- Battalion Chief 1- Captain 1- Engineer 1- Firefighter	10 (to Tehachapi)
Station 12	Tehachapi	10, 4	1- fire engine 1- 4x4 patrol	1- Captain 1- Engineer 1- Firefighter	3 (to Hwy 58) 7 (to Golden Hills) 10-15 (to Alpine)
Station 14	Mojave	10, 4	2- fire engines 1- 4x4 patrol 1- 4x4 fire engine	1- Captain 1- Engineer 1- Firefighter	Unknown
Station 15	Rosamond	10, 4	2- fire engines 1- 4x4 patrol	1- Captain 1- Engineer 1- Firefighter	0.45 leave time from fire station; 1 min. per mile travel time
Station 17	Boron	10, 4	1- fire engine 1- 4x4 patrol	1- Captain 1- Engineer	Unknown
Los Angeles County Fire Department					
Battalion 11, Station 78	Lake Hughes	4, 5	1- Engine 1- Patrol 1- Reserve Engine 1- Reserve Patrol	3 per shift/3 shifts 9 total Plus 3 paid call FFs (staff as needed)	Varies
Battalion 11, Station 84	Quartz Hill	5	1- Engine 1- Squad 1- Patrol	5 per shift/3 shifts 15 total	3-4
Battalion 11, Station 112	Lancaster	5	1- Engine	~~N/A*~~ 9 paid call FFs (staff as needed)	~~N/A~~Varies
Battalion 11, Station 130	Lancaster	5	1- Engine 1- USAR Vehicle 1- USAR Cache ~~1- Chase Vehicle~~ 1- Rescue Tender 1- Rescue Tractor 1- Rescue Trailer 1- Collapse	6 per shift/2 shifts 18 total	Varies
Battalion 4, Station 19	La Cañada Flintridge	11	1- Engine 1- Squad	5 per shift/3 shifts 15 total	5

Table 3.11-2. ~~Potentially Affected~~ Fire Protection Services by Jurisdiction

Fire Protection Agency	Jurisdiction	Segment	Equipment	Personnel	Approximate Response Time (In Minutes)
Battalion 4, Station 82	La Cañada Flintridge	11	2- Engine 1- Truck 1- Utility 1- Patrol 1- Reserve Engine 1- Battalion Chief (BC) 1- BC Vehicle	11 Total/2 Shifts 33 Total	Varies
Battalion 4, Station 11	Altadena	11	1- Engine 1- Squad 1- Reserve Engine 1- Reserve Squad	5 per shift/3 Shifts 15 total	4
Battalion 4, Station 12	Altadena	11	1- Engine	4 per shift/3 shifts 12 total	4 (Urban) 15-20 (ANF)
Battalion 4, Station 66	Pasadena	11	1- Engine 1- Patrol	3-4 per shift/3 shifts 9-12 total	4-5
Battalion 16, Station 44	Duarte	7	2- Engine 1- Patrol 1- Water Tender 1- Reserve Engine	7 per shift/3 shifts 21 total	4
Battalion 16, Station 32	Azusa	7	1- Engine 1- Squad 1- Mobile Aid 1- Water Tender 1- USAR Trailer 1- Reserve Engine 1- Reserve Squad	6 per shift/3 shifts 18 total	4
Battalion 16, Station 97	Azusa	7	1- Engine 1- Patrol	4 per shift/3 shifts 12 total	Varies
Battalion 16, Station 48	Irwindale	7	1- Engine 1- Reserve	4 per shift/3 shifts 12 total	Less than 5
Battalion 16, Station 29	Baldwin Park	7	1-Quint/truck 1- Fire engine 1- Squad	9 per shift/3 shifts 27 total	3-5
Battalion 10, Station 5	San Gabriel	7	1- Engine	3 per shift~~,~~/3 shifts 9 total	3
Battalion 10, Station 47	Temple City	7	1- Engine 1- Squad	5 per shift/3 shifts 15 total	4
Battalion 10, Station 42	Rosemead	7	1- Engine 1- Reserve Engine	4 per shift/3 shifts 12 total	5
Battalion 10, Station 4	Rosemead	7, 8A	1- Engine 1- Quint/Truck 1- Asst Chief (AC) Vehicle	8 per shift/3 shifts 24 total ~~3 (AC, Secretary, Community Representative)~~ 1- AC 1 Secretary 1- Service Community Representative	4-6

Table 3.11-2. ~~Potentially Affected~~ Fire Protection Services by Jurisdiction

Fire Protection Agency	Jurisdiction	Segment	Equipment	Personnel	Approximate Response Time (In Minutes)
Battalion 10, Station 166	El Monte	7	1- Quint/Truck 1- Utility 1- USAR Cache 1- Nurse Practitioner 1- Arson Unit	4 per shift/3 shifts 12 total	~~Unknown~~ Undetermined
Battalion 10, Station 167	El Monte	7	1- Engine 1- Squad	5 per shift/3 shifts 15 total	~~Unknown~~ Undetermined
Battalion 10, Station 168	El Monte	7	1- Engine	3 per shift/3 shifts 9 total	~~4~~Varies
Battalion 10, Station 169	El Monte	7	1- Engine	3 per shift/3 shifts 9 total	Varies
Battalion 10, Station 90	South El Monte	7	1- Engine 1- Squad 1- Reserve Squad	5 per shift/3 shifts 15 total	3-4
Battalion 12, Station 87	Industry	7	1- Engine 1- Deluge 1- Swift Water Unit 1- Helitender 1- Reserve Engine	4 per shift/3 shifts 12 total	5
Battalion 12, Station 118 Bureau Headquarters	Industry	7	1- Engine 1- Squad 1- Truck 1- MIRV Multiple Reserves Units 1- BC	9 per shift/3 shifts 27 total	2-3
Battalion 12, Station 26	La Puente	7, 8A	1- Engine 1- Squad 1- Reserve Squad	6 per shift/3 shifts 18 total	Varies
Battalion 12, Station 43	La Puente	7	1- Engine 1- HazMat Tractor 1- HazMat Trailer	9 per shift/3 shifts 27 total	Varies
Battalion 8, Station 17	Pico Rivera	7	1- Engine	4 per shift/3 shifts 12 total	3-5
Battalion 8, Station 25	Pico Rivera	7	1- Engine 1- Light Unit Truck	4 per shift/3 shifts 12 total	Varies
Battalion 8, Station 40	Pico Rivera	7, 8A	1- Engine 1-Squad	5 per day/3 shifts 15 total	4
Battalion 8, Station 103	Pico Rivera	7, 8A	~~3~~1- Engines 1- USAR Unit 1- Rescue Tender 1- Swift Water 1- Heavy Rescue 1- USR	6 per shift~~,~~/3 shifts 18 total	4-5
Battalion 8, Station 28	Whittier	7, 8A	1- Engine 1- Squad 1- Truck 1- Mobile Aid 1- Reserve Engine 1- ~~Battalion Chief~~BC Vehicle	~~10~~ 9per shift/3shifts ~~30~~ 27 total	Varies

Table 3.11-2. ~~Potentially Affected~~ Fire Protection Services by Jurisdiction

Fire Protection Agency	Jurisdiction	Segment	Equipment	Personnel	Approximate Response Time (In Minutes)
Battalion 8, Station 59	Whittier	7, 8A	1- Engine 1- ~~EST~~Emergency Support Team 1- Reserve Engine	4 per shift/3 shifts 12 total	3-5
Battalion 8, Station 96	Whittier	7, 8A	1- Engine	3 per shift~~,~~/3 shifts 9 total	Less than 3
Battalion 12, Station 91	Hacienda Heights	7, 8A	1- Engine 1- Patrol	4 per shift/3 shifts 12 total	3
Battalion 12, Station 145	Rowland Heights	7, 8A	1 - Engine 1- Emergency Support Team 1 - Utility 1 - Battalion Chief 1- BC Vehicle	~~N/A~~5 per shift/3 shifts 15 total	N/A
Pasadena Fire Department					
Station 31	135 S. Fair Oaks Ave.	11	1- USAR 1- Engine Company 1- Ambulance 1- Ladder Truck	10 per shift 30 total	Less than 5
Station 32	2424 E. Villa Street	11	1- Fire Engine 1- Ambulance	6 per shift 18 total	Less than 5
Station 33	515 N. Lake Ave.	11	1- Fire Engine 1- Ambulance	6 per shift 18 total	Less than 5
Station 34	1360 E. Del Mar Blvd.	11	1- Fire Engine 1- Ambulance	6 per shift 18 total	Less than 5
Station 36	1140 N. Fair Oaks Ave.	11	1- Paramedic Engine	4 per shift 12 total	Less than 5
Station 37	3430 E. Foothill Blvd.	11	1- Fire Engine	4 per shift 12 total	Less than 5
Station 38	1150 Linda Vista Ave.	11	1- Fire Engine	4 per shift 12 total	Less than 5
Monrovia Fire Department					
Station 101	141 E. Lemon Ave.	6, 7	1 - Engine 1 - Truck 1- Paramedic 1 - Battalion Chief 1 - Water Tender 1 - Fire Patrol Reserves- Engine, Paramedic, Battalion Chief	9 per shift	4.5
Station 102	2055 S. Myrtle Ave.	6, 7	1 - Engine 1 - Reserve Engine	4 per shift	4.5
Monterey Park Fire Department					
	Monterey Park	7	3 Fire Stations	62	4.9
Montebello Fire Department					
	Montebello	7, 8A	3 Fire Stations	57	N/A
La Habra Heights Fire Department					
	La Habra Heights	8A	3 Fire Stations	27 captains, 48 paramedics	N/A
Chino Valley Independent Fire District Operations					
Station 61	Chino, Chino Hills	8	1- Medic Engine	4 per day	6
Station 62	Chino, Chino Hills	8	1- Medic Engine	4 per day	6

Table 3.11-2. ~~Potentially Affected~~ Fire Protection Services by Jurisdiction

Fire Protection Agency	Jurisdiction	Segment	Equipment	Personnel	Approximate Response Time (In Minutes)
Station 63	Chino, Chino Hills	8	1- Medic Engine 1- HazMat Unit	4 per day	6
Station 64	Chino, Chino Hills	8	1- Medic Engine 1- Brush Engine	4 per day	6
Station 65	Chino, Chino Hills	8	1- Medic Engine 1- USAR Unit	4 per day	6
Station 66	Chino, Chino Hills	8	1- Medic Engine 1- Truck Company	9 per day (including 1 battalion chief)	6
Ontario Fire Department					
	Ontario	8	8 Stations; 12 vehicles, including a 90' platform truck and HazMat Unit	41 total (10 full-time, 30 volunteers, 1 secretary)	N/A

Source: Refer to Chapter 8 (References)
*N/A: Information was not available through Internet research or personal communication.

Police Protection

Table 3.11-3 provides the police agency and areas served within the study area.

Table 3.11-3. ~~Potentially Affected~~ Police Services by Jurisdiction

Police Protection Agency	Jurisdiction/Areas Served	Segments
Kern County Sheriff's Department		
Rosamond Substation	Rosamond, Tehachapi	10, 4
Mojave Substation	Tehachapi, Mojave	10, 4
Angeles National Forest		
USDA Forest Service	Angeles National Forest Head Office	11, 6
USDA Forest Service	San Gabriel River Ranger District	6
USDA Forest Service	Los Angeles River Ranger District	11, 6
USDA Forest Service	Santa Clara/Mojave Rivers Ranger District	11, 6
California Department of Fish and Game	Angeles National Forest	11, 6
California Highway Patrol	Angeles National Forest	11, 6
Los Angeles County Sheriff's Department		
Region I, Lancaster Station	Lancaster, Quartz Hill	4, 5
Region I, Palmdale Station	Palmdale, Acton	4, 5, 11, 6
Region I, La Crescenta Station	La Cañada Flintridge	11
Region I, Altadena Station	Altadena, Pasadena	11
Region I, Temple Station	Temple City, Monrovia, Arcadia, Duarte, South El Monte, Rosemead, East Pasadena, South San Gabriel	11
Region III, Industry Station	Industry, La Habra Heights, Hacienda Heights, La Puente, Avocado Heights, North Whittier (unincorporated)	7
Region III, Pico Rivera Station	Pico Rivera, West Whittier (unincorporated)	7
Region III, Walnut/Diamond Bar Station	Rowland Heights	7
Incorporated City Police Departments		
Pasadena Police Department	City of Pasadena	11
Arcadia Police Department	City of Temple City	11
City of Irwindale Police Department	City of Irwindale	7
Baldwin Park Police Department	City of Baldwin Park	7
Monterey Park Police Department	City of Monterey Park	7
City of Montebello Police Department	City of Montebello	7
Whittier Police Department	City of Whittier	7

Table 3.11-3. ~~Potentially Affected~~ Police Services by Jurisdiction

Police Protection Agency	Jurisdiction/Areas Served	Segments
Chino Hills Police Department	City of Chino Hills	8
Chino Hills State Park Rangers	Chino Hills State Park	Alternative 4
Chino Police Department	City of Chino	8
Ontario Police Department	City of Ontario	8

Source: Refer to Chapter 8 (References)
*N/A: Information was not available through Internet research or personal communication.

Schools

Table 3.11-4 provides the location, number of schools, grade levels and the number of enrolled students in public school districts serving the study area.

Table 3.11-4. ~~Potentially Affected~~ Public Schools ~~(~~by District~~)~~

School District	Areas Served	Segment	No. of Schools	Grade Level	Number Enrolled
Southern Kern USD	Kern County	10, 4	7	K-12	3,461
Tehachapi USD	Kern County	10, 4	6	K-12	4,884
Antelope Valley Union HSD	Lancaster, Palmdale, Unincorporated LA County	4, 5	13	9-12	26,341
Eastside Union SD	Lancaster, Unincorporated LA County	4, 5	4	K-8	3,263
Lancaster ESD*	Lancaster, Unincorporated LA County	4, 5	19	K-8	16,317
Westside Union ESD	Palmdale, Unincorporated LA County	4, 5	11	K-8	9,056
Palmdale ESD	Palmdale	4, 5	28	K-8	22,509
Acton Agua-Dulce USD	Community of Acton, Unincorporated LA County	4,5	4	K-12	1,882
Keppel Union ESD	Unincorporated LA County	4, 5	6	K-8	3,073
La Cañada USD	City of La Cañada Flintridge	11	5	K-12	4,156
Pasadena USD	Pasadena, Community of East Pasadena, Community of Altadena	11	29	K-12	20,826
Temple City USD	Temple City, East San Gabriel	11	8	K-12	5,701
Arcadia USD	Temple City, East San Gabriel	11	11	K-12	10,083
Rosemead SD	Rosemead, Temple City, East San Gabriel	11, 7	5	K-8	3,168
San Gabriel USD	San Gabriel, East San Gabriel	11, 7	9	K-12	6,087
Garvey ESD	East San Gabriel, South San Gabriel, Monterey Park, Rosemead	11, 7	12	K-8	6,119
Montebello USD	Montebello, South San Gabriel, Monterey Park, Pico Rivera	11, 7, 8A	29	K-12	33,819
Alhambra USD	Monterey Park, Rosemead, San Gabriel	11, 7	18	K-12	19,149
Duarte USD	Duarte, Irwindale	7	8	K-12	4,366
Covina Valley USD	Irwindale	7	19	K-12	15,015
Baldwin Park USD	Irwindale, Baldwin Park	7	22	K-12	19,779
Azusa USD	Irwindale	7	18	K-12	11,353
El Monte City SD	El Monte, South El Monte, Temple City	11, 7	19	K-8	10,574
El Monte Union HSD	Rosemead	11, 6	7	9-12	10,379
Valle Lindo ESD	South El Monte	7	2	K-8	1,274
Bassett USD	Industry, Avocado Heights	7, 8A	8	K-12	5,460
Hacienda La Puente USD	Industry, Hacienda Heights	7, 8A	38	K-12	22,355
Rowland USD	Rowland Heights, Industry	7	23	K-12	17,254
Whittier City ESD	Whittier, Avocado Heights	7, 8A	12	K-12	6,840
Whittier Union HSD	Whittier, La Habra Heights	7, 8A	7	9-12	13,704
East Whittier City SD	Whittier	7, 8A	13	K-8	8,734
El Rancho USD	Pico Rivera	7, 8A	17	K-12	11,495
Fullerton Joint Union HSD	La Habra Heights	8A	8	9-12	16,499
Lowell Joint SD	La Habra Heights, Whittier	8A	6	K-8	3,121

Table 3.11-4. ~~Potentially Affected~~ Public Schools ~~(~~by District~~)~~

School District	Areas Served	Segment	No. of Schools	Grade Level	Number Enrolled
Chino Valley USD	Chino Hills, Chino, Ontario	8A, 8B, 8C	36	K-12	33,235
Cucamonga SD	Ontario	8A, 8B, 8C	4	K-8	2,737
Mountain View ESD	Ontario	8A, 8B, 8C	4	K-8	3,094
Ontario-Montclair ESD	Ontario	8A, 8B, 8C	34	K-8	24,177

Source: Ed-Data, 2008
*ESD- Elementary School District

Healthcare Facilities

Table 3.11-5 provides the location and current capacity of healthcare facilities serving the study area.

Table 3.11-5. ~~Potentially Affected~~ Healthcare Facilities

Name/Location	Areas Served	Segment	Capacity
Tehachapi Valley Hospital, Kern County	Tehachapi	10, 4	24 beds
Tehachapi Valley Healthcare District, Kern County	Southeast Kern County (Tehachapi, Mojave, California City)	10,4	3 rural clinics
Antelope Valley Hospital, Kern County	Antelope Valley, Acton	10, 4	420 beds
Lancaster Community Hospital, Lancaster	Antelope Valley, Acton	4,5	117 beds
Palmdale Regional Medical Center, Palmdale	Palmdale, Antelope Valley, Acton	4,5	Under Construction
Verdugo Hills Hospital, Glendale	La Cañada Flintridge, Pasadena, Altadena	11	158 beds
Glendale Adventist Medical Center, Glendale	La Cañada Flintridge, Pasadena, Altadena	11	448 beds
Glendale Memorial Hospital, Glendale	La Cañada Flintridge, Pasadena, Altadena	11	334 beds
Huntington Memorial, Pasadena	Altadena, Pasadena, Monterey Park	11, 7	525 beds
Alhambra Hospital, Alhambra	Alhambra, Altadena, Pasadena, San Gabriel, Rosemead	11, 7	144 beds
San Gabriel Valley Medical Center, San Gabriel	San Gabriel, Pasadena, Altadena, Rosemead	11, 7	273 beds
Arcadia Methodist, Arcadia	Temple City, Rosemead	11, 7	460 beds
Beverly Hospital, Montebello	Montebello, Pico Rivera, Monterey Park, Whittier, El Monte, Rosemead	11	223 beds
Santa Teresita Medical Center, Duarte	Duarte	6, 7	177 beds
City of Hope National Medical Center, Duarte	Duarte	6, 7	217 beds
Inter-community Campus, Covina	Irwindale	7	208 beds
Queen of the Valley, West Covina	Irwindale, Baldwin Park, Industry, Avocado Heights, Hacienda Heights	7	500+ beds
Greater El Monte Community Hospital, South El Monte	South El Monte, El Monte, Avocado Heights	7	N/A*
Kaiser Foundation Hospital, Baldwin Park	Baldwin Park, Avocado Heights	7	N/A
Doctor's Hospital of West Covina, West Covina	Baldwin Park, Hacienda Heights	7	N/A
Foothill Presbyterian Hospital, Glendora	Industry	8A	105 beds
Garfield Medical Center	Monterey Park	8A	210 beds
Monterey Park Hospital, Monterey Park	Monterey Park	8A	N/A
Presbyterian Intercommunity Hospital, Whittier	Hacienda Heights, La Habra Heights, Whittier	8A	483 beds
Saint Jude's Medical Center, Fullerton	La Habra Heights, Rowland Heights, Whittier	8A	N/A
Whittier Hospital, Whittier	La Habra Heights, Whittier	8A	N/A
Kindred Hospital, Brea	Rowland Heights	8A	48 beds
Chino Valley Medical Center, Chino	Chino Hills, Chino	8A, 8B	126 beds
Canyon Ridge Hospital, Chino	Chino Hills, Chino, Ontario	8A, 8B	59 beds
Doctor's Hospital Medical Center, Montclair	Chino Hills, Chino	8A, 8B	102 beds
Pomona Valley Hospital Medical Center	Chino	8A, 8B	446 beds
San Antonio Community Hospital, Upland	Ontario	8A, 8B	283 beds
Vencor Hospital, Ontario	Ontario	8A, 8B	202 beds

Source: Refer to Chapter 8 (References)
*N/A: Information was not available through Internet research or personal communication.

Public Works

Maintenance Yards

The Los Angeles County Department of Public Works has maintenance yards located throughout the county. The services provided include flood, road and sewage maintenance. In addition, the Old City Yard, located in the City of Chino Hills, is a 4.8-acre site that has been used as a public works maintenance yard. The southern portion of the site is within the existing ROW of the proposed Project. The city is currently in the process of developing the Pipeline Avenue Community Center. As a result, the existing modular structures will be demolished and replaced with a 17,000 square foot community center. The 2.8 acres within the SCE easement will likely be used for parking. Therefore, the Old City Yard is not included in this analysis (City of Chino Hills, 2009). Table 3.11-6 lists the active maintenance yards that are in the ~~proximity~~ vicinity of~~to~~ the proposed route.

Table 3.11-6. ~~Potentially Affected~~ Public Works Maintenance Yards

Name	Location	Segment
Flood Maintenance		
Eaton Yard	Pasadena	11
Longden Yard	Irwindale	7
Road Maintenance		
RD 557A (Mill Creek)	ANF	11
RD 519	Temple City	11
MD 1	Baldwin Park	7
RD 416	La Puente	7, 8A
RD 446	Pico Rivera	7, 8A
MD 4	Whittier	8A
RD 417	Diamond Bar	8A
Sewer Yard		
East Yard	Irwindale	7

Source: LACDPW, Service Locator.

Utility Systems

Utility networks and facilities associated with natural gas, electricity, wastewater, domestic (potable) water, solid waste, and disposal facilities are typically provided and maintained by a variety of local purveyors, including cities, counties, special districts, water agencies, and private companies. Utilities such as domestic water, wastewater and stormwater sewers, and natural gas are usually transmitted via underground pipelines or conduits. Electricity services can also be installed underground or overhead on utility poles. The vast majority of the urban utility and public service infrastructure exists within public ROWs. However, as a national security measure, the exact locations of underground lines are not publicized, and therefore, are not available for this analysis.

Natural Gas

Natural gas utility systems throughout the proposed route are provided by the Southern California Gas Company.

Electricity

Electrical utility systems throughout the proposed route are provided by SCE. In addition to SCE, the Los Angeles Department of Water & Power is a provider in various communities within unincorporated Los Angeles County, and the Azusa Light & Water Department provides electrical services for residents in the City of Azusa. In the City of Pasadena, the Pasadena Water & Power Department is the only option for electrical services for residents.

Wastewater

The Kern County Waste Management Department provides wastewater services for communities in southern Kern County. All of the jurisdictions within Los Angeles County are serviced by the Los Angeles County Sanitation District. The cities of Chino, Chino Hills, and Ontario (Segment 8) are within San Bernardino County; therefore, the Chino Public Works Department, the Chino Hills Sanitation Maintenance and the Ontario Utilities/Solid Waste Department provide wastewater services, respectively.

Water

Approximately two-thirds of the water sources for southern California are located in northern California. The Department of Water Resources (DWR) administers the State Water Project (SWP) which brings water to southern California. This includes water deliveries to the Antelope Valley-East Kern Water Agency (AVEK), the Castaic Lake Water Agency (CLWA), the Metropolitan Water District of Southern California (MWD), the Palmdale Water District, and the San Gabriel Valley Municipal Water District, all of which supply the water providers used by each jurisdiction potentially affected by the proposed Project and alternatives (DWR, 2008a) . The State Water Project is a water delivery system of 32 storage facilities (lakes and reservoirs), 17 pumping plants, 3 pumping-generating plants, 5 hydroelectric power plants, and 660 miles of open canals and pipelines, operated by the California Department of Water Resources (DWR, 2008b). The water suppliers listed in Table 3.11-7 supplement water from the SWP with groundwater and aquifer storage and recharge. This diverse mix of sources provides flexibility in managing supplies and resources in wet and dry years.

Table 3.11-7 lists the primary water agencies providing water supplies to the jurisdictions potentially affected by the proposed Project and alternatives along with each agency's annual water entitlement under the SWP, the average annual SWP water used, and estimated groundwater supply.

Table 3.11-7. ~~Potentially Affected~~ Annual Water Supply by Contractor

State Water Project Contractors	Initial Request (acre-feet)	Approved Allocation (acre-feet)	Percent Initial Request Approved (acre-feet)
Antelope Valley-East Kern Water Agency	141,400	49,490	35%
Castaic Lake Water Agency	95,200	33,320	35%
Littlerock Creek Irrigation District	2,300	805	35%
Mojave Water Agency	75,800	26,530	35%
Palmdale Water District	21,300	7,455	35%
Metropolitan Water District of Southern California	1,911,500	669,025	35%
San Gabriel Valley Municipal Water District	28,800	10,080	35%
San Bernardino Valley Municipal Water Department	102,600	35,910	35%

Source: DWR, 2008 SWP Allocation Increase

Solid Waste

The private waste management services identified in Table 3.11-8 provide each jurisdiction with solid waste disposal through the use of regional landfills and permitted treatment and disposal facilities.

Disposal Facilities

Sanitary landfills are facilities that accept typical municipal solid waste as well as other wastes high in organic materials. Unclassified landfills accept only inert waste that is chemically and physically stable and does not undergo decomposition, including soil, concrete, asphalt, and other construction and demolition debris, as defined by California Code of Regulations, Title 23, Section 2554. Table 3.11-9 lists the total and remaining capacities of landfills serving the communities along the proposed route.

Table 3.11-8. Solid Waste Providers by Jurisdiction

Jurisdiction	Service Provider
Kern County	Kern County Waste Management Department
City of Lancaster	Lancaster Landfill/Waste Management, Inc.; Antelope Valley Recycling and Disposal Facility/Waste Management, Inc.
City of Palmdale	Antelope Valley Public Landfill I/Waste Management, Inc.
Los Angeles County	Chiquita Canyon Landfill/Consolidated Disposal Service; Antelope Valley Recycling and Disposal Facility/Waste Management, Inc.; Lancaster Landfill/Waste Management, Inc.; Angeles Western Paper Fibers MRF & Transfer Station/General Recycling Services; Commerce Refuse-to-Energy Facility/Sanitation Districts of Los Angeles County; Bradley Landfill & Recycling Center/Waste Management, Inc., Scholl Canyon Landfill/Sanitation Districts of Los Angeles County; Sunshine Canyon Landfill/BFI Waste Systems of North America, Inc.; Innovative Waste Control/Innovative Waste Control; Mission Road Recycling & Transfer Station/Waste Management, Inc.; Nu-Way Live Oak Landfill/Waste Management, Inc.; Peck Road Gravel Pit/Peck Road Gravel Pit; United Waste Recycling & Transfer, Inc./Athens Disposal Company; American Waste Transfer Station/Consolidated Disposal Service; Bel-Art Waste Transfer Station/Consolidated Disposal Service; Browning Ferris Industries Recycling & Transfer Station/Browning Ferris Industries; Falcon Refuse Center, Inc./Browning Ferris Industries; Ray's Trash Box Service/Ray's Trash Box; Calabasas Landfill/Sanitation Districts of Los Angeles County.
City of La Cañada Flintridge	American Waste Industries; Athens Services; Allied Waste Services; Crown Disposal Company; Looney Bins, Inc.
City of Pasadena	Pasadena Street Maintenance and Integrated Waste Management
City of Temple City	Athens Disposal Company
City of San Gabriel	Athens Waste Disposal
City of Rosemead	Consolidated Disposal Services
City of Monterey Park	Athens Disposal Services
City of Duarte	Burrtec Waste Services
City of Monrovia	Athens Waste; Allied/BFI; Burrtec Waste; Consolidated Disposal
City of Azusa	Integrated Waste Management
City of Irwindale	American Reclamation; Athens; Waste Management
City of Baldwin Park	Waste Management
City of El Monte	American Reclamation; American Waste Industries; Art's Disposal; Athens Disposal; General Waste; Klistoff & Sons, Inc.; Master Disposal; Solid Waste Recycling; Universal Waste System; Valley Vista; Waste Management; Zakaroff Recycling/Consolidated Waste; Phoenix Waste
City of South El Monte	Athens Disposal Service
City of Industry	Valley Vista Services
City of Montebello	Athens Disposal Service
City of Whittier	Whittier Sanitation Department; Consolidated Disposal Service, Inc.; Waste Management
City of La Habra Heights	Haul Away Rubbish Service Co.; Waste Management
City of Chino Hills	Chino Hills Disposal
City of Chino	Waste Management
City of Ontario	Ontario Utilities/Solid Waste Department

Source: Refer to Chapter 8 (References).

Table 3.11-9. Solid Waste Capacity

Facility Name and Location	Waste Type*	Total Capacity (cubic yards)	Remaining Capacity (cubic yards)	Remaining Capacity (%)	Maximum Throughput (tons/day)
Kern County Waste Facilities					
Boron Sanitary Landfill, Boron	MM, Ind, C/D	1,002,819	208,632	20.8	200
Mojave-Rosamond Sanitary Landfill	MM, Ind, C/D, Ag	330,000	766,157	Over Capacity	42
Clean Harbors Buttonwillow	Contaminated Soil, Ind	14,293,760	N/A	N/A	10,482
Tehachapi Sanitary Landfill	MM, Ind, C/D	2,593,900	625,846	24.1	370
Edwards AFB-Main Base Landfill	MM, C/D, GM	2,250,000	1,078,875	47.9	120
Bakersfield Metropolitan Sanitary Landfill	MM, C/D, GM	53,000,000	44,818,958	9.0	4,500
U.S. Borax Inc-Gangue/Refuse Waste Pile	C/D, Ind	8,500,000	1,400,000	16.5	443
Los Angeles County Waste Facilities					
Lancaster Landfill and Recycling Center, Lancaster	MM, Inert, Ind, C/D, GM	26,665,000	19,088,739	71.6	1,700
Antelope Valley Public Landfill I, Palmdale	MM, Inert, Ind, C/D	6,480,000	2,978,143	45.9	1,400
Antelope Valley Public Landfill II, Palmdale	MM, Inert, Ind, C/D, GM, Ag	8,206,000	8,206,000	0	1,800
Chiquita Canyon Sanitary Landfill, Valencia	MM, Inert, Ind, C/D, GM	63,900,000	35,800,000	56	6,000
Sunshine Canyon Sanitary Landfill, Sylmar	MM, Inert, Ind, C/D, GM	37,315,352	17,015,625	45.6	6,600
Sunshine Canyon Sanitary Landfill Unit 2, Sylmar	MM	13,441,300	13,441,300	0	5,500
Scholl Canyon Sanitary Landfill, Glendale	MM, Inert, Ind, C/D	69,200,000	10,804,900	15.6	3,400
Burbank Landfill Site No. 3, Burbank	MM, Inert, Ind, C/D	5,933,365	5,107,465	86.1	240
Azusa Land Reclamation Co. Landfill, Azusa	Inert, Asbestos	66,670,000	34,100,000	51.1	6,500
Savage Canyon Landfill, Whittier	MM, Inert, Ind, C/D, GM	8,119,412	7,419,580	91.3	350
Puente Hills Landfill, Industry	MM, Ind, C/D, Ag	106,400,000	49,348,500	46.4	13,200
San Bernardino County Waste Facilities					
Agua Mansa Landfill, Rialto	C/D, Inert	N/A	1,350,000	N/A	N/A
Mid-Valley Sanitary Landfill, Rialto	MM, C/D, Ind	62,000,000	71,500,000	N/A	7,500
Holliday Inertwaste Site, Rialto	C/D, Inert	2,000,000	2,000,000	0	500
Colton Sanitary Landfill, Colton	MM, Ind, C/D, Ag	13,297,000	610,000	4.6	3,100
San Timoteo Sanitary Landfill, Redlands	MM, Inert, Ind, C/D, Ag	20,400,000	9,491,163	46.5	1,000
California Street Landfill, Redlands	MM, C/D	10,000,000	6,800,000	68	829
Pennsylvania Street Inert Landfill, San Bernardino	Inert, C/D	5,000,000	1,000,000	20	300

Source: CIWMB, 2007

*Note: Abbreviation for the Waste Types are as follows- Mixed Municipal (MM); Industrial (Ind); Construction/Demolition (C/D); Agricultural (Ag) and Green Materials (GM).

3.11.2.2 Alternative 3: West Lancaster Alternative

The proposed route for Alternative 3 (Partial Underground Alternative) would re-route the new 500-kV transmission line in Segment 4 along 115th Street West rather than 110th Street West. This alternative would slightly deviate from the proposed route, and would increase the overall distance of Segment 4 by approximately 0.4 mile. As a result, the Affected Environment for Alternative 3 would be identical to the Affected Environment for the proposed Project, as described in Section 3.11.2.1.

3.11.2.3 Alternative 4: Chino Hills Route Alternatives

The proposed route for Alternative 4 (Chino Hills Route Alternatives) would diverge from that of the proposed Project approximately two miles east of Route 57 in Segment 8A. This alternative would eliminate construction in the cities of Chino and Ontario along Segment 8A, and instead route the proposed T/L and/or re-route existing transmission lines within ~~through the~~ Chino Hills State Park. However, upgrades would continue to be required along Segment 8B between Chino and Mira Loma Substations, same as Alternative 2. As a result, the Affected Environment described in Section 3.11.2.1 would be the same for Alternative 4, with exclusion of public services and utility systems associated with the City of Chino and the City of Ontario along Segment 8A.

3.11.2.4 Alternative 5: Partial Underground Alternative

The proposed route for Alternative 5 (Partial Underground Alternative), other than going underground, would not diverge from that of the proposed Project (Alternative 2) and, therefore, the Affected Environment for Alternative 5 would be identical to the Affected Environment for the proposed Project, as described in Section 3.11.2.1.

3.11.2.5 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

The proposed route for Alternative 6 (Maximum Helicopter Construction in the ANF Alternative) would not diverge from that of the proposed Project (Alternative 2) and therefore, the Affected Environment for Alternative 6 would be identical to the Affected Environment for the proposed Project, as described in Section 3.11.2.1.

3.11.2.6 Alternative 7: 66-kV Subtransmission Alternative

The proposed route for Alternative 7 (66-kV Subtransmission Alternative) would require minimal re-routes from that of the proposed Project (Alternative 2) and therefore, the Affected Environment for Alternative 7 would be identical to the Affected Environment for the proposed Project, as described in Section 3.11.2.1

3.11.3 Applicable Laws, Regulations, and Standards

The following section presents the federal, State, regional and local utility and service system regulations, plans, and standards that are directly applicable to the proposed Project and alternatives.

3.11.3.1 Federal

National Fire Plan

There are no specific directions in the National Fire Plan to permit holders on their responsibilities for power line clearance requirements or other forest management activities.

Angeles National Forest Fire Management Plan and Land Management Plan

The 2005 ANF Land Management Plan (Forest Plan) includes regulations related to utilities, which apply~~. However,~~ to all ~~of these regulations are associated with the~~ NFS lands used for utilities. The 2005 Forest Plan addresses utilities by discussing the demand for water in terms of maintaining a healthy and stable watershed and providing for utility and infrastructure uses through special-use authorizations. The Forest Plan emphasizes that special uses are only authorized when they cannot be reasonably accommodated on

non-Forest System lands. However, none of the utility-related policies in the 2005 Forest Plan address the National Forest System's demand on utilities or disruption of utility services.

In addition, ~~T~~the ANF Fire Management Plan provides a framework for the management of wildland fire, prescribed fire and hazard fuel reduction, as tools to safely accomplish the resource protection and management objectives of the Angeles National Forest as described in the Land Management Plan. ~~The Fire Management Plan directs ANF administrators to require utility companies to enter into cost share agreements for fuels management treatment costs within and adjacent to expansion of existing utility corridors and to new corridors on ANF lands.~~

Title 14 CFR Section 91.137, Temporary Flight Restrictions in the Vicinity of Disaster/Hazard Areas

14 CFR Section 91.137 allows an administrator to issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions (TFR) apply. When a NOTAM is issued, no person may operate an aircraft within the designated area unless that aircraft is participating in the hazard relief activities and is being operated under the direction of the official in charge of on-scene emergency response activities. During a wildfire, all helicopter construction and maintenance equipment would be prohibited from flying in the designated hazard area.

3.11.3.2 State

Protection of Underground Infrastructure

The responsibilities of California utility operators working in the vicinity of utilities are detailed in Section 1, Chapter 3.1, "Protection of Underground Infrastructure" (Article 2 of California Government Code §§4216-4216.9). This law requires that an excavator must contact a regional notification center at least two days prior to excavation of any subsurface installation. Any utility provider seeking to begin a project that may damage underground infrastructure can call Underground Service Alert, the regional notification center. Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area.

California Integrated Waste Management Board Solid Waste Policies, Plans, and Regulations

The Integrated Waste Management Act of 1989 (PRC 40050 et seq. or Assembly Bill (AB 939, codified in PRC 40000), administered by the California Integrated Waste Management Board (CIWMB), requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. This law set reduction targets at 25 percent by the year 1995 and 50 percent by the year 2000. To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 (SWRR) requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials. As a result, within the proposed Project, the following jurisdictions have adopted general goals, ordinances, and codes requiring construction and demolition projects to recycle at least 50 percent of construction waste and debris: the County of Los Angeles, Baldwin Park, Duarte, La Cañada Flintridge, Monterey Park, Pasadena, Pico Rivera, San Gabriel, and South El Monte.

Public Utilities Commission of the State of California, General Order No. 131-D, Section 14, Complaints and Preemption of Local Authority, Part B.

This General Order clarifies that local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction.

3.11.3.3 Local

Local land use plans are evaluated in this report to assist the CPUC and the USDA Forest Service in determining the proposed Project's consistency with local plans, goals, and policies as related to Public Services and Utilities. As the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities, no local discretionary permits (e.g., conditional use permits) or local plan consistency evaluations are required for the proposed Project or the Project alternatives. However, SCE would be required to obtain all ministerial building and encroachment permits from local jurisdictions. The following discussion summarizes the local plans and policies that are applicable to the Project.

The proposed Project would cross lands within Kern County, Los Angeles County and San Bernardino County, and would come within 0.5 mile of Riverside County. The Project would also traverse through 22 city jurisdictions, including the following:

- City of Lancaster
- City of Palmdale
- City of Duarte
- City of Monrovia
- City of Azusa
- City of Irwindale
- City of Baldwin Park
- City of El Monte
- City of Industry
- City of South El Monte
- City of Montebello
- City of Monterey Park
- City of Pico Rivera
- City of Whittier
- City of La Habra Heights
- City of La Cañada Flintridge
- City of Pasadena
- City of San Gabriel
- City of Temple City
- City of Rosemead
- City of Chino Hills
- City of Ontario

As required by the State of California, each General Plan includes the following seven mandatory elements: Circulation, Conservation, Housing, Land Use, Noise, Open Space, Safety, and Seismic Safety. Although it is not mandatory that General Plans include an element for Public Services and Utilities, some cities may choose to include additional elements to address such issue areas.

3.11.4 Impact Analysis Approach

This section explains how potential impacts associated with the proposed Project are assessed with regards to Public Services and Utilities. Section 3.11.4.1 presents the significance criteria on which impact determinations are based. Section 3.11.4.2 discusses Applicant Proposed Measures (APMs) presented in the Proponent's Environmental Assessment (PEA). Section 3.11.4.3 explains the methodology used to perform the impact assessment. All impacts identified for the proposed Project and alternatives are presented in Sections 3.11.5 through 3.11.11.

3.11.4.1 Criteria for Determining Impact Significance

Impacts to public service and utility system providers could potentially occur when an increase to the size of the population and geographic area served, the number and type of calls for service, physical development, or a conflict with any applicable plan, policy, or regulation of an agency responsible for provision of public services would occur that could result in capacity constraints to existing public service providers.

The significance criteria listed below are applicable to public services and utility systems under all types of jurisdiction, including federal, state, local, and private. The proposed Project would result in significant impacts to Public Services and Utilities if it would meet any of the following significance criteria:

- Criterion PSU1: Increase demand for public services that cannot be readily met by existing public service providers and facilities
- Criterion PSU2: Impede or interfere with existing public services emergency access
- Criterion PSU3: Result in a major reduction or interruption of existing utility systems or cause a collocation accident
- Criterion PSU4: Substantially change the ability of water treatment, wastewater treatment, or solid waste facilities to adequately supply water and accommodate solid waste and wastewater
- Criterion PSU5: Require new or expanded water entitlements and resources
- Criterion PSU6: Conflict with or be unable to adhere to federal, State, and/or local laws, regulations, or standards relating to solid waste

3.11.4.2 Applicant-Proposed Measures (APMs)

APMs were identified by SCE in the PEA. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. The applicant has identified two APMs pertinent to Public Services and Utilities, as presented below in Table 3.11-10 and discussed further in Impact PSU-1. The Fire Management Plan and Fugitive Dust Control Measures would be implemented during the construction period of the proposed Project.

Table 3.11-10. Applicant-Proposed Measures – Public Services and Utilities

APM PUB-1	Fire Management Plan. Establishes standards and practices that would minimize the risk of fire danger, and in case of fire, provide for immediate suppression and notification.
APM AQ-7	Fugitive Dust Control Measures. Implement feasible fugitive dust control measures as provided in Kern County Air Pollution Control District's Rule 402 and Antelope Valley Air Quality Management District and the South Coast Air Quality Management District's Rule 403.

The following impact analysis assumes that all APMs identified by SCE will be implemented as part of the Project. Additional mitigation measures are recommended in the impact analysis (Sections 3.11.5 to 3.11.11) if it is determined that APMs do not fully mitigate the impacts for which they are presented.

3.11.4.3 Impact Assessment Methodology

This analysis first established baseline conditions for the Affected Environment, presented above in Section 3.11.2, which included a description of Public Services and Utilities in each of the Project Regions (North / Central / South). These baseline conditions were evaluated based on their potential to be affected by construction activities as well as operation and maintenance activities related to the proposed Project and alternatives. Construction, operation, and maintenance activities associated with the proposed Project and alternatives were identified based on the PEA provided by SCE.

Public Services and Utilities impacts associated with construction, operation, and maintenance of the proposed Project and alternatives were identified using the significance criteria described above, in Section 3.11.4.1. Sections 3.11.5 through 3.11.11 provide a discussion of the impacts identified for the proposed Project and alternatives. As public services and utility systems would not be significantly impacted during the operation and maintenance period of the proposed Project, the impact analysis for this issue area focuses on construction-related impacts.

For the purposes of satisfying CEQA requirements, the significance of each impact is also identified according to the following classifications: Class I: Significant impact; cannot be mitigated to a level that is less than significant; Class II: Significant impact; can be mitigated to a level that is less than significant; Class III: Adverse impact; less than significant; and Class IV: Beneficial impact. Sections 3.11.5 through 3.11.11, below, provide a detailed discussion of the impacts identified for the proposed Project and alternatives.

3.11.5 Alternative 1 (No Project/Action): Impacts

Under the No Project/Action Alternative, the proposed transmission line and substation upgrades would not be implemented and, therefore, the impacts associated with the proposed Project and alternatives described in the following sections would not occur. As a result, the No Project/Action Alternative would not impact the capacities of public services or utility systems. Additionally, potential utility collocation impacts associated with the proposed Project would not occur under the No Project/Action Alternative.

However, in the absence of the proposed Project, other actions would occur. Some wind projects in Kern County would be postponed or cancelled, or alternatives developed that would meet the Renewable Portfolio Standard goal by 2010. SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment. Construction methods, resulting impacts, and regulatory requirements associated with other transmission projects would be similar to those identified for the proposed Project; as such, impacts to utility providers would be expected to be similar to that identified for the proposed Project.

The No Project/Action Alternative could restrict the potential amount of new renewable energy resources that could supply the power needs of the Los Angeles area. This additional renewable energy might reduce the use of generating sources powered by fossil fuels that would otherwise be needed to supply the same energy, whether they would be located within the Los Angeles area, elsewhere in California, or in surrounding states. As stated above, the construction of new generating sources would create additional impacts to existing utilities and service systems that may be similar to the proposed Project.

3.11.6 Alternative 2 (SCE's Proposed Project): Impacts and Mitigation Measures

The following section describes the proposed Project's impacts to public services and utilities, as determined by the significance criteria listed in Section 3.11.4. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

3.11.6.1 Direct and Indirect Effects Analysis

Increase demand for public services that cannot be readily met by existing public service providers and facilities (Criterion PSU1)

Impact PSU-1: Emergency services would be needed if an accident or other emergency incident occurs at a construction site.

Fire protection or other emergency response services would be necessary if a construction accident or other emergency incident occurred at a Project construction site. A potential hazard could be the accidental ignition of a fire within the dry vegetation along the construction zone, particularly in the ANF where chaparral vegetation is prevalent and there is a considerable history of wildfires. As described in the Section 3.3 (Air Quality), the proposed Project includes APM AQ-7 (Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403), which requires implementation of control measures provided by Rule 402 of the Kern County Air Pollution Control District, and Rule 403 of the Antelope Valley Air Quality Management District and the South Coast Air Quality Management District. These rules require watering as a fugitive dust control measure, which would also reduce the potential for accidental ignition in hazardous areas.

The fire risks associated with proposed Project construction activities would also be reduced with the implementation of SCE's Fire Management Plan, which is intended to prevent, control and extinguish fire during the construction period. The Fire Management Plan referenced in Mitigation Measure PSU-1a below is the same plan referenced in Mitigation Measure F-3a (Revise SCE's Fire Management Plan for maintenance activities) in Section 3.16.6.1 (Wildfire Prevention and Suppression). Furthermore, listed below are mitigation measures that would help reduce the occurrence of fire hazards and the need for additional emergency services.

Mitigation Measures for Impact PSU-1

PSU-1a **Revise SCE's Fire Management Plan.** Appendix D of the Proponent's Environmental Assessment (PEA) includes ~~a~~the Transmission Line Project Fire ~~Management~~ Plan to reduce the risk of igniting a fire during construction and operation as well as controlling the spread of a fire should one occur. The Plan shall be revised with the following provisions and submitted to the CPUC and FS no less than 60 days prior to construction:

- The Smoking and Fire Rules require the Constructor to designate smoking areas "…in a barren area or in an area cleared to mineral soil at least three feet in diameter." SCE shall revise the Plan to mandate that these smoking areas are located at a radius of at least 50 feet from all hazardous material, gas and oil storage areas, and equipment service areas.
- In Section 1.6 of the Fire Plan, Precautions in Areas of Fire Hazards, SCE shall designate Critical Protection Sites. In particular, these sites will be areas associated with dry habitats, chaparral vegetation, inhabited property, and a considerable history of wildfires. Designations of these sites inform construction crews of the need for the precautions noted in Section 1.6, which include the following: prohibit smoking on the jobsite; require the use of spark arrestors on equipment exhaust; designation of a Fire Patrolperson whose responsibility shall be solely to monitor the Constructor's fire prevention activities; require portable firefighting equipment, shovels, axes, and other necessary firefighting equipment; and observe all other precautionary measures that

may be ordered by the FS, Division of Forestry of the State, and County Fire Departments.

PSU-1b **Review of construction methods by county fire departments.** SCE shall coordinate with the Kern, Los Angeles, and San Bernardino County Fire Departments to review the specific construction methods and equipment, and ~~to~~ identify any additional requirements that will minimize the potential for wildfires. Prior to construction, SCE shall include ~~submit~~ documentation of this coordination in the Transmission Line Project Fire Plan, and submit the Plan to the CPUC, ~~and~~ FS (for NFS lands), and the county fire departments ~~at least 30~~ no less than 60 days prior to the start of construction, such as the following:

- Any motor, engine, welding equipment, cutting torch, grinding device or equipment from which a spark, fire, or flame may originate shall not be used without first: (a) clearing away all flammable material for a distance of 10 feet, and (b) having on hand a round-point shovel with an overall length of not less than 46 inches and a fire extinguisher or water-filled backpack pump fully equipped and ready to use. This does not apply to power saws and other portable tools powered by a gasoline-fueled internal combustion engine (see next bullet).
- Any portable gasoline-powered tool (chainsaws, etc.) shall not be used within 25 feet of any flammable materials without providing one round-point shovel with an overall length of not less than 46 inches or a fire extinguisher having a minimum rating of 2-BC. The fire tools must be unobstructed and within 25 feet of the tool operation at all times. Motor vehicles shall not be parked or operated outside of cleared work areas except for the specific purpose of clearing vegetation.

PSU-1c **Practice safe welding procedures.** SCE shall select a welding site that is free of native combustible material and/or clear the site of such material to minimize the fire hazard. All welding on supporting structures shall be performed during fabrication of the structures at the fabricator's yard, to the extent practicable.

PSU-1d **Fire preventive construction equipment requirements.** SCE shall meet the following requirements for gasoline, diesel, or other hydrocarbon fuel-powered equipment prior to construction:

- The exhausts of all equipment powered by gasoline, diesel, or other hydrocarbon fuel shall be equipped with effective spark arrestors.
- The spark arrestor shall be designed to prevent the escape from the exhaust of carbon or other flammable particles over 0.0232 inches. Motor trucks, truck tractors, buses, and passenger vehicles (except motorcycles) shall not be subject to this provision if their exhaust systems are equipped with mufflers.
- All welding rigs shall be equipped with a minimum of one 20-pound or two 10-pound fire extinguishers, and a minimum of five gallons of water in a fire-fighting apparatus.

CEQA Significance Conclusion

Construction of the proposed route could result in potentially hazardous conditions that would require emergency services. However, fire hazards presented by the proposed Project would not pose significant impacts with implementation of Mitigation Measures PSU-1a (Revise SCE's Fire Management Plan), PSU-1b (Review of construction methods by county fire departments), PSU-1c (Practice safe welding procedures), and PSU-1d (Fire preventive construction equipment requirements). In addition, Section 3.16.6.1 of the Wildfire Prevention and Suppression analysis includes Mitigation Measure F-1 (Prepare

wildland traffic control plans), which requires preparation of control plans based on consultations with the ANF, Chino Hills State Park, and the Puente Hills Landfill Natural Habitat Authority. According to this measure, traffic control plans shall include mechanisms through which narrow roads are kept passable by emergency service providers, and shall provide for adequate construction and maintenance vehicle parking. Provision of alternate routes in lieu of maintaining passable roadways shall be minimized, and shall be subject to agency approval. Wildland traffic control plans shall be prepared for both construction and maintenance activities. With implementation of the mitigation measures described above, Impact PSU-1 would be reduced to a less-than-significant level (Class II).

Impede or interfere with existing public services emergency access (Criterion PSU2)

Impact PSU-2: Temporary lane closures during the construction period would interfere with emergency response vehicles.

Temporary lane closures during proposed Project construction could potentially interfere with emergency response vehicles, such as police, fire, and medical vehicles. The loss of a lane and the resulting increase in congestion could lengthen the response time required for emergency vehicles passing through the construction zone. In some cases, use of an alternative route might be required, which could also increase travel time and temporarily lengthen response times for emergency vehicles. This would be of particular concern in rural areas where roads are limited to two lanes and substantially longer distances must be traveled to utilize alternative routes.

CEQA Significance Conclusion

Construction along the proposed route could interfere with the regular flow of traffic due to temporary lane closures. In the case of an emergency, this would also have an effect on the response time of emergency vehicles. In order to minimize adverse impacts, Mitigation Measure T-1a (Prepare Traffic Control Plans) requires SCE to inform emergency service agencies of road closures, detours, and delays. This measure also includes provisions to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies. The implementation of Mitigation Measure T-1a would mitigate this impact to a less-than-significant level (Class II).

Impact PSU-3: Construction and operation would impede emergency aircraft response services.

Emergency aircraft response teams can be critical for firefighting and search and rescue operations, particularly in areas of mountainous terrain, such as the ANF. Helicopters and airplanes are often the fastest resources to respond to an emergency situation. In Section 3.16, Wildfire Prevention and Suppression, Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) and F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting) address the potential impacts associated with firefighting. According to the California Department of Forestry and Fire Protection (Cal Fire), helicopters and airplanes are often the fastest resources to reach a wildfire. Almost anywhere in California, a firefighting aircraft can reach a wildfire within 20 minutes, depending on wind conditions that can ground aircraft if too strong (CAL FIRE, 2007). It can take an hour or more for fire engines to reach a wildland fire, especially in remote areas. Aerial attacks principally work in conjunction with firefighters on the ground. Aerial firefighting attacks are effective during initial attacks for extinguishing small fires and protecting homes (AHSAFA, 2007). Where overhead power lines are present, aerial and ground attacks are restricted. Aerial operations

are complicated by the risk of aircrafts and/or water buckets colliding with towers or conductors during smoky, reduced-visibility conditions. Conditions are especially hazardous when transmission lines are placed on ridge tops, reducing the proximity of fire retardant and water drops that aerial firefighting crews can achieve safely.

The use of helicopters during construction in the ANF could interfere with emergency response aircrafts if an emergency were to occur in the vicinity of proposed helicopter construction sites. In addition, portions of Segment 6, Segment 7, Segment 8A, and Segment 11 would increase the existing maximum height of transmission lines and towers by approximately 50 feet. This height increase would decrease the effectiveness of aerial firefighting and other emergency response operations because aircrafts would have to fly at higher altitudes to avoid conflicts with the transmission lines and towers. Flying at higher altitudes can reduce the accuracy of targeted drops of water and flame retardant used to suppress and contain wildfires, and would reduce visibility for other emergency situations. However, because there are existing transmission lines in the shared ROW and aerial firefighting crews avoid making drops near the ROW under existing conditions, the addition of the proposed Project would present only a marginal increase in the required altitude of aircrafts working through the shared ROW.

CEQA Significance Conclusion

Once construction is complete, the average height of the transmission lines and towers would increase by approximately 50 feet. This height increase would decrease the effectiveness of emergency response operation; however, the additional height would present only a marginal increase in the required altitude of aircrafts working through the shared ROW. In addition, construction and operation of the proposed Project could interfere with emergency aircraft response teams. The use of helicopters during the construction period would present a potential interference with emergency aircrafts if an incident were to occur. However, should construction or maintenance activities require the use of helicopters, Project helicopters would be restricted by FAA rules on temporary flight restrictions from flying in designated areas, therefore eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project. As a result, these impacts would not be significant (Class III).

Result in a major reduction or interruption of existing utility systems or cause a collocation accident (Criterion PSU3)

Impact PSU-4: Utility systems would be temporarily disrupted during the construction period.

The proposed Project would construct and replace transmission lines with new, higher capacity single- and double-circuit 220- and 500-kV transmission lines, create new utility ROWs, and replace support structures within existing ROWs. During construction, there is a potential for accidental disruption of other utility systems located in the construction zone. This could include overhead utility lines, such as telephone and cable television, and buried utility lines, such as water, wastewater, and natural gas lines. Buried lines are more likely to be accidentally disrupted because their exact locations are sometimes difficult to determine and, therefore, can be unintentionally disrupted by construction activities involving ground disturbance, such as excavation. Excavation required for installation of new transmission towers involves drilling for new foundations. Excavation is also required for removal, or partial removal, of existing towers that need to be replaced. Most buried utilities along the transmission corridors are located in public streets crossed by the transmission line or in other readily identifiable public ROWs. These are not locations where new towers will be installed or existing towers would be removed, but rather streets and other similar public ROWs would be spanned by transmission lines. However, this does not eliminate

the possibility for disruptions of buried utilities during Project construction, especially for any utility lines that may be located outside of public streets or other readily identifiable ROWs.

SCE is required by State law to contact Underground Service Alert and manually probe for existing buried utilities in the proposed Project corridor prior to any powered-equipment drilling or excavation. This would substantially reduce the risk of accidental upset of existing utility lines. In addition, Project construction plans may require the temporary disruption of buried utility lines located in the construction zone. Therefore, some temporary service interruptions may be unavoidable. While any disruption in service would be temporary in nature, it would inevitably disrupt activities in the surrounding area that are dependent on those utilities. Mitigation Measure PSU-4 would require the public to be notified if there were to be an interruption, thereby allowing the public to prepare for such disruption.

Mitigation Measure for Impact PSU-4

PSU-4 **Notification of utility service interruption.** Prior to Project construction in which a utility service interruption is known to be unavoidable, SCE shall notify members of the public, the jurisdiction, and the service providers that would be affected by the planned outage by mail. SCE shall also publish notice in a newspaper of local jurisdiction~~post flyers informing the public of the service interruption in neighborhoods to be affected~~. The notice shall specify the estimated duration of the planned outage, and shall be ~~posted~~ published no less than seven days prior to the outage. Copies of notices and dates of public notification shall be provided by SCE to the CPUC and FS (NFS lands) no later than 30 days following notification.

CEQA Significance Conclusion

Disruptions in the flow of water and/or gas utility services are likely during the construction period. As a result, Mitigation Measure PSU-4 requires that SCE notify neighborhoods that are to be affected. Given that any utility disruption would be temporary, and the public would be provided with sufficient notice to prepare for such an outage, implementation of Mitigation Measure PSU-4 would reduce this impact to a less-than-significant level (Class II).

Impact PSU-5: Public Works maintenance yards would be disrupted during the construction period.

Section 3.11.2.1 lists the Los Angeles County Public Works maintenance yards located in the proximity of the proposed Project. In particular, the following Public Works yards are located within the ROW: RD557A Road Maintenance Yard located in the ANF (Segment 11); Eaton Yard Flood Maintenance Yard located in the City of Pasadena (Segment 11); and the MD1 Road Maintenance Yard located in Baldwin Park (Segment 7). Construction of the proposed Project could temporarily interrupt access to these maintenance yards unless arrangements are made to provide temporary alternative means of access. When access interruptions are unavoidable, Mitigation Measure PSU-5 would require that the Public Works Department be notified prior to construction in order to avoid restricting access completely.

Mitigation Measure for Impact PSU-5

PSU-5 **Notification of public service interruption.** Prior to the start of construction activities that would restrict access to a maintenance yard, SCE shall notify the Los Angeles County Public Works Department of the service locations to be affected and the duration of restricted activities at each site, and coordinate in order to avoid multiple or extended disruptions. Documentation of coordination efforts shall be completed and submitted to the CPUC and FS (NFS lands) upon request.

CEQA Significance Conclusion

Construction activity would limit access to Public Works maintenance yards. Mitigation Measure PSU-5 requires that SCE inform the Los Angeles County Public Works Department when disruptions would occur in order to prepare for restricted access. As impacts to maintenance yards would be temporary and advance notice would be provided to Public Works, implementation of Mitigation Measure PSU-5 would reduce this impact to a less-than-significant level (Class II).

Substantially change the ability of water treatment, wastewater treatment, or solid waste facilities to adequately supply water and accommodate solid waste and wastewater (Criterion PSU4)

Impact PSU-6: Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption.

Construction of the proposed Project would require water on a daily basis at construction sites for dust suppression, and human consumption and sanitary purposes. The amount of water used per day for dust suppression would depend on the length of access roads used, weather conditions, road surface conditions, and other site-specific conditions. Water required for consumption and sanitary purposes by construction crews would be a very small portion of the Project's water use during construction. Table 3.11-7 identifies the water suppliers and their annual allocation from the State Water Project (SWP). Adequate local water supplies are available to meet the temporary water requirements associated with Project construction. Therefore, based on the construction and consumption activities that would require water, the Project would not create a demand for water that would burden the existing water supply or require increased allotments from the SWP. The proposed Project would be constructed in eight segments ~~from~~ between approximately ~~April 2009 to November 2013~~ December 2009 and October 2014, thereby dispersing water use over a ~~55~~ 59-month period. Once constructed, the proposed Project would only require water for maintenance purposes, such as substation irrigation and equipment cleaning, and for drinking and sanitary purposes for crews visiting substation locations.

CEQA Significance Conclusion

Water would be required for dust suppression, human consumption, and sanitary purposes during the entire Project construction period. This would temporarily create increased demand for water from local water purveyors along the proposed route. This increase would not be large enough to affect the existing supply, especially considering that water usage for the proposed Project would be spread over a ~~55~~ 59-month period and across multiple locations, thereby not creating a significant increase in demand at one particular time or place. The water requirements of the Project would not change the ability of the water suppliers identified in Table 3.11-7 to serve existing customers. As a result, the impact would not be significant (Class III).

Impact PSU-7: Additional wastewater would be generated during Project construction and operation.

Wastewater generated during proposed Project construction would be limited to that generated by Project personnel and would be accommodated by portable toilets brought to staging areas for construction crews. These portable toilets would be emptied into septic tanks or municipal sewage systems. The workforce necessary for construction of the proposed Project is anticipated to range from approximately 10 to 350 personnel, with an estimated average daily workforce of 75 personnel. As this increased generation is

temporary, wastewater generated during Project construction would not require expansion of the capacity of local wastewater collection or treatment systems. As the ANF has no wastewater treatment facilities, there would be no impacts on NFS lands. The operation of the proposed Project substations would generate small quantities of additional wastewater that would not necessitate any expansion of the capacity of local facilities.

CEQA Significance Conclusion

Wastewater generation associated with the proposed Project would not place a significant burden on wastewater facilities serving the area and would not necessitate expansion of wastewater collection or treatment facilities serving the area. As a result, the impacts on wastewater capabilities would not be significant (Class III).

Impact PSU-8: Additional solid waste would be generated during Project construction and operation.

Various solid waste materials would be generated during construction of the proposed Project. SCE expects to recycle at least 50 percent of projected construction and demolition waste in accordance with the Integrated Waste Management Act of 1989 (refer to Impact PSU-9 for further discussion regarding SCE's adherence to this standard). For waste materials that cannot be reused or recycled, the solid waste management facilities identified in Table 3.11-9 are in the vicinity of the Project and would be used for the disposal of waste. According to SCE, the average daily solid waste disposal would be approximately 528 tons; however, this an overestimate since it only takes in account scrap metal recycling and materials reusable at SCE or on site. The actual disposal amount is expected to be substantially less, when cribbing wood, cardboard boxing and crating, soil, and vegetation are recycled to the extent practical. The remaining waste would be disposed regularly over the ~~55~~ 59-month construction period, and is not expected to result in a considerable percentage of the daily disposal limits or remaining capacity of the landfills identified in Table 3.11-9.

As defined by California Code of Regulations, Title 23, Section 2554, landfills limited to accepting inert waste only allow the following: soil, concrete, asphalt, and other construction and demolition debris. As shown in Table 3.11-9, landfills serving the proposed Project area have remaining capacities estimated to handle the inert waste generated by the proposed Project, and the quantity of construction-related materials transported to these landfills would not affect any daily volume thresholds established by the facility. Once constructed, Project operations would generate minimal amounts of solid waste. Broken equipment and small quantities of solid waste would be generated through routine operation and maintenance of substations. However, such quantities would not affect existing landfill capacities.

CEQA Significance Conclusion

The average daily amount of waste generated by the proposed Project is conservatively estimated to be 528 tons. Spread out over the 59~~2~~-month construction schedule, this amount is not expected to exceed the available capacity of the landfills noted in Table 3.11-9, and recyclable material would be taken to recycling facilities. After the construction period, operation and maintenance activities would not generate solid waste. Impacts on waste facilities would be adverse but not significant (Class III). While no mitigation measures would be required, implementation of Mitigation Measure PSU-9 (Recycle construction waste) is recommended to ensure that maximum recycling activities would occur. See Impact PSU-9, below, for the full text of this measure.

Require new or expanded water entitlements and resources (Criterion PSU5)

Table 3.11-7 (Potentially Affected Water Supply) identifies the water suppliers and their annual allocation from the State Water Project (SWP). In the North Region of the Project area, the allocation amounts to approximately 38.1 billion gallons of water, and in the South Region, approximately 230 billion gallons of water would be allocated. With such an established system, the proposed Project would connect with existing water services and would not require expanded resources. In addition, as discussed in Impact PSU-6, during Project construction, water would be required for dust suppression, and domestic drinking and sanitary purposes. The amount of water required would be largely dependent on site-specific conditions, and would be used over the ~~55~~ 59-month construction period for the proposed Project. Therefore, water used during construction would not increase the demands of the water suppliers identified in Table 3.11-7, and would not require new or expanded water facilities, sources, or entitlements. During the operation and maintenance period, the insulators would not require annual cleaning. Consequently, the proposed Project would require negligible amounts of water for maintenance activities. Water demands of the proposed Project would not pose an impact (No Impact).

Conflict with or be unable to adhere to federal, State, and/or local laws, regulations, or standards relating to solid waste (Criterion PSU6)

The disposal of waste generated during construction under the Integrated Waste Management Act of 1989 is discussed below, under Impact PSU-9. Implementation of the Project would not result in impacts to other federal, State, and/or local laws, regulations, and/or standards relating to solid waste.

Impact PSU-9: The amount of waste material recycled during construction activities would not adhere to State standards.

The Integrated Waste Management Act of 1989, which is described in Section 3.11.3 (Applicable Laws, Regulations, and Standards), requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. During construction of the proposed Project, removed conductor wiring and metal from replaced tower structures would be dismantled and recycled. Soil from drilling or excavation would be screened and separated for use as backfill to the maximum extent possible. Other waste such as packing crates, spare bolts, and other construction debris would be hauled off site for recycling when possible.

SCE estimates that the average daily solid waste disposal would be 528 tons. This amount spread out over the ~~52~~59-month construction schedule is not expected to exceed the available capacity of the landfills noted in Table 3.11-9, and recyclable material would be taken to recycling facilities. In addition, Project operation and maintenance would not generate solid waste in excess of SCE's current operations in the area, and would not affect existing landfill capacities.

Mitigation Measure for Impact PSU-9

PSU-9 Recycle construction waste. SCE shall recycle a minimum of 50 percent of the waste generated during construction activities along the entire Project route. Following the completion of construction activities, SCE shall submit documentation to the CPUC and FS verifying the recycling of 50 percent of generated Project waste.

CEQA Significance Conclusion

As noted in Section 3.11.3, nine of the 25 cities and counties along the proposed route have adopted a Source Reduction and Recycling Element in accordance with the Integrated Waste Management Act of

1989. ~~However, it is unclear whether SCE intends on continuing recycling efforts in jurisdictions without a Source Reduction and Recycling Element.~~ Recycling efforts required by Mitigation Measure PSU-9, would ensure the proposed Project's compliance with the Integrated Waste Management Act of 1989 and Assembly Bill 939 by incorporating the maximum recycling efforts during Project construction. Therefore, with implementation of Mitigation Measure PSU-9, this impact would be less than significant (Class II).

3.11.6.2 Cumulative Effects Analysis

A cumulative impact is one which results from the incremental impact of the proposed Project when combined with other past, present, and reasonably foreseeable future actions that occur within the geographic extent of the cumulative effects analysis.

Geographic Extent

The geographic extent of this cumulative effects analysis is the same as the extent of the regional setting, as described in Section 3.11.2 (Affected Environment). As such, the scope of this cumulative effects analysis includes the following geographic regions: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the ANF; and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County and western San Bernardino County. This geographic scope is appropriate for the issue area of Public Services and Utilities as it provides for a comprehensive analysis of the overlapping local and regional public service and utility systems. In addition, each region is separated by similar land uses and topographical conditions, and is currently experiencing distinct trends in development.

Existing Cumulative Conditions

The proposed Project area~~TWRA~~ in the southern portion of Kern County is characterized by open space and agricultural land, and there are no plans for urban development. Nonetheless, the landscape has changed in recent years due to the development of wind energy projects. Several projects have been built and many applications for future projects are currently pending. These projects are responsible for notable impacts; however, as the immediate vicinity of the proposed Project is uninhabited, public service and utility systems have not been significantly affected. As noted in Section 3.11.2 (Affected Environment), public services and utility systems in the Project area are provided by county services that are established in neighboring communities.

Section 3.11.2 describes the available public service and utility resources serving the North Region. As discussed, the Cities of Lancaster, Palmdale and Quartz Hill are well-served by county and local services. This is a result of considerable trends of population growth and development within the last two decades. These trends have impacted and will continue to impact the capacities of public service and utility providers, and as the population increases through indirect and direct influence of development, public services and utilities will need to expand to serve the growing population.

As discussed, the Central Region encompasses the ANF. Development within the ANF is generally limited to recreational facilities and a few private inholdings. There are existing public service and utility systems on NFS lands, including SCE and LADWP transmission lines and water pipelines. Such existing projects are considered in this cumulative effects analysis in terms of their contribution to the Cumulative Scenario and potential cumulative effects of the proposed Project and alternatives.

Communities located within the South Region are generally characterized by dense urban development, and increased population growth is anticipated throughout the region. Section 3.11.2 describes the available utility resources serving this region, which are established by local and county service providers. It is expected that other public service and utility systems will need to expand as development continues to expand in the South Region.

Reasonably Foreseeable Future Projects and Changes

The North Region is likely to experience considerable changes in the reasonably foreseeable future. Along Segment 10 in southern Kern County, numerous wind projects are slated for development or are currently in progress. As described in the Cumulative Scenario, four applications for wind energy projects have been submitted and received approval from Kern County. In addition, the Cumulative Scenario identifies 25 wind energy projects in Kern County that are currently listed on CAISO's Interconnection Queue. Within northern Los Angeles County, along Segments 4 and 5, steady population growth in the Cities of Lancaster and Palmdale and the surrounding unincorporated communities has led to numerous housing developments along the proposed route. The Cumulative Scenario includes the following housing projects which are located within the vicinity of the proposed route: City of Lancaster- 9,798 single-family units; Quartz Hill- 96 housing units; City of Palmdale- 3,715 single-family units including two master planned communities; Leona Valley- 131 single-family units. Public services and utility providers and facilities are expected to expand substantially in order to continue the provision of services to the existing population while also accommodating the future population growth indicated by the aggressive expansion of residential developments described above.

Existing cumulative conditions in the Central Region are defined by efforts of the USDA Forest Service to manage the ANF, which includes maintenance plans such as hazardous fuels reduction, watershed management, recreation management and road management. From a Public Services and Utilities perspective, past and present projects within the Forest are characterized by Forest Service efforts to protect Forest resources while providing for utility development in established areas. As described above, there are some existing utilities and service systems on NFS lands, such as SCE and LADWP transmission lines, water pipelines, and other utility infrastructure built to accommodate new recreation facilities. It is reasonably foreseeable that similar projects and changes will continue into the future.

As described, within the South Region the proposed route would traverse east Los Angeles County, a small area of west San Bernardino County, and would be in the vicinity of the north end of Orange County. This is a highly developed urban area with a substantial amount of proposed housing developments along the proposed route. In addition, commercial and industrial development is also prevalent, as described in the Cumulative Scenario. As with the North Region, described above, public services and utility providers and facilities are expected to expand in order to continue the provision of services to the existing population while also accommodating the future population growth.

Cumulative Impact Analysis

Impacts of the proposed Project would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The potential for public services and utility system impacts of the proposed Project to combine with similar effects of other projects within the geographic scope of the cumulative analysis are described below. Impacts that are not found to be cumulative in nature~~ly considerable~~ would not have an incremental effect on the cumulative scenario.

- **Emergency services would be needed if an accident or other emergency incident occurs at a construction site (Impact PSU-1).** As described in Section 3.11.6.1, construction of the proposed Project could result in potentially hazardous conditions that would require emergency services. If construction activities for other projects in the area also result in potentially hazardous conditions that require emergency services and such potentially hazardous conditions are introduced in the same general area and timeframe as such conditions under the proposed Project, the resulting impacts could be cumulatively considerable relative to emergency service providers. For instance, in the North Region, the Cities of Lancaster and Palmdale would be susceptible to increased hazardous fire conditions due to dry environmental surroundings and major housing developments that are currently in progress. However, due to mitigation measures required for the proposed Project, the likelihood of the need for emergency response teams as a result of construction accidents would be low. These mitigation measures include: PSU-1a (Revise SCE's Fire Management Plan), PSU-1b (Review of construction methods by county fire departments), PSU-1c (Practice safe welding procedures), and PSU-1d (Fire preventive construction equipment requirements). Impact PSU-1 would be cumulatively less than significant (Class III).
- **Temporary lane closures during the construction period would interfere with emergency response vehicles (Impact PSU-2).** As described in Section 3.11.6.1, construction of the proposed Project would interfere with the regular flow of traffic due to temporary lane closures, and would require the implementation of Mitigation Measure T-1a (Traffic Control Plan) in order to reduce the Project's impacts to a less than-significant-level. From a cumulative impacts perspective, emergency vehicles would be adversely affected if construction of other projects listed in the Cumulative Scenario were to occur in the proximity of the proposed Project. However, with implementation of the Traffic Control Plan required by Mitigation Measure T-1a, it is not likely that emergency access would be impeded by multiple construction sites in the same vicinity and timeframe. Therefore, Impact PSU-2 would be cumulatively considerable but less than significant (Class III).
- **Construction and operation would impede emergency aircraft response services (Impact PSU-3).** As described in Section 3.11.6.1, construction and operation of the proposed Project could interfere with emergency aircraft services. Construction of other projects in the vicinity of the proposed Project could also cause interruptions for emergency response operations. Although it is unlikely that interferences would occur at the same time, all flight operations would be restricted by FAA rules on temporary flight restrictions from flying in designated areas. Therefore, Impact PSU-3 would be cumulatively considerable but less than significant (Class III).
- **Utility systems would be temporarily disrupted during the construction period (Impact PSU-4).** As described in Section 3.11.6.1, disruptions in the flow of utility services for co-located utilities are likely to occur during the construction period, and would require the implementation of Mitigation Measure PSU-4 (Notification of utility service interruption) in order to reduce the Project's impacts to a less-than-significant level. Construction of other projects in the vicinity of the proposed Project may also cause temporary utility disruptions. It is unlikely that utility disruptions would occur at the same time; however, if a disruption is known to be unavoidable, SCE shall coordinate with the affected jurisdiction/s and service provider/s in order to avoid multiple or extended disruptions, in accordance with Mitigation Measure PSU-4. Therefore, Impact PSU-4 would be cumulatively considerable but less than significant (Class III).
- **Public Works maintenance yards would be disrupted during the construction period (Impact PSU-5).** As described in Section 3.11.6.1, construction of the proposed Project would likely result in disruptions at Public Works maintenance yards, and implementation of Mitigation Measure PSU-5 (Notification of public service interruption) is required to minimize such disruptions. Although it is unlikely that the maintenance yards in the vicinity would be disrupted by activities from multiple construction sites, if a disruption is known to be unavoidable, SCE shall coordinate with the appropriate Public Works Department/s in order to avoid multiple or extended disruptions. Therefore, Impact PSU-5 would be cumulatively considerable but less than significant (Class III).
- **Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption (Impact PSU-6).** As described in Section 3.11.6.1, water would be required for dust suppression during the entire construction period. Each jurisdiction along the proposed route would contribute to the water required by Project construction, which is reasonably expected to be a small fraction of the available water supply. From a cumulative perspective, the majority of planned and proposed projects included in the Cumulative Scenario are residential developments, which require substantially more water and water infrastructure during construction than the proposed transmission line project. In particular, the

Cities of Lancaster and Palmdale are characterized by a desert environment and have been experiencing a surge of housing development in previously undeveloped land. However, the existing water supply for each region, which is listed in Section 3.11.2.2 (Affected Environment: Water), shows that multiple water allocations are available along the entire length of the proposed route. Therefore, while the proposed Project and the present and reasonably foreseeable future projects would require a portion of the available water supply for construction activities, the potential impact would be ~~cumulatively considerable but~~ less than significant (Class III).

- **Additional wastewater would be generated during Project construction and operation (Impact PSU-7).** As described in Section 3.11.6.1, the generation of wastewater from the construction and operation of the proposed Project would not exceed the capabilities of wastewater facilities. Construction of present and reasonably foreseeable future projects in the vicinity of the proposed route would contribute to wastewater generation. However, wastewater from construction personnel and that of construction from surrounding developments is not expected to generate an amount of wastewater that would exceed the capabilities of wastewater facilities. Therefore, while the Project and the present and reasonably foreseeable future projects would incrementally increase cumulative impacts, this would not significantly impact the capabilities of waste management (Class III).
- **Additional solid waste would be generated during Project construction and operation (Impact PSU-8).** As described in Section 3.11.6.1, waste generated by the proposed Project would be disposed of (including through recycling) over the ~~55~~ 59-month construction period and is not expected to exceed the available capacity of the landfills noted in Table 3.11-9. In the cities of Lancaster and Palmdale, the proposed Project and other present and reasonably foreseeable future projects are generally located west of the established development, in previously undeveloped land. However, as listed in Section 3.11.2.2, waste management services are abundant and there are numerous disposal facilities with available space. Therefore, while the proposed Project and the present and reasonably foreseeable future projects would require waste capabilities during construction, such waste is not expected to exceed the capabilities of existing waste disposal facilities and recycling facilities (Class III).
- **The amount of waste material recycled during construction activities would not adhere to State standards (Impact PSU-9).** As described in Section 3.11.6.1, the proposed Project would be in full compliance with the Integrated Waste Management Act of 1989, which is described in Section 3.11.3 (Applicable Laws, Regulations, and Standards) and requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. Mitigation Measure PSU-9 (Recycle construction waste) would ensure such compliance. In addition, projects included in the Cumulative Scenario are also subject to the Integrated Waste Management Act of 1989 and must therefore incorporate maximum recycling efforts during construction activities. Impact PSU-9 would not be cumulatively considerable (Class II).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.11.6.1 (Direct and Indirect Effects Analysis) would help to reduce the proposed Project's incremental contribution to cumulative impacts. All potential cumulative impacts that could occur as a result of the proposed Project would be expected to be less than significant without additional mitigation. No further mitigation is necessary.

3.11.7 Alternative 3 (West Lancaster): Impacts and Mitigation Measures

This alternative would re-route the new 500-kV transmission line in Segment 4 along 115th Street West rather than 110th Street West. The West Lancaster Alternative would deviate from the proposed Project route at approximately S4 MP 14.9, where the new 500-kV transmission line would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route would increase the overall distance of Segment 4 by approximately 0.4 mile.

The following section describes the Public Services and Utilities impacts associated with Alternative 3, as determined by the significance criteria listed in Section 3.11.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

3.11.7.1 Direct and Indirect Effects Analysis

Due to the integrated nature of public services and utility systems, the service area for each provider varies depending on the type of service provided. The proposed route for Alternative 3 is characterized by exactly the same public services and utility systems as the proposed route; no new service areas, types, or facilities would be introduced or affected under Alternative 3 versus the proposed Project. Therefore, Public Services and Utilities impacts associated with Alternative 3 would be the same as such impacts under the proposed Project, and are summarized below.

Increase demand for public services that cannot be readily met by existing public service providers and facilities (Criterion PSU1)

As described in Section 3.11.6, Project construction could result in potentially hazardous conditions that would require emergency services (PSU-1). The small re-routed portion of Alternative 3 would be located 0.5 mile to the west of the proposed Project alignment; therefore, due to the proximity of the alternative to the Project route, Impact PSU-1 under Alternative 3 would be identical to the proposed Project. As described in Section 3.3 (Air Quality), the proposed Project includes APM AQ-7 (Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403), which requires watering as a fugitive dust control measure. This measure would also minimize the potential for accidental ignition in hazardous areas. The following mitigation measures would also be required to reduce the effects associated with Impact PSU-1: PSU-1a (Revise SCE's Fire Management Plan); PSU-1b (Review of construction methods by county fire departments); PSU-1c (Practice safe welding procedures); and PSU-1d (Fire preventive construction equipment requirements). In addition, Section 3.16.6.1 of the Wildfire Prevention and Suppression analysis includes Mitigation Measure F-1~~a~~ (Prepare wildland traffic control plans), which requires preparation of control plans based on consultations with the ANF, Chino Hills State Park, and the Puente Hills Landfill Natural Habitat Authority. Implementation of these measures would reduce Impact PSU-1 to a less-than-significant level (Class II).

Impede or interfere with existing public services emergency access (Criterion PSU2)

Construction activities associated with Alternative 3 would interfere with the regular flow of traffic due to temporary lane closures. In the case of an emergency, construction of this alternative would potentially affect the response time of emergency vehicles. As the majority of the Alternative 3 route would be identical to Alternative 2, the impacts on emergency services from Alternative 3 would be the same as those described in Section 3.11.6.1. Mitigation Measure T-1a (Traffic Control Plan) outlines the necessary provisions to ensure road access for emergency vehicles. Implementation of this measure would reduce Impact PSU-2 to a less-than-significant level (Class II).

Impact PSU-3 (Construction and operation would impede emergency aircraft response services) establishes that the construction and operation periods would have potential to impede or interfere with emergency aircraft operations. In particular, in Segments 6, 11, 7 and 8A, the average increase in height would be approximately 50 feet. However, a change in tower heights would not apply to Segment 4 and the remainder of the route for Alternative 3 would be identical to Alternative 2. In addition, should construction or maintenance activities require the use of helicopters, Project helicopters would be restricted by FAA rules on temporary flight restrictions from flying in designated areas, therefore

eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project. Therefore, the impacts associated with Alternative 3 would be the same as those described in Section 3.11.6.1, and would not be significant (Class III).

Result in a major reduction or interruption of existing utility systems or cause a collocation accident (Criterion PSU3)

Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period) establishes the potential for service interruptions of utility systems during construction of the Project. As the majority of the Alternative 3 route would be identical to Alternative 2, construction activities associated with Alternative 3 would be the same as those described in Section 3.11.6.1. Implementation of Mitigation Measure PSU-4 (Notification of utility service interruption) would reduce impacts associated with Alternative 3 to a less-than-significant level (Class II).

Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period) establishes that construction activities would limit access to Public Works maintenance yards. The proposed route for Alternative 3 would not affect any maintenance yards that are not already in proximity to the proposed Project route. With implementation of Mitigation Measure PSU-5 (Notification of public service interruption), Impact PSU-5 would be reduced to a less-than-significant level (Class II).

Substantially change the ability of water treatment, wastewater treatment, or solid waste facilities to adequately supply water and accommodate solid waste and wastewater (Criterion PSU4)

Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption) establishes that water would be required for dust suppression, and domestic drinking and sanitary purposes during the entire construction period. As the majority of the Alternative 3 route would be identical to Alternative 2, the increase associated with Alternative 3 is not expected to affect the existing water supply. Therefore, as with the proposed Project, Impact PSU-6 would be adverse but not significant, and would not require mitigation measures (Class III).

Impact PSU-7 (Additional wastewater would be generated during Project construction and operation) addresses the volume of wastewater generated through construction and operation of the Project. Wastewater generation associated with Alternative 3 would be limited to construction and operation personnel. Wastewater generated by construction personnel would be accommodated by portable toilets, and that of operation personnel would be low due to minimal maintenance associated with transmission line operations. Therefore, the generation of wastewater is not expected to exceed the capacity of local facilities. Impact PSU-7 would be adverse but not significant (Class III).

Impact PSU-8 (Additional solid waste would be generated during Project construction and operation) addresses the amount of waste generated through construction of Alternative 3. Although Alternative 3 would be 0.4 mile longer than the proposed Project route, this difference is not expected to have a substantial influence on the volume of waste generated. Therefore, Impact PSU-8 would be adverse but not significant (Class III). While no mitigation measures would be required, implementation of Mitigation Measure PSU-9 (Recycle construction waste) is recommended to ensure that maximum recycling activities would occur.

Require new or expanded water entitlements and resources (Criterion PSU5)

Expanded water entitlements and resources would not be required for construction, operation, or maintenance of Alternative 3. Over the ~~55~~ 59-month construction period, water would be required for dust suppression, domestic drinking, and sanitary purposes. During the operation and maintenance period, the insulators would not require cleaning, so a minimal amount would be needed for maintenance activities. Therefore, Alternative 3 would require negligible amounts of water for construction and maintenance activities, and would not pose an impact.

Conflict with or be unable to adhere to federal, State, and/or local laws, regulations, or standards relating to solid waste (Criterion PSU6)

Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards) addresses the Project's compliance with the Integrated Waste Management Act of 1989 and Assembly Bill 939 through incorporation of the maximum recycling efforts during construction. The impacts associated with Alternative 3 would be similar to those described for Alternative 2, which would require disposal of removed conductor wiring, metal from replaced tower structures, soil from drilling and excavation, and other construction related debris. However, with implementation of Mitigation Measure PSU-9 (Recycle construction waste), 50 percent of waste generated from construction activities would be recycled. Therefore, Impact PSU-9 would be less than significant (Class II).

3.11.7.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 3. This alternative would re-route the new 500-kV transmission line in Segment 4 along 115th Street West rather than 110th Street West in Lancaster. This alternative was developed in order to avoid traversing a housing development that is currently in progress. The remainder of this alternative route would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. The proposed Alternative 3 route generally parallels the proposed Project route approximately 0.5 mile from the proposed Project route. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of Alternative 3 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project.

Geographic Extent

The scope of this cumulative effects analysis for Alternative 3 is exactly the same as the proposed Project and includes the following geographic regions: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the ANF, and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County and western San Bernardino County.

Existing Cumulative Conditions

Existing cumulative conditions under Alternative 3 are exactly the same as the proposed Project, as described in Section 3.11.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 3 are exactly the same as the proposed Project, as described in Section 3.11.6.2.

Cumulative Impact Analysis

As described in Section 3.11.6.2, impacts associated with Alternative 3 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The minor re-route of the proposed Project transmission line associated with Alternative 3 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 3 would be exactly the same as cumulative impacts under the proposed Project, as detailed in Section 3.11.6.2.

The following impact would be reduced to less than significant with mitigation and would not be cumulatively considerable (Class II): Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards).

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact PSU-1 (Emergency services would be needed if an accident or other emergency incident occurs at a construction site), Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles), Impact PSU-3 (Construction and operation would impede emergency aircraft response services), Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period), Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period), Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption), Impact PSU-7 (Additional wastewater would be generated during Project construction and operation) and Impact PSU-8 (Additional solid waste would be generated during Project construction and operation).

As with the proposed Project, Alternative 3 would not introduce any impact to Public Services and Utilities that would be significant and unavoidable.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures applicable to Alternative 3, as described in Section 3.11.7.1 would help to reduce the alternative's incremental contribution to cumulative impacts. No further mitigation is necessary.

3.11.8 Alternative 4 (Chino Hills Routes): Impacts and Mitigation Measures

The following section describes the Public Services and Utilities impacts associated with Alternative 4 (Chino Hills Route Alternatives), as determined by the significance criteria listed in Section 3.11.4. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels. The following briefly summarizes each alternative route option:

- **Route A** would deviate from the proposed route about two miles east of State Route 57, and turn southeast for approximately 6.2 miles and terminate into a new 500-kV switching station. This alternative would traverse Los Angeles, Orange and San Bernardino Counties, including approximately 2.3 miles of the CHSP.
- **Route B** would deviate from the proposed route about two miles east of State Route 57 and turn southeast for approximately 3.9 miles, traversing Los Angeles, Orange and San Bernardino Counties. The alternative route would then enter the CHSP and continue for approximately 4.3 miles. Upon exiting the CHSP, the route would continue for approximately 0.4 mile and would terminate at a new 500-kV switching station.

- **Route C** would deviate from the proposed route about two miles east of State Route 57 and turn southeast for approximately 3.9 miles up to the boundary of the CHSP. The original alternative would then turn east for approximately 1.6 miles remaining just north of the CHSP boundary until it reached a new 500-kV switching station.
- **Route C Modified** is very similar to the original Route C, described above, with the exception that the switching station would be located on Aerojet property approximately 2,500 feet northwest of the location proposed under the original Route 4C. As such, transmission line configurations and access roads to the new switching station for Route C Modified would be altered to account for relocation of the switching station. Re-routing of the same transmission lines described under Route C would occur under Route C Modified; however, the 500-kV reroute would occur utilizing one set of double-circuit 500-kV towers rather than two sets (in parallel) of single-circuit 500-kV towers. The re-routing of the Serrano-Lugo/Mira Loma 500-kV single-circuit T/Ls and the Mira Loma/Walnut-Olinda 220-kV double-circuit T/Ls included under Route C Modified would affect the same public services and utilities as would occur for the re-routing activities under the original Route C.
- **Route D** would deviate from the proposed route about two miles east of State Route 57 and turn southeast for approximately 3.9 miles traversing Los Angeles, Orange and San Bernardino Counties. The alternative would then turn east and follow the northern boundary of the CHSP for approximately 4.0 miles. At this point the route would turn southeast traversing the northeast corner of the CHSP for approximately 1.3 miles, at which point the new 500-kV T/L would turn northeast again parallel and north of the existing T/Ls for approximately 0.4 mile (outside CHSP) before terminating at a new 500-kV switching station located immediately east of the CHSP.

3.11.8.1 Direct and Indirect Effects Analysis

The significance criteria used to identify the Public Services and Utilities impacts of Alternative 4 are introduced in Section 3.11.4.1 (Criteria for Determining Impact Significance). All Public Services and Utilities impacts that would occur under the proposed Project would also occur under each of the Alternative 4 routing options described above. This section summarizes all impacts of Alternative 4, which are described in detail for the proposed Project in Section 3.11.6.1, and specifies how impacts to Public Services and Utilities would occur under each routing option.

Increase demand for public services that cannot be readily met by existing public service providers and facilities (Criterion PSU1)

Impact PSU-1 (Emergency services would be needed if an accident or other emergency incident occurs at a construction site) establishes that fire protection or other emergency service providers would be required at a Project construction site in the event of an accident. A potential fire hazard would be associated with ~~heavily~~ wooded areas and ~~mountainous terrain~~rolling hills which are characteristic of the CHSP. The potential for Alternative 4 to result in an accident or other emergency incident would not differ from the proposed Project. As with the proposed Project, each of the Alternative 4 routing options includes APM AQ-7 (Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403), which requires watering during the construction period to minimize the potential for accidental ignition in hazardous areas. Therefore, Impact PSU-1 associated with Alternative 4 would not differ from the proposed Project, and the following mitigation measures would be required: PSU-1a (Revise SCE's Fire Management Plan), PSU-1b (Review of construction methods by county fire departments), PSU-1c (Practice safe welding procedures), and PSU-1d (Fire preventive construction equipment requirements).

Route A. Implementation of Mitigation Measures PSU-1a through PSU-1d would reduce Impact PSU-1 to a less-than-significant level (Class II).

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Impede or interfere with existing public services emergency access (Criterion PSU2)

Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles) establishes that construction along the proposed route would interfere with the regular flow of traffic due to temporary lane closures. In the case of an emergency, this would also have an effect on the response time of emergency vehicles. As noted in Section 3-13 (Traffic and Transportation), all five Alternative 4 routes would avoid crossing six major roadways that would be crossed by the proposed Project route, including Chino Hills Parkway, SR-71, Hope Street, Central Avenue, Edison Avenue, Mountain Avenue, and SR-83. All five routing options of this alternative would also cross SR-142. Since each of these routes would cross fewer major roadways than the proposed Project, the potential for Impact PSU-2 to occur would be reduced.~~The potential impacts associated with Alternative 4 would not differ from the proposed Project~~ In addition, and the potential significance of Impact PSU-2 would be minimized with implementation of Mitigation Measure T-1a (Traffic Control Plan), which outlines the necessary provisions to ensure road access for emergency vehicles.

Route A. Implementation of Mitigation Measure T-1a (Traffic Control Plan) would reduce Impact PSU-2 to a less-than-significant level (Class II).

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Impact PSU-3 (Construction and operation would impede emergency aircraft response services) establishes that the construction and operation periods would have potential to impede or interfere with emergency aircraft operations. In particular, in Segments 6, 11, 7 and 8A, the average increase in height would be approximately 50 feet. A change in tower heights would apply to the alternative routes through the CHSP; however, the height would marginally increase from the existing tower heights. In addition, should construction or maintenance activities require the use of helicopters, Project helicopters would be restricted by FAA rules on temporary flight restrictions from flying in designated areas, therefore eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project. Therefore, the impacts associated with Alternative 4 would be the same as those described in Section 3.11.6.1.

Route A. The impacts associated with aircraft response services would be adverse but not significant and would not required mitigation (Class III).

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Result in a major reduction or interruption of existing utility systems or cause a collocation accident (Criterion PSU3)

Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period) establishes the potential for service interruptions of utility systems during construction of the Project. Disruption of utility systems would be avoided in the cities of Chino and Ontario along Segment 8A east of MP 19.2 and Segment 8C; however, the Alternative 4 routing options may introduce disruptions to existing utility systems in the vicinity of the Alternative 4 routes in Chino Hills, Brea, and Chino Hills State Park, as well as along Segment 8B in the Cities of Chino and Ontario. Nonetheless, it is not expected that ~~T~~the potential impacts associated with Alternative 4 would ~~not~~ differ from the proposed Project, and the potential significance of Impact PSU-4 would be minimized with implementation of Mitigation Measure PSU-4 (Notification of utility service interruption).

Route A. Implementation of Mitigation Measure PSU-4 (Notification of utility service interruption) would reduce Impact PSU-4 to a less-than-significant level (Class II).

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period) establishes that construction activities would limit access to Public Works maintenance yards. The proposed routes under Alternative 4 would not affect any maintenance yards that are not already in proximity to the proposed Project route. The potential significance of Impact PSU-5 would be minimized with implementation of Mitigation Measure PSU-5 (Notification of public service interruption).

Route A. Implementation of Mitigation Measure PSU-5 (Notification of public service interruption) would reduce Impact PSU-5 to a less-than-significant level (Class II).

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class II).

Substantially change the ability of water treatment, wastewater treatment, or solid waste facilities to adequately supply water and accommodate solid waste and wastewater (Criterion PSU-5)

Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption) establishes that water would be required for dust suppression during the entire construction period. This would create a greater demand for water from each of the jurisdictions along the proposed route. As described in Section 3.11.6.1, the amount of water used per day would depend on the length of access roads used, weather conditions, road surface conditions, and other site-specific conditions. Because the Alternative 4 routing options would traverse through varied terrain in or around the CHSP, as opposed to the highly urbanized character of this portion of the proposed Project that would be avoided by Alternative 4 (Segments 8A/8C), the routing options under Alternative 4 may require a greater volume of water for dust suppression activities. However, this increase is not expected to affect the existing water supply, and the amount of water needed for other construction activities and consumption for construction workers would not be significant. Given the available water supply described in Section 3.11.6.1, the significance of Impact PSU-6 under Alternative 4 would be the same as under the proposed Project.

Route A. The impacts associated with the water supply would be adverse but not significant, and would not require mitigation measures (Class III).

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Impact PSU-7 (Additional wastewater would be generated during Project construction and operation) addresses the volume of wastewater generated during Project construction and operation. Wastewater generated by construction personnel would be accommodated by portable toilets, and that of operation personnel would be low due to minimal maintenance associated with transmission line operations. Therefore, the generation of wastewater associated with Alternative 4 would be low and is not expected to exceed the capacity of local facilities. Impact PSU-7 would be adverse but not significant.

Route A. The impacts associated with wastewater would be adverse but not significant, and would not require mitigation (Class III).

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Impact PSU-8 (Additional solid waste would be generated during Project construction and operation) addresses the amount of solid waste generated through construction of Alternative 4. The potential significance of Impact PSU-8 associated with Alternative 4 would not differ from the proposed Project, and the amount of solid waste generated by this alternative would not result in a substantial percentage of the daily disposal limits or remaining capacity of the landfills identified in Table 3.11-9. After the construction period, operation and maintenance activities would not generate considerable amounts of solid waste.

Route A. The impacts associated with solid waste would be adverse but not significant (Class III). While no mitigation measure would be required, implementation of Mitigation Measure PSU-9 (Recycled construction waste) is recommended to ensure that maximum recycling activities would occur.

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Require new or expanded water entitlements and resources (Criterion PSU5)

Expanded water entitlements and resources would not be required for construction, operation, or maintenance of Alternative 4. Over the ~~55~~ 59-month construction period, water would be required for dust suppression, domestic drinking, and sanitary purposes. During the operational period, the insulators would not require cleaning, so a minimal amount would be needed for maintenance activities. Therefore, Alternative 4 would require negligible amounts of water for construction and maintenance activities, and would not pose an impact.

Conflict with or be unable to adhere to federal, State, and/or local laws, regulations, or standards relating to solid waste (Criterion PSU6)

Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards) addresses the Project's compliance with the Integrated Waste Management Act of 1989 and Assembly Bill 939 through incorporation of the maximum recycling efforts during construction. The potential impacts associated with Alternative 4 would not differ from the proposed Project, and the potential significance of Impact PSU-9 would be minimized with implementation of Mitigation Measure PSU-9 (Recycle construction waste).

Route A. Implementation of Mitigation Measure PSU-9 (Recycle construction waste) would reduce Impact PSU-9 to a less-than-significant level (Class III).

Route B. As Route B would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C. As Route C would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route C Modified. As Route C Modified would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

Route D. As Route D would follow a similar path as Route A, the impacts are the same as previously described in Route A (Class III).

3.11.8.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of the Chino Hills Route Alternatives. These routing options associated with Alternative 4 deviate from the proposed Project route about two miles east of State Route 57 and either traverse or border the CHSP. Alternative 4 traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of the Chino Hills Route Alternatives to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the rerouted portion of the alternative. With regards to Alternative 4, any incremental increase or decrease in the Project's contribution to the cumulative scenario would result from the location of the alternative alignments associated with Routes A, B, C, C Modified, and D.

Geographic Extent

The geographic extent of analysis for this alternative would be the same as the proposed Project. As such, the geographic extent of this cumulative effects analysis includes the geographic regions described under the proposed Project: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the ANF; and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County, western San Bernardino County, and Chino Hills State Park.

Existing Cumulative Conditions

Existing cumulative conditions would be exactly the same as the proposed Project. Refer to the explanation provided in Section 3.11.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes would be exactly the same as the proposed Project. Refer to the explanation provided in Section 3.11.6.2.

Cumulative Impact Analysis

As described in Section 3.11.6.2, impacts associated with Alternative 4 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. Overall, the re-routes of the proposed Project transmission line associated with Alternative 4 would incrementally decrease the proposed Project's contribution to cumulative impacts, as the transmission line would avoid interference with public

service and utility systems in the Cities of Chino and Ontario along Segments 8A and 8C, and the Project would instead traverse the CHSP. However, as the remainder of the route would be the same as the proposed Project, including along Segment 8B between Chino and Mira Loma Substations, the contribution of Alternative 4 to cumulative impacts would be the same as the proposed Project. Refer to Section 3.11.6.2 (Cumulative Impact Analysis: Alternative 2) for a detailed discussion of these cumulative Project impacts.

The following Public Services and Utilities impact would be reduced to less than significant with mitigation and would not be cumulatively considerable(Class II): Impact PSU-9 (Construction and operational water supply demands would require new or expanded water entitlements or resources).

The following Public Services and Utilities impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact PSU-1 (Emergency services would be needed if an accident or other emergency incident occurs at a construction site), Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles), Impact PSU-3 (Construction and operation would impede emergency aircraft response services), Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period), Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period), and Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption), Impact PSU-7 (Additional wastewater would be generated during Project construction and operation), and Impact PSU-8 (Additional solid waste would be generated during Project construction and operation).

As with the proposed Project, Alternative 4 would not introduce any significant and unavoidable (Class I) cumulative impacts.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 4 in Section 3.11.8.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for Public Services and Utilities.

3.11.9 Alternative 5 (Partial Underground Alternative): Impacts and Mitigation Measures

The proposed route for Alternative 5 would follow the same route as the proposed Project; however, a 3.5-mile portion of the Alternative 5 route along Segment 8A would be installed underground. Under this alternative, the proposed transmission line would shift from overhead to underground at approximately MP 21.9 of Segment 8A and would continue underground through the City of Chino Hills to approximately MP 25.4 of Segment 8A, where the underground line would shift back to overhead.

The following section describes the Public Services and Utilities impacts associated with Alternative 5 (Partial Underground Alternative), as determined by the significance criteria listed in Section 3.11.4. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

3.11.9.1 Direct and Indirect Effects Analysis

Increase demand for public services that cannot be readily met by existing public service providers and facilities (Criterion PSU1)

Impact PSU-1 (Emergency services would be needed if an accident or other emergency incident occurs at a construction site) establishes that construction of the proposed route could result in potentially hazardous conditions that would require emergency services. In particular, areas of concern would be where construction would occur through dry and/or mountainous terrain. However, as described in Section 3.3 (Air Quality), the proposed Project includes APM AQ-7 (Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403), which requires watering as a fugitive dust control measure. This measure would minimize the potential for accidental ignition in hazardous areas, and therefore reduce the impacts to a less-than-significant level (Class II).

Impede or interfere with existing public services emergency access (Criterion PSU2)

Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles) addresses the potential for construction activities to interfere with the regular flow of traffic due to temporary lane closures. Construction of Alternative 5 would potentially interfere with emergency access where the two aboveground transition stations would be built. However, the Western Transition Station would be located in an area just west of the current terminus of Eucalyptus Avenue in the City of Chino Hills, at approximately MP 21.9 of Segment 8A, and would be situated within the existing ROW west of planned residential lots. The site where the Western Transition Station would be situated is expected to remain largely as open space, characterized by rolling topography. Therefore, the Western Transition station would not be constructed in an area that would affect emergency vehicles.

The Eastern Transition Station would be located near State Highway 71 and approximately 0.5 mile west of Pipeline Avenue in the City of Chino Hills. The site would be adjacent to the north end of an existing flood control channel; therefore, installation of the Eastern Transition Station would require that the ROW be expanded to the north. In the case of an emergency, construction may have an effect on the response time of emergency vehicles. Mitigation Measure T-1a (Prepare Traffic Control Plan) outlines the necessary provisions to ensure road access for emergency vehicles. Implementation of this measure would reduce Impact PSU-2 to a less-than-significant level (Class II).

Impact PSU-3 (Construction and operation would impede emergency aircraft response services) establishes that the construction and operation periods would have potential to impede or interfere with emergency aircraft operations. In particular, in Segments 6, 11, 7 and 8A, the average increase in height would be approximately 50 feet. However, a change in tower heights would not impact undergrounding of the transmission line, and the remainder of the route for Alternative 5 would be identical to Alternative 2. In addition, should construction or maintenance activities require the use of helicopters, Project helicopters would be restricted by FAA rules on temporary flight restrictions from flying in designated areas, therefore eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project. Therefore, the impacts associated with Alternative 5 would be the same as those described in Section 3.11.6.1, and would not require mitigation (Class III).

Result in a major reduction or interruption of existing utility systems or cause a collocation accident (Criterion PSU3)

Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period) establishes the potential for service interruptions of utility systems during construction of the Project. Alternative 5 would have potential for rolling blackouts if the Gas Insulated Line (GIL) system failed during the operation period. However, this impact would not substantially differ from potential disruptions in utility services associated with the proposed Project. In addition, reliability considerations are primarily related to the lack of precedence in installing GIL systems of the length and voltage proposed under Alternative 5, and the likelihood of system failure for the system is unknown at this time. As a result, implementation of Mitigation Measure PSU-4 (Notification of utility service interruption) would reduce this impact to a less-than-significant level (Class II).

Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period) establishes that construction activity would limit access to Public Works maintenance yards. Construction of Alternative 5, however, would not occur in the vicinity of any of the maintenance yards listed in Section 3.11.2.1. As a result, the impact associated with Alternative 5 would be the same as the proposed Project. Implementation of Mitigation Measure PSU-5 would reduce this impact to a less-than-significant level (Class II).

Substantially change the ability of water treatment, wastewater treatment, or solid waste facilities to adequately supply water and accommodate solid waste and wastewater (Criterion PSU4)

Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption) establishes that water would be required for dust suppression during the entire construction period; however, this is not expected to affect the existing water supply. In addition, the amount of water needed for other construction activities and consumption for construction workers is not substantial. As the majority of the Alternative 5 route would be identical to Alternative 2, and tunnel boring would not require additional water use, Impact PSU-6 would be adverse but not significant, and would not require mitigation measures (Class III).

Impact PSU-7 (Additional wastewater would be generated during Project construction and operation) addresses the volume of wastewater generated through Project construction. Wastewater generation during the operation and maintenance period would be limited to construction and operation personnel. Wastewater generated by construction personnel would be accommodated by portable toilets, and that of operation personnel would be low due to minimal maintenance associated with transmission line operations. Therefore, impacts on wastewater capabilities are not expected to exceed the capacity of local facilities. Impact PSU-7 would be adverse but not significant (Class III).

Impact PSU-8 (Additional solid waste would be generated during Project construction and operation) addresses the amount of waste generated through construction of Alternative 5. However, the amount of solid waste generated by this alternative is not expected to result in a considerable percentage of the daily disposal limits or remaining capacity of the sanitary landfills identified in Table 3.11-9. After the construction period, operation and maintenance activities would not generate substantial amounts of solid waste. Therefore, Impact PSU-8 would be adverse but not significant, and no mitigation measures would be required (Class III).

Require new or expanded water entitlements and resources (Criterion PSU5)

Expanded water entitlements and resources would not be required for construction, operation, or maintenance of Alternative 5. Over the ~~55~~ 59-month construction period, water would be required for dust suppression, domestic drinking, and sanitary purposes. During the operation and maintenance period, the insulators would not require cleaning, so a minimal amount would be needed for maintenance activities. Therefore, Alternative 5 would require negligible amounts of water for construction and maintenance activities, and would not pose an impact.

Conflict with or be unable to adhere to federal, State, and/or local laws, regulations, or standards relating to solid waste (Criterion PSU6)

Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards) addresses the Project's compliance with the Integrated Waste Management Act of 1989 and Assembly Bill 939 through incorporation of the maximum recycling efforts during construction. The impacts associated with Alternative 5 would be similar to those described for Alternative 2, which would require disposal of soil from tunnel boring and excavated material, removed conductor wiring, metal from replaced tower structures, and other construction related debris. With implementation of Mitigation Measure PSU-9 (Recycle construction waste), Impact PSU-9 would be less than significant (Class II).

3.11.9.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 5. This alternative would underground a portion of the proposed route in the City of Chino Hills (Segment 8) in order to avoid interference with residential development. The remainder of this alternative route would be identical to that of the proposed Project and would, therefore, impose identical impacts as the proposed Project. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of Alternative 5 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project.

Geographic Extent

The scope of this cumulative effects analysis for Alternative 5 is exactly the same as the proposed Project and includes the following geographic regions: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the ANF, and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County and western San Bernardino County. Refer to the detailed explanation provided in Section 3.11.6.2.

Existing Cumulative Conditions

Existing cumulative conditions under Alternative 5 are exactly the same as the proposed Project. Refer to the detailed explanation provided in 3.11.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 5 are exactly the same as the proposed Project. Refer to the detailed explanation provided in Section 3.11.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 5 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The use of the undergrounding technology associated with public services and utilities would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 5 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.11.6.2.

The following impact would be reduced to less than significant with mitigation and would not be cumulatively considerable (Class II): Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards).

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact PSU-1 (Emergency services would be needed if an accident or other emergency incident occurs at a construction site), Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles), Impact PSU-3 (Construction and operation would impede emergency aircraft response services), Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period), Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period), Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption), Impact PSU-7 (Additional wastewater would be generated during Project construction and operation), and Impact PSU-8 (Additional solid waste would be generated during Project construction and operation).

As with the proposed Project, Alternative 5 would not introduce any impact to Public Services and Utilities that would be significant and unavoidable.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 5 in Section 3.11.9.1 (Direct and Indirect Effects Analysis) would help to reduce the alternative's incremental contribution to cumulative impacts. No further mitigation is necessary.

3.11.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

The proposed route for Alternative 6 would follow the same route as the proposed Project; however, this alternative was developed to reduce ground disturbance through the ANF by minimizing new road construction. As a result, this alternative would utilize helicopter construction in the ANF to the maximum feasible extent.

The following section describes the Public Services and Utilities impacts of Alternative 6 (Maximum Helicopter Construction in the ANF Alternative), as determined by the significance criteria listed in Section 3.11.4. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

3.11.10.1 Direct and Indirect Effects Analysis

Due to the integrated nature of public services and utility systems, the service area for each provider varies depending on the type of service provided. The proposed route for Alternative 6 is characterized by exactly the same public services and utility systems as the proposed route; no new service areas, types, or

facilities would be introduced or affected under Alternative 6, versus the proposed Project. Therefore, Public Services and Utilities impacts associated with Alternative 6 would be substantially similar to the impacts under the proposed Project, as summarized below.

Increase demand for public services that cannot be readily met by existing public service providers and facilities (Criterion PSU1)

Construction of Alternative 6 could result in potentially hazardous conditions that would require emergency services (Impact PSU-1). As this alternative would follow the same route as Alternative 2, the effects associated with Impact PSU-1 under Alternative 6 would be similar to the proposed Project (see Section 3.11.6). As described in Section 3.3 (Air Quality), the proposed Project includes APM AQ-7 (Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403), which would minimize the potential for accidental ignition in hazardous areas through the use of watering as a fugitive dust control measure. The following mitigation measures would also be required to reduce the effects associated with Impact PSU-1: PSU-1a (Revise SCE's Fire Management Plan); PSU-1b (Review of construction methods by county fire departments); PSU-1c (Practice safe welding procedures); and PSU-1d (Fire preventive construction equipment requirements). In addition, Section 3.16.6.1 of the Wildfire Prevention and Suppression Specialist analysis includes Mitigation Measure F-1~~a~~ (Prepare wildland traffic control plans), which requires preparation of control plans based on consultations with the ANF, Chino Hills State Park, and the Puente Hills Landfill Natural Habitat Authority. Implementation of these measures would reduce Impact PSU-1 to a less-than-significant level (Class II).

Impede or interfere with existing public services emergency access (Criterion PSU2)

Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles) addresses the potential for construction activities to interfere with the regular flow of traffic due to temporary lane closures. Alternative 6 would not deviate significantly from the proposed Project; therefore, Impact PSU-2 associated with this alternative would be similar to the potential impacts described in Section 3.11.6.1. Mitigation Measure T-1a (Traffic Control Plan) outlines the necessary provisions to ensure road access for emergency vehicles. Implementation of this measure would reduce Impact PSU-2 to a less-than-significant level (Class II).

Impact PSU-3 (Construction and operation would impede emergency aircraft response services) establishes that the construction and operation periods would have potential to impede or interfere with emergency aircraft operations due to increased tower heights and maximum use of helicopters as proposed by this alternative. In particular, in Segments 6, 11, 7 and 8A, the average increase in tower height would be approximately 50 feet. However, as with the proposed Project, the addition of increased tower heights would present only a marginal increase in the required altitude of aircrafts, and the remainder of the route for Alternative 6 would be identical to Alternative 2. In addition, construction or maintenance activities requiring the use of helicopters would be restricted by FAA rules on temporary flight restrictions from flying in designated areas, therefore eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project. Therefore, the impacts associated with Alternative 6 would be the similar to those described in Section 3.11.6.1, and would not require mitigation (Class III).

Result in a major reduction or interruption of existing utility systems or cause a collocation accident (Criterion PSU3)

Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period) establishes the potential for service interruptions of utility systems during construction of the Project. Alternative 6 would not deviate from the proposed Project; therefore, Impact PSU-4 associated with this alternative would be similar to the potential impacts described in Section 3.11.6.1. Implementation of Mitigation Measure PSU-4 (Notification of utility service interruption) would reduce this impact to a less-than-significant level (Class II).

Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period) establishes that construction activity would limit access to Public Works maintenance yards. Alternative 6 would not deviate from the proposed Project; therefore, Impact PSU-5 associated with this alternative would be similar to the potential impacts described in Section 3.11.6.1. Implementation of Mitigation Measure PSU-5 (Notification of public service interruption) would reduce this impact to a less-than-significant level (Class II).

Substantially change the ability of water treatment, wastewater treatment, or solid waste facilities to adequately supply water and accommodate solid waste and wastewater (Criterion PSU4)

Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption) establishes that water would be required for dust suppression during the entire construction period; however, this is not expected to affect the existing water supply. In addition, the amount of water needed for other construction activities and consumption for construction workers is not substantial. Alternative 6 would not deviate from the proposed Project; therefore, Impact PSU-6 associated with this alternative would be similar to the potential impacts described in Section 3.11.6.1. As a result, the impact would be adverse but not significant, and would not require mitigation measures (Class III).

Impact PSU-7 (Additional wastewater would be generated during Project construction and operation) addresses the volume of wastewater generated during Project construction. Wastewater generated by construction personnel would be accommodated by portable toilets, and that of operation personnel would be low due to minimal maintenance associated with transmission line operations. Therefore, the generation of wastewater associated with Alternative 6 would be low and is not expected to exceed the capacity of local facilities. Therefore, impacts on wastewater capabilities would be adverse but not significant (Class III).

Impact PSU-8 (Additional solid waste would be generated during Project construction and operation) addresses the amount of waste generated through construction of Alternative 6. However, the amount of solid waste generated by this alternative is not expected to result in a substantial percentage of the daily disposal limits or remaining capacity of the sanitary landfills identified in Table 3.11-9. After the construction period, operation and maintenance activities would not generate considerable amounts of solid waste. Alternative 6 would not deviate from the proposed Project; therefore, impacts associated with this alternative would be similar to the potential impacts described in Section 3.11.6.1. Impacts on solid waste facilities would be adverse but not significant (Class III). While no mitigation measures would be required, implementation of Mitigation Measure PSU-9 (Recycle construction waste) is recommended to ensure that maximum recycling activities would occur.

Require new or expanded water entitlements and resources (Criterion PSU5)

Expanded water entitlements and resources would not be required for construction, operation, or maintenance of Alternative 6. Over the ~~55~~ 59-month construction period, water would be required for dust suppression, domestic drinking, and sanitary purposes. During the operation and maintenance period, the insulators would not require cleaning, so a minimal amount would be needed for maintenance activities. Therefore, Alternative 6 would require negligible amounts of water for construction and maintenance activities, and would not pose a significant impact.

Conflict with or be unable to adhere to federal, State, and/or local laws, regulations, or standards relating to solid waste (Criterion PSU6)

Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards) addresses the Project's compliance with the Integrated Waste Management Act of 1989 and Assembly Bill 939 through incorporation of the maximum recycling efforts during construction. The potential impacts associated with Alternative 6 would not differ from the proposed Project, and with implementation of Mitigation Measure PSU-9 (Recycle construction waste), Impact PSU-9 would be less than significant (Class II).

3.11.10.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 6. This alternative route would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. As a result, this alternative traverses the same land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of Alternative 6 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project.

Geographic Extent

The scope of this cumulative effects analysis for Alternative 6 is exactly the same as the proposed Project and includes the following geographic regions: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the ANF, and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County and western San Bernardino County. Refer to the detailed explanation provided in Section 3.11.6.2.

Existing Cumulative Conditions

Existing cumulative conditions under Alternative 6 are exactly the same as the proposed Project. Refer to the detailed explanation provided in Section 3.11.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 6 are exactly the same as the proposed Project. Refer to the detailed explanation provided in Section 3.11.6.2.

Cumulative Impact Analysis

As described in Section 3.11.6.2, impacts associated with Alternative 6 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. Maximum helicopter use in the ANF would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 6 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.11.6.2.

The following impact would be reduced to less than significant with mitigation and would not be cumulatively considerable (Class II): Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards).

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact PSU-1 (Emergency services would be needed if an accident or other emergency incident occurs at a construction site), Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles), Impact PSU-3 (Construction and operation would impede emergency aircraft response services), Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period), Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period), Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption), Impact PSU-7 (Additional wastewater would be generated during Project construction and operation), and Impact PSU-8 (Additional solid waste would be generated during Project construction and operation).

As with the proposed Project, Alternative 6 would not introduce any impact to Public Services and Utilities that would be significant and unavoidable.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures described in Section 3.11.10.1 (Direct and Indirect Effects Analysis) would help to reduce the alternative's incremental contribution to cumulative impacts. No further mitigation is necessary.

3.11.11 Alternative 7: 66-kV Subtransmission Alternative

This alternative is comprised of four~~three~~ 66-kV subtransmission line elements, including the following: (1) Undergrounding the 66-kV subtransmission line in Segment 7 through the River Commons or Duck Farm Project (between Valley Boulevard – S7 MP 8.9 and S7 MP 9.9), which was requested by the Board of Supervisors County of Los Angeles to reduce impacts to the river side and west side of the planned park, specifically to the native plant nursery, the river overlook, and the viewshed within the park; (2) Re-routing and undergrounding the 66-kV subtransmission line around the Whittier Narrows Recreation area in Segment 7 (S7 MP 11.4 to 12.025) as habitat enhancement for least Bell's vireos as identified by SCE; (3) Re-routing the existing 66-kV subtransmission line through the Whittier Narrows Recreation Area in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing 220-kV ROW to reduce the number of structures required (20-foot expanded ROW required); and (4~~3~~) Re-routing the 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8 (2 routing options are provided in this area) as habitat enhancement for least Bell's vireos as identified by SCE. This alternative was developed in August 2008

following the completion of the Alternatives Screening Report; therefore, it is not included in Appendix A.

The following section describes the Public Services and Utilities impacts associated with Alternative 7 (66-kV Subtransmission Alternative), as determined by the significance criteria listed in Section 3.11.4. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

3.11.11.1 Direct and Indirect Effects Analysis

Increase demand for public services that cannot be readily met by existing public service providers and facilities (Criterion PSU1)

Impact PSU-1 (Emergency services would be needed if an accident or other emergency incident occurs at a construction site) establishes that construction of the proposed route could result in potentially hazardous conditions that would require emergency services. In particular, areas of concern would be where construction would occur through dry and/or mountainous terrain. However, as described in Section 3.3 (Air Quality), the proposed Project includes APM AQ-7 (Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403), which requires watering as a fugitive dust control measure. This measure would minimize the potential for accidental ignition in hazardous areas, and therefore reduce the impacts to a less-than-significant level (Class II).

Impede or interfere with existing public services emergency access (Criterion PSU2)

Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles) addresses the potential for construction activities to interfere with the regular flow of traffic due to temporary lane closures. Construction of an underground 66-kV through the Duck Farm would be along the same ROW as the proposed Project, and would therefore result in the same impacts. The underground 66-kV re-route around the Whittier Narrows Recreation Area would separate from the existing ROW (and Alternative 2 proposed routes) at Peck Road, then follow Durfee Road for approximately 3,000 feet, and then rejoin SCE's proposed route. In addition, the re-route of the overhead transmission lines would be south of the proposed route in Segment 8. The first half of the Alternative 7 route would follow San Gabriel Blvd. and a small portion of Durfee Road. The last half would utilize the existing, idle 66-kV structures along Siphon Road, and would then realign with the proposed Project route. Acceptance of this alternative would result in additional construction activities along major and minor roads; however, implementation of the Mitigation Measure T-1a (Prepare Traffic Control Plans) would mitigate this impact to a less-than-significant level (Class II).

Impact PSU-3 (Construction and operation would impede emergency aircraft response services) establishes that the construction and operation periods would have potential to impede or interfere with emergency aircraft operations. In particular, in Segments 6, 11, 7 and 8A, the average increase in height would be approximately 50 feet. However, a change in tower heights would not impact undergrounding of the transmission line, and the remainder of the route for Alternative 7 would be identical to Alternative 2. In addition, should construction or maintenance activities require the use of helicopters, Project helicopters would be restricted by FAA rules on temporary flight restrictions from flying in designated areas, therefore eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project. Therefore, the impacts associated with Alternative 7 would be the same as those described in Section 3.11.6.1, and would not require mitigation (Class III).

Result in a major reduction or interruption of existing utility systems or cause a collocation accident (Criterion PSU3)

Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period) establishes the potential for service interruptions of utility systems during construction of the Project. As the majority of the Alternative 7 route would be identical to Alternative 2, construction activities associated with Alternative 7 would be the same as those described in Section 3.11.6.1. Implementation of Mitigation Measure PSU-4 (Notification of utility service interruption) would reduce impacts associated with Alternative 7 to a less-than-significant level (Class II).

Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period) establishes that construction activity would limit access to Public Works maintenance yards. Construction of Alternative 7, however, would not occur in the vicinity of any of the maintenance yards listed in Section 3.11.2.1. As a result, the impact associated with Alternative 7 would be the same as the proposed Project. Implementation of Mitigation Measure PSU-5 would reduce this impact to a less-than-significant level (Class II).

Substantially change the ability of water treatment, wastewater treatment, or solid waste facilities to adequately supply water and accommodate solid waste and wastewater (Criterion PSU4)

Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption) establishes that water would be required for dust suppression during the entire construction period; however, this is not expected to affect the existing water supply. In addition, the amount of water needed for other construction activities and consumption for construction workers is not substantial. As the majority of the Alternative 7 route would be identical to Alternative 2 and undergrounding and re-routing of 66-kV lines would not require additional water use, Impact PSU-6 would be adverse but not significant, and would not require mitigation measures (Class III).

Impact PSU-7 (Additional wastewater would be generated during Project construction and operation) addresses the volume of wastewater generated through Project construction. Wastewater generation during the operation and maintenance period would be limited to construction and operation personnel. Wastewater generated by construction personnel would be accommodated by portable toilets, and that of operation personnel would be low due to minimal maintenance associated with transmission line operations. Therefore, impacts on wastewater capabilities are not expected to exceed the capacity of local facilities. Impact PSU-7 would be adverse but not significant (Class III).

Impact PSU-8 (Additional solid waste would be generated during Project construction and operation) addresses the amount of waste generated through construction of Alternative 7. However, the amount of solid waste generated by this alternative is not expected to result in a substantial percentage of the daily disposal limits or remaining capacity of the sanitary landfills identified in Table 3.11-9. After the construction period, operation and maintenance activities would not generate considerable amounts of solid waste. Therefore, Impact PSU-8 would be adverse but not significant, and no mitigation measures would be required (Class III).

Require new or expanded water entitlements and resources (Criterion PSU5)

Expanded water entitlements and resources would not be required for construction, operation, or maintenance of the Alternative 5. Over the ~~55~~ 59-month construction period, water would be required for

dust suppression, domestic drinking, and sanitary purposes. During the operation and maintenance period, the insulators would not require cleaning, so a minimal amount would be needed for maintenance activities. Therefore, Alternative 7 would require negligible amounts of water for construction and maintenance activities, and would not pose an impact.

Conflict with or be unable to adhere to federal, State, and/or local laws, regulations, or standards relating to solid waste (Criterion PSU6)

Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards) addresses the Project's compliance with the Integrated Waste Management Act of 1989 and Assembly Bill 939 through incorporation of the maximum recycling efforts during construction. The impacts associated with Alternative 7 would be similar to those described for Alternative 2, which would require disposal of soil from tunnel boring and excavated material, removed conductor wiring, metal from replaced tower structures, and other construction related debris. With implementation of Mitigation Measure PSU-9 (Recycle construction waste), Impact PSU-9 would be less than significant (Class II).

3.11.11.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 7. This alternative would underground the 66-kV subtransmission lines that traverse the River Commons or Duck Farms Project and the Whittier Narrow Recreation Area. The remainder of this alternative route would be identical to that of the proposed Project and would, therefore, impose identical impacts as the proposed Project. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace and would result in the same operational capacity as the proposed Project.

Based on the substantial similarity of Alternative 7 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project.

Geographic Extent

The scope of this cumulative effects analysis for Alternative 7 is exactly the same as the proposed Project and includes the following geographic regions: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the ANF, and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County and western San Bernardino County. Refer to the detailed explanation provided in Section 3.11.6.2.

Existing Cumulative Conditions

Existing cumulative conditions under Alternative 7 are exactly the same as the proposed Project. Refer to the detailed explanation provided in 3.11.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 7 are exactly the same as the proposed Project. Refer to the detailed explanation provided in Section 3.11.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 7 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably

foreseeable projects. The impacts associated with public services and utilities, and the undergrounding and re-routing of the 66-kV subtransmission line would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 7 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.11.6.2.

The following impact would be reduced to less than significant with mitigation and would not be cumulatively considerable (Class II): Impact PSU-9 (The amount of waste material recycled during construction activities would not adhere to State standards).

The following impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact PSU-1 (Emergency services would be needed if an accident or other emergency incident occurs at a construction site), Impact PSU-2 (Temporary lane closures during the construction period would interfere with emergency response vehicles), Impact PSU-3 (Construction and operation would impede emergency aircraft response services), Impact PSU-4 (Utility systems would be temporarily disrupted during the construction period), Impact PSU-5 (Public Works maintenance yards would be disrupted during the construction period), Impact PSU-6 (Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption), Impact PSU-7 (Additional wastewater would be generated during Project construction and operation), and Impact PSU-8 (Additional solid waste would be generated during Project construction and operation).

As with the proposed Project, Alternative 7 would not introduce any impact to Public Services and Utilities that would be significant and unavoidable.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 7 in Section 3.11.11.1 (Direct and Indirect Effects Analysis) would help to reduce the alternative's incremental contribution to cumulative impacts. No further mitigation is necessary.

3.11.12 Impact Significance Summary

Table 3.11-11, on the following page, summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on public services and utility systems. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.11.6 through 3.11.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.11.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in Table 3.11-11.

Table 3.11-11. Summary of Impacts and Mitigation Measures – Public Services and Utilities

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
PSU-1: Emergency services would be needed if an accident or other emergency incident occurs at a construction site.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	PSU-1a: Revise SCE's Fire Management Plan. PSU-1b: Review of construction methods by county fire departments. PSU-1c: Practice safe welding procedures. PSU-1d: Fire preventive construction equipment requirements. F-1: Prepare wildland traffic control plans.
PSU-2: Temporary lane closures during the construction period would interfere with emergency response vehicles.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	T-1a~~A~~: Traffic Control Plan.
PSU-3: Construction and operation would impede emergency aircraft response services.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended.
PSU-4: Utility systems would be temporarily disrupted during the construction period.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	PSU-4: Notification of utility service interruption.
PSU-5: Public Works maintenance yards would be disrupted during the construction period.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	PSU-5: Notification of public service interruption
PSU-6: Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	No	None recommended.
PSU-7: Additional wastewater would be generated during Project construction and operation.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	No	None recommended.
PSU-8: Additional solid waste would be generated during Project construction and operation.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	No	None recommended.
PSU-9: The amount of waste material recycled during construction activities would not adhere to State standards.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	PSU-9: Recycle construction waste

N/A = Not Available.

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts

3.12 Socioeconomics

3.12.1 Introduction

This section describes the potential socioeconomic effects that would be expected to occur as a result of implementation of the proposed Project and alternatives. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following socioeconomic issues were raised during the public scoping period and are addressed in this section:

- The use of helicopters may cause towers to fall and damage property or injure residents.
- The proposed Project would impact property owners by having an effect on property values.
- The Project would cause property values in Chino Hills to substantially decrease for area homes, thereby having a significant effect on the City.
- The Project would negatively impact the quality of life for residents of Chino Hills because it would place 500-kV transmission lines and towers in a corridor that is too small for such infrastructure.

Summary and Comparison of Alternatives

Table 3.12-1 on the following page presents some key socioeconomic factors for each alternative, including a summary of the expected socioeconomic effects of the proposed Project and alternatives. It is important to note that the "Environmental Issues" indicated in Table 3.12-1 are not impact statements, but rather selected information items that provide a comparison between the alternatives. Project effects are discussed in Sections 3.12.5 through 3.12.11.

3.12.2 Affected Environment

3.12.2.1 Regional Setting

For the purposes of this analysis, the Study Area for Socioeconomics has been divided into three regions: North Region, Central Region, and South Region. The particular boundaries for each of these regions are described below. The regional setting for the proposed Project and alternatives includes parts of Kern County (unincorporated), the Angeles National Forest (ANF), Los Angeles County (incorporated and unincorporated), and San Bernardino County (incorporated and unincorporated). The Project is also located within one-half mile of Riverside County (at Mira Loma Substation) and Orange County (along the proposed ROW for Segment 8A). The vast majority of incorporated cities located within the Project Regions are situated in the South Region. Two cities (Palmdale and Lancaster) are located in the North Region, there are no cities in the Central Region (which encompasses the ANF), and thirty-two cities are located in the South Region.

Table 3.12-1. Summary Comparison of Environmental Issues - Socioeconomics

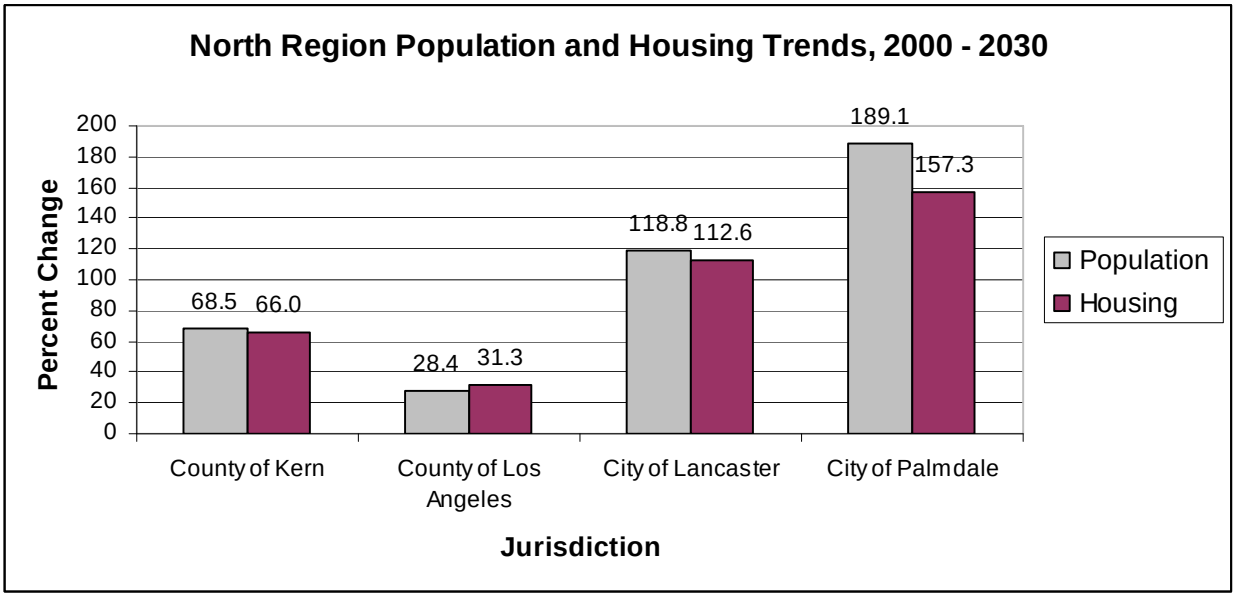
Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Operation and maintenance activities would affect property values along the Project alignment. (Impact S-1)	Potentially would occur in the future due to construction of other T/Ls to meet the purpose and need of the Project.	Would be expected to occur in the North and South Regions.	Same as Alternative 2.	Slightly less than the proposed Project; Routes 4A to 4D would avoid homes along 16 miles of Segment 8A through the Cities of Chino Hills, Chino, and Ontario.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Construction activities would cause a temporary decrease in revenues for agricultural landowners. (Impact S-2)	Potentially would occur in the future due to construction of other T/Ls to meet the purpose and need of the Project.	Would be expected to occur in agricultural areas of the North Region.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Project activities would affect public agency revenue. (Impact S-3)	Public revenue would not benefit from Project implementation.	Long-term public revenue affect would be positive due to property taxes and fees paid for Project operation; temporary decrease in Forest Service revenue from Adventure Pass sales during construction.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

North Region

The North Region extends from the Windhub Substation (MP 0.0 of the proposed Project's Segment 10) to the Vincent Substation (Milepost 17.8 of the proposed Project's Segment 5). The North Region includes the proposed Project's Segments 4, 5 and 10 and traverses parts of southern Kern County and northern Los Angeles County, as well as the incorporated cities of Lancaster and Palmdale.

The following section provides a description of population, housing, and labor characteristics in the North Region. Figure 3.12-1, below, provides a comparison of population and housing trends in the North Region, as projected from the year 2000 to the year 2030.

Figure 3.12-1



Demographic Characteristics: North Region

Table 3.12-2 presents current and forecasted population and percent change from 2000 through 2030 for the jurisdictions within the North Region Project Area. Kern County ranks as the thirteenth most populated county in California and in 2006 had the sixth largest numeric population increase in the state (Department of Finance, 2006). Kern County has recently experienced rapid population growth beginning just before 2000 and is projected to continue growing faster than the state as a whole. As indicated in Table 3.12-2, Kern County had a population of 661,645 in 2000 and the Kern Council of Governments (Kern COG) forecasts a 68.5 percent population increase to 1,114,878 by 2030.

The County of Los Angeles ranks as the highest populated county in the state, accounting for 27.6 percent of the state's overall population. Los Angeles County experienced the highest numeric population increase in the state in recent years and fourth largest in the nation from 2000 to 2006 (U.S. Census Bureau, 2007). The population in Los Angeles County at the time of the 2000 Census was 9,519,338 and is projected to grow to 12,221,799 by 2030 (27.6 percent increase). The City of Lancaster had a population of 118,718 (Table 3.12-2) in the 2000 Census, and accounts for 1.2 percent of the total Los Angeles County population. The City is projected to grow at a staggering rate even by regional standards such that in 2030, the City of Lancaster's population is projected to increase 118.8 percent to 259,696. The City of

Palmdale is also undergoing expansive population growth and is projected to surpass the City of Lancaster in rate of growth and total population size.

Table 3.12-2. North Region: Population Characteristics, 2000-2030

Jurisdiction	2000	2010	2020	2030	2000-2030 Change (%)
County of Kern	661,645	808,808	950,112	1,114,878	453,233 (68.5%)
County of Los Angeles	9,519,338	10,718,007	11,501,884	12,221,799	2,702,461 (28.4%)
City of Lancaster	118,718	168,032	215,468	259,696	140,978 (118.8%)
City of Palmdale	116,670	176,506	259,712	337,314	220,644 (189.1%)

Sources: SCAG, 2004; U.S. Census Bureau, 2000.

Housing Characteristics: North Region

Housing data for North Region jurisdictions is presented below in Table 3.12-3. As shown, the forecasted housing increases for Kern and Los Angeles Counties and the Cities of Lancaster and Palmdale correspond fairly closely to projected population increases. As indicated in Table 3.12-3, the Cities of Lancaster and Palmdale have a predicted high housing growth rate between the years 2000 and 2030.

Table 3.12-3. North Region: Housing Characteristics, 2000-2030

Jurisdiction	Housing Units, 2000	Vacancy Rate, 2000 (%)	Forecasted Housing Units, 2010	Forecasted Housing Units, 2020	Forecasted Housing Units, 2030	2000-2030 Change (%)
County of Kern	231,567	22,912 (9.9%)	278,899	327,625	384,441	152,874 (66.0%)
County of Los Angeles	3,137,047	137,135 (4.4%)	3,404,016	3,763,875	4,120,270	983,223 (31.3%)
City of Lancaster	38,289	3,473 (9.0%)	51,418	66,591	81,403	43,114 (112.6%)
City of Palmdale	34,447	2,792 (8.1%)	48,628	68,847	88,623	54,176 (157.3%)

Sources: SCAG, 2004; U.S. Census Bureau, 2000.

Labor Characteristics: North Region

Table 3.12-4 provides employment data for the North Region jurisdictions based on the California Labor Market Division. The region as a whole has more than 5,000,000 workers and overall unemployment rates vary considerably from county to county. Kern County historically has had high unemployment and the unemployment rate in 2006 was 7.6 percent. In comparison, Los Angeles County only had a 4.7 percent unemployment rate in 2006. The City of Lancaster also has experienced high unemployment (6.8 percent in 2006), while the City of Palmdale has a workforce similar in size to the City of Lancaster, with similar unemployment rates of 5.8 percent for Palmdale in 2006.

Table 3.12-4. North Region: Labor Force Characteristics, 2006

Jurisdiction	Total Labor Force	Total Employment	Unemployment (Rate, %)
County of Kern	338,400	312,800	25,600 (7.6%)
County of Los Angeles	4,860,600	4,613,600	229,000 (4.7%)
City of Lancaster	54,400	50,700	3,700 (6.8%)
City of Palmdale	54,400	51,200	3,200 (5.9%)

Source: EDD, 2006

Table 3.12-5 provides major industry sector data for the North Region. These data indicate that despite some pockets of high unemployment, the region as a whole has a large and growing workforce. The construction workforce is most relevant to this analysis and in 2000 there were more than 360,000 construction workers in the region. The construction workforce in Kern County consisted of 13,300 workers in 2002 and is forecasted to increase 34.6 percent to 17,900 participants in 2012. In 2002 Los

Angeles County had a construction workforce of 134,500 that is forecasted to increase to 149,700 by 2012.

Table 3.12-5. North Region: Major Industry Sector Characteristics by County, 2002-2012

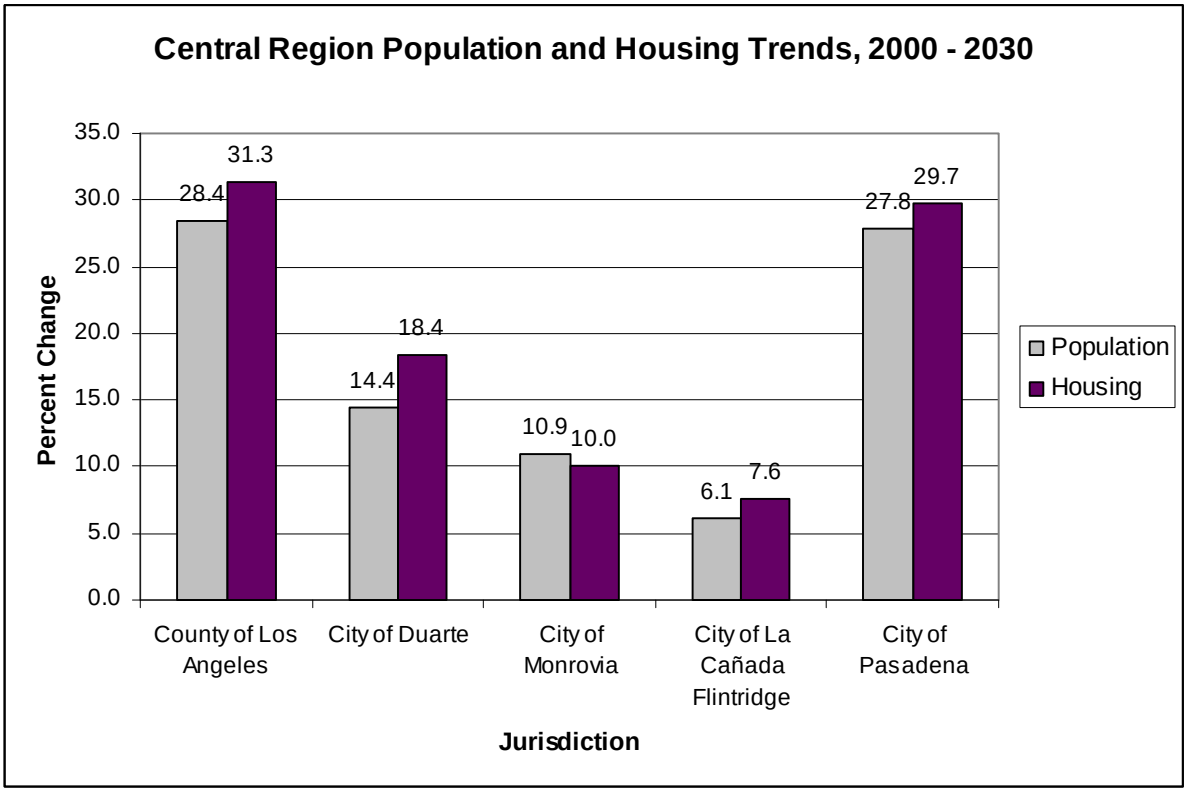
Sector	Annual Employment, 2002 (% of Total Employment)	Forecasted Annual Employment, 2012 (% of Total Employment)	2002-2012 Change (%)
Kern County			
Construction	13,300 (6.5%)	17,900 (7.5%)	4,600 (34.6%)
Education and Health Service	20,700 (10.1%)	26,300 (11.0%)	5,600 (27.1%)
Financial Activities	8,000 (3.9%)	9,600 (4.0%)	1,600 (20.0%)
Government	55,200 (26.9%)	60,200 (25.1%)	5,000 (9.1%)
Information	2,500 (1.2%)	3,100 (1.3%)	600 (24.0%)
Leisure and Hospitality	17,600 (8.6%)	21,700 (9.0%)	4,100 (23.3%)
Manufacturing	11,600 (5.7%)	13,900 (5.8%)	2,300 (19.8%)
Natural Resources and Mining	7,900 (3.9%)	8,500 (3.5%)	600 (7.6%)
Professional and Business Services	22,400 (10.9%)	24,600 (10.3%)	2,200 (9.8%)
Trade, Transportation, and Utilities	39,000 (19.0%)	46,300 (19.3%)	7,300 (18.7%)
Other Services	6,900 (3.4%)	7,900 (3.3%)	1,000 (14.5%)
Total Number of Positions	205,100 (100.0%)	240,000 (100.0%)	34,900 (17.0%)
Los Angeles County			
Construction	134,500 (3.3%)	149,700 (3.3%)	15,200 (11.3%)
Education and Health Service	450,400 (11.2%)	563,400 (12.6%)	113,000 (25.1%)
Financial Activities	232,600 (5.8%)	265,300 (5.9%)	32,700 (14.1%)
Government	606,100 (15.1%)	659,100 (14.7%)	53,000 (8.7%)
Information	207,300 (5.1%)	229,700 (5.1%)	22,400 (10.8%)
Leisure and Hospitality	354,200 (8.8%)	421,800 (9.4%)	67,600 (19.1%)
Manufacturing	534,800 (13.3%)	470,400 (10.5%)	[64,400] (-12.0%)
Natural Resources and Mining	3,700 (0.1%)	3,300 (0.1%)	[400] (-10.8%)
Professional and Business Services	575,000 (14.3%)	680,300 (15.2%)	105,300 (18.3%)
Trade, Transportation, and Utilities	782,700 (19.4%)	884,100 (19.7%)	101,400 (13.0%)
Other Services	145,600 (3.6%)	158,400 (3.6%)	12,800 (8.8%)
Total Number of Positions	4,026,800 (100.0%)	4,485,500 (100.0%)	458,700 (11.4%)

Source: EDD, 2003.

Central Region

The Central Region is located between the Vincent Substation and the southern boundary of the ANF. The majority of the Central Region falls within the jurisdictional boundaries of the ANF. The Gould Substation is located outside of the ANF's jurisdictional boundaries, but is included as part of the Central Region. The Central Region also includes parts of unincorporated Los Angeles County as well as the following cities: Duarte, Monrovia, La Cañada Flintridge, and Pasadena. The following section provides a description of population, housing, and labor characteristics in the Central Region. Figure 3.12-2, below, provides a comparison of population and housing trends in the Central Region, as projected from the year 2000 to the year 2030.

Figure 3.12-2



Demographic Characteristics: Central Region

As previously discussed in the North Region environmental setting, the County of Los Angeles is characterized by a large population and high population growth rate. Among the incorporated cities included within the Central Region, the predicted rate of population change ranges from a low of 6.1 percent in the City of La Cañada Flintridge to a high of 27.8 percent in the City of Pasadena. Please see Table 3.12-6, below, for further details regarding demographic characteristics in the Central Region.

Table 3.12-6. Central Region: Population Characteristics, 2000-2030

Jurisdiction	2000	2010	2020	2030	2000-2030 Change (%)
County of Los Angeles	9,519,338	10,718,007	11,501,884	12,221,799	2,702,461 (28.4%)
City of Duarte	21,486	23,110	23,866	24,570	3,084 (14.4%)
City of Monrovia	37,091	39,037	40,126	41,145	4,054 (10.9%)
City of La Cañada Flintridge	20,318	21,340	21,340	21,562	1,244 (6.1%)
City of Pasadena	133,936	146,489	159,242	171,138	37,202 (27.8%)
City of San Gabriel					

Sources: SCAG, 2004; U.S. Census Bureau, 2000.

Housing Characteristics: Central Region

Housing data for Central Region jurisdictions appears in Table 3.12-7. As previously discussed in the North Region environmental setting, the County of Los Angeles is a region characterized with a large amount of housing and future housing growth rate. As shown, the forecasted housing increases for the Cities of Duarte and Pasadena have the predicted highest level of housing growth rate between the years 2000 and 2030.

Table 3.12-7. Central Region: Housing Characteristics, 2000-2030

Jurisdiction	Housing Units, 2000	Vacancy Rate, 2000	Housing Units, 2010*	Housing Units, 2020*	Housing Units, 2030*	2000-2030 Change (%)
County of Los Angeles	3,137,047	137,135 (4.4%)	3,404,016	3,763,875	4,120,270	983,223 (31.3%)
City of Duarte	6,637	170 (2.6%)	7,057	7,458	7,861	1,224 (18.4%)
City of Monrovia	13,957	455 (3.3%)	13,755	14,354	14,961	1,364 (10.0%)
City of La Cañada Flintridge	6,828	171 (2.5%)	6,902	7,120	7,345	517 (7.6%)
City of Pasadena	51,842	2,287 (4.4%)	55,242	61,260	67,227	15,385 (29.7%)

Sources: SCAG, 2004; U.S. Census Bureau, 2000.

Labor Characteristics: Central Region

Table 3.12-8 provides employment data for the Central Region jurisdictions based on the California Labor Market Division. The region as a whole has more than 5,000,000 workers and overall citywide unemployment rates vary from 4.3 percent (City of Monrovia) to 1.9 percent (City of La Cañada Flintridge).

Table 3.12-8. Central Region: Labor Force Characteristics, 2006

Jurisdiction	Total Labor Force	Total Employment	Unemployment (Rate, %)
County of Los Angeles	4,860,600	4,613,600	229,000 (4.7%)
City of Duarte	11,400	11,100	300 (2.6%)
City of Monrovia	20,700	19,800	900 (4.3%)
City of La Cañada Flintridge	10,600	10,400	200 (1.9%)
City of Pasadena	76,600	73,900	2,700 (3.5%)

Source: EDD, 2006

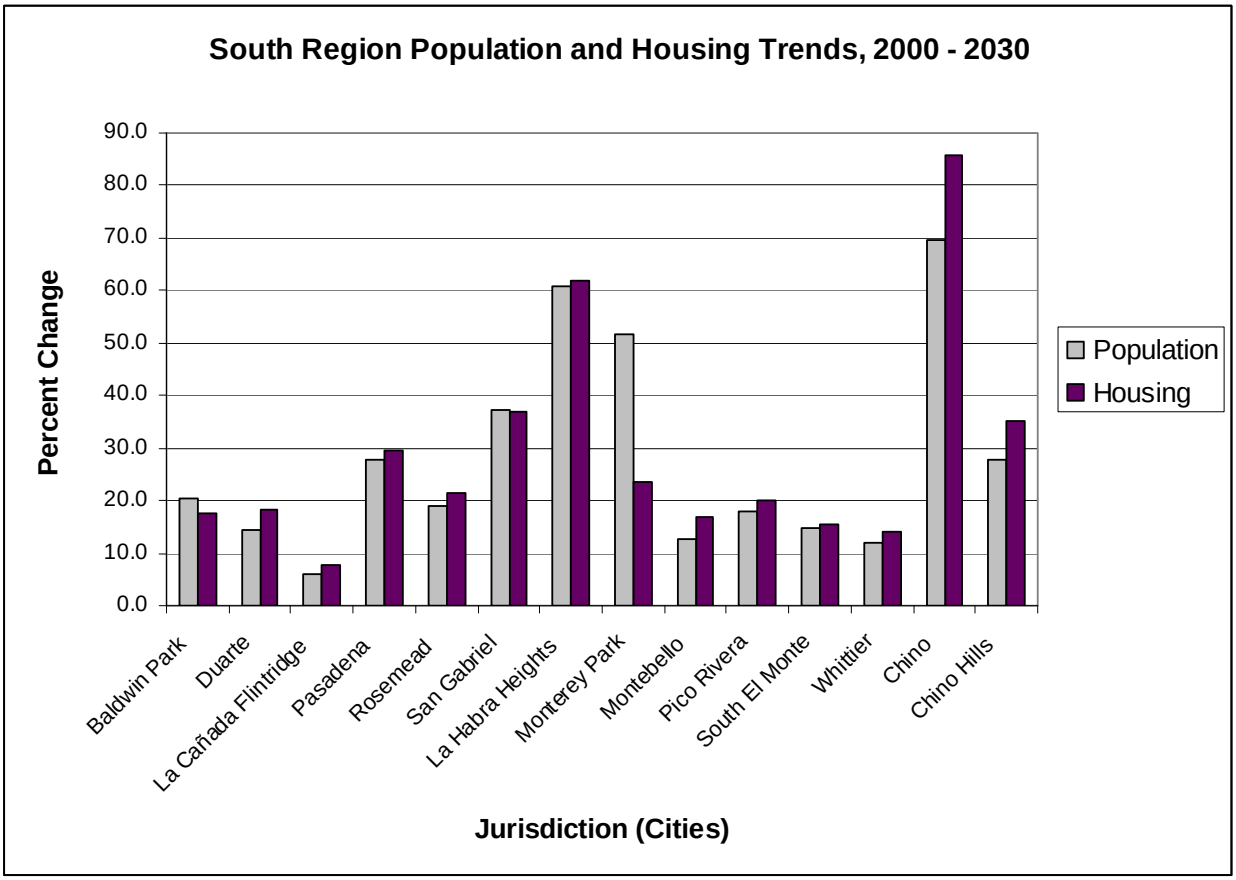
Please refer to Table 3.12-5 (North Region: Major Industry Sector Characteristics by County, 2002-2012), provided earlier, for a description of the major industry sector data for the Los Angeles County region. As noted earlier, existing construction and utilities related workforces in Los Angeles County are large and predicted to experience continued growth.

South Region

The South Region extends in a southeastern direction from the southern boundary of the ANF to the Mira Loma Substation in Ontario, encompassing the Gould, Goodrich, Mesa, Rio Hondo, and Chino Substations. The South Region includes lands within Los Angeles and San Bernardino Counties, as well as multiple incorporated cities and some unincorporated communities. The following section provides a description of population, housing, and labor characteristics in the South Region. Figure 3.12-3, below, provides a comparison of population and housing trends in the South Region, as projected from the year 2000 to the year 2030.

Population and housing trends for the Cities of Industry, Irwindale, and Ontario are not portrayed in Figure 3.12-3, but are provided in Tables 3.12-9 and 3.12-10.

Figure 3.12-3



Demographic Characteristics: South Region

The South Region is generally an area of high population and housing growth, as indicated in Table 3.12-9 (South Region: Population Characteristics, 2000-2030).

Table 3.12-9. South Region: Population Characteristics, 2000-2030

Jurisdiction	2000	2010	2020	2030	2000-2030 Change (%)
Los Angeles County					
Los Angeles County: total	9,519,338	10,718,007	11,501,884	12,221,799	2,702,461 (28.4%)
City of Baldwin Park	75,837	86,367	88,880	91,219	15,382 (20.3%)
City of Duarte	21,486	23,110	23,866	24,570	3,084 (14.4%)
City of Industry	777	799	799	799	22 (2.8%)
City of Irwindale	1,446	1,809	2,358	2,871	1,425 (98.5%)
City of La Cañada Flintridge	20,318	21,340	21,456	21,562	1,244 (6.1%)
City of Pasadena	133,936	146,489	159,242	171,138	37,202 (27.8%)
City of Rosemead	53,505	57,750	60,806	63,651	10,146 (19.0%)
City of San Gabriel	39,804	45,346	50,127	54,585	14,781 (37.1%)
Community of Altadena	42,610	n/a	n/a	n/a	n/a
Community of East Pasadena	6,045	n/a	n/a	n/a	n/a
Community of East San Gabriel	14,512	n/a	n/a	n/a	n/a
Community of South San Gabriel	7,595	n/a	n/a	n/a	n/a
City of La Habra Heights	5,712	6,631	7,950	9,181	3,469 (60.7%)
City of Monterey Park	60,051	70,072	80,917	91,027	30,976 (51.6%)
City of Montebello	62,150	66,020	68,102	70,046	7,896 (12.7%)
City of Pico Rivera	63,428	67,523	71,231	74,687	11,259 (17.8%)

Table 3.12-9. South Region: Population Characteristics, 2000-2030

Jurisdiction	2000	2010	2020	2030	2000-2030 Change (%)
City of South El Monte	21,144	22,559	23,438	24,256	3,112 (14.7%)
City of Whittier	83,680	88,085	91,049	93,814	10,134 (12.1%)
Community of Avocado Heights	15,148	n/a	n/a	n/a	n/a
Community of Hacienda Heights	53,122	n/a	n/a	n/a	n/a
Community of Rowland Heights	48,553	n/a	n/a	n/a	n/a
San Bernardino County					
San Bernardino County: total	1,919,215	2,229,700	2,558,729	2,713,549	794,334 (41.3%)
City of Chino	67,168	82,319	98,703	113,977	46,809 (69.7%)
City of Chino Hills	66,787	78,307	81,916	85,284	18,497 (27.7%)
City of Ontario	158,007	180,059	244,977	305,509	147,502 (93.4%)

n/a: data not available
Sources: SCAG, 2004; U.S. Census Bureau, 2000.

As shown in Table 3.12-9, municipalities within the South Region are generally forecasted to experience high population growth. While population projections are not available for the unincorporated communities of Altadena, East Pasadena, East San Gabriel, South San Gabriel, Avocado Heights, Hacienda Heights, and Rowland Heights, these communities may be reasonably expected to undergo population growth based on County trends and their proximity to adjacent cities with forecasted high population growth.

The cities of Montebello and Whittier exhibit comparatively modest levels of growth in population and housing. Conversely, the City of Ontario, which has the largest current population of cities within the South Region, also displays a high forecasted population growth (93.4 percent). Variances shown in Table 3.12-9 include the City of Irwindale, which is expected to have the highest population growth, and the City of Industry, which is expected to have the lowest population growth rate of jurisdictions within the South Region. Population in the City of Irwindale is expected to grow by 98.5 percent by the year 2030, however, it should be noted that in comparison with other cities in the South Region, Irwindale has a very low existing population. In comparison, population in the City of Industry is expected to grow by 2.8 percent by the year 2030; however, this low rate of growth is due to the fact that the City of Industry was created to allow for industrial and commercial development with minimal residences. As such, this city is not comparable to other cities listed in Table 3.12-9 that are experiencing rapid growth of residential developments.

Housing Characteristics: South Region

Housing data for South Region jurisdictions is presented below, in Table 3.12-10. As previously discussed in the North Region environmental setting, the County of Los Angeles is characterized by a large amount of housing and future housing growth rate. Predictions for housing growth in San Bernardino County are more aggressive, as indicted in Table 3.12-10. As shown, the forecasted housing increases for the Cities of Chino and Ontario have the highest predicted levels of housing growth rate between the years 2000 and 2030.

Table 3.12-10. South Region: Housing Characteristics, 2000-2030

Jurisdiction	Housing Units, 2000	Vacancy Rate, 2000	Forecasted Housing Units, 2010	Forecasted Housing Units, 2020	Forecasted Housing Units, 2030	2000-2030 Change (%)
Los Angeles County						
Los Angeles County: total	3,137,047	137,135 (4.4%)	3,404,016	3,763,875	4,120,270	983,223 (31.3%)
City of Baldwin Park	16,991	467 (2.7%)	18,673	19,324	19,994	3,003 (17.7%)
City of Duarte	6,637	170 (2.6%)	7,057	7,458	7,861	1,224 (18.4%)
City of Industry	121	0 (0%)	121	121	122	1 (0.1%)
City of Irwindale	365	13 (3.6%)	394	502	607	242 (66.3%)
City of La Cañada Flintridge	6,828	171 (2.5%)	6,902	7,120	7,345	517 (7.6%)
City of Pasadena	51,842	2,287 (4.4%)	55,242	61,260	67,227	15,385 (29.7%)
City of Rosemead	13,948	425 (3.0%)	14,519	15,746	16,967	3,019 (21.6%)
City of San Gabriel	12,592	317 (2.5%)	13,774	15,510	17,231	4,639 (36.8%)
Community of Altadena	15,245	470 (3.1%)	n/a	n/a	n/a	n/a
Community of East Pasadena	2,123	88 (4.1%)	n/a	n/a	n/a	n/a
Community of East San Gabriel	5,387	186 (3.5%)	n/a	n/a	n/a	n/a
Community of South San Gabriel	5,387	75 (1.4%)	n/a	n/a	n/a	n/a
City of La Habra Heights	1,890	72 (3.8%)	2,204	2,635	3,059	1,169 (61.9%)
City of Monterey Park	19,626	646 (3.3%)	20,177	22,214	24,236	4,610 (23.5%)
City of Montebello	18,833	580 (3.1%)	19,398	20,702	22,009	3,176 (16.9%)
City of Pico Rivera	16,468	334 (2.0%)	17,301	18,534	19,763	3,295 (20.0%)
City of South El Monte	4,620	97 (2.1%)	4,776	5,059	5,342	722 (15.6%)
City of Whittier	28,270	707 (2.5%)	29,311	10,776	32,250	3,980 (14.1%)
Community of Avocado Heights	3,833	8 (2.0%)	n/a	n/a	n/a	n/a
Community of Hacienda Heights	16,356	364 (2.2%)	n/a	n/a	n/a	n/a
Community of Rowland Heights	14,548	367 (2.5%)	n/a	n/a	n/a	n/a
San Bernardino County						
San Bernardino County: total	601,369	72,775 (12.1%)	618,782	756,640	897,739	367,241 (69.2%)
City of Chino	17,331	631 (3.6%)	20,818	26,451	32,202	14,871 (85.8%)
City of Chino Hills	20,158	374 (1.9%)	22,466	24,779	27,252	7,094 (35.2%)
City of Ontario	43,538	1,671 (3.8%)	48,749	69,473	90,417	46,879 (107.7%)

n/a: data not available

Sources: SCAG, 2004; U.S. Census Bureau, 2000.

Labor Characteristics: South Region

Table 3.12-11 provides labor force data for jurisdictions located within the South Region. As shown, the size of the area's labor force is consistent with the population size, and the unemployment setting similarly compares with the regional unemployment rate (4.7 percent for Los Angeles County and 4.9 percent for San Bernardino County). As shown in Table 3.12-11, labor force characteristics of the jurisdictions located in the South Region are comparatively similar in workforce size, with exception of the cities of Irwindale, and Industry. Similarly the jurisdictions have comparable unemployment rates.

Table 3.12-11. South Region: Labor Force Characteristics, 2006

Jurisdiction	Total Labor Force	Total Employment	Unemployment (Rate, %)
Los Angeles County			
Los Angeles County: total	4,860,600	4,613,600	229,000 (4.7%)
City of Baldwin Park	32,800	30,800	2,000 (6.1%)
City of Duarte	11,400	11,100	300 (2.6%)
City of Industry	300	300	0 (0%)
City of Irwindale	700	700	0 (0%)

Table 3.12-11. South Region: Labor Force Characteristics, 2006

Jurisdiction	Total Labor Force	Total Employment	Unemployment (Rate, %)
City of La Cañada Flintridge	10,600	10,400	200 (1.9%)
City of Pasadena	76,600	73,900	2,700 (3.5%)
City of Rosemead	24,900	23,900	1,000 (4.0%)
City of San Gabriel	20,700	19,900	800 (3.9%)
Community of Altadena	24,200	23,400	800 (3.3%)
Community of East Pasadena	3,300	3,200	100 (3.0%)
Community of East San Gabriel	8,200	8,000	200 (2.4%)
Community of South San Gabriel	3,800	3,600	200 (5.3%)
City of La Habra Heights	2,900	2,900	0 (0%)
City of Monterey Park	29,600	28,600	1,000 (3.4%)
City of Montebello	20,700	19,800	900 (4.3%)
City of Pico Rivera	29,000	27,700	1,300 (4.5%)
City of South El Monte	9,200	8,700	500 (5.4%)
City of Whittier	44,000	42,500	1,500 (3.4%)
Community of Avocado Heights	6,700	6,400	300 (4.5%)
Community of Hacienda Heights	27,400	26,500	900 (3.3%)
Community of Rowland Heights	25,500	24,700	800 (3.1%)
San Bernardino County			
San Bernardino County: total	669,028	636,246	32,782 (4.9%)
City of Chino	35,900	34,400	1,500 (4.2%)
City of Chino Hills	42,300	41,300	1,000 (2.4%)
City of Ontario	83,800	79,600	4,200 (5.0%)

Source: EDD, 2006

In addition to the labor force characteristics described above, Table 3.12-12 (below) provides major industry sector data for San Bernardino County. Please refer to Table 3.12-5 (North Region: Major Industry Sector Characteristics by County, 2002-2012), provided above in the North Region discussion, for a description of major industry sector employment data for Los Angeles County. The construction workforce is most relevant to this analysis and in 2002 there were 90,900 construction workers in San Bernardino County. The construction workforce in Los Angeles County consisted of 134,500 workers in 2002. As shown, San Bernardino County construction workforce is forecasted to increase 39.4 percent to 126,700 workers by the year 2012. In 2002 Los Angeles County had a construction workforce forecasted to increase to 149,700 workers by 2012. Therefore, cumulative available construction workforce in 2012 is expected to be approximately 276,400 workers.

Table 3.12-12. South Region: Major Industry Sector Characteristics by County, 2002-2012

Sector	Annual Employment, 2002 (% of Total Employment)	Forecasted Annual Employment, 2012 (% of Total Employment)	2002-2012 Change (%)
San Bernardino County			
Construction	90,900 (8.5%)	126,700 (9.2%)	35,800 (39.4%)
Education and Health Service	112,400 (10.6%)	146,400 (10.6%)	34,000 (30.2%)
Financial Activities	39,500 (3.7%)	52,300 (3.8%)	12,800 (32.4%)
Government	212,700 (20.0%)	258,800 (18.7%)	46,100 (21.7%)
Information	14,100 (1.3%)	16,200 (1.2%)	2,100 (14.9%)
Leisure and Hospitality	107,200 (10.1%)	138,600 (10.0%)	31,400 (29.3%)
Manufacturing	115,400 (10.8%)	129,300 (9.4%)	13,900 (12.0%)
Natural Resources and Mining	1,200 (0.1%)	1,300 (0.1%)	100 (8.3%)
Professional and Business Services	106,800 (10.0%)	159,700 (11.6%)	52,900 (49.5%)

Table 3.12-12. South Region: Major Industry Sector Characteristics by County, 2002-2012			
Sector	Annual Employment, 2002 (% of Total Employment)	Forecasted Annual Employment, 2012 (% of Total Employment)	2002-2012 Change (%)
Trade, Transportation, and Utilities	225,400 (21.2%)	306,900 (22.2%)	81,500 (36.2%)
Other Services	38,100 (3.4%)	45,800 (3.3%)	7,700 (20.2%)
Total Number of Positions	1,063,700 (100.0%)	1,382,000 (100.0%)	318,300 (29.9%)

Source: EDD, 2003

3.12.2.2 Alternative 2: SCE's Proposed Project

North Region, Alternative 2

The North Region extends from the Windhub Substation (Milepost 0.0 of the proposed Project's Segment 10) to the Vincent Substation (Milepost 17.8 of the proposed Project's Segment 5) and includes the proposed Project's Segments 4, 5 and 10, as well as small portions of Segments 6 and 11. Table 3.12-13, shown below, indicates that the proposed route for Alternative 2 would cross through the following jurisdictions within the North Region: Kern County, Los Angeles County, the City of Lancaster, and the City of Palmdale.

Table 3.12-13. North Region, Alternative 2: Applicable Jurisdictions by Milepost		
Segment	Mileposts	Jurisdiction
Segment 10	0.0 – 16.8	Kern County
Segment 4	0.0 – 6.9	Kern County
	6.9 – 17.4	Los Angeles County
	17.4 – 19.6	City of Lancaster
Segment 5	0.0 – 3.5	City of Lancaster
	3.5 – 5.8	City of Palmdale
	5.8 – 7.4	Los Angeles County
	7.4 – 11.1	City of Palmdale
	11.1 – 17.8	Los Angeles County
Segment 11	0.0 – 1.5	Los Angeles County
Segment 6	0.0 – 1.4	Los Angeles County

Source: SCE, 2007

Demographic Characteristics: North Region, Alternative 2

Demographic characteristics for the jurisdictions which are traversed by the proposed route for Alternative 2, as described above, are presented in Section 3.12.2.1 (Regional Setting: North Region, Demographic Characteristics). Table 3.12-2 (North Region: Population Characteristics, 2000-2030) presents a description of population statistics and estimated growth rates within the North Region. This table indicates that expected population growth along the proposed route for Alternative 2 ranges from a low of 28.4 percent growth in the County of Los Angeles to a high of 189.1 percent growth in the City of Palmdale. The North Region as a whole is expected to experience aggressive population growth in the near future. The values presented for the North Region above are considered to be indicative of demographic characteristics along the proposed route for Alternative 2 (the proposed Project).

Housing Characteristics: North Region, Alternative 2

Please see Section 3.12.2.1 (Regional Setting: North Region, Housing Characteristics) for a discussion of housing characteristics along this portion of the proposed Project route. As indicated in Table 3.12-3 (North Region: Housing Characteristics, 2000-2030), the predicted rate of growth for available housing

generally corresponds with the predicted rate of population growth in this area, as described above. These values are considered to be indicative of housing characteristics along the proposed Project route.

Labor Characteristics: North Region, Alternative 2

Please see Section 3.12.2.1 (Regional Setting: North Region, Labor Characteristics) for a discussion of labor characteristics along this portion of the proposed Project route. As indicated in Table 3.12-4 (North Region: Labor Force Characteristics, 2006), the unemployment rate in the North Region ranges from a low of 4.7 percent in Los Angeles County to a high of 7.6 percent in Kern County. In addition, Table 3.12-5 (North Region: Major Industry Sector Characteristics by County, 2002-2012) provides a description of employment type in the Project area, including expected rate of change. These values are considered to be indicative of labor characteristics along the proposed Project route.

Central Region, Alternative 2

The Central Region is located between the Vincent Substation (Segment 6 MP 0.0/Segment 11 MP 0.0) and the southern boundary of the ANF (Segment 6 MP 26.9/Segment 11 MP 24.5). The majority of the Central Region falls within the jurisdictional boundaries of the ANF; this region includes all of the proposed Project's Segment 6 and approximately 70 percent of Segment 11. The Gould Substation is located outside of the ANF's jurisdictional boundaries, but is part of the Central Region. Table 3.12-14, shown below, indicates that the proposed route for Alternative 2 would cross through the following jurisdictions within the Central Region: Los Angeles County, USDA Forest Service (ANF), the City of Duarte, the City of Monrovia, the City of La Cañada Flintridge, and the City of Pasadena.

Table 3.12-14. Central Region: Applicable Jurisdictions by Milepost

Segment	Mileposts	Jurisdiction
Segment 6	0.0 – 1.4	Los Angeles County
	1.4 – 1.7	USDA Forest Service (ANF)
	1.7 – 2.8	Los Angeles County (out parcel)
	2.8 – 5.3	USDA Forest Service (ANF)
	5.3 – 5.7	Los Angeles County (out parcel)
	5.7 – 24.8	USDA Forest Service (ANF)
	24.8 – 25.8	City of Duarte / USDA Forest Service (ANF)
	25.8 – 26.9	City of Monrovia / USDA Forest Service (ANF)
Segment 11	0.0 – 1.5	Los Angeles County
	1.5 – 18.7	USDA Forest Service (ANF)
	18.7 – 19.1	City of La Cañada Flintridge
	19.1 – 19.3	City of Pasadena
	19.3 – 20.3	USDA Forest Service (ANF)
	20.3 – 20.8	Los Angeles County
	20.8 – 21.3	USDA Forest Service (ANF)
	21.3 – 21.8	Los Angeles County
	21.8 – 22.6	USDA Forest Service (ANF)
	22.6 – 23.0	Los Angeles County
	23.0 – 24.0	USDA Forest Service (ANF)
	24.0 – 24.3	City of Pasadena
	24.3 – 24.5	USDA Forest Service (ANF)

Source: SCE, 2007

Demographic Characteristics: Central Region, Alternative 2

Demographic characteristics for the Central Region jurisdictions which are traversed by the proposed route for Alternative 2 are presented in Section 3.12.2.1 (Regional Setting: Central Region, Demographic

Characteristics). Additionally, Table 3.12-6 (Central Region: Population Characteristics, 2000-2030) presents a description of population statistics and estimated growth rates for cities and counties within the Central Region. As indicated in Table 3.12-14 (Central Region: Applicable Jurisdictions by Milepost), the vast majority of the proposed route within the Central Region is situated in the ANF. This Forest area, which is under the jurisdiction of the USDA Forest Service, is non-developable land. Outside of the Forest, the proposed route for Alternative 2 is situated in areas which are expected to experience aggressive population growth in the near future. Expected population growth rates for cities and counties along the Project route range from 6.1 percent by the year 2030 in the City of La Cañada Flintridge, to 28.4 percent by the year 2030 in the County of Los Angeles. With regards to these areas, the values presented for the Central Region in Section 3.12.2.1 are considered to be indicative of demographic characteristics along the proposed route for Alternative 2 (the proposed Project).

Housing Characteristics: Central Region, Alternative 2

Please see Section 3.12.2.1 (Regional Setting: Central Region, Housing Characteristics) for a discussion of housing characteristics along this portion of the proposed Project route. As indicated in Table 3.12-7 (Central Region: Housing Characteristics, 2000-2030), the predicted rate of growth for available housing generally corresponds with the predicted rate of population growth in the Central Region cities and counties, which are indicated in Table 3.12-14 (Central Region: Applicable Jurisdictions by Milepost). These values are considered to be indicative of housing characteristics along the proposed Project route.

Labor Characteristics: Central Region, Alternative 2

Please see Section 3.12.2.1 (Regional Setting: Central Region, Labor Characteristics) for a discussion of labor characteristics along this portion of the proposed Project route. As indicated in Table 3.12-8 (Central Region: Labor Force Characteristics, 2006), the unemployment rate in the Central Region ranges from a low of 1.9 percent in the City of La Cañada Flintridge, to a high of 4.7 percent in the County of Los Angeles. In addition, Table 3.12-5 (North Region: Major Industry Sector Characteristics by County, 2002-2012) provides a description of employment type within Los Angeles County, which encompasses the Central Region. Table 3.12-5 includes the expected rate of change for employment. These values are considered to be indicative of labor characteristics along the proposed Project route.

South Region, Alternative 2

The South Region extends in a southeastern direction from the southern boundary of the ANF to the Mira Loma Substation in Ontario, encompassing the Gould, Goodrich, Mesa, Rio Hondo, and Chino Substations. The South Region is entirely contained within Los Angeles County, although the Mira Loma Substation (the termination point for Segment 8) is within one-half mile of San Bernardino County. Table 3.12-15, shown below, indicates that the proposed route for Alternative 2 would cross through 22 different city jurisdictions within the South Region.

Table 3.12-15. South Region: Applicable Jurisdictions by Milepost

Segment	Mileposts	Jurisdiction
Segment 11	24.5 – 25.5	Los Angeles County
	25.5 – 28.7	City of Pasadena
	28.7 – 31.0	Los Angeles County
	31.0 – 31.5	Temple City
	31.5 – 34.5	City of Rosemead
	34.5 – 35.2	Los Angeles County
	35.2 – 36.2	City of Monterey Park

Table 3.12-15. South Region: Applicable Jurisdictions by Milepost

Segment	Mileposts	Jurisdiction
Segment 7	0.0 – 1.9	City of Duarte
	1.9 – 7.3	City of Irwindale
	7.3 – 8.8	City of Baldwin Park
	8.8 – 10.3	City of Industry
	10.3 – 10.8	Los Angeles County
	10.8 – 11.4	City of South El Monte
	11.4 – 13.9	Los Angeles County
	13.9 – 15.4	City of Montebello
	15.4 – 15.8	City of Monterey Park
Segment 8A	0.0 – 0.3	City of Monterey Park
	0.3 – 2.1	City of Montebello
	2.1 – 3.8	City of South El Monte
	3.8 – 4.4	City of Pico Rivera
	4.4 – 4.6	City of Industry
	4.6 – 11.1	Los Angeles County / City of Whittier
	11.1 – 13.4	City of La Habra Heights
	13.4 – 20.6	Los Angeles County / City of Diamond Bar
	20.6 – 25.6	City of Chino Hills
Segment 8A (continued)	25.6 – 29.9	City of Chino
	29.9 – 35.2	City of Ontario
Segment 8B	0.0 – 1.5	City of Chino
	1.5 – 6.8	City of Ontario
Segment 8C	0.0 – 1.5	City of Chino
	1.5 – 6.4	City of Ontario

Source: SCE, 2007

Demographic Characteristics: South Region, Alternative 2

Demographic characteristics for the South Region jurisdictions which are traversed by the proposed route for Alternative 2 are presented in Section 3.12.2.1 (Regional Setting: South Region, Demographic Characteristics). Table 3.12-9 (South Region: Population Characteristics, 2000-2030) presents a description of population statistics and estimated growth rates for cities and counties within the South Region. As indicated above in Table 3.12-15 (South Region: Applicable Jurisdictions by Milepost), Alternative 2 would cross through 22 different city or community jurisdictions in addition to one county jurisdiction.

Although Alternative 2 does not cross directly into San Bernardino County, demographic characteristics for this area are provided because the proposed route comes within one-half mile of the county border. As shown in Table 3.12-9, expected population growth rates for cities and counties along the Project route range from a low of 2.8 percent by the year 2030 in the City of Industry to a high of 98.5 percent by the year 2030 in the City of Irwindale. With regards to these areas, the values presented for the South Region in Section 3.12.2.1 are considered to be indicative of demographic characteristics along the proposed route for Alternative 2 (the proposed Project).

Housing Characteristics: South Region, Alternative 2

Please see Section 3.12.2.1 (Regional Setting: South Region, Housing Characteristics) for a discussion of housing characteristics along this portion of the proposed Project route. As indicated in Table 3.12-10 (South Region: Housing Characteristics, 2000-2030), the predicted rate of growth for available housing

generally corresponds with the predicted rate of population growth in this area, as described above. These values are considered to be indicative of housing characteristics along the proposed Project route.

Labor Characteristics: South Region, Alternative 2

Please see Section 3.12.2.1 (Regional Setting: South Region, Labor Characteristics) for a discussion of labor characteristics along this portion of the proposed Project route. As indicated in Table 3.12-11 (South Region: Labor Force Characteristics, 2006), the unemployment rate in the South Region ranges from a low of 0.0 percent in the Cities of Industry, Irwindale, and La Habra Heights to a high of 6.1 percent in the City of Baldwin Park. In addition, Table 3.12-12 (South Region: Major Industry Sector Characteristics by County, 2002-2012) provides a description of employment type in the Project area, including expected rate of change. These values are considered to be indicative of labor characteristics along the proposed Project route.

3.12.2.3 Alternative 3: West Lancaster Alternative

Alternative 3 includes a minor re-route of the proposed Project in the West Lancaster area of the North Region. The affected environment for Alternative 3 would be exactly the same as the proposed Project, with regard to socioeconomics. Therefore, the demographics, housing characteristics, and labor characteristics described above in Sections 3.12.2.1 (Affected Environment: Regional Setting) and 3.12.2.2 (Affected Environment: Alternative 2) apply to Alternative 3 as well as the proposed Project.

3.12.2.4 Alternative 4: Chino Hills Route Alternatives

Alternative 4 includes ~~four~~ five different routing options (Routes A, B, C, C Modified, and D), all of which would diverge from the proposed Project route along Segment 8A in the South Region. With the exception of these South Region routing options in Segment 8A, the proposed route for Alternative 4 would be exactly the same as the proposed Project route, including Segment 8B between Chino and Mira Loma Substations. As such, the affected environment for Alternative 4 would be exactly the same as the proposed Project, with regard to socioeconomics. Therefore, the demographics, housing characteristics, and labor characteristics described above in Sections 3.12.2.1 (Affected Environment: Regional Setting) and 3.12.2.2 (Affected Environment: Alternative 2) apply to Alternative 4 as well as the proposed Project.

3.12.2.5 Alternative 5: Partial Underground Alternative

Alternative 5 would follow the exact same route as the proposed Project route, but portions of the proposed transmission line would be installed underground. As such, the affected environment for Alternative 5 would be exactly the same as the proposed Project, with regard to socioeconomics. The demographics, housing characteristics, and labor characteristics described above in Sections 3.12.2.1 (Affected Environment: Regional Setting) and 3.12.2.2 (Affected Environment: Alternative 2) therefore apply to Alternative 5 as well as the proposed Project.

3.12.2.6 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Alternative 6 would follow the same alignment as the proposed Project route. As such, the affected environment for Alternative 6 would be exactly the same as the proposed Project, with regard to socioeconomics. The demographics, housing characteristics, and labor characteristics described above in Sections 3.12.2.1 (Affected Environment: Regional Setting) and 3.12.2.2 (Affected Environment: Alternative 2) therefore apply to Alternative 6 as well as the proposed Project.

3.12.2.7 Alternative 7: 66-kV Subtransmission Alternative

Alternative 7 includes the relocation and/or undergrounding of ~~three~~ four 66-kV subtransmission lines along portions of Segment 7 and Segment 8A in the South Region. With the exception of these subtransmission line elements, the proposed route for Alternative 7 would be identical to the proposed Project alignment. As such, the affected environment for Alternative 7 would be exactly the same as the proposed Project, with regard to socioeconomics. The demographics, housing characteristics, and labor characteristics described above in Sections 3.12.2.1 (Affected Environment: Regional Setting) and 3.12.2.2 (Affected Environment: Alternative 2) apply to Alternative 7 as well as the proposed Project.

3.12.3 Applicable Laws, Regulations, and Standards

This section below provides an overview of federal, State, and local policies that are applicable to SCE's proposed Project with regards to the Issue Area of Socioeconomics.

3.12.3.1 Federal

National Environmental Policy Act (NEPA)

Under NEPA (42 United States Code [USC] 4321 et seq.), an EIS must discuss social and economic effects if they are related to the natural or physical effects, and the definition of "effects" includes economic and social factors. Implementation of NEPA (40 CFR Parts 1500-1508) defines (Section 1508.8) "effects" to include, among other things, economic and social factors, whether direct, indirect, or cumulative. Consequently, an EIS must include an analysis of the proposed Project's economic, social, and demographic impacts related to effects on the natural or physical environment in the affected area, but does not allow for economic, social, and demographic effects to be analyzed in isolation from the physical environment.

Forest Service Handbook 1909.17 - Economic and Social Analysis Handbook

This handbook provides guidance on the evaluation of economic and social effects of policies, plans, programs, and projects with the goal of promoting consistent use of social and economic analysis in Forest Service Projects. In addition to providing guidance on using economic estimates and measures, the document also provides direction on selecting and analyzing social variables. Social variables discussed in the Forest Service Handbook include: Lifestyles; Attitudes; Beliefs and Values; Population; Housing Characteristics; Employment; Social Organization; and Land Use Patterns (USDA Forest Service, 2005). Some of these variables, such as Population, Housing, and Employment, are addressed in this section. Due to the type of this project and the qualitative nature of variables such as lifestyles, attitudes and beliefs, and social organization, these variables were not selected for analysis in this section.

3.12.3.2 State

California Environmental Quality Act (CEQA)

Title 14 of the California Code of Regulations, Chapter 3, Guidelines for Implementation of the California Environmental Quality Act, Article 9(a), Section 15131, states the following in regards to Economic and Social Effects:

a) Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes

caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.

b) Economic or social effects of a project may be used to determine the significance of physical changes caused by the project. For example, if the construction of a new freeway or rail line divides an existing community, the construction would be the physical change, but the social effect on the community would be the basis for determining that the effect would be significant. As an additional example, if the construction of a road and the resulting increase in noise in an area disturbed existing religious practices in the area, the disturbance of the religious practices could be used to determine that the construction and use of the road and the resulting noise would be significant effects on the environment. The religious practices would need to be analyzed only to the extent to show that the increase in traffic and noise would conflict with the religious practices. Where an EIR uses economic or social effects to determine that a physical change is significant, the EIR shall explain the reason for determining that the effect is significant.

c) Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the EIR. If information on these factors is not contained in the EIR, the information must be added to the record in some other manner to allow the agency to consider the factors in reaching a decision on the project.

Consistent with the requirements set forth in State CEQA Guidelines Section 15131described above, social and economic effects are not treated as significant effects on the environment in this analysis and, therefore, no CEQA significance conclusions are presented for such effects.

3.12.3.3 Local

Local plans are considered in this report to assist the CPUC and the USDA Forest Service in determining the proposed Project's consistency with local plans, goals, and policies as related to socioeconomics. As the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities, no local discretionary permits (e.g., conditional use permits) or local plan consistency evaluations are required for the proposed Project or the Project alternatives. However, SCE would be required to obtain all ministerial building and encroachment permits from local jurisdictions. The following discussion summarizes the local plans and policies that are applicable to the Project.

The proposed Project would cross lands within Kern County, Los Angeles County and San Bernardino County, and would come within 0.5 mile of Riverside County. The Project would also traverse through the General Plan area for the following 22 city jurisdictions: City of Lancaster; City of Palmdale; City of Duarte; City of Monrovia; City of Azusa; City of Irwindale; City of Baldwin Park; City of El Monte; City of Industry; City of South El Monte; City of Montebello, City of Monterey Park; City of Pico Rivera; City of Whittier; City of La Habra Heights; City of La Cañada Flintridge; City of Pasadena; City of San Gabriel; City of Temple City; City of Rosemead; City of Chino Hills; and City of Ontario.

As required by the State of California, each General Plan includes the following seven mandatory elements: Circulation, Conservation, Housing, Land Use, Noise, Open Space, Safety, and Seismic Safety. Although it is not mandatory that General Plans include an element for socioeconomics, some cities may choose to include additional elements to address such issue areas.

3.12.4 Impact Analysis Approach

This section explains how potential impacts associated with SCE's proposed Project are assessed with regard to socioeconomics. Section 3.12.4.1 discusses impact significance for socioeconomics, Section 3.12.4.2 discusses Applicant Proposed Measures (APMs) presented in the Proponent's Environmental Assessment (PEA), and Section 3.12.4.3 describes the methodology used to assess impacts.

3.12.4.1 Criteria for Determining Impact Significance

According to NEPA, an EIS must evaluate social and economic effects of a project if they are related to effects on the natural or physical environment, although social and economic effects alone should not trigger preparation of an EIS (40 CFR 1508.8, 1508.14). According to CEQA, "Economic and social changes resulting from a project shall not be treated as significant effects on the environment" (CEQA Guidelines Sec. 15064[e]). NEPA provides no specific thresholds of significance for socioeconomic impact assessment. Therefore, as described below in Section 3.12.4.3, five Issues of Concern have been identified as areas where SCE's proposed Project could potentially introduce socioeconomic impacts. All impacts identified for the proposed Project and alternatives are presented in Sections 3.12.5 through 3.12.11.

3.12.4.2 Applicant-Proposed Measures (APMs)

Applicant-Proposed Measures (APMs) are a commitment by the Applicant (SCE) and are considered part of the proposed Project. SCE has not identified any APMs to address social or economic effects of the Project.

3.12.4.3 Impact Assessment Methodology

This analysis first established baseline conditions for the affected environment, which is presented above in Section 3.12.2 (Affected Environment) and includes a description of demographics, housing characteristics, and labor characteristics in the Project Regions (North/Central/South). These baseline conditions were evaluated based on their potential to be affected by construction activities as well as operation and maintenance activities related to the proposed Project and alternatives. Construction, operation, and maintenance activities associated with the proposed Project and alternatives were identified based on the PEA provided by SCE. For the purposes of this analysis, five categories of potential socioeconomic impacts have been identified and evaluated with regards to the baseline conditions provided in Section 3.12.2 (Affected Environment). These categories, which are referred to as "Issues of Concern", include the following:

- Population and Housing
- Quality of Life
- Employment
- Private Property Value
- Local Business Revenue
- Public Revenue

The following sections provide analyses of potential Project impacts to socioeconomics that could occur under each of the Issues of Concern identified above. Where applicable, mitigation measures are ~~also~~ introduced to minimize or avoid potential impacts.

3.12.5 Alternative 1: No Project/Action

Under the No Project/Action Alternative, the proposed Project would not be implemented and the impacts associated with construction and operation of the Project or the alternatives to the Project (as described

below, in Sections 3.12.5 through 3.12.11) would not occur. As a result, the No Project/Action Alternative would not result in any impacts related to the Socioeconomic Issues of Concern, including: Population and Housing, Quality of Life, Employment, Private Property Value, Local Business Revenue, and Public Revenue. However, conditions in the environment are not static and will change over time. Environmental conditions will evolve based on growth and change that are not associated with the proposed Project. As discussed in Section 3.12.2 (Affected Environment), population and housing growth in the Project area is expected to continue with or without the Project, to which there would be no contribution by the No Project/Action Alternative.

However, other indirect actions would occur. SCE would need to accommodate new power generation by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment. Construction methods, resulting impacts, and regulatory requirements associated with other transmission projects would be similar to those identified for the proposed Project; as such, socioeconomic impacts associated with construction and operation of other transmission projects would be expected to be similar to the proposed Project.

3.12.6 Alternative 2: SCE's Proposed Project

The following section describes SCE's proposed Project's impacts to socioeconomics, which are presented according to the identified Issues of Concern listed in Section 3.12.4 (Impact Assessment Methodology). Mitigation measures are introduced where applicable.

3.12.6.1 Direct and Indirect Effects Analysis

Direct and indirect effects associated with Alternative 2 (the proposed Project) are discussed below. In accordance with CEQA Section 15358(a)(2), "Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems." The Issues of Concern that have been used to identify socioeconomic impacts are introduced in Section 3.12.4.3 (Impact Assessment Methodology) and summarized below in Table 3.12-16, as well as the impacts that have been identified under each Issue of Concern.

Table 3.12-16. Issues of Concern and Associated Impacts – Socioeconomics

Issue of Concern	Impact Statements
Population and Housing	No Impact
Quality of Life	No Impact
Employment	No Impact
Private Property Value	S-1: Project implementation would decrease existing private property values.
Business Revenue	S-2: Construction activities would cause a temporary decrease in revenues for agricultural landowners.
Public Revenue	S-3: Operational activities would benefit public agency revenue.

The Issues of Concern and related socioeconomic impacts are discussed in detail below.

Population and Housing: Alternative 2

This discussion addresses the potential for the proposed Project to introduce impacts related to Population and Housing concerns, which could occur if the Project would:

- Directly or indirectly induce population growth in an area

- Displace existing residents or housing units and necessitate the construction of replacement housing elsewhere
- Obstruct proposed or approved residential development

Following are analyses of the Project's potential to result in Growth-Inducing Effects, Housing Displacement, and Obstruction of Planned Development.

Growth-Inducing Effects: Alternative 2

CEQA requires a discussion of the ways in which a proposed project could induce growth. The CEQA Guidelines (Section 15126.2 (d)) identify a project to be growth-inducing if it fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. New employees hired for proposed commercial and industrial development projects and population growth resulting from residential development projects represent direct forms of growth. Other examples of projects that are growth-inducing are the expansion of urban services into a previously un-served or under-served area, the creation or extension of transportation links, or the removal of major obstacles to growth. It is important to note that these direct forms of growth have secondary effects of expanding the size of local markets and attracting additional economic activity to the area.

Typically, a project would be considered to have growth-inducing potential if it fosters growth or a concentration of population above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. Growth impacts could also occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local or regional plans and policies. The proposed Project would involve construction of new transmission line infrastructure between the TWRA, located in southern Kern County, California, and SCE's existing Mira Loma Substation, located in southwestern San Bernardino County. The proposed Project does not include the construction of any habitable housing structures and would not construct any businesses. There would be no change in staffing for the existing substations. All telecommunications equipment would be operated and maintained by SCE technicians. Therefore, no direct population growth would occur as a result of the proposed Project.

The primary purposes of the proposed Project are to accommodate potential renewable power generation in the Tehachapi area, prevent overloading of existing transmission facilities, and comply with reliability criteria for transmission planning. The TWRA is considered to be one of the world's leading wind energy centers and SCE, pursuant to several State and federal goals and policies related to renewable energy sources, is obligated to accommodate future wind generated electricity in southern California. In doing so, the CAISO maintains that the use of 500-kV standards for the proposed Project will avoid the future need to construct and/or tear down and replace multiple 220-kV facilities with 500-kV facilities to meet growing power generation and transmission needs.

Both locally and regionally, the proposed Project area is experiencing substantial population growth, which is reflected in the large number of future residential development projects that are currently proposed and planned in the Project area. As discussed in Section 3.12.2.1 (Regional Setting), population and housing are expected to increase concurrently and dramatically throughout the Project area, and particularly in the North and South Regions. This growth is expected to occur with or without implementation of the proposed Project. SCE is responding to sources of wind energy generation that are planned by independent generators for construction in the Antelope Valley and Tehachapi areas through the proposed Project, which would accommodate the anticipated future load growth in a timely manner. Although the proposed Project would not directly result in population growth in the Project area, its

implementation would remove future obstacles to population growth by facilitating the transmission of future projected power generation in the TWRA; however, as previously noted, population growth is expected to occur with or without implementation of the proposed Project.

Housing Displacement: Alternative 2

The proposed Project ROW does not contain any habitable housing structures and would not require the removal of any housing units. While residential developments do occur along the route, all such developments are located outside of the Project ROW and would not require removal or relocation. It is not expected that any existing residents or housing units would be displaced as a result of the Project and the proposed Project would not necessitate replacement housing; no impact would occur regarding this concern.

Obstruction of Planned Development: Alternative 2

The proposed Project would have the potential to obstruct or preclude planned residential development if it would permanently convert planned residential areas to non-residential utility uses. As described in Section 3.12.2.2 (Affected Environment: Alternative 2), the North and South Regions of the Project area are both expected to experience population growth with corresponding increased housing units. However, in comparison with the South Region, the North Region is expected to experience highly aggressive population and housing growth, particularly in and surrounding the Cities of Lancaster and Palmdale, which would be traversed by the proposed Project route. As shown in Table 3.12-2 (North Region: Population Characteristics), between the years 2000 and 2030, the population of the Cities of Lancaster and Palmdale is expected to grow by 118.8 percent and 189.1 percent, respectively. Accordingly, as shown in Table 3.12-3 (North Region: Housing Characteristics), between the years 2010 and 2030, forecasted housing units in the Cities of Lancaster and Palmdale are expected to grow by 112.6 percent and 157.3 percent, respectively. As such, the proposed Project would cross through areas with multiple planned residential developments in the vicinity. Segment 10 would be situated in an entirely new ROW through a portion of southern Kern County and the ROW utilized by Segment 4 would be widened by about 180 feet through northern Los Angeles County and a small portion of the City of Lancaster. However, the proposed transmission line and associated ROW areas would not preclude proposed or approved residential development. Implementation of the proposed Project is not expected to permanently convert planned residential areas to non-residential uses in any of the three Project Regions. As such, none of the current or future planned residential developments would be altered or precluded by implementation of the proposed Project. No impact would occur.

Quality of Life: Alternative 2

Quality of Life refers to the level of satisfaction or degree of well-being experienced by an individual partly as a result of physical surroundings, although a variety of factors contribute to an individual's overall experience of Quality of Life. Because Quality of Life is unique to each individual, the factors which contribute to this experience may vary greatly between individuals. As such, Quality of Life is a multi-faceted and intangible concept which cannot be evaluated using quantitative measures. Therefore, for the purposes of this analysis, Quality of Life is discussed in terms of various aspects of the physical environment which are perceived to contribute to Quality of Life and may be affected or altered through implementation of the proposed Project. These aspects include the following environmental Issue Areas, which are analyzed in detail in their respective EIR/EIS sections: Biological Resources (Section 3.4), Environmental Contamination and Hazards (Section 3.6), Land Use (Section 3.9), Noise (Section 3.10),

Traffic and Transportation (Section 3.13), Visual Resources (Section 3.14), Wilderness and Recreation (Section 3.15), and Electrical Interference and Hazards (Section 3.17). Implementation of the proposed Project would include construction activities that would introduce temporary impacts to the Project area and could have an adverse effect on Quality of Life, in addition to operation and maintenance activities that would have the potential to introduce permanent impacts to the Project area and could have an adverse effect on Quality of Life.

A variety of temporary impacts associated with construction of the proposed Project could have an adverse effect on Quality of Life. For instance, construction of transmission towers would require the use of heavy machinery, equipment, and vehicles that would be expected to introduce temporary impacts to aesthetics, noise, air quality, and traffic. These factors may have an adverse effect on Quality of Life for individuals who choose to live in quiet or undeveloped locations within the Project area due to the lack of noise, traffic, and industrial aesthetics associated with more developed areas. In addition, construction activities and construction-related traffic may result in ~~the~~ temporary ~~closure of~~access restrictions to ~~wilderness or~~ recreational areas and to some portions of the designated San Gabriel Wilderness Area[1], which may have an adverse effect on Quality of Life for individuals who value the availability of such resources in their community, or for individuals who have chosen to reside in the Project area due to the accessibility and availability of such resources. As discussed above, Quality of Life is a multi-faceted and intangible concept which individuals develop through a combination of many different factors, in addition to the environmental issue area factors described here. With regards to the proposed Project, full analysis of environmental issue areas, including discussion of specific impacts, is available in their respective EIR/EIS sections.

In addition to temporary construction impacts, operation and maintenance of the proposed Project would introduce permanent Project features and the potential for impacts that may have an adverse effect on Quality of Life. For instance, there is a great deal of public interest and concern regarding the potential health and safety effects of Electric and Magnetic Fields (EMF) that would be introduced or intensified through implementation of the proposed Project. EMF could have an indirect adverse effect on Quality of Life by resulting in an alteration of the perception of safety and/or security that members of the public have of their communities, regardless of the fact that, as described in Section ~~3.17 (Electrical Interference and Hazards)~~5.3.1 (Other Required NEPA and CEQA Considerations), there remains a lack of consensus in the scientific community regarding public health impacts of EMF at the levels expected from electric power facilities.

Implementation of the proposed Project would also introduce permanent aesthetic impacts by altering the visual landscape through the introduction of new transmission infrastructure, which could have an adverse effect on Quality of Life for individuals who value the present lack or minimal effect of such features in the visual landscape of their community. Similarly, installation of the proposed transmission line would be expected to result in new or increased corona noise levels, particularly in areas with minimal development and in undeveloped or preserved areas such as the ANF. This could have an adverse effect on Quality of Life for individuals who value the lack of corona noise in their community, as well as for public recreationists such as hikers and campers who value a lack of corona noise in recreational areas. As described above, individuals develop a sense of Quality of Life through a combination of many different factors, in addition to the environmental issue area factors discussed here. With regards to the proposed

[1] The proposed Project would not cross into any designated Wilderness Area(s), but would be routed in close proximity to a portion of the designated San Gabriel Wilderness Area.

Project, full analysis of environmental issue areas, including discussion of specific impacts, is available in their respective EIR/EIS sections.

Although the proposed Project would be expected to introduce impacts that may have an adverse affect on Quality of Life, as described above, the Project would also have the potential to counterbalance this affect by providing a service which is considered beneficial to Quality of Life. Implementation of the proposed Project would serve to reliably interconnect new wind generation resources in the Tehachapi Wind Resource Area and accommodate solar and geothermal projects which are currently being planned or expected in the future. As such, the Project would serve renewable energy generation projects, providing for the transmission of renewable energy to areas of southern California where the demand for power is growing. These results of the Project are considered to be positive effects on Quality of Life by providing the power necessary to accommodate the presently growing population of southern California. In addition, the Project would be expected to introduce a positive impact to public revenue, as described in the Public Revenue Issue of Concern in this report. Such an impact would be considered beneficial to Quality of Life because it would result in financial resources to be utilized towards public benefit. In this context, the renewable energy and economic development aspects of the proposed Project may be viewed to counterbalance adverse Quality of Life effects that could be introduced through Project construction activities and infrastructure placement. Furthermore, although the proposed Project would introduce impacts which could affect certain aspects of Quality of Life, it is not expected that the proposed Project would have the potential to adversely impact the overall concept or experience of Quality of Life for individuals who live in the Project area.

Employment: Alternative 2

This discussion addresses the potential for the proposed Project to cause a change in local employment. Construction employment for the proposed Project would include skilled or semi-skilled positions such as line workers, welders, heavy equipment operators, surveyors, engineers, utility equipment workers, truck drivers, warehouse workers, clerical workers, and laborers. As described in Section 3.12.2.1 (Regional Setting), there is a substantial construction workforce available throughout the Project area, particularly within the North and South Regions. The proposed Project construction schedule is estimated to extend for ~~about 52~~approximately 59 months and would require an average daily workforce of approximately 75 persons (actual workforce would range between 10 and 300 workers, as needed). As described in Section 3.12.2.2 (Affected Environment: Alternative 2), total construction workforce available in the Counties of Kern, Los Angeles, and San Bernardino are respectively as follows: 13,300, 134,500, and 90,900. As such, total construction workforce available in the Project area is approximately 238,700 personnel. The maximum required construction workforce of 300 personnel for the proposed Project would comprise approximately 0.12 percent of the total construction workforce available in the Project area. No workers would be required to relocate into the Project area for construction of the proposed Project and no new workers are required for operation of the Project. Local employment conditions in the Project area are not expected to be affected by the proposed Project. No impact would occur.

Private Property Value: Alternative 2

The issue category of Private Property Value addresses concerns related to the potential effect of transmission lines on the value of private property in proximity to the transmission infrastructure. The proposed Project would introduce an impact to private property value if any aspect of Project construction or operation would be reasonably expected to cause a substantial change in existing property values.

Impact S-1: Operation and maintenance activities would affect property values along the Project alignment.

During recent transmission line projects, the CPUC has noted a high level of public concern associated with the potential effects of transmission line siting on property values. The California Energy Commission (CEC), in its review and licensing of several power plant projects between 2000 and 2003, received similar public interest and concern regarding the potential impacts of transmission lines on property values. As a result, CEC Staff researched the literature on proximity impacts analysis for property values. The CEC cited "A Primer on Proximity Impact Research: Residential Property Values Near High-Voltage Transmission Lines" (Kinnard and Dickey, 1995), as a comprehensive study on this topic.

The CPUC used this literature-review approach in addressing concerns regarding property values in four recent transmission line EIRs. Claims of diminished property value through decreased marketability are based on the reported concern about potential hazards to human health and safety, as well as the potential for increased noise, traffic, and visual impacts associated with living in proximity to unwanted land uses such as power plants, freeways, high-voltage transmission lines, landfills, and hazardous waste sites.

Kinnard and Dickey (1995). Kinnard and Dickey (1995) identify three useful procedures in measuring differences in property sales prices, marketing periods, and/or comparative property sales volume (considering properties in close proximity to transmission or distribution lines versus competitive properties that are not in close proximity to such infrastructure). The three procedures cited in the Kinnard and Dickey (1995) paper, include:

- **Paired Sales Analysis.** Paired Sales Analysis involves finding sales of properties within the impact area and comparing them with sales of similar, competitive properties in the control area. Any price differentials are noted, and any pattern of such differences is identified and statistical testing procedures are applied to the results. There are two possible shortcomings of this market procedure. First, identifying what constitutes a pair of virtually identical properties is often a matter of subjective judgment on the part of the analyst-appraiser. Different analysts studying the same market frequently produce different pairs. Secondly, the relative paucity of appropriate pairs can render the entire procedure (and its results) questionable in terms of its representing the market.
- **Survey Research/Opinion.** Survey Research/Opinion method is used as either a supplement or substitute for analysis of market sales transaction data, because it reflects responses to hypothetical situations by interviewees who are not necessarily prospective buyers. Potential purchasers either will or will not buy; they either will or will not pay the same or similar prices for proximate properties.
- **Market Impact Studies Using Multiple Regression Analysis (MRA) in the Hedonic Pricing Model Format.** MRA in the Hedonic Pricing Model Format involves gathering data on many market sales transactions within the impact area and within one or more similar control areas over a specified period (usually a few years prior to public knowledge of the project). The extended time period is used to identify and measure any price/value impact that occurs within the impact area after an awareness of the project occurs. This type of "before and after" analysis supplements the comparison of levels and trends and prices, marketing time, and sales volume within the impact and control area. The post-announcement sales information also provides a basis for testing the likely duration of any value impact that might be identified.

The paper concludes that current professional and academic literature reflects a preference for the MRA approach because it indicates what buyers and sellers actually do as opposed to what potential buyers say they might do under specified hypothetical circumstances. Further, the use of large sets of sales data indicates that the results are more representative of the market than those of the paired sales studies.

Under the general rubric of diminution in the market value of residential properties, three possible effects have been claimed, singly or in combination, in the Kinnard and Dickey (1995) paper:

- **Diminished Price**. Diminished price is identified by comparing prices of units that are proximate to power lines with prices of similar and competitive properties more distant from transmission lines.
- **Increased Marketing Time.** Even when proximate properties sell at or near the same prices as more distant properties, claimants argue that proximate properties take longer to sell. Such increased marketing time can represent a loss to the seller by deferring receipt, availability, and use of sale proceeds.
- **Decreased Sales Volume.** A more subtle indicator of diminished property value is if potential buyers decide not to buy in the impact area. A measurable decrease in sales volume in the impact area compared with sales volume in the control area where otherwise similar properties purportedly not moving in the market are selling can represent evidence of decreased market value from proximity to the high-voltage transmission lines (or claimed hazard).

In conclusion, Kinnard and Dickey (1995) determined that proximity to a transmission line does not necessarily cause a reduction in the value of surrounding private properties and that other physical and neighborhood qualities have a greater impact on property value determination; as such, the three factors described above must be considered in evaluating the potential influence of transmission lines on private property value.

Electric Power Research Institute (2003). A 2003 Electric Power Research Institute (EPRI) study entitled "Transmission Lines and Property Values: State of the Science," states that differences in location and time of data collection, as well as research design, make direct comparisons of results from the various studies very difficult. Although quantitative generalizations from studies cannot be reliably made, the following conclusions from studies seem to be similar across the board (EPRI, 2003):

- There is evidence that transmission lines have the potential to decrease nearby property values, but this decrease is usually small (6.3 percent or lower).
- Lots adjacent to the ROW often benefit; lots next to adjacent lots often have value reduction.
- Higher-end properties are more likely to experience a reduction in selling price than lower-end properties.
- The degree of opposition to an upgrade project may affect size and duration of the sales-price effects.
- Setback distance, ROW landscaping, shielding of visual and aural effects, and integration of the ROW into the neighborhood can significantly reduce or eliminate the impact of transmission structures on sales prices.
- Although appreciation of property does not appear to be affected, proximity to a transmission line can sometimes result in increased selling times for adjacent properties.
- Sales-price effects are more complex than they have been portrayed in many studies. Even grouping adjacent properties may obscure results.
- Effects of a transmission line on sale prices of properties diminish over time and all but disappear in five years.
- Opinion surveys of property values and transmission line may not necessarily overstate negative attitudes, but they understate or ignore positive attitudes.

The EPRI (2003) study points out that one of the difficulties in determining the potential impact of transmission line siting on property values is the wide range of methodologies used to measure impacts. It is extremely difficult, if not impossible, to predict the likely impacts on property values of the proposed Project, let alone differences between alternative routes and/or with tower removal/consolidation.

Pacific Consulting Services (1991). A Pacific Consulting Services (1991) study of the area around Vallejo, CA which is entitled "A Statistical Analysis of Transmission Line Impacts on Residential Property Values in Six Neighborhoods" found that overall, the presence of a transmission line within a neighborhood has less than a one-percent effect on the sales prices of most properties in the neighborhood. Under some specific conditions, however, there can be as much as a 12 percent adverse effect or a 10 percent positive effect on selling price.

In the Pacific Consulting Services study of Vallejo, six neighborhoods with transmission lines were selected for review, reflecting a variety of transmission line and ROW conditions. Two of the neighborhoods were crossed by 115-kV lines, one neighborhood was crossed by a 230-kV line, and three neighborhoods were crossed by a ROW that originally contained a 115-kV line, but at the time of the study contained both the original 115-kV lines as well as new 230-kV lines. Two additional areas that were not in proximity to transmission lines were considered as comparison areas. In addition, some of the neighborhoods were located on hilly terrain, affording more pronounced views of nearby lines and towers, while other neighborhoods were flat. Access to the ROWs varied from locked gates to integrated walkways, and maintenance quality/landscaping also varied as well.

The study described above concluded that factors linked with adverse property value effects include: (1) ROW passage through adjacent property, and (2) modification to (upgrading) the line after development of the neighborhood. Factors linked with favorable price impacts include: (1) integration of the ROW design into the neighborhood with unobstructed access, and (2) planned landscaping of the ROW. Visibility of transmission lines located outside the neighborhood appears to have no effect on selling prices in the neighborhood (Pacific Consulting Services, 1991). Like the aforementioned studies, the Pacific Consulting Services study also found that adverse impacts associated with transmission line upgrading diminish over time and nearly disappear within five years of reconstruction. It may be that both the size of these effects and the amount of time until they dissipate depend on the level of community opposition to construction and how the utility handles such opposition.

Crockett Cogeneration Project, 1992. In addition to a literature search on proximity analysis impacts, the CEC staff reviewed the Analysis of Property Value Impacts of the Crockett Cogeneration Project, submitted by the Applicant for the Crockett Cogeneration Project. The Crockett analysis cites several studies that examine the impacts on property values of very large industrial facilities.[2] Such facilities include nuclear power plants, industrial waste incinerators, and landfills. The findings of previous studies in the Crockett analysis "yield an equivocal conclusion. Under some conditions facilities result in negative economic impacts and under other conditions they do not. Thus, even for very large facilities that are extreme in terms of their potential health, safety, and aesthetic impacts, there is no clear association with diminished economic impacts. Indeed, economic impacts are not clearly and reliably observed even for nuclear power generation facilities near residential properties" (Analysis of Property Value Impacts of the Crockett Cogeneration Project, Appendix X, Crockett Cogeneration Project, 1992). (CPUC, 1992) Further, the Crockett analysis states that "there are many factors involved in purchasing a new home: affordability; age; size; schools; location; and so on, and it has simply not been demonstrated that a view obstruction would be a major factor in a property value decline" (Analysis of Property Value Impacts of the Crockett Cogeneration Project, Appendix X, Crockett Cogeneration Project, 1992).

Comparison of Literary Research. The Kinnard and Dickey (1995) paper and the Crockett (1992) analysis cite several examples of proximity impact analyses, methodologies used to measure impacts, and types of possible proximity impacts on residential property values. Both studies conclude that differing and sometimes conflicting findings have emerged from market studies. While it is possible that property owners near the proposed Project route may believe that their homes will diminish in value because of Project implementation, the actual loss of property value and potential effects can only be tested through

[2] As stated in the Crockett analysis, one or more of the following three methods were used to study impacts on property values: hedonic pricing; contingent valuation; and/or regression analysis of market sales data. Hedonic pricing techniques analyze how the attributes of a good affect its price, and have been used in several of the studies to estimate the losses in sale price of homes due to possible exposure to technological or natural risks.

data from home sales. The MRA method, as supported by the Kinnard and Dickey (1995) paper, requires that data be collected on as many market sales transactions as possible within the impact area and within one or more similar control areas over a few years prior to an awareness of a project to accurately reflect what buyers and sellers actually do as opposed to what potential buyers say they might do under specified hypothetical circumstances.

The studies cited in this section and multiple regression analyses have shown that there is evidence that transmission lines have affected property values in some cases, though the effects are generally smaller than anticipated and difficult to quantify. In one study, about half of the estimated reduction in value was due to non-EMF effects (e.g., visual impacts), and the other half of estimated reduction was due to health and safety concerns such as EMF for homes within 100 meters of the line (von Winterfeldt, et al., 2004). With regard to the proposed Project, visual impacts are addressed in Section 3.14 (Visual Resources), while concerns related to EMF are addressed in Section ~~3.17 (Electrical Interference and Hazards~~5.3.1 (Other Required NEPA and CEQA Considerations).

Portions of the proposed Project would be constructed within and adjacent to existing residential housing and commercial development. As discussed in Section 5.3.1 (Other Required NEPA and CEQA Considerations~~3.17 (Electrical Interference and Hazards~~), there remains a lack of consensus in the scientific community regarding public health impacts due to EMF at the levels expected from electric power facilities. Further, there are no federal or State standards limiting human exposure to EMFs from transmission lines or substation facilities in California. For those reasons, it is not possible to reach any firm conclusions regarding potential EMF effects associated with the proposed Project. However, the CPUC has implemented and recently re-confirmed a decision requiring utilities to incorporate “low-cost” or “no-cost” measures for managing EMF from power lines. These measures would be incorporated into the proposed Project design and may help to reduce perceived health effects of transmission lines that could adversely affect property values. However, as previously discussed, it is not possibly to analyze potential EMF or property value quantitatively.

The numerous studies discussed above additionally conclude that the potential for other environmental issue areas associated with transmission line projects (including aesthetics and noise) to have an effect on property value is usually smaller than anticipated and essentially impossible to quantify due to the individuality of properties and their respective neighborhoods, as well as differences in the personal preferences of individual buyers/sellers, and the weight of other factors that contribute to a person’s decision to purchase a property. Furthermore, studies such as those discussed above indicate that other property-specific factors such as neighborhood features, square footage, size of lot, and irrigation potential are substantially more likely than the presence of overhead transmission lines to be major determinants of the sales price of property (Kroll and Priestley, 1992). In addition, across the board, studies have generally concluded that over time, potential adverse effects to property value tend to diminish to a point of being negligible within five years; the studies determine that this decreasing effect is most likely due to increased screening of transmission lines over time, as trees and shrubbery increase in size, as well as diminished public sensitivity to the transmission line proximity, particularly resulting from the absence of adverse publicity.

While it is possible that property owners near the proposed Project route may have the perception that their homes will diminish in value because of Project implementation, potential property value issues associated with the Project can only be tested through real data from actual home sales. The MRA method, as supported by the Kinnard-Dickey (1995) paper, requires that data be collected on as many market sales transactions as possible within the impact area and within one or more similar control areas

over a few years prior to an awareness of a project, in order to accurately reflect what buyers and sellers actually do as opposed to what potential buyers say they might do under specified hypothetical circumstances.

The Wolverton-Bottemiller (2003) paper suggests that understanding the effects of transmission lines on property value is a highly dynamic process which requires on-going study, identification of accurate and reliable data sources, measurement consistency, and rich data sets that allow for variety in analytical methods. (Wolverton and Bottemiller, 2003) In order to assess whether particular environmental and physical changes associated with implementation of the proposed Project could affect property values, a market study of current and future properties within a specified distance from the transmission line would be required to evaluate property values with and without the proposed Project being constructed. However, the data that would be required to conduct such an analysis for the proposed Project is not realistically available and as such any conclusions regarding effects on property values would be speculative.

As demonstrated by the studies discussed above, factors that have the potential to affect property value are numerous and varied; as a result, it is not possible to identify exactly how the Project would potentially affect private property values. However, because the conclusions of the Kinnard-Dickey (1995) paper and the Crocket analysis are applicable to this analysis, it is possible to say that under the proposed Project, property-specific factors such as neighborhood features, square footage, size of lot, and irrigation potential are more likely to be major determinants in affecting property values than the presence of overhead transmission lines such as those included under the proposed Project. It is reasonable to assume that some aspect of Project construction and/or operation and maintenance would potentially affect private property values in the North and South Regions. However, as discussed above, the effects of transmission lines on property value are generally smaller in comparison to other relevant factors.

Local Business Revenue: Alternative 2

This Issue of Concern addresses the potential of the proposed Project to result in a substantial change in revenue for local businesses. A wide range of land uses are near or adjacent to the proposed Project route, including agricultural uses (particularly in the North Region), residential developments, commercial and industrial uses, and the ANF. While business uses occur along the route, all Project-related activities and infrastructure placement would occur within designated utility ROW and would not require the removal or relocation of any business uses. Potential effects on businesses or other adjacent land uses resulting from changes to visual resources, vehicular or pedestrian traffic patterns, land use, or health and safety concerns (such as EMF) are addressed in their respective EIR/EIS sections: Land Use (Section 3.9), Traffic and Transportation (Section 3.13), Visual Resources (Section 3.14), and Electrical Interference and Hazards (Section 3.17). Project effects such as those described in the aforementioned issue area sections would have the potential to affect local business revenue. However, due to the diverse and varied nature of factors that could affect local business revenue, it is not possible at this time to describe exactly how and to what extent the Project would have the potential to affect local business revenue. However, Project construction and operation would have the potential to affect agricultural revenues, as described below.

Impact S-2: Construction activities would cause a temporary decrease in revenues for agricultural landowners.

The proposed Project would cross through agricultural areas in the North Region of the Project area. Segments of the proposed Project that could potentially affect agricultural business revenue include Segment 10, which would require approximately 17 miles of new 330-foot ROW and Segment 4, which would require approximately 20 miles of new 200-foot ROW. Although these segments of the Project would not be routed entirely through agricultural lands, portions of the segments would cross through some areas used for agricultural purposes. Section 3.2 (Agricultural Resources) provides detailed baseline conditions and analysis of all agricultural areas in the North Region, including specific areas that could be affected by the proposed Project. If the construction of Segments 10 or 4 of the proposed Project would occur during the growing season, this could temporarily restrict crop production or potentially damage crops, thereby introducing the potential to decrease local business revenues for the agricultural landowners whose crops would be affected. No new permanent roads would be constructed over agricultural lands in the Project area. Although new utility ROWs would be established for Segments 10 and 4, as described above, agricultural use of lands within the ROW would continue to be permitted.

Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners), as described in Section 3.2 (Agricultural Resources), would minimize and/or avoid impacts to agricultural revenues by minimizing losses to crop production, thereby also minimizing any lost crop revenues associated with the proposed Project.

Public Revenue: Alternative 2

This Issue of Concern addresses the potential for the proposed Project to cause a substantial change in public agency revenue. The proposed Project would be owned, operated, and financed by SCE, which is a private utility company and wholly-owned subsidiary of the Edison International Company. Completion of the proposed Project would provide for the transfer of wind-generated electricity in the Tehachapi Wind Resource Area to SCE customers throughout southern California. The proposed Project would not preclude or necessitate the supply or transfer of electricity between SCE and its customers. Additionally, the proposed Project would also benefit the local economy through payment of property taxes.

Impact S-3: Project activities would affect public agency revenue.

Construction and operation of the proposed Project would have the potential to result in short-term negative effects as well as long-term positive effects to public agency revenue. In the short-term, Project construction activities would have the potential to negatively affect Forest Service revenue through decreased sales of National Forest Adventure Passes as a result of temporary closures of Forest recreational areas during the construction period. In order to accommodate Project construction activities, it would be necessary to temporarily restrict public access to some portions of High Impact Recreation Areas (HIRAs). As described in the Wilderness and Recreation analysis (Section 3.15), in order to use recreational resources within a designated HIRA, recreationists are required to purchase a National Forest Adventure Pass, which is authorized under a fee-based program aimed to generate necessary funding for backlogged maintenance activities throughout the ANF. Due to construction-related access restrictions within designated HIRAs, recreationists may choose to visit other recreational areas that do not require the purchasing of an Adventure Pass. As a result, Forest Service revenue from Adventure Pass sales would temporarily decrease during construction of the Project. Mitigation Measure R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated

with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~), as described in Section 3.15 (Wilderness and Recreation), would help to compensate for this temporary revenue loss by requiring that SCE ~~assist~~ coordinate with the Forest Service to agree upon an acceptable level of compensation relevant to loss of Adventure Pass revenue~~in accomplishing backlogged maintenance activities for which Adventure Pass revenues are intended~~.

As mentioned, the Project would also have the potential to result in long-term positive effects to public agency revenue. The positive effect would occur in the form of property taxes paid to local agencies, as SCE's property taxes are expected to increase as a result of the proposed Project. Local property tax revenues are a function of tax rates charged within the affected jurisdictions, with infrastructure facilities assessed annually by the State of California Board of Equalization (BOE). Property tax revenue is collected by the appropriate County Tax Collector and dispersed to local agencies. Any increase in property tax revenue, such as expected to occur under the proposed Project, would be a benefit to the local government agencies that receive a share of the property tax revenue. The Forest Service would not directly receive property tax revenue as a result of the Project being constructed on NFS lands.

3.12.6.2 Cumulative Effects Analysis

A cumulative impact is one which results from the incremental impact of the proposed Project when combined with other past, present, and reasonably foreseeable future actions that occur within the geographic extent of the cumulative effects analysis.

Geographic Extent

The geographic extent of this cumulative effects analysis is the same as the extent of the regional setting, as described in Section 3.12.2.2 (Affected Environment: Alternative 2). As such, this cumulative effects analysis is presented according to three separate geographic regions: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the ANF; and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County and western San Bernardino County. This geographic scope is appropriate for the issue area of Socioeconomics because impacts of the proposed Project are primarily localized in that they would be limited to this area and would not combine with similar impacts of other projects beyond this area.

Existing Cumulative Conditions

Past development and population growth within the Project area have impacted the population, housing demand, business revenues and conflicts, as well as property values throughout the region. As the population increases through an indirect and direct influence of development, housing demands and workforce expands to serve the growing population. In addition, continued development creates more infrastructure affecting business operations, revenues, and property values. Section 3.12.2.2 (Affected Environment: Alternative 2) describes existing socioeconomic conditions within the Project area, including demographics, housing characteristics, and labor characteristics, which have developed as a result of the past and present projects that comprise existing cumulative conditions.

Reasonably Foreseeable Future Projects and Changes

Development of the proposed Project in conjunction with the projects described in the Cumulative Scenario would continue to result in the potential for impacts to local businesses and residential structures from displacement issues, revenue changes, and factors affecting existing property values. While it is not

expected that operation of energy and transportation projects listed would substantially change existing business revenues or property values, the large number of development projects described that are ongoing and planned in the North and South Regions would have the potential to impact existing development.

Cumulative Impact Analysis

The potential for the socioeconomic impacts of the proposed Project to combine with similar effects of other projects within the geographic scope of the cumulative analysis is described below. The "incremental contribution" of the proposed Project is considered to be the degree to which impacts of the proposed Project would combine with similar effects of other projects, thereby contributing to the Cumulative Scenario. As discussed above in Section 3.12.6.1 (Direct and Indirect Effects Analysis), the proposed Project is not expected to introduce any socioeconomic impacts under the following Issues of Concern: Population and Housing, Quality of Life, and Employment. The proposed Project would introduce potential impacts under the following Issues of Concern: Private Property Value, Local Business Revenue, and Public Revenue. In addition, impacts that would be expected to occur under the latter three Issues of Concern could potentially combine with similar impacts of other projects in the Cumulative Scenario, as discussed below.

- **Operation and maintenance activities would affect property values along the Project alignment (Impact S-1).** This impact addresses the potential for implementation of the proposed Project to result in decreased private property values. As described in Section 3.12.2.2 (Affected Environment: Alternative 2) and reflected in the Cumulative Scenario, the North and South Regions of the Project area are experiencing rapid rates of growth and residential development. This growth trend indicates that the Project area is consistently becoming a more desirable place to site homes and businesses, which typically leads to an increase in property values. However, regardless of the potential for continuing development to increase existing private property values, the proposed Project would have the potential to negatively affect the existing value of private properties in the immediate vicinity of the Project alignment. It is not expected that other projects in the Cumulative Scenario would have the potential to introduce property value affects that would be similar to the proposed Project (thus introducing the potential for such affects to combine); however, this effect of the proposed Project is considered to have an incremental contribution to the Cumulative Scenario.
- **Construction activities would cause a temporary decrease in revenues for agricultural landowners (Impact S-2).** The temporary restriction of crop production or damage to crops that is reasonably expected to result from construction of the proposed Project could potentially decrease revenues for the agricultural landowners whose crops would be affected by Project activities. Within the Project area, the North Region includes substantial agricultural land uses, as described in the Agricultural Resources analysis (Section 3.2). Because population growth and residential developments are expanding throughout the North Region, it is possible that this impact of the proposed Project would have the potential to combine with similar impacts of other projects in the region. However, construction impacts from other projects in the Cumulative Scenario would be temporary in nature and therefore would have to occur at the same time and in the same vicinity as each other in order to combine. It is considered highly unlikely that projects with construction impacts similar to the proposed Project's construction impacts would occur at the same time and in the same vicinity as under the proposed Project.
- **Project activities would affect public agency revenue (Impact S-3).** Project activities would not result in a permanent adverse change in public resource revenue. Although Project construction would likely result in a loss of Forest Service revenue as a result of decreased Adventure Pass sales related to access restrictions on ANF lands, such losses would be temporary in nature and would not extend beyond the construction period. Furthermore, it is not expected that other projects on ANF lands would require access restrictions resulting in decreased Adventure Pass sales within the same vicinity and time period as the proposed Project. The Project's permanent, incremental contribution to potential public revenue impacts due to combined operation of projects in the Project area would likely result in beneficial public revenue impacts through property taxes

and sales taxes that would be paid to public agencies. No permanent direct or cumulative effect on Forest Service revenue would occur as a result of the proposed Project.

Mitigation to Reduce the Project's Contribution to the Cumulative Scenario

Mitigation measure AG-1, which is recommended in Section 3.12.6.1 to minimize the effect of Impact S-2, would help to reduce the proposed Project's incremental contributions to the Cumulative Scenario. No additional mitigation measures have been identified to reduce or avoid cumulative socioeconomic impacts.

3.12.7 Alternative 3: West Lancaster Alternative

The following section describes the potential socioeconomic impacts of Alternative 3 (West Lancaster Alternative), according to the Issues of Concern provided in Section 3.12.4.1. Mitigation measures are introduced where necessary in order to reduce or avoid potential impacts. This alternative would deviate from the proposed Project route along Segment 4, at approximately S4 MP 14.9, where the new 500-kV transmission line would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route would increase the overall distance of Segment 4 by approximately 0.4 mile.

3.12.7.1 Direct and Indirect Effects Analysis

The Issues of Concern used to identify impacts to socioeconomics that are introduced in Section 3.12.4.1 are presented below with their respective impacts.

Population and Housing: Alternative 3 Direct and Indirect Effects

The Population and Housing Issue of Concern would be exactly the same under Alternative 3 as it would under the proposed Project (please refer to Section 3.12.6.1). The West Lancaster re-route associated with Alternative 3 would occur in an area that is currently being used for agricultural purposes. As with the proposed Project, Alternative 3 would not directly induce substantial population growth, displace existing residents or housing, necessitate the construction of replacement housing, or preclude planned residential development. No impact would occur.

Quality of Life: Alternative 3

The Quality of Life Issue of Concern would be exactly the same under Alternative 3 as it would under the proposed Project (please refer to Section 3.12.6.1). No impact would occur.

Employment: Alternative 3

The Employment Issue of Concern would be exactly the same under Alternative 3 as it would under the proposed Project (please refer to Section 3.12.6.1). No workers would be expected to permanently relocate into the Project area as a result of Alternative 3, and local employment conditions in the Project area would not be affected by this alternative. No impact would occur.

Private Property Value: Alternative 3

The Private Property Value Issue of Concern would be exactly the same under Alternative 3 as it would under the proposed Project (please refer to Section 3.12.6.1). ~~Although~~ Alternative 3 includes a minor re-route in the West Lancaster area. ~~, this re-route~~ Re-routing along this portion of Segment 4 would shift the majority of transmission line construction to the west of these residences by a distance of approximately one-half mile. This re-route would not ~~remove the transmission line from proximity to~~

~~existing structures, and nor would it~~ place the transmission line ~~with~~in proximity ~~of~~ to existing structures. Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), as described in Section 3.12.6.1, would be the same as the proposed Project.

Local Business Revenue: Alternative 3

The Local Business Revenue Issue of Concern would be exactly the same under Alternative 3 as it would under the proposed Project (please refer to Section 3.12.6.1). Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners) would require implementation of Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners). As previously described, land uses in the North Region include extensive agriculture; the West Lancaster re-route included under Alternative 3 would be situated within an agricultural area. However, this re-route would not diverge substantially from the proposed Project route and agricultural uses along this portion of Alternative 3 are the same as along this portion of the proposed Project.

Public Revenue: Alternative 3

The Public Revenue Issue of Concern would be exactly the same under Alternative 3 as it would under the proposed Project (please refer to Section 3.12.6.1). Impact S-3 (Project activities would affect public agency revenue) would have the potential to temporarily decrease Forest Service revenue as a result of decreased Adventure Pass sales in the ANF, but would not result in a permanent adverse change in public resource revenue. Permanent changes to public agency revenues as a result of Alternative 3 are expected to be beneficial.

3.12.7.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 3 (West Lancaster Alternative). This alternative consists of a minor re-route of the proposed transmission line in the West Lancaster area of the North Region. As previously described, this alternative traverses the same uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 3 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

The geographic extent of the cumulative analysis is exactly the same as the proposed Project, as described in Section 3.12.6.2.

Existing Cumulative Conditions

Existing cumulative conditions for Alternative 3 are exactly the same as the proposed Project, as described in Section 3.12.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 3 are exactly the same as under the proposed Project, as described in Section 3.12.6.2.

Cumulative Impact Analysis

Cumulative impacts under Alternative 3 would be the same as under the proposed Project, as described in Section 3.12.6.2. Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners), and Impact S-3 (Project activities would affect public agency revenue) would have incremental contributions to the Cumulative Scenario. Please see Section 3.12.6.2 for a full description of these cumulative socioeconomic impacts.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measure AG-1, which is recommended in Section 3.12.7.1 to minimize the effect of Alternative 3 on Impact S-2, would help to reduce this alternative's incremental contributions to the Cumulative Scenario. No additional mitigation measures have been identified to reduce or avoid cumulative socioeconomic impacts.

3.12.8 Alternative 4: Chino Hills Route Alternatives

Alternative 4 includes ~~four~~ five ~~separate~~different routing options in the South Region: Routes A, ~~Route~~ B, ~~Route~~ C, C Modified, and ~~Route~~ D. The following section describes the socioeconomic impacts of Alternative 4, as determined by the Issues of Concern provided in Section 3.12.4.1. Mitigation measures are introduced where necessary in order to reduce or avoid potential impacts.

3.12.8.1 Direct and Indirect Effects Analysis

This alternative would follow the same route as the proposed Project through the North and Central Regions, diverging from the proposed Project route along Segment 8A in the South Region, at S8A MP 19.2. Each of the ~~four~~ five routing options under Alternative 4 would diverge from the proposed Project route at this point, then turn to the southeast and cross through part of Orange County and San Bernardino County before reaching the northern border of the Chino Hills State Park (CHSP). Routes A, B, C, C Modified, and D would each follow a different alignment through and/or around the Park. Potential impacts of the Project to the CHSP are discussed in their respective environmental issue area sections, including: Biological Resources (Section 3.4), Land Use (Section 3.9), Visual Resources (Section 3.14), and Wilderness and Recreation (Section 3.15), among others as appropriate.

Because Alternative 4 would diverge from the proposed Project route at Segment 8A MP 19.2, any socioeconomic impacts of the proposed Project that would occur between S8A MP 19.2 and 35.2 (16 miles), as well as along Segment 8C, through the Cities of Chino Hills, Chino, and Ontario would not occur under Alternative 4. ~~In addition~~However, transmission upgrades between Chino and Mira Loma Substations (Segment 8B) would occur under each of the Alternative 4 routing options. Therefore, any~~,~~ socioeconomic impacts associated with Segment 8B of the proposed Project ~~also~~ would also ~~not~~ occur under Alternative 4.

From a socioeconomic perspective, the proposed routing options under Alternative 4 would not differ from one another in that the affected socioeconomic environment would be exactly the same for Routes A, B, C, C Modified, and D with regards to the identified Issues of Concern, including: Population and Housing, Quality of Life, Employment, Private Property Value, Local Business Revenue, and Public Revenue. Therefore, the proposed Routes A, B, C, C Modified, and D of Alternative 4 are evaluated collectively under Alternative 4.

Population and Housing: Alternative 4

The Population and Housing Issue of Concern would be the same under Alternative 4 as it would under the proposed Project. Although the proposed routing options under Alternative 4 would diverge from the proposed Project route, the land uses that would be traversed between the proposed Project route and the Chino Hills State Park are generally open space areas and are not utilized for housing purposes. Alternative 4 would not directly induce substantial population growth, displace existing residents or housing, necessitate the construction of replacement housing, or preclude planned residential development. No impact would occur.

Quality of Life: Alternative 4

The Quality of Life Issue of Concern would be exactly the same under the Alternative 4 routing options as it would under the proposed Project. No impact would occur.

Employment: Alternative 4

The Employment Issue of Concern would be exactly the same under Alternative 4 as it would under the proposed Project. As discussed, Alternative 4 would include a divergence from the proposed Project route; however, construction and operation activities associated with Alternative 4 would be the same as those associated with the proposed Project. No workers would be expected to permanently relocate into the Project area as a result of Alternative 4, and local employment conditions in the Project area would not be affected by this alternative. No impact would occur.

Private Property Value: Alternative 4

The Private Property Value Issue of Concern would be the same under Alternative 4 as it would under the proposed Project, with the exception that Alternative 4 would avoid all potential impacts to private property value that would occur along the eastern-most 16 miles of Segment 8A (MP 19.2 – 35.2) and Segment 8C. ~~, as well as any private property value impacts associated with Segments 8B and 8C of the proposed Project.~~ Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment) would occur in the same way under Alternative 4 as it would under the proposed Project, with the exception (as described) that Alternative 4 would avoid all potential private property value impacts associated with the eastern-most 16 miles of Segment 8A and Segment 8C of the proposed Project within the Cities of Chino Hills, Chino, and Ontario.

Local Business Revenue: Alternative 4

The Local Business Revenue Issue of Concern would be ~~exactly the same~~similar under Alternative 4 as it would under the proposed Project, except that the Alternative 4 routes would affect Farmland as well as grazing lands (both considered "agricultural"). As described in Section 3.12.6.1, Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners) would apply to agricultural areas (inclusive of Farmland and grazing lands) in the Project area and would require implementation of Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners). As described in Section 3.2.8 (Agricultural Resources: Alternative 4), Alternative 4 would traverse the same acreage of Farmland as Alternative 2; however, the Alternative 4 routes would also traverse grazing lands not affected by Alternative 2. Temporary construction activities for Alternative 4 would have the potential to interfere with agricultural operations associated with these grazing lands, thereby resulting in a temporary decrease in agricultural productivity under Alternative 4 that would not occur under Alternative 2. Alternative 4 impacts associated with the temporary and/or permanent

conversion of Farmland to non-agricultural use, which would decrease agricultural productivity and affect Local Business Revenue, would be less than Alternative 2 because no Farmland would be converted (either temporarily or permanently) along the 16-mile portion of Segment 8A between S8A MP 19.2 and MP 35.2 (includes Segment 8C) under Alternative 4. Therefore, in comparison with the proposed Project, Alternative 4 would result in the following: a greater temporary effect on Local Business Revenue generated from grazing lands traversed by each of the five routing options; a lesser temporary effect on Local Business Revenue generated from Farmland that would be temporarily converted to non-agricultural uses (54.75 acres temporarily converted under Alternative 2 versus 43.27 acres under Alternative 4); and a lesser permanent effect on Local Business Revenue generated from Farmland that would be permanently converted to non-agricultural uses (5.83 acres permanently converted under Alternative 2 versus 5.41 acres under Alternative 4). As such, implementation of Alternative 4 would have the potential to result in greater temporary effects but lesser permanent effects to Local Business Revenue associated with agricultural uses. ~~The proposed alignment for Alternative 4 would not avoid any agricultural areas potentially affected by the proposed Project and would not introduce any new agricultural areas that could potentially be affected by Impact S-2.~~

Public Revenue: Alternative 4

The Public Revenue Issue of Concern would be the same under Alternative 4 as it would under the proposed Project (please refer to Section 3.12.6.1). Impact S-3 (Operation and maintenance activities would affect public agency revenue) would have the potential to temporarily decrease Forest Service revenue as a result of decreased Adventure Pass sales in the ANF, but would not result in a permanent adverse change in public resource revenue. Permanent changes to public agency revenues as a result of Alternative 4 are expected to be beneficial.

3.12.8.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 4 (Chino Hills Route Alternative). This alternative consists of ~~four~~ five routing options (Routes A, B, C, C Modified, and D) through Chino Hills State Park (CHSP) in the South Region of the Project area. As previously described, each of the ~~four~~ five routing options under Alternative 4 would diverge from the proposed Project route along Segment 8A, at approximately MP 19.2, then turn to the southeast and cross through parts of Orange County and San Bernardino County before reaching the northern border of the Chino Hills State Park (CHSP). As described in Section 1.2.4 (Introduction: Alternative 4), Routes A, B, C, and D would each follow a different alignment through and/or around the Park.

Because Alternative 4 would diverge from the proposed Project route at Segment 8A MP 19.2, any cumulative socioeconomic impacts of the proposed Project that would occur between S8A MP 19.2 and 35.2 (16 miles) or along Segment 8C through the Cities of Chino Hills, Chino, and Ontario would not occur under Alternative 4; however, impacts along Segment 8B between Chino and Mira Loma Substations would occur, same as Alternative 2. ~~In addition, socioeconomic impacts associated with Segments 8B and 8C of the proposed Project also would not occur under Alternative 4.~~ Although Alternative 4 would have the potential to introduce cumulative socioeconomic impacts along the proposed alignments for Routes A, B, C, C Modified, and D, which are situated in an area that would not be affected by the proposed Project route, this area is characterized as predominately open space and the potential for cumulative socioeconomic impacts to occur along the route alternatives would be less than the portion of the proposed Project that would be avoided by Alternative 4. Therefore, this alternative's

contribution to cumulative socioeconomic impacts would be incrementally less than that of the proposed Project.

Geographic Extent

The geographic extent of the cumulative analysis is exactly the same as the proposed Project, as described in Section 3.12.6.2.

Existing Cumulative Conditions

Existing cumulative conditions for Alternative 4 are exactly the same as the proposed Project, as described in Section 3.12.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 4 are exactly the same as under the proposed Project, as described in Section 3.12.6.2.

Cumulative Impact Analysis

Cumulative socioeconomic impacts under Alternative 4 would be the same as under the proposed Project, as described in Section 3.12.6.2, with the exception that cumulative socioeconomic impacts of Alternative 4 would be expected to be incrementally less than the proposed Project (as described above) due to the avoidance of cumulative impacts in the South Region, under routing options A through D included under Alternative 4. Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners), and Impact S-3 (Operation activities would affect public agency revenue) would have incremental contributions to the Cumulative Scenario. Please see Section 3.12.6.2 for a full description of these cumulative socioeconomic impacts.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measure AG-1, which is recommended in Section 3.12.8.1 to minimize the effect of Alternative 4 on Impact S-2, would help to reduce the alternative's incremental contributions to the Cumulative Scenario. No additional mitigation measures have been identified to reduce or avoid cumulative socioeconomic impacts.

3.12.9 Alternative 5: Partial Underground Alternative

The following section describes the potential socioeconomic impacts of Alternative 5 (Partial Underground Alternative), according to the Issues of Concern introduced in Section 3.12.4.1. Mitigation measures are introduced where necessary in order to reduce or avoid potential impacts.

3.12.9.1 Direct and Indirect Effects Analysis

The Issues of Concern used to identify impacts to socioeconomics that are introduced in Section 3.12.4.1 are presented below with their respective impacts. For this alternative, portions of the proposed transmission line would be installed underground. The proposed route for Alternative 5 is exactly the same as the proposed Project route and as such, all potential socioeconomic impacts of Alternative 5 would be exactly the same as the proposed Project.

Population and Housing: Alternative 5

The Population and Housing Issue of Concern would be exactly the same under Alternative 5 as it would under the proposed Project (please refer to Section 3.12.6.1). As with the proposed Project, Alternative 5 would not directly induce substantial population growth, displace existing residents or housing, necessitate the construction of replacement housing, or preclude planned residential development. No impact would occur.

Quality of Life: Alternative 5

The Quality of Life Issue of Concern would be exactly the same under Alternative 5 as it would under the proposed Project (please refer to Section 3.12.6.1). No impact would occur.

Employment: Alternative 5

The Employment Issue of Concern would be exactly the same under Alternative 5 as it would under the proposed Project (please refer to Section 3.12.6.1). No workers would be expected to permanently relocate into the Project area as a result of Alternative 5, and local employment conditions in the Project area would not be affected by this alternative. No impact would occur.

Private Property Value: Alternative 5

The Private Property Value Issue of Concern would be exactly the same under Alternative 5 as it would under the proposed Project (please refer to Section 3.12.6.1). Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), as described in Section 3.12.6.1, would be the same as the proposed Project.

Local Business Revenue: Alternative 5

The proposed route under Alternative 5 is the same as the proposed Project route. As described in Section 3.12.6.1 (Direct and Indirect Effects Analysis: Alternative 2), businesses occur along the proposed transmission line route, but are not expected to be disrupted by implementation of the Project because all Project-related activities and infrastructure placement would occur within designated utility ROW areas and would not require the removal or relocation of any business uses.

As with the proposed Project, local businesses could potentially be affected by Alternative 5 through impacts to visual resources, vehicular or pedestrian traffic patterns, land use, or health and safety concerns (such as EMF). Under Alternative 5, these Issue Area-specific effects would likely be greater along the 3.5-mile underground section in the South Region, due to extensive construction activities that would occur at each access shaft location. Installation of the underground transmission line and facilities would be more intensive and require more time than would be required for overhead installation of the same section of transmission line. Therefore, any activities associated with installation of the underground segment that could potentially result in Issue Area-specific effects related to local business revenue would likely be slightly greater under Alternative 5 than under the proposed Project.

As with the proposed Project, impacts related to the Issue Areas that could potentially influence business revenue are addressed in their respective EIR/EIS sections: Land Use (Section 3.9), Traffic and Transportation (Section 3.13), Visual Resources (Section 3.14), and Electrical Interference and Hazards (Section 3.17).

Although Alternative 5 would not require the removal or relocation of any businesses, Project construction and operation would have the potential to affect agricultural revenues. As with the proposed Project, Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners) would require implementation of Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners).

Public Revenue: Alternative 5

The Public Revenue Issue of Concern would be exactly the same under Alternative 5 as it would under the proposed Project (please refer to Section 3.12.6.1). Impact S-3 (Operation and maintenance activities would affect public agency revenue) would have the potential to temporarily decrease Forest Service revenue as a result of decreased Adventure Pass sales in the ANF, but would not result in a permanent adverse change in public resource revenue. Permanent changes to public agency revenues as a result of Alternative 5 are expected to be beneficial.

3.12.9.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 5 (Partial Underground Alternative). The proposed route for Alternative 5 is exactly the same as the proposed Project route. This alternative would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 5 to the proposed Project, and the fact that the proposed route for Alternative 5 would be exactly the same as the proposed Project route, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

The geographic extent of the cumulative analysis is exactly the same as the proposed Project, as described in Section 3.12.6.2.

Existing Cumulative Conditions

Existing cumulative conditions for Alternative 5 are exactly the same as the proposed Project, as described in Section 3.12.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 5 are exactly the same as under the proposed Project, as described in Section 3.12.6.2.

Cumulative Impact Analysis

Cumulative impacts under Alternative 5 would be the same as under the proposed Project, as described in Section 3.12.6.2. Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners), and Impact S-3 (Project activities would affect public agency revenue) would have an incremental contribution to the Cumulative Scenario. Please see Section 3.12.6.2 for a full description of these cumulative impacts to socioeconomics.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measure AG-1, which is recommended in Section 3.12.9.1 to minimize the effect of Alternative 5 on Impact S-2, would help to reduce this alternative's incremental contributions to the Cumulative Scenario. No additional mitigation measures have been identified to reduce or avoid cumulative socioeconomic impacts.

3.12.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

The following section describes the potential socioeconomic impacts of Alternative 6 (Maximum Helicopter Construction in the ANF Alternative), according to the Issues of Concern introduced in Section 3.12.4.1. Mitigation measures are introduced where necessary in order to reduce or avoid potential impacts.

3.12.10.1 Direct and Indirect Effects Analysis

The Issues of Concern used to identify impacts to socioeconomics that are introduced in Section 3.12.4.1 are presented below with their respective impacts. This alternative would utilize helicopter construction through the ANF to the maximum extent feasible, towards the purpose of reducing the length of new roads that would need to be constructed or improved during Project construction. The proposed route for Alternative 6 is exactly the same as the proposed Project route and as such, all potential socioeconomic impacts of Alternative 6 would be exactly the same as the proposed Project.

Population and Housing: Alternative 6

The Population and Housing Issue of Concern would be exactly the same under Alternative 6 as it would under the proposed Project (please refer to Section 3.12.6.1). As with the proposed Project, Alternative 6 would not directly induce substantial population growth, displace existing residents or housing, necessitate the construction of replacement housing, or preclude planned residential development. No impact would occur.

Quality of Life: Alternative 6

The Quality of Life Issue of Concern is considered in terms of the individual perception of various issue areas, as previously described. The use of helicopters during construction of this Project would have different and, in some cases, more intense effects on the Issue Areas that are considered to contribute to a perception of Quality of Life. However, as with the proposed Project, it is not expected that Alternative 6 would have the potential to adversely impact the overall concept or experience of Quality of Life for individuals who live in the Project area. No impact would occur.

Employment: Alternative 6

The Employment Issue of Concern would be exactly the same under Alternative 6 as it would under the proposed Project (please refer to Section 3.12.6.1). No workers would be expected to permanently relocate into the Project area as a result of Alternative 6, and local employment conditions in the Project area would not be affected by this alternative. No impact would occur.

Private Property Value: Alternative 6

The Private Property Value Issue of Concern would be exactly the same under Alternative 6 as it would under the proposed Project (please refer to Section 3.12.6.1). Although construction methodology in the ANF would be different under Alternative 6 than under the proposed Project, permanent effects would be the same. Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), as described in Section 3.12.6.1, would be the same as the proposed Project.

Local Business Revenue: Alternative 6

The Local Business Revenue Issue of Concern would be exactly the same under Alternative 6 as it would under the proposed Project (please refer to Section 3.12.6.1). Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners) would require implementation of Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners).

Public Revenue: Alternative 6

The Public Revenue Issue of Concern would be exactly the same under Alternative 6 as it would under the proposed Project (please refer to Section 3.12.6.1). Impact S-3 (Operation and maintenance activities would affect public agency revenue) would have the potential to temporarily decrease Forest Service revenue as a result of decreased Adventure Pass sales in the ANF, but would not result in a permanent adverse change in public resource revenue. Permanent changes to public agency revenues as a result of Alternative 6 are expected to be beneficial.

3.12.10.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 6 (Maximum Helicopter Construction in the ANF Alternative). This alternative would utilize helicopter construction through the ANF to the maximum extent possible, towards the purpose of minimizing the length of roads in the ANF that would need to be constructed or improved as a result of Project implementation. The proposed route for Alternative 6 is exactly the same as the proposed Project route. This alternative would result in the same operational capacity as the proposed Project. From a socioeconomic perspective, the contribution of Alternative 6 to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

The geographic extent of the cumulative analysis is exactly the same as the proposed Project, as described in Section 3.12.6.2.

Existing Cumulative Conditions

Existing cumulative conditions for Alternative 6 are exactly the same as the proposed Project, as described in Section 3.12.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 6 are exactly the same as under the proposed Project, as described in Section 3.12.6.2.

Cumulative Impact Analysis

Cumulative impacts under Alternative 6 would be the same as under the proposed Project, as described in Section 3.12.6.2. Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners), and Impact S-3 (Project activities would affect public agency revenue) would have incremental contributions to the Cumulative Scenario. Please see Section 3.12.6.2 for a full description of these cumulative socioeconomic impacts.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measure AG-1, which is recommended in Section 3.12.10.1 to minimize the effect of Alternative 6 on Impact S-2, would help to reduce the alternative's incremental contributions to the Cumulative Scenario. No additional mitigation measures have been identified to reduce or avoid cumulative socioeconomic impacts.

3.12.11 Alternative 7: 66-kV Subtransmission Alternative

The following section describes the potential socioeconomic impacts of Alternative 7 (66-kV Subtransmission Alternative), according to the Issues of Concern provided in Section 3.12.4.1. Mitigation measures are introduced where necessary in order to reduce or avoid potential impacts. This alternative is identical to the proposed Project, with the exception of the following three 66-kV subtransmission elements: undergrounding the 66-kV subtransmission line through the Duck Farm Project (between S7 MP 8.9 and S7 MP 9.9); re-routing and undergrounding the 66-kV subtransmission line around the Whittier Narrows Recreation Area, between S7 MP 11.4 and S7 MP 12.025; and re-routing an overhead 66-kV subtransmission line around the Whittier Narrows Recreation, between S8A MP 2.2 and S8A MP 3.8.

3.12.11.1 Direct and Indirect Effects Analysis

The Issues of Concern used to identify impacts to socioeconomics that are introduced in Section 3.12.4.1 are presented below with their respective impacts.

Population and Housing: Alternative 7

The Population and Housing Issue of Concern would be exactly the same under Alternative 7 as it would under the proposed Project (please refer to Section 3.12.6.1). The 66-kV subtransmission elements associated with Alternative 7 would be constructed along existing ROWs, roads, or open space areas, and would not be located in residential communities. As with the proposed Project, Alternative 7 would not directly induce substantial population growth, displace existing residents or housing, necessitate the construction of replacement housing, or preclude planned residential development. No impact would occur.

Quality of Life: Alternative 7

The Quality of Life Issue of Concern would be exactly the same under Alternative 7 as it would under the proposed Project (please refer to Section 3.12.6.1). No impact would occur.

Employment: Alternative 7

The Employment Issue of Concern would be exactly the same under Alternative 7 as it would under the proposed Project (please refer to Section 3.12.6.1). No workers would be expected to permanently relocate into the Project area as a result of Alternative 7, and local employment conditions in the Project area would not be affected by this alternative. No impact would occur.

Private Property Value: Alternative 7

The Private Property Value Issue of Concern would be exactly the same under Alternative 7 as it would under the proposed Project. Although Alternative 7 includes minor re-routes and underground construction of 66-kV subtransmission lines along Segments 7 and 8A, this alternative would not create a new effect on existing structures that is not already discussed in Section 3.12.6.1. Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), as described in Section 3.12.6.1, would be the same as the proposed Project.

Local Business Revenue: Alternative 7

The Local Business Revenue Issue of Concern would be exactly the same under Alternative 7 as it would under the proposed Project. The 66-kV subtransmission elements of Alternative 7 would not create any new impacts to local businesses that are not already discussed in Section 3.12.6.1. As discussed for the proposed Project, construction and operation would have the potential to affect agricultural revenues. Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners) under Alternative 7 would require implementation of Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners).

Public Revenue: Alternative 7

The Public Revenue Issue of Concern would be exactly the same under Alternative 7 as it would under the proposed Project (please refer to Section 3.12.6.1). Impact S-3 (Operation and maintenance activities would affect public agency revenue) would have the potential to temporarily decrease Forest Service revenue as a result of decreased Adventure Pass sales in the ANF, but would not result in a permanent adverse change in public resource revenue. Permanent changes to public agency revenues as a result of Alternative 7 are expected to be beneficial.

3.12.11.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 7 (66-kV Subtransmission Alternative). This alternative consists of minor 66-kV subtransmission re-routes and underground construction along Segments 7 and 8A. As previously described, this alternative traverses the same uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 7 to the proposed Project, this alternative's incremental contributions to the Cumulative Scenario would be identical to that of the proposed Project.

Geographic Extent

The geographic extent of the cumulative analysis is exactly the same as the proposed Project, as described in Section 3.12.6.2.

Existing Cumulative Conditions

Existing cumulative conditions for Alternative 7 are exactly the same as the proposed Project, as described in Section 3.12.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes under Alternative 7 are exactly the same as under the proposed Project, as described in Section 3.12.6.2.

Cumulative Impact Analysis

Cumulative impacts under Alternative 7 would be the same as under the proposed Project, as described in Section 3.12.6.2. Impact S-1 (Operation and maintenance activities would affect property values along the Project alignment), Impact S-2 (Construction activities would cause a temporary decrease in revenues for agricultural landowners), and Impact S-3 (Project activities would affect public agency revenue) would have incremental contributions to the Cumulative Scenario. Please see Section 3.12.6.2 for a full description of these cumulative socioeconomic impacts.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measure AG-1, which is recommended in Section 3.12.11.1 to minimize the effect of Alternative 7 on Impact S-2, would help to reduce the alternative's incremental contribution to the Cumulative Scenario. No additional mitigation measures have been identified to reduce or avoid cumulative socioeconomic impacts.

3.12.12 Impact Significance Summary

Table 3.12-17 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and all alternatives, as related to socioeconomics. As described in Section 3.12.4.1 (Criteria for Determining Impact Significance), economic and social effects of a project may not be treated as significant environmental effects (per CEQA) and no specific thresholds of significance for socioeconomic impact assessment have been identified (per NEPA). Therefore, for the purposes of this analysis, socioeconomic impacts were assessed with regards to five Issues of Concern. Through this assessment, three impacts were identified under the relevant Issues of Concern. Table 3.12-17 lists the identified impacts and indicates whether they would occur under each alternative. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.12.5 through 3.12.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.12.5; however, because no potential future project information is available at the time of this analysis, an indication of whether the identified socioeconomic impacts would occur under Alternative 1 is not included in the table below.

Table 3.12-17. Summary of Impacts and Mitigation Measures – Socioeconomics

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
S-1: Project activities would affect property values along the Project alignment.	N/A	Yes	Yes	Yes	Yes	Yes	Yes	No	N/A
S-2: Construction activities would cause a temporary decrease in revenues for agricultural landowners.	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	AG-1: Coordinate construction activities with agricultural landowners.

Table 3.12-17. Summary of Impacts and Mitigation Measures – Socioeconomics

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
S-3: Operation and maintenance activities would affect public agency revenue.	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R-1e: SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities~~.

N/A = Not Available.

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.

3.13 Traffic and Transportation

3.13.1 Introduction

This section describes effects on Traffic and Transportation that would be caused by implementation of the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to Traffic and Transportation are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following issue related to Traffic and Transportation was raised during scoping. However, no alternatives that followed the routes described below were carried forward for analysis.

- Consider alternative that follows existing transportation and commercial ROW along the 60 freeway or railroad ROWs; route power lines behind the San Gabriel Mountains and come down the 15 Freeway. (Potential construction impacts to traffic if this route is chosen?)

Summary and Comparison of Alternatives

Table 3.13-1 on the following page presents some key factors related to Traffic and Transportation for each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.13-1 are not impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.13.4.1 (Criteria for Determining Impact Significance), are further described in Sections 3.13.5 through 3.13.11.

3.13.2 Affected Environment

Information regarding the existing roadway system and transportation infrastructure and facilities was obtained from the following sources: highway maps, route alignment maps, the Proponent's Environmental Assessment, and other maps from various reports and websites of the affected State and local agencies. Roadway capacities and operating criteria were obtained from general plans, traffic departments, and or public works departments of the affected agencies. Traffic volume data were obtained from agency websites and databases (see Chapter 8 for the complete listing of data sources). Lane information was obtained from aerial photographs, local government agencies, public maps, and field reconnaissance. The environmental setting includes the roadways, transit systems, railroads, and airport facilities crossed by, adjacent to, or in the immediate vicinity of the proposed transmission line route.

The data presented in the tables below include the name of the roadway, the responsible jurisdiction, the number of lanes, and the proposed Project milepost (MP) of the crossing. In addition to the roadways listed in the tables, there are numerous unpaved and/or unnamed roads that would also be affected by the Project.

Table 3.13-1. Summary Comparison of Environmental Issues – Traffic and Transportation

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion (Impact T-1)	Impacts of potential future projects would most likely be similar to those of the proposed Project or alternatives.	Potentially affects 420 roadways.	Same as Alternative 2.	Roadways potentially affected: Alts 4B & 4D: ~~361~~ 378 Alts 4A, 4C, & 4C Modified: ~~360~~ 377 (would not cross Bane Canyon Road).	Potentially affect 409 roadways (11 fewer roadways than Alternative 2).	Would potentially affect 420 roadways and require temporary closure of two roadways that would not be required during construction of any other alternative.	Requires longer duration of temporary closures along 4 more roadway segments than Alternative 2.
Construction traffic would result in congestion on area roadways (Impact T-2)	Same as above.	Potentially affects 420 roadways.	Same as Alternative 2.	Roadways potentially affected: Alts 4B & 4D: ~~361~~ 378 Alts 4A, 4C, & 4C Modified: ~~360~~ 377 (would not cross Bane Canyon Road).	Would result in substantially more congestion on roadways within the Southern Region.	Same as Alternative 2.	Affects 4 more roadway segments than Alternative 2.
Construction activities could temporarily interfere with emergency response (Impact T-3)	Same as above.	Potentially affects 420 roadways.	Same as Alternative 2.	Approximately ~~60~~ 46 fewer roadways than Alternative 2.	Potentially affect 409 roadways (11 fewer roadways than Alternative 2).	Incrementally increased due to potential closures of Upper Big Tujunga Canyon Road and Angeles Forest Hwy.	Affects 4 more roadway segments than Alternative 2.
Construction activities could temporarily disrupt transit routes (Impact T-4)	Same as above.	Potentially affects dozens of transit routes.	Same as Alternative 2.	Affects 1 less transit route than Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Affects 6 more transit routes than Alternative 2.
Construction activities could temporarily interfere with the use of pedestrian/bicycle paths (Impact T-6)	Same as above.	Would potentially affect several pedestrian and bicycle paths along the Project route.	Same as Alternative 2.	Number of paths affected compared to Alternative 2: Alt. 4A & 4B: ~~9~~ 7 more; Alts 4C, 4C Modified, & 4 D: same as Alt. 2~~3 more~~; ~~Alt 4D: 2 more~~.	Would affect approx. 11 fewer residential roadways than Alternative 2 and incrementally affect fewer sidewalks and pedestrian paths.	Same as Alternative 2.	Would affect sidewalks along 5 more roadway segments than Alternative 2.
Underground construction activities would temporarily restrict property access (Impact T-11)	Same as above.	No Impact.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Restricts access to businesses along Durfee Avenue.

3.13.2.1 Regional Setting

The regional setting for the proposed Project and alternatives includes parts of Kern County, the Angeles National Forest, Los Angeles County (incorporated and unincorporated), and San Bernardino County (incorporated and unincorporated). The Project is also located within one-half mile of Riverside County (at Mira Loma Substation) and Orange County (along the proposed ROW for Segment 8A). For the purposes of this analysis the Traffic and Transportation Study Area has also been divided into three regions: Northern Region, Central Region, and Southern Region. The particular boundaries for each of these regions are described in further detail below and shown on Figure 3.13-1 (at the end of this section).

Northern Region

The Northern Region of the TRTP route includes all portions of the Project located between the Windhub Substation located south of Tehachapi in southern Kern County and the Vincent Substation, located in northern Los Angeles County. This portion of the TRTP route traverses unincorporated areas of Kern County, the cities of Palmdale and Lancaster, and unincorporated areas of Los Angeles County.

Existing Roadway Network

The major regional transportation routes in the Northern Region of the proposed Project area include highways under the jurisdiction of Caltrans and collector roads under the jurisdiction of local municipalities, and are described in detail below.

State Route (SR14) in the Project Area is a four lane divided freeway traversing the Antelope Valley region in a north-south direction. This freeway connects the Los Angeles metropolitan area with the Tehachapi area with interchanges at Interstate 5 (I-5) and SR58, respectively. SR14 experiences an annual average daily traffic (ADT) level of approximately 70,000 trips in the area (Caltrans, 2007).

State Route 58 (SR58) in the Project Area is four lane divided freeway traversing the Antelope Valley region in an east-west direction. This freeway connects San Luis Obispo and San Bernardino Counties via Bakersfield and Tehachapi. ~~SR14~~ SR58 experiences an ADT level of approximately 20,400 trips in the area (Caltrans, 2007).

State Route 138 (SR138) in the Project Area is a two lane undivided highway with an ADT volume of 4,500 vehicles (Caltrans, 2007). This portion of SR138, also referred to as Avenue D, is a regionally important east-west route across the Antelope Valley, connecting the north-south corridors of SR14 on the east with I-5 near Tejon Pass on the West.

Tehachapi Willow Springs Road is a two lane collector road under the jurisdiction of Kern County. In the Project area, this road has an ADT volume of approximately 3,300 vehicles (Kern County, 2007b). Tehachapi Willow Springs Road also serves as an alternative route to SR58 (Kern County, 2007a).

Rosamond Boulevard is a two lane, east-west arterial road under the jurisdiction of Kern County. In the Project area, this road has an ADT volume of approximately 6,300 vehicles (Kern County, 2007b). Rosamond Boulevard is also an access point to Edwards Air Force Base (Kern County, 2007a).

Elizabeth Lake Road is a two lane, east-west arterial road under the jurisdiction of Los Angeles County. In the Project area, this road has an ADT volume of approximately 19,000 vehicles (Los Angeles County, 2008).

Sierra Highway is a two lane, north-south highway under the jurisdiction of Los Angeles County. In the Project area, this road has an ADT volume of approximately 7,100 vehicles (Los Angeles County, 2008).

Transit and Rail Services

Local bus service in this area of the proposed Project is provided by the Antelope Valley Transit Authority (AVTA). AVTA operates 16 routes throughout the cities of Lancaster and Palmdale, and nearby communities. The AVTA operations closest to the Project are in Lancaster and include Route 7 and Route 5. Route 7 extends westward to 60th Street West where it runs between Avenue H and Avenue L-8. Route 5 extends westward along Avenue L-12 to the Mayflower Gardens convalescent hospital and 67th Street West (AVTA, 2007).

AVTA also operates a commuter bus service between the Lancaster Transfer Center, where connections with local service are available, and employment centers in Los Angeles. Other park-and-ride facilities and a transfer center are located in Palmdale. Service is provided along routes 785 (to downtown Los Angeles), 786 (to West Los Angeles and Century City), and 787 (to West San Fernando Valley), all of which use SR14 (SCE, 2007a).

The Kern Regional Transit (KRT) service is operated by Kern County. Express bus service is provided from Bakersfield to Tehachapi, Rosamond, and Lancaster. Within Rosamond and Tehachapi, only dial-a-ride service is provided. During the summer months, KRT provides community service throughout Tehachapi.

The Union Pacific Railroad (UPRR) line is located approximately 10 miles east of the Antelope Substation, and east of SR14 through Lancaster (SCE, 2007a). This line carries freight traffic and the Metrolink commuter trains southward from Lancaster. A spur line from the UPRR main line serves the Cal Cement plant southeast of Tehachapi. A combined Amtrak and Metrolink station is located in Lancaster at 44812 North Sierra Highway, approximately seven miles east of the Antelope Substation. Amtrak does not operate trains on this track but does operate motor coaches that connect between Bakersfield and Palmdale. Metrolink offers commuter rail service to downtown Los Angeles with stops at cities and communities between there and Lancaster.

Bicycle Facilities

The Northern Region of the proposed TRTP route traverses through mostly undeveloped and rural areas absent of concentrated urban development. Roads crossed by the proposed Project are generally two-lane rural roads, or rural collectors, generally carrying less than 2,000 ADT, or major collectors or highways, such as Elizabeth Lake Road and SR14. Designated bicycle lanes do not exist along the proposed Project route (MTA, 2006).

Air Transportation

Public and Private Airports. Several airports and air fields are located within the Northern Region of the TRTP route. Skyotee Ranch Airport, located approximately two miles southeast of the proposed Whirlwind Substation, and one mile east of the Segment 4 alignment, is a privately owned airport that is open to the public and serves as a general aviation facility. Bohunks Airpark, located approximately one mile east of the Antelope Substation, is a privately owned airport that is open to the public and serves as a general aviation facility. Tehachapi Municipal Airport, located approximately three miles northwest of the Whirlwind Substation, is operated by the City of Tehachapi as a general aviation facility that is open to the public.

In the Lancaster area, General William J. Fox Airfield is a regional general aviation airport owned by Los Angeles County, and operated under contract by American Airports Corporation. There is no scheduled

air service at this airport, but charter service and pilot support services are available. It is located approximately five miles northeast of the Antelope Substation. Mojave Airport is located approximately seven miles northeast of the proposed Windhub Substation and is operated by the East Kern Airport District. Although there is no commercial air service, Mojave Airport is very active and serves general aviation and heavy transport. The airport property is also used by several major airlines to store large aircraft.

Air Traffic and Military Aviation. Edwards Air Force Base (AFB) is located approximately 23 miles east of the proposed Windhub Substation. Edwards AFB is a military airport that is used primarily for testing military aircraft. Naval Air Weapons Station (NAWS) China Lake is located approximately 55 miles northeast of the proposed Windhub Substation. NAWS China Lake is an airborne weapons testing and training range operated by the United States Navy.

Central Region

The Central Region of the TRTP route includes all portions of the Project located between the Vincent Substation located north of Acton in northern Los Angeles County and the Mesa Substation located in Monterey Park. This region includes unincorporated areas of Los Angeles County, the Angeles National Forest (ANF), and the cities of Baldwin Park, Duarte, Industry, Irwindale, La Canada Flintridge, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, South El Monte, and Temple City.

Existing Roadway Network

Much of the Central Region is located within the ANF. Roadways within the ANF are primarily two-lane rural roads, or rural collectors carrying less than 2,000 ADT (SCE, 2007a). The major regional transportation routes in the Central Region of the proposed Project area include interstate freeways and state highways under the Caltrans jurisdiction as well as major highways (three travel lanes in each direction and 30,000 to 50,000 ADT) secondary highways (two travel lanes in each direction and 20,000 to 30,000 ADT) under county or local municipal jurisdiction, and are described in detail below.

Interstate 210 (I-210) is an eight to ten-lane divided freeway with an ADT of 280,000 vehicles and connects the San Gabriel Valley to the coastal cities of Seal Beach and Long Beach (Caltrans, 2007).

Interstate 10 (I-10) is an eight-lane divided highway with an ADT volume of 240,000 vehicles (Caltrans, 2007). I-10 is a transcontinental freeway that connects the east coast of Florida with the west coast of California.

Interstate 605 (I-605) is an eight-lane divided highway with an ADT volume of approximately 264,000 vehicles (Caltrans, 2007). I-605 connects Irwindale to Orange County and provides access to I-210, I-10, SR-60, I-5, I-105, and SR-22.

State Route 60 (SR60) is an eight-lane divided highway with an ADT volume of 250,000 vehicles (Caltrans, 2007). SR60 connects Riverside County to downtown Los Angeles.

State Route 19 (SR19) is a four-lane undivided highway that traverses Los Angeles County in a north-south direction and connects Pasadena and the San Gabriel Valley to Long Beach. This highway, also known as Rosemead Boulevard, has an ADT of approximately 40,000 vehicles (Caltrans, 2007; Los Angeles County, 2008).

State Route 2 (SR2) is a two-lane undivided freeway that traverses the ANF in an east-west direction. This highway, also known as the Angeles Crest Highway, has an ADT within the ANF of approximately 3,700 vehicles (Caltrans, 2007).

Angeles Forest Highway (AFH) is a two-lane undivided highway that traverses the ANF in a north-south direction. This highway connects the Antelope Valley region with the Los Angeles metropolitan area. This roadway experiences an ADT of approximately 3,500 trips (Los Angeles County, 2008).

Huntington Boulevard is an eight-lane major highway that traverses Los Angeles County in an east-west direction. This road connects downtown Los Angeles with cities in the San Gabriel Valley such as, San Marino, Arcadia, Monrovia and Duarte, and has an ADT of approximately 40,000 vehicles (Los Angeles County, 2008).

Valley Boulevard is a four-lane secondary highway that traverses Los Angeles County in an east-west direction. This road connects downtown East Los Angeles with cities in the San Gabriel Valley such as, Alhambra, San Gabriel, Rosemead, and El Monte and has an ADT of approximately 23,000 vehicles (Los Angeles County, 2008).

San Gabriel Boulevard is a four-lane secondary highway that traverses Los Angeles County in a north-south direction. This road provides San Gabriel Valley access to the I-210, I-10 and SR-60 freeways and has an ADT of approximately 30,000 vehicles (Los Angeles County, 2008).

Transportation on National Forest System Lands

The ANF manages a transportation network to provide sustainable access in a fiscally responsible manner to National Forest System (NFS) lands for administration, protection, and utilization of these lands and resources. The primary component of this network is NFS roads. NFS roads are roads that have been determined to be needed for long-term motor vehicle access and are under the jurisdiction of the NFS.

Table 3.13-2 lists the NFS roads that would be used by the proposed Project or alternatives, along with System Identification (ID), Operational Maintenance Levels (OML), and Traffic Service Levels, which are assigned to every NFS Road. OML are discussed in Section 3.15, Wilderness and Recreation because of their bearing on the types of motorized vehicle uses the ANF may allow. Traffic Service Levels describe the significant characteristics and operating conditions of a road and are described in Table 3.13-3.

In addition to NFS roads, there are many small maintenance trails or "spur" roads which provide access directly to towers from NFS roads. Some of these spur roads are well maintained and continually used, while others are completely overgrown with brush and show very little evidence of existence.

There are also several major paved access roads within ANF which will be used for the proposed Project or alternatives. These roads fall under the jurisdiction of either Los Angeles County Department of Public Works, or California Department of Transportation. Examples include Angeles Forest Highway, State Highway 2, and Upper Big Tujunga Road.

Table 3.13-2. NFS Roads to be Used by the Proposed Project or Alternatives

Road Name	ID	Operation and Maintenance Level	Traffic Service Level
Angeles Crest Station	2n76a0	4 - Moderate Degree Of User Comfort	B - Congested During Heavy Traffic
Ccc Ridge Road	2n75	2 - High Clearance Vehicles	C - Flow Interrupted - Use Limited
Channy Trail	2n65.2	0 - Not Maintained	A - Free Flowing Mixed Traffic
Edison Rd	4n24	2 - High Clearance Vehicles	A - Free Flowing Mixed Traffic
Edison/Fall Creek Rd	3n27	2 - High Clearance Vehicles	D - Slow Flow Or May Be Blocked

Table 3.13-2. NFS Roads to be Used by the Proposed Project or Alternatives

Road Name	ID	Operation and Maintenance Level	Traffic Service Level
Grizzly Flat	2n79	2 - High Clearance Vehicles	C - Flow Interrupted - Use Limited
Lynx Gulch Rd	4n18	2 - High Clearance Vehicles	B - Congested During Heavy Traffic
Monte Cristo Mine Rd	3n23	1 - Basic Custodial Care	C - Flow Interrupted - Use Limited
Mt Lukens Rd	2n76.3	2 - High Clearance Vehicles	C - Flow Interrupted - Use Limited
Powerline Road	3n20	2 - High Clearance Vehicles	B - Congested During Heavy Traffic
Rincon/Red Box	2n24	2 - High Clearance Vehicles	A - Free Flowing Mixed Traffic
Santa Clara Divide	3n17	2 - High Clearance Vehicles	B - Congested During Heavy Traffic
Sawpit	2n30.1	2 - High Clearance Vehicles	C - Flow Interrupted - Use Limited
Shortcut Edison Rd.	2n23	2 - High Clearance Vehicles	B - Congested During Heavy Traffic
Shortcut Station	3n19a0	5 - High Degree Of User Comfort	B - Congested During Heavy Traffic
Van Tassel	1n36	2 - High Clearance Vehicles	D - Slow Flow Or May Be Blocked
Van Tassel Ridge Spur	1n36a0	2 - High Clearance Vehicles	D - Slow Flow Or May Be Blocked
West Fork Rd	2n25.1	2 - High Clearance Vehicles	B - Congested During Heavy Traffic
West Fork/Cogswell Rd	2n25.2	2 - High Clearance Vehicles	D - Slow Flow Or May Be Blocked

Source: USDA Forest Service INFRA Roads Database

For purposes of impact analysis, categories of Maintenance, Reconstruction, or New Construction have been applied to all access roads under ANF jurisdiction needed for the proposed Project or alternatives, consistent with definitions found in FSM 7700. Maintenance is defined as ongoing upkeep of an existing road necessary to retain or restore the road to the approved road management objective. Reconstruction is defined as an increase of an existing road's traffic service level, expansion of its capacity, changes to its original design function, or activity that results in a new location of an existing road and treatment of the old roadway. New construction was assigned to any needed access routes which did not fit definitions for reconstruction or maintenance. These categories were assigned using the ANF Roads database, project maps showing needed access routes, field data on current conditions, and 2005 digital aerial photography from the National Agricultural Inspection Program.

Table 3.13-3. Traffic Service Levels for NFS Roads

Description	TSLA A	TSL B	TSL C	TSL C
Flow	Free flowing with adequate parking facilities.	Congested during heavy traffic such as during peak logging or recreation activities.	Interrupted by limited passing facilities, or slowed by the road condition.	Flow is slow or may be blocked by an activity. Two-way traffic is difficult and may require backing to pass.
Volumes	Uncontrolled; will accommodate the expected traffic volumes.	Occasionally controlled during heavy use periods.	Erratic; frequently controlled as the capacity is reached.	Intermittent and usually controlled. Volume is limited to that associated with the single purpose.
Vehicle Types	Mixed; includes the critical vehicle and all vehicles normally found on public roads.	Mixed; includes the critical vehicle and all vehicles normally found on public roads.	Controlled mix; accommodates all vehicle types including the critical vehicle. Some use may be controlled to vehicle types.	Single use; not designed for mixed traffic. Some vehicles may not be able to negotiate. Concurrent use traffic is restricted.
Critical Vehicle	Clearances are adequate to allow free travel. Overload permits are required.	Traffic controls needed where clearances are marginal. Overload permits are required	Special provisions may be needed. Some vehicles will have difficulty negotiating some segments.	Some vehicles may not be able to negotiate. Loads may have to be off-loaded and walked in.
Safety	Safety features are a part of the design.	High priority in design. Some protection is accomplished by traffic management.	Most protection is provided by management.	The need for protection is minimized by low speeds and strict traffic controls.

Table 3.13-3. Traffic Service Levels for NFS Roads

Description	TSLA A	TSL B	TSL C	TSL C
Traffic Management	Normally limited to regulatory, warning, and guide signs and permits	Employed to reduce traffic volume and conflicts.	Traffic controls are frequently needed during periods of high use by the dominant resource activity.	Used to discourage or prohibit traffic other than that associated with the single purpose.
User Costs	Minimize; transportation efficiency is important.	Generally higher than "A" because of slower speeds and increased delays.	Not important; efficiency of travel may be traded for lower construction costs.	Not considered.
Alignment	Design speed is the predominant factor within feasible topographic limitations.	Influenced more strongly by topography than by speed and efficiency.	Generally dictated by topographic features and environmental factors. Design speeds are generally low.	Dictated by topography, environmental factors, and the design and critical vehicle limitations. Speed is not important.
Road Surface	Stable and smooth with little or no dust, considering the normal season of use.	Stable for the predominant traffic for the normal use season. Periodic dust control for heavy use or environmental reasons. Smoothness is commensurate with the design speed.	May not be stable under all traffic or weather conditions during the normal use season. Surface rutting, roughness, and dust may be present, but controlled for environmental or investment protection.	Rough and irregular. Travel with low clearance vehicles is difficult. Stable during dry conditions. Rutting and dusting controlled only for soil and water protection.

Source: USDA, Forest Service Handbook

Transit and Rail Services

Much of the Central Region is located within the ANF remotely far from transit and rail facilities within Los Angeles County. South of the ANF, there are several local transit providers. The Los Angeles Metropolitan Transit Authority (MTA) provides transit bus service in Monrovia. MTA, Foothill Transit (FT), Pasadena Area Transit System (ARTS), Montebello Municipal Bus Lines (M), and Norwalk Transit (NW) provide bus, transitway, and Metrolink rail service to the jurisdictions within this region of the TRTP route.

MTA provides light rail service in this area via the Metro Gold Line which is located between the eastbound and westbound ROW of the I-210 freeway. Two railroad lines would be crossed by the proposed Project in this region. A UPRR line that carries freight traffic and Amtrak commuter trains is located approximately 1.5 miles north of the I-10 freeway (SCE, 2007a). A Metrolink line is located between the eastbound and westbound ROW of the I-10 freeway and carries the Metrolink San Bernardino line and Amtrak commuter trains eastward from Los Angeles (SCE, 2007a).

Bicycle Facilities

Definitions and classifications of designated bike paths or bikeways vary by jurisdictional agency in this region; however they can be generally divided into three classes. A Class I bike path usually serves a corridor that is not served by an existing street and/or is physically separated from motor vehicle lanes. A Class II bike route/path is a bicycle lane that shares a right-of-way with a roadway or walkway and is marked (with signs and/or pavement marking/striping) as a lane for the use of bicycles. A Class III bike route also shares the right-of-way with a roadway or walkway but is not indicated by a continuous stripe on the pavement or separated by any type of barrier, but it is identified as a bikeway with signs. All three designations of bike routes are located throughout the Central Region of the proposed Project area.

Air Transportation

Several airports and air fields are located within the Central Region of the TRTP route. El Monte Airport is located in the City of El Monte approximately two miles west of SR19. El Monte Airport is a regional general aviation airport owned by Los Angeles County and operated under contract by American Airports Corporation. Shepherd Field is located approximately 3.6 miles southeast of the existing Mesa Substation; however this airfield is listed as inactive by the October 2004 Federal Aviation Administration (FAA) Airport/Facility Directory Data (SCE, 2007a). Bob Hope Airport is a regional and national airport owned by the Burbank-Glendale-Pasadena Airport Authority and is located approximately seven miles southwest of the existing SCE Gould Substation.

Southern Region

The Southern Region of the TRTP route includes all portions of the Project located between the Mesa Substation in Monterey Park to the Mira Loma Substation located in San Bernardino County. This portion of the TRTP route traverses unincorporated portions of Los Angeles and San Bernardino Counties, as well as the cities of Chino, Chino Hills, Industry, La Habra Heights, Montebello, Monterey Park, Ontario, Pico Rivera, Rosemead, and Whittier.

Existing Roadway Network

The major regional transportation routes in the Central Region of the proposed Project area include interstate freeways and state highways under the Caltrans jurisdiction as well as major highways (three travel lanes in each direction and 30,000 to 50,000 ADT) secondary highways (two travel lanes in each direction and 20,000 to 30,000 ADT) under county or local municipal jurisdiction, and are described in detail below.

State Route 60 (SR60) is an eight-lane divided highway with an ADT volume of 250,000 vehicles (Caltrans, 2007). SR60 connects Riverside County to downtown Los Angeles.

State Route 19 (SR19) is a four-lane undivided highway that traverses Los Angeles County in a north-south direction and connects Pasadena and the San Gabriel Valley to Long Beach. This highway, also known as Rosemead Boulevard, has an ADT of approximately 40,000 vehicles (Caltrans, 2007; Los Angeles County, 2008).

Interstate 605 (I-605) is an eight-lane freeway with an ADT volume of 258,000 vehicles (Caltrans, 2007). I-605 connects the foothills of the San Gabriel Mountains to Los Angeles and north Orange County.

State Route 57 (SR57) is an eight-lane freeway with an ADT volume of 216,000 vehicles (SCE, 2007a). SR-57 connects south Orange County and the San Gabriel Valley.

State Route 71 (SR71) is a six-lane freeway with an ADT volume of 85,000 vehicles (SCE, 2007a). SR-71 connects Los Angeles and San Bernardino Counties to the Chino Valley

State Route 83 (SR83) is a four-lane undivided highway with an ADT volume of 22,000 vehicles (Caltrans, 2007).

State Route 142 (SR142) is a two-lane undivided highway with an ADT volume of 30,000 vehicles (Caltrans, 2007). This road is also known as Carbon Canyon Road.

Colima Road (County Highway 8) is a four-lane secondary highway that traverses Los Angeles County in a northeast-southwest direction. This road connects the city of Diamond Bar with the community of

Hacienda Heights and the city of Whittier, and has an ADT of approximately 28,000 vehicles (Los Angeles County, 2008).

Fullerton Road is four-lane secondary highway that traverses Los Angeles County in a north-south direction. This road connects the City of Industry with the cities of La Habra and Fullerton and provides access to SR60 and SR 90 and as an ADT of approximately 39,000 vehicles (Los Angeles County, 2008).

Pathfinder Road is a four-lane secondary highway that traverses Los Angeles County in an east-west direction. This road connects the City of Diamond Bar with the community of Rowland Heights between Diamond Bar Boulevard and Fullerton Road, and has an ADT of approximately 29,000 vehicles (Los Angeles County, 2008).

Transit and Rail Services

Transit service in the Southern Region is provided by MTA, Foothill Transit, and Montebello Municipal Bus Lines in Los Angeles County and by Omnitrans and other local providers in San Bernardino County. Metrolink's Riverside line runs parallel with SR60 in the San Gabriel Valley region. The UPRR line is located on the southeast corner of I-605 and SR60 connector located approximately 4.8 miles east of Mesa Substation. This line carries freight traffic, the Metrolink Riverside Line and Amtrak Sunset Limited commuter trains.

Bicycle Facilities

Several designations of bike routes are located throughout the Southern Region of the proposed Project area.

Air Transportation

The LA/Ontario International Airport is located in the City of Ontario just south of I-10 and approximately two miles east of the I-15 freeway. This airport is a regional and international airport that serves San Bernardino County, Riverside County, north Orange County, and east Los Angeles County with daily commercial air service. Chino Airport is a regional aviation airport located in Chino Hills approximately one mile south of Edison Boulevard along SR83. Chino Airport is owned and operated by San Bernardino County and provides general aviation service.

3.13.2.2 Alternative 2: SCE's Proposed Project

Construction Overview

Construction activities for the proposed Project would include establishment of marshalling yards for staging of materials and equipment, and development of access roads and spur roads to reach construction sites. Following this, or in parallel, crews would remove existing transmission lines, and also begin installation of new transmission structures. Construction of new transmission towers would include clearing of footing work locations, installation of foundations, tower assembly, and tower erection. After towers are in place, crews would proceed with stringing of conductor and overhead ground wires. Construction would be completed with clean-up of construction sites and demobilization of personnel and equipment. The exact method for construction employed and the sequence with which construction tasks occur would be dependent on final engineering, contract award, conditions of permits, and contractor preference.

Project construction activities are estimated to last for approximately 55 months. Approximately 300 workers in separate construction crews, each comprised of between two and 100 workers, would work on

the various aspects of the proposed Project. An average of approximately ~~7~~155 workers would commute to various locations along the approximately 173-mile –proposed ROW route ~~ROW~~ each workday. The peak number of truck deliveries expected to be required is approximately 540 deliveries per day for three months in 2010. The average number of daily truck deliveries is 190 trips per day.

In general, construction would occur in accordance with accepted construction industry standards. Construction activities would generally be scheduled Monday through Friday during daylight hours (7:00 a.m. to 5:00 p.m.). When different hours or days are necessary, SCE would obtain variances, as necessary, from the jurisdiction in which the work would take place. All materials associated with construction efforts would be delivered by truck or helicopter to established marshalling yards. Delivery activities requiring major street use would be scheduled to occur during off-peak traffic hours.

During wire-stringing activities, SCE proposes to install temporary structures referred to as guard poles at all road crossings to stop the downward motion of conductor wire should it drop below a conventional stringing height. The use of guard poles reduces traffic impacts at crossing locations. Guard poles would likely require the temporary closure of roads at crossing locations for their installation. In addition, specific requirements of the applicable transportation agency may require other methods at crossing locations, including detouring all traffic off the roadway at the crossing location or implementing a controlled continuous traffic break while stringing operations are performed. The specific agency requirements would be included as stipulations in the required encroachment permits. Based on the number of road crossings that would be needed along the currently proposed TRTP route, SCE has estimated that approximately 684 guard structures would be installed to facilitate TRTP construction.

The Project would require several primary and secondary marshalling yards at which to stage materials and equipment and to temporarily store materials associated with the removed 66- and 220-kV lines. The primary marshalling yard sites would be located based on accessibility to construction locations and proximity to transmission line and substation access roads. The secondary marshalling yards would be located near paved roads approximately every five to ten miles along the proposed ROW depending on topography (SCE, 2007b – DR#1: Q071).

The following sections describe the traffic and transportation setting for the three regions traversed by the proposed Project route.

Northern Region

The Northern Region of the TRTP route includes Segments 4, 5 and 10. Five substations which are contained within the Northern Region include: Windhub, Cottonwood, Whirlwind, Antelope and Vincent. The peak construction workforce required for construction in this region would be approximately 140 workers.

Existing Roadway Network

Approximately 118 roadway segments would be directly or indirectly affected by construction of proposed Project Segments 4, 5 and 10. The major roadways in the Northern Region that would be potentially affected by construction of the proposed Project are described above in section 3.13.2 and summarized below in Table 3.13-4. There are also a number of other smaller public and private roads in the general area that would be crossed by the proposed transmission line route. Lists of all roadway segments that would be crossed by the proposed Project are located in Appendix D.

Table 3.13-4. Northern Region Major Road Crossings

Roadway	Description	Crossing Location	Jurisdiction	ADT
Tehachapi Willow Springs Road	2 lanes	S10 MP 4.3	Kern County	3,300
Rosamond Boulevard	2 lanes	S10 MP 15.8	Kern County	6,300
Rosamond Boulevard	2 lanes	S4 MP 3.3	Kern County	6,300
SR138	2 lanes	S4 MP 10.5	Los Angeles County	4,500
SR14	4 lanes, mainline + carpool	S5 MP 16.5	Caltrans	70,000
Elizabeth Lake Road	2 lanes	S5 MP 7.8	City of Palmdale	19,000
Sierra Highway	2 lanes	S5 MP 16.6	Los Angeles County	7,100

Sources: Kern County, 2007a; Kern County, 2007b; Los Angeles County, 2008; SCE, 2007a

Transit and Rail Services

The proposed transmission line route would not cross any of the AVTA local transit routes (AVTA, 2007). At its point of closest approach, the Segment 5 transmission route is approximately 1.25 miles to the west of the nearest Route 5 stop. However, the route would cross SR14, which is used by AVTA commuter bus routes 785 (to downtown Los Angeles), 786 (to West Los Angeles and Century City), and 787 (to West San Fernando Valley) (SCE, 2007a).

The main line of the UPRR occurs to the east of the Segment 4 route. A spur line from the UPRR main line serves the Cal Cement plant southeast of Tehachapi. This spur railroad line would be crossed by Segment 10 at approximately MP 1.0. A combined Amtrak and Metrolink station is located in Lancaster at 44812 North Sierra Highway, approximately seven miles east of the Antelope Substation. Amtrak operates motor coaches that connect between Bakersfield and Palmdale. The Vincent Grade/Acton Metrolink Station is located at 730 West Sierra Highway, immediately adjacent to the proposed transmission line route (Metrolink, 2007). Segment 5 of the proposed transmission line route would pass immediately to the west of the Metrolink Station parking lot and across the railroad tracks at approximately MP 16.7. The UPRR line carries freight traffic and the Metrolink commuter trains southward from Lancaster, as described above. Amtrak does not use this segment of rail line. This line is the same one that would be crossed by the proposed transmission line route at the Vincent Grade/Acton Metrolink Station.

Air Transportation

Skyotee Ranch Airport is located approximately two miles southeast of the proposed Whirlwind Substation. Bohunks Airpark is located approximately one mile east of the Antelope Substation. Tehachapi Municipal Airport is located approximately three miles northwest of the Whirlwind Substation. General William J. Fox Airfield is located approximately five miles northeast of the Antelope Substation. Mojave Airport is located approximately six miles to the east of Segment 4. Edwards AFB is located approximately 23 miles east of the proposed Windhub Substation. NAWS China Lake is located approximately 55 miles northeast of the proposed Windhub Substation.

A portion of Segment 4, within Kern County, is located within an area that has been identified as one that requires limits to structures for protection of military operations. This is an area where the heights of structures are limited to 200 feet above ground elevation (Kern County Zoning Ordinance 19.08.160) and that requires notification and approval of proposed developments (Kern County ALUCP Section 4.17).

Central Region

The Central Region of the TRTP includes Segments 6, 7, and 11 of the proposed Project.

Existing Roadway Network

Approximately 158 roadway segments would be directly or indirectly affected by construction of proposed Project Segments 6, 7 and 11. The major roadways in the Central Region that would be potentially affected by construction of the proposed Project are described above in Section 3.13.2 and summarized below in Table 3.13-5. There are also a number of other smaller public and private roads in the general area that would be crossed by the proposed transmission line route. Lists of all roadway segments that would be crossed by the proposed Project are located in Appendix D.

Table 3.13-5. Central Region Major Road Crossings

Roadway	Description	Crossing Location	Jurisdiction	ADT
SR2	2 lanes	S6 MP 16.8	Los Angeles County	3,700
Angeles Forest Highway	2 lanes	S6 MP 7.3	Los Angeles County	3,500
I-210 Freeway	10 lanes plus carpool	S7 MP 2.4	Caltrans	280,000
I-605 Freeway	8 lanes	S7 MP 3.2, 5.3, 6.2	Caltrans	264,000
I-10 Freeway	8 lanes plus carpool	S7 MP 8.2	Caltrans	240,000
SR60	8 lanes	S7 MP 11.1, 14.7	City of South El Monte	250,000
SR19	4 lanes	S7 MP 13	Los Angeles County	40,000
Huntington Drive	4 lanes	S7 MP 1.9	City of Duarte	40,000
Arrow Highway	4 lanes	S7 MP 4.4	City of Irwindale	27,000
Live Oak Avenue	4 lanes	S7 MP 4.8	City of Irwindale	25,000
Valley Boulevard	4 lanes	S7 MP 8.9	City of Industry	23,000
Peck Road	4 lanes	S7 MP 11.4	City of South El Monte	27,000
San Gabriel Boulevard	4 lanes	S7 MP 13.8	Los Angeles County	30,000
Montebello Boulevard	4 lanes	S7 MP 14.5	City of Montebello	NA
Town Center Drive	4 lanes	S7 MP 14.7	City of Montebello	NA
Paramount Boulevard	5 lanes	S7 MP 14.8	City of Montebello	17,000
SR2	2 lanes	S7 MP 15.9, 17.6, 18.4	USDA FS	3,700
I-210 Freeway	10 lanes plus carpool	S11 MP 27.5	Caltrans	280,000
I-10 Freeway	8 lanes plus carpool	S11 MP 33.0	Caltrans	240,000
Angeles Forest Highway	2 lanes	S11 MP 14.1, 14.5	USDA FS	3,500
New York Drive	4 lanes	S11 MP 25.8	City of Pasadena	17,000
Foothill Boulevard	4 lanes	S11 MP 27.5	City of Pasadena	28,000
Colorado Boulevard	4 lanes	S11 MP 27.7	City of Pasadena	20,000
Huntington Drive	8 lanes	S11 MP 28.99	Los Angeles County	40,000
Las Tunas	6 lanes	S11 MP 30.8	City of San Gabriel	NA
Walnut Grove Avenue	4 lanes	S11 MP 31.9	City of Rosemead	NA
Mission Drive	4 lanes	S11 MP 31.9	City of Rosemead	NA
Valley Boulevard	4 lanes	S11 MP 32.4	City of San Gabriel	23,000
San Gabriel Boulevard	4 lanes	S11 MP 34.2	City of Rosemead	30,000

Sources: Caltrans, 2007; Los Angeles County, 2008; SCE, 2007a

Transit and Rail Services

Segment 6 of the TRTP is located primarily within the ANF remotely far from transit and rail facilities within Los Angeles County. The Los Angeles MTA provides transit bus service in Monrovia, near the terminus of the Segment 6 route; however Segment 6 would not cross any transit or rail routes. As discussed in Section 3.13.2.1, several agencies provide transit services to the Central Region of the TRTP

route. Tables 3.13-6 and 3.13-7 present the transit routes that would be crossed by Segment 7 and Segment 11, respectively.

Table 3.13-6. Transit Routes in the Vicinity of Segment 7

Transit Route No.	Transit Route Name
MTA 68	W Washington Blvd. – Caesar Chavez Ave.
MTA 78	Huntington Dr. – Main St. – Las Tunas Dr.
MTA 260	Atlantic Ave. – Fair Oaks Ave.
MTA 264	Altadena Dr. – Foothill Blvd. – Baldwin Ave. – Duarte Rd. – City of Hope
MTA 265	Lakewood – Paramount Blvd. – Pico Rivera
MTA 266	Rosemead Blvd – Lakewood Bl. – SM Villa Station
MTA 268	El Monte Station – Baldwin Ave. – Washington Blvd. – Altadena – JPL
MTA 270	Monrovia – El Monte – Whittier - Santa Fe Springs – Norwalk Metro
MTA 287	Sierra Madre Villa – Sierra Madre Blvd. – Santa Anita – EL Monte Station – South El Monte – Montebello Town Center
MTA 378	Huntington Dr. – Main St. – Las Tunas Dr. Limited
MTA 484	Cal Poly Pomona – La Puente – Valley Blvd – LA Expo
MTA 490	Cal Poly Pomona – Walnut – Covina – Baldwin Park – Ramona Blvd – LA Expo
MTA 577X	El Monte – Norwalk – E. Long Beach – VA Med Center – via I-605 Freeway Expo
Metrolink	San Bernardino Metrolink
FT 178	Puente Hills Mall - El Monte Station
FT 187	Montclair - Claremont - Pasadena Via Foothill Bl.
FT 269	El Monte Station - Montebello Town Center
FT 272	Duarte - Baldwin Park -West Covina
FT 482	Ramona - Hacienda Heights - El Monte via Colima Rd
FT 486	Pomona - La Puente - El Monte via Amar Rd
FT 488	Glendora - West Covina - El Monte
FT 492	Montclair - Arcadia - El Monte via Arrow Hwy
FT 494	San Dimas
FT 499	San Dimas park/Ride - via Verde Park/Ride - LA Express
FT 690	Montclair - Pasadena Express
M 20	Garvey Ave - San Gabriel Bl. - Foothill Bl.
M 70	Montebello Town Center - Montebello - Commerce Metrolink Station
M 341	Montebello to Downtown LA from Taylor Ranch Express
M 343	Montebello - Downtown LA Express

Sources: SCE, 2007a; MTA, 2007

Table 3.13-7. Transit Routes in the Vicinity of Segment 11

Transit Route No.	Transit Route Name
ARTS 32	Sierra Madre Villa Metro Rail Station - New York Drive - Washington Bl.
ARTS 40	Sierra Madre Villa Metro Rail Station - Villa St. - E. Orange Grove Bl. - Memorial Park Metro Rail Station
FT 493	Phillips Ranch Diamond Bar - Rowland Hts - Downtown LA Express
FT 497	Chino Park/Ride - Industry Park/Ride - LA Express
FT 498	Citrus College - Downtown LA Express
FT 499	San Dimas Park/Ride - via Verde Park/Ride - LA Express
FT 690	Montclair - Pasadena Express
FT 699	Montclair - Fairplex Park/Ride - Downtown LA Express
FT Silver Streak	Montclair - Pomona - West Covina - El Monte - Downtown LA Express
Metrolink	San Bernardino Metrolink
MTA Gold	Metro Gold Line
MTA 70	Garvey Ave (24 hours)
MTA 76	Valley Bl. - North Main St. (24 hours)
MTA 78	Huntington Dr. – Main St. – Las Tunas Dr.
MTA 79	Huntington Dr.
MTA 176	Highland Park - South Pasadena - Alhambra - San Gabriel - El Monte Station
MTA 181	Highland Bl. - Los Feliz Bl. - Yosemite Dr. - Colorado Bl. - Sierra Madre Villa Station
MTA 264	Altadena Dr. - Foothill Bl. - Baldwin Ave. - Duarte Rd. - City of Hope
MTA 267	El Monte Bus Station - Temple City Bl. - Del Mar Bl. - Lincoln Ave.
MTA 268	El Monte Station – Baldwin Ave. – Washington Blvd. – Altadena – JPL

Table 3.13-7. Transit Routes in the Vicinity of Segment 11

Transit Route No.	Transit Route Name
MTA 370	Garvey Area Limited
MTA 376	Valley Bl. Limited
MTA 484	Cal Poly Pomona – La Puente – Valley Blvd – LA Expo
MTA 487	Sierra Madre Villa - San Gabriel Bl. - Del Mar Ave. - LA Express
MTA 489	Temple City - Rosemead Bl. - LA Express
MTA 490	Cal Poly Pomona – Walnut – Covina – Baldwin Park – Ramona Blvd – LA Expo

Sources: SCE, 2007a; MTA, 2007

Segment 11 would cross the light rail Metro Gold Line at approximately MP 27.5. Segment 11 would also cross UPRR and Metrolink lines at approximately MP 31.5 and MP 33.0, respectively. Segment 7 would cross the Metrolink line at approximately MP 8.9.

Bicycle Facilities

Segment 6 of the TRTP route is located within the ANF and would not cross any designated bike routes.

Segment 7 would cross or run parallel to several designated bike paths and routes including: a Class III route along Royal Oaks Drive in Duarte near MP 1.5; a Class I bike path along the San Gabriel River near MP 10.5; a Class III bike route along Peck Road near MP 11; a Class I bike path in Whittier Narrows Recreation Area near MP 11.5; and a Class I bike bath along Rio Hondo River near MP 13.5.

Segment 11 would cross a Class III bicycle path along SR2 in La Canada Flintridge just north of the Gould Substation (La Canada Flintridge, 1995) near MP 18.3. Segment 11 would also cross several Class II and Class III bike routes between MP 26 and MP 29 in Pasadena including New York Drive, Orange Grove Boulevard, Foothill Boulevard, Del Mar Boulevard, and San Pasqual Street.

Air Transportation

No elements of Segment 6 are near general aviation or larger airports. El Monte Airport is located approximately two miles west of Segment 7 MP 7 and approximately three miles east of Segment 11 MP 32. Shepherd Field is located approximately 3.6 miles southeast of the existing Mesa Substation. Bob Hope Airport is located approximately seven miles southwest of the existing SCE Gould Substation.

Southern Region

The Southern Region of the TRTP is comprised solely of Segment 8 and includes the following five substations: Goodrich, Rio Hondo, Mesa, Chino, and Mira Loma.

Existing Roadway Network

Approximately 144 roadway segments would be directly or indirectly affected by construction of proposed Project Segment 8. The major roadways in the Southern Region that would be potentially affected by construction of the proposed Project are described above in section 3.13.2 and summarized below in Table 3.13-8. There are also a number of other smaller public and private roads in the general area that would be crossed by the proposed transmission line route. Lists of all roadway segments that would be crossed by the proposed Project are located in Appendix D.

Table 3.13-8. Southern Region Major Road Crossings

Roadway	Description	Crossing Location	Jurisdiction	ADT
Paramount Boulevard	5 lanes	S8 MP 1.1	City of Montebello	17,000
SR60	10 lanes	S8 MP 1.1	Caltrans	250,000
Town Center Drive	4 lanes	S8 MP 1.2	City of Montebello	NA

Table 3.13-8. Southern Region Major Road Crossings

Roadway	Description	Crossing Location	Jurisdiction	ADT
Montebello Boulevard	4 lanes	S8 MP 1.3	City of Montebello	NA
San Gabriel Boulevard	4 lanes	S8 MP 2.1	Los Angeles County	30,000
SR19 (Rosemead Blvd)	4 lanes	S8 MP 2.8	Los Angeles County	40,000
Interstate 605	8 lanes	S8 MP 4.4	Caltrans	264,000
Peck Road	4 lanes	S8 MP 4.7	Los Angeles County	27,000
Colima Road	4 lanes	S8 MP 9.5	Los Angeles County	28,000
Hacienda Boulevard	6 lanes	S8 MP 10.5	Los Angeles County	19,000
Fullerton Road	4 lanes	S8 MP 13.5	Los Angeles County	39,000
Pathfinder Road	4 lanes	S8 MP 13.6	Los Angeles County	29,000
SR57	8 lanes	S8 MP 17	Caltrans	216,000
Chino Hills Parkway	4 lanes	S8 MP 23.8	City of Chino Hills	NA
SR71	6 lanes	S8 MP 25.6	Caltrans	85,000
Hope Street	4 lanes	S8 MP 25.9	City of Chino	NA
Central Avenue	4 lanes	S8 MP 27.7	City of Chino	NA
Edison Avenue	4 lanes	S8 MP 28.6	City of Chino	NA
Mountain Avenue	4 lanes	S8 MP 29	City of Chino	NA
SR83	4 lanes	S8 MP 29.9	City of Ontario	22,000

Sources: Caltrans, 2007; Los Angeles County 2008; SCE 2007a

Transit and Rail Services

As discussed in Section 3.13.2.1, several agencies provide transit services to the Southern Region of the TRTP route. Table 3.13-9 presents the transit routes that would be crossed by Segment 8. Segment 8 would cross a UPRR / Metrolink rail line at approximately MP 4.8.

Table 3.13-9. Transit Routes in the Vicinity of Segment 8

Transit Route No.	Transit Route Name
FT 269	El Monte Station - Montebello Town Center
FT 274	West Covina - La Puente - Whittier
FT 285	Puente Hills Mall - Whittier Hospital - La Habra
FT 497	Puente Hills Mall - Diamond Bar
M 20	Garvey Ave - San Gabriel Bl. - Foothill Bl.
M 70	Montebello Town Center - Montebello - Commerce Metrolink Station
MTA 68	W Washington Blvd. – Caesar Chavez Ave.
MTA 266	Rosemead Bl. - Lakewood Bl. - Sierra Madre Villa Metro Rail
MTA 270	Monrovia - El Monte - Whittier - Santa Fe Springs - Norwalk Metro Rail Station
MTA 287	Sierra Madre Villa - Sierra Madre Bl. - Santa Anita Ave. El Monte - South El Monte - Montebello Town Cntr
MTA 577X	El Monte – Norwalk – E. Long Beach – VA Med Center – via I-605 Freeway Expo
Metrolink	Metrolink Riverside Line
NW 1	Rio Hondo - Norwalk - Bellflower
Omni 65	Montclair - Chino Hills

Sources: SCE, 2007a

Bicycle Facilities

Segment 8 would cross several designated bike routes including: Class I bike paths along the Rio Hondo River (MP 2.5), Whittier Narrows Recreation Area (MP 3.5) and the San Gabriel River (MP 4); a Class II bike route along Colima Road near MP 9.5; a Class II bike path along Edison Avenue between Magnolia Avenue and Cypress Avenue near MP 28.5; and a Class I bike path located north of Edison Avenue between Cypress Avenue and Euclid Avenue near MP 29.5.

Air Transportation

The LA/Ontario International Airport is located approximately 3.8 miles northwest of Segment 8A near MP 33. Chino Airport is located approximately two miles south of Segment 8 near MP 30.

3.13.2.3 Alternative 3: West Lancaster Alternative

Alternative 3 is identical to the proposed Project, except for one deviation in the Northern Region. This alternative would re-route the new 500-kV T/L in Segment 4 along 115th Street West rather than 110th Street West. This re-route traverses through undeveloped land with scattered residential use along West Avenue I and J and would increase the overall distance of Segment 4 by approximately 0.4 mile.

Northern Region

Existing Roadway Network

Alternative 3 would cross the same number of streets as the proposed Project, however the rerouted portion of this alternative would cross several two lane roads near the Antelope Substation (between West Avenue H and West Avenue J-8) approximately 0.5 mile west of where the proposed Project would cross them. The rest of this alternative route be identical to that of the proposed Project and would cross the same roads as described in Section 3.13.2.2.

Transit and Rail Services

The rerouted portion of this alternative would not cross any of the AVTA local transit routes or commuter routes (AVTA, 2007). The rest of this alternative route be identical to that of the proposed Project and would cross the same roads as described in Section 3.13.2.2.

Bicycle Facilities

The roads crossed by the rerouted portion of this alternative are two-lane rural roads with no designated bicycle paths or lanes. The rest of this alternative route would cross the same bicycle paths as the proposed Project as described in Section 3.13.2.2.

Air Transportation

The rerouted portion of this alternative would be located 0.5 mile farther west of the airports described above in Section 3.13.2.2.

Central and Southern Regions

Affected Environment for the Central and Southern Regions of Alternative 3 would be exactly the same as the Affected Environment for these regions of the proposed Project, as described in Section 3.13.2.2.

3.13.2.4 Alternative 4: Chino Hills Route Alternatives

Under Alternative 4, the proposed transmission line would follow the same route as the proposed Project through the Northern and Central Regions. In the Southern Region, Alternative 4, which includes routes A, B, C, C Modified, and D, would diverge from the proposed Project route at S8A MP 19.2 and turn to the southeast, crossing through part of Orange County before entering San Bernardino and the CHSP. However, Alternative 4 would continue to include Segment 8B between Chino and Mira Loma Substations. This portion of Alternative 4 would be identical to this same portion of Alternative 2 and would cross 17 local roadways, and no rail rights-of-way.

Northern and Central Regions

Affected Environment for the Northern and Central Regions of Alternative 4 would be exactly the same as the Affected Environment for these regions of the proposed Project, as described in Section 3.13.2.2.

Southern Region

Existing Roadway Network

The roadway network crossed by Alternative 4 would be similar to that of the proposed Project; however, the rerouted portion of this alternative would avoid crossing approximately 63 roadway segments crossed by Segment 8 of the proposed Project in the Chino and Chino Hills areas.

Approximately 85 roadway segments in the Southern Region would be directly or indirectly affected by construction of Alternative 4. The major roadways that would be potentially affected by construction of Alternative 4 are summarized below in Table 3.13-10. All ~~four~~ five routing options of Alternative 4 would cross the same major roadways. All ~~four~~ five routing options of Alternative 4 would avoid crossing six major roadways that would be crossed by the proposed Project route, including Chino Hills Parkway, SR71, Hope Street, Central Avenue, Edison Avenue, Mountain Avenue, and SR83. All ~~four~~ five routing options of this alternative would also cross SR142. However, after crossing SR142, the number of smaller public and private roads crossed by Alternative 4 would vary slightly among the ~~four~~ five routes. However, for purposes of this environmental setting, the ~~four~~ five routes are substantially the same.

Table 3.13-10. Alternative 4 Southern Region Major Road Crossings

Roadway	Description	Crossing Location	Jurisdiction	ADT
Paramount Boulevard	5 lanes	S8 MP 1.1	City of Montebello	17,000
SR60	10 lanes	S8 MP 1.1	Caltrans	250,000
Town Center Drive	4 lanes	S8 MP 1.2	City of Montebello	NA
Montebello Boulevard	4 lanes	S8 MP 1.3	City of Montebello	NA
San Gabriel Boulevard	4 lanes	S8 MP 2.1	Los Angeles County	30,000
SR19 (Rosemead Blvd)	4 lanes	S8 MP 2.8	Los Angeles County	40,000
Interstate 605	8 lanes	S8 MP 4.4	Caltrans	264,000
Peck Road	4 lanes	S8 MP 4.7	Los Angeles County	27,000
Colima Road	4 lanes	S8 MP 9.5	Los Angeles County	28,000
Hacienda Boulevard	6 lanes	S8 MP 10.5	Los Angeles County	19,000
Fullerton Road	4 lanes	S8 MP 13.5	Los Angeles County	39,000
Pathfinder Road	4 lanes	S8 MP 13.6	Los Angeles County	29,000
SR57	8 lanes	S8 MP 17	Caltrans	216,000
SR142	2 lanes	S8 MP 21.3	San Bernardino county	30,000

Sources: Caltrans, 2007; Los Angeles County, 2008; SCE, 2007a

Transit and Rail Services

The transit and rail lines crossed by Alternative 4 in the Southern Region would be the same as those crossed by Segment 8 of the proposed Project, as described above in Section 3.13.2.2, with the exception that Routes A through D would not cross the Omnitrans line 65.

Bicycle Facilities

From S8A MP 0 to S8A MP 19.2, Alternative 4 would cross the same bike routes as the proposed Project, as described in Section 3.13.2.2. Because Alternative 4 would deviate from the proposed Project route at MP S8A 19.2 it would not cross the Class II bike path along Edison Avenue between Magnolia Avenue and Cypress Avenue near MP 28.5, and a Class I bike path located north of Edison Avenue

between Cypress Avenue and Euclid Avenue near MP 29.5. The Alternative 4 routes would also cross through the CHSP, which has several trails used for hiking and biking. The ~~four~~ five different routing options (Routes A through D) which are included under Alternative 4 are discussed in further detail below.

Route A. As described in Table 3.13-11, below, the proposed path for Alternative 4 Route A would traverse, or be located in close proximity to, 12 different fire trails, roads, and/or trails.

Table 3.13-11. Biking and Hiking Trails within One Mile of Alternative 4, Route A

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource Route A Alignment
S8A MP 22.0	CHSP	Gilman Peak	Popular viewpoint and hiking destination (1,685 feet)	0.9 mile to the south
S8A MP 23.2	CHSP	North Ridge Trail (Fire Road)	Strenuous ridgeline trail on north side of slope; trails runs along the northern park boundary in this section	Direct crossing
		Sycamore Trail (Fire Road)	Maintained dirt road and multi-use trail; connects North Ridge Trail (to the north) with Telegraph Canyon Trail (to the south)	0.25 mile to the southwest
S8A MP 23.9	CHSP	McDermont Trail (Fire Road)	Connects North Ridge Trail (to the north) with Telegraph Canyon Trail (to the south)	Direct crossing
S8A MP 24.1	CHSP	Trail	Connects McDermott Fire Trail with Four Corners Rest Area	Direct crossing
S8A MP 24.4	CHSP	Trail (Fire Road)	Connects Four Corners Rest Area to northern Park boundary	Direct crossing
S8A MP 24.5	CHSP	Raptor Ridge Trail	Ridgeline hiking trail; mountain biking and equestrian use not allowed	Direct crossing
S8A MP 24.5 – 25.5	CHSP	South Ridge Trail	Trailhead at Rolling M Ranch; steep trail (also a Fire Road) leads to San Juan Hill (the highest point in CHSP) and Four Corners Rest Area	0.3 – 0.6 mile to the south
S8A MP 24.6 and 24.8	CHSP	Hills For Everyone Trail (via Telegraph Canyon Trail)	Trailhead one mile down Telegraph Canyon Trail; popular single-track trail; ends at Four Corners Rest Area	Direct crossings
S8A MP 24.75	CHSP	Telegraph Canyon Trail	Trailhead at Rolling M Ranch; travels easterly along ridgelines to the Four Corners Rest Area and beyond Four Corners (for 6 miles) to the Carbon Canyon park entrance (Orange County); 16 miles R/T between Rolling M and Carbon Canyon	0.05 mile to the southeast
S8A MP 25.0	CHSP	Raptor Ridge Trail (Fire Road)	Maintained dirt road; ridgeline trail	Direct Crossing
S8A MP 25.3	CHSP	Fire Road Trail	Connects Hills For Everyone Trail and Telegraph Canyon Trail (to the south) with Raptor Ridge Trail (to the north)	
S8A MP 25.5	CHSP	Upper Aliso Canyon Trail (Fire Road)	Trailhead north of Rolling M red barn; popular hiking trail for families with small children; connects to Raptor Ridge and Four Corners Rest Area	0.75 mile to the east

Source: CHSPIA, 2007

Route B. As described in Table 3.13-12, below, the proposed path for Alternative 4 Route B would traverse, or be located in close proximity to, 12 different fire trails, roads, and/or trails.

Table 3.13-12. Biking and Hiking Trails within One Mile of Alternative 4, Route B

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route B Alignment
S8A MP 24.5	CHSP	Raptor Ridge Trail	Ridgeline hiking trail; mountain biking and equestrian use not allowed	Direct crossing
S8A MP 24.5 – 25.5	CHSP	South Ridge Trail	Trailhead at Rolling M Ranch; steep trail (also a Fire Road) leads to San Juan Hill (the highest point in CHSP) and Four Corners Rest Area	0.3 – 0.6 mile to the south
S8A MP 24.6 and 24.8	CHSP	Hills For Everyone Trail (via Telegraph Canyon Trail)	Trailhead one mile down Telegraph Canyon Trail; popular single-track trail; ends at Four Corners Rest Area	Direct crossings
S8A MP 24.75	CHSP	Telegraph Canyon Trail	Trailhead at Rolling M Ranch; travels easterly along ridgelines to the Four Corners Rest Area and beyond Four Corners (for 6 miles) to the Carbon Canyon park entrance (Orange County); 16 miles R/T between Rolling M and Carbon Canyon	0.05 mile to the southeast
S8A MP 25.0	CHSP	Raptor Ridge Trail (Fire Road)	Maintained dirt road; ridgeline trail	Direct Crossing
S8A MP 25.3	CHSP	Fire Road Trail	Connects Hills For Everyone Trail and Telegraph Canyon Trail (to the south) with Raptor Ridge Trail (to the north)	
S8A MP 25.5	CHSP	Upper Aliso Canyon Trail (Fire Road)	Trailhead north of Rolling M red barn; popular hiking trail for families with small children; connects to Raptor Ridge and Four Corners Rest Area	0.75 mile to the east
S8A MP 26.2	CHSP	Upper Aliso Canyon Trail (Fire Road)	Trailhead north of Rolling M red barn; popular hiking trail for families with small children; connects to Raptor Ridge and Four Corners Rest Area	Direct Crossing
S8A MP 26.6	CHSP	Bane Ridge Hiking Trail	Popular ridgeline hiking trail; connects northern Park entrance with Rolling M Ranch; runs parallel to Bane Canyon Road	Direct crossing
S8A MP 26.7 - 27.4	CHSP	Fire Road Trail	Connects Bane Ridge Trail (to the west) with East Fence Line Trail (to the east)	Multiple direct crossings
S8A MP 26.8	CHSP	Bane Canyon Road	Maintained dirt road heads south from the Bane Canyon Park Entrance; popular multi-use trail	Direct crossing
S8A MP 27.3	CHSP	East Fence Line Trail	Access via Bane Canyon Road; travels east and south along the eastern border of the CHSP; connects via a Fire Trail to McLean Overlook	Direct crossing

Source: CHSPIA, 2007

Route C. As described in Table 3.13-13, below, the proposed path for Route C would traverse, or be located in close proximity to, five ~~six~~ different fire trails, roads, and/or trails.

Table 3.13-13. Biking and Hiking Trails within One Mile of Alternative 4, Route C

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route C Alignment
~~S8A MP 19.2~~	~~Los Angeles County~~	~~Firestone Scout Reservation~~	~~Mostly undeveloped with vacant land and some OHV roads along ridgelines in north; access and facilities are along Tonner Canyon~~	~~0.19 mile to the southeast; Tonner Canyon is 0.95 mile to the southwest~~
S8A MP 23.2 – 24.0	San Bernardino County	North Ridge Trail (Fire Road); CHSP	Strenuous ridgeline trail on north side of slope; trails runs along the northern park boundary in this section	Adjacent to the south (trail is within CHSP)

Table 3.13-13. Biking and Hiking Trails within One Mile of Alternative 4, Route C

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route C Alignment
S8A MP 23.2 – 24.7	San Bernardino County	Telegraph Canyon Trail	Trailhead at Rolling M Ranch; travels easterly along ridgelines to the Four Corners Rest Area and beyond Four Corners (for 6 miles) to the Carbon Canyon park entrance (Orange County); 16 miles R/T between Rolling M and Carbon Canyon	Within 0.6 – 0.7 mile to the south (trail is within CHSP)
S8A MP 24.1	San Bernardino County	McDermont Trail	Connects North Ridge Trail (to the north) with Telegraph Canyon Trail (to the south)	0.2 mile to the south (trail is within CHSP)
~~S8A MP 24.4~~	~~San Bernardino County~~	~~Four Corners Rest Area~~	~~Popular rest area and convergence point for multiple trails, including Telegraph Canyon Trail and Hills For Everyone Trail~~	~~0.55 mile to the south (Four Corners is within CHSP)~~
S8A MP 24.7	San Bernardino County	Raptor Ridge Hiking Trail and Fire Road Trail	Ridgeline hiking trail; mountain biking and equestrian use are only allowed on the Fire Road (maintained dirt road) portion of the trail	0.2 mile to the southeast from new switching station (trail is within CHSP)
		Hills For Everyone Trail	Trailhead one mile down Telegraph Canyon Trail; popular single-track trail; ends at Four Corners Rest Area	0.4 mile to the south (trail is within CHSP)

Source: CHSPIA, 2007

Route 4C Modified. As described in Table 3.13-13a, below, the proposed path for Route C Modified would traverse, or be located in close proximity to, five different fire trails, roads, and/or trails.

Table 3.13-13a. Biking and Hiking Trails within One Mile of Alternative 4, Route C Modified

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route C Alignment
S8A MP 23.2 – 24.0	San Bernardino County	North Ridge Trail (Fire Road); CHSP	Strenuous ridgeline trail on north side of slope; trails runs along the northern park boundary in this section	Within 0.5 mile to the south (trail is within CHSP)
S8A MP 24.1	San Bernardino County	McDermont Trail	Connects North Ridge Trail (to the north) with Telegraph Canyon Trail (to the south)	Within 0.7 mile to the south (trail is within CHSP)
S8A MP 24.7	San Bernardino County	Raptor Ridge Hiking Trail and Fire Road Trail	Ridgeline hiking trail; mountain biking and equestrian use are only allowed on the Fire Road (maintained dirt road) portion of the trail	Within 0.7 mile to the southeast from new switching station (trail is within CHSP)
		Hills For Everyone Trail	Trailhead one mile down Telegraph Canyon Trail; popular single-track trail; ends at Four Corners Rest Area	Within 0.9 mile to the south (trail is within CHSP)

Route D. As described in Table 3.13-14, below, the proposed path for Alternative 4 Route D would traverse, or be located in close proximity to, five different fire trails, roads, and/or trails.

Table 3.13-14. Biking and Hiking Trails within One Mile of Alternative 4, Route D

Project Component	Jurisdiction	Recreational Resource	Description
S8A MP 23.2 – 24.0	San Bernardino County	North Ridge Trail (Fire Road); CHSP	Strenuous ridgeline trail on north side of slope; trails runs along the northern park boundary in this section
S8A MP 27.1	CHSP	Fire Road Trail	Connects Bane Canyon Road to Bane Ridge trails and Upper Aliso Canyon

Table 3.13-14. Biking and Hiking Trails within One Mile of Alternative 4, Route D

Project Component	Jurisdiction	Recreational Resource	Description
S8A MP 27.4	CHSP	Bane Canyon Road	Maintained dirt road heads south from the Bane Canyon Park Entrance; popular multi-use trail Popular ridgeline hiking trail; connects northern Park entrance with Rolling M Ranch; runs parallel to Bane Canyon Road
		Bane Canyon Trail (Fire Road)	Popular ridgeline hiking trail; connects northern Park entrance with Rolling M Ranch; runs parallel to Bane Canyon Road
S8A MP 28.2	CHSP	East Fence Line Trail	Access via Bane Canyon Road; travels east and south along the eastern border of the CHSP; connects via a Fire Trail to McLean Overlook

Source: CHSPIA, 2007

Air Transportation

The LA/Ontario International Airport is located within the following distances from the eastern terminus of each Route:

- 5.3 miles from Route A
- 3.3 miles from Route B
- 3.3 miles from Route C
- 3.3 miles from Route C Modified
- 2.9 miles from Route D

3.13.2.5 Alternative 5: Partial Underground Alternative

This alternative would utilize underground construction in place of the proposed overhead line construction following generally the same route as the proposed Project from MP 8A 21.9 to MP 8A 25.4. New underground facilities would not replace existing aboveground facilities, and transition stations would be required at each end of an underground segment to transfer the transmission lines from overheard to underground and vice versa. Therefore, the existing Traffic and Transportation setting would be identical to that of the proposed Project as described in Section 3.13.2.2.

Construction activities associated with installation of the underground segment for Alternative 5 would occur at both the Western Transition Station and the Eastern Transition Station, although tunnel boring and excavation activities would be limited to the Eastern Transition Station. Excavated material would be removed from the tunnel at the Eastern Transition Station site as the depth to the tunnel would be approximately 100 feet at this location, as opposed to approximately 420 feet at the Western Transition Station site. Construction of this alternative would result in an increase in the total number of construction equipment and workforce required to travel to the site compared to the proposed Project—particularly related to haul trips required for excavation of the underground tunnel. ~~However, haul trips associated with Alternative 5 would occur all day long and would not increase the total number of peak hour trips compared to the proposed Project.~~ Additionally, construction of the underground portion of Alternative 5 would add approximately 24 months to the duration of construction activities for Segment 8. Therefore the peak number of daily worker commute trips and equipment deliveries for this alternative would be approximately the same as those for the proposed Project.

Northern and Central Regions

The Affected Environment for the Northern and Central Regions of Alternative 5 would be exactly the same as the Affected Environment for these regions of the proposed Project, as described in Section 3.13.2.2.

Southern Region

The Affected Environment for the Southern Region of Alternative 5 is identical to the proposed Project, except for a portion of Segment 8A from MP 8A 21.9 to MP 8A 25.4 which follows the same route as the proposed Project but would be located underground rather than aboveground.

Existing Roadway Network

The roadway network crossed by Alternative 5 would be the same as that of the proposed Project; with the exception that the underground portion of this alternative would avoid aboveground crossings of approximately 11 roadway segments crossed by Segment 8 of the proposed Project from MP 8A 21.9 to MP 8A 25.4. Alternative 5 would cross under Chino Hills Parkway and 10 smaller residential roadways.

Transit and Rail Services

The transit and rail lines crossed by Alternative 5 in the Southern Region would be the same as those crossed by Segment 8 of the proposed Project, as described above in Section 3.13.2.2.

Bicycle Facilities

Although a portion of Alternative 5 would be placed underground from S8A MP 0 to S8A MP 21.9, this alternative would cross the same designated bike routes as the proposed Project, as described in Section 3.13.2.2.

3.13.2.6 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Implementation of this alternative would result in using helicopters to construct a total of 148~~3~~ of the new towers along the portions of Segment 6 and Segment 11 that are located within the ANF (under Alternative 2 approximately 33 towers would be constructed by helicopter). The transmission route of Alternative 6 would be identical to that of the proposed Project and would therefore cross and affect the same roadways, rail lines, bikeways, and pedestrian paths, as the proposed Project. Therefore, the Affected Environment for Alternative 6, with regard to traffic and transportation would be exactly the same as that of the proposed Project as described in Section 3.13.2.2.

Construction of this alternative may result in a slight increase in the total number of construction equipment and workforce required to travel to the helicopter staging areas, as well as a slight increase in the overall construction schedule for Segment 6 and Segment 11.

3.13.2.7 Alternative 7: 66-kV Subtransmission Alternative

Alternative 7 is identical to the proposed Project except that implementation of this alternative would result in:

- installing one mile of the 66 kV Rio Hondo-Amador-Jose-Mesa 66-kV subtransmission line portion of Segment 7 underground (from S7- MP 8.9 – S7-MP 9.9),
- rerouting and undergrounding the Jose-Mesa 66-kV subtransmission line around the Whittier Narrows Recreation area in Segment 7 ~~an approximately 0.8-mile portion of Segment 7 underground~~ (from S7- MP ~~8.9~~ 11.4 – S7-MP 12.025 ~~9.9~~), and

- routing the Whittier Narrows 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8. (As described Section 2.7, this reroute would be accomplished through one of two different options, however, from a traffic and transportation perspective, both options are identical and are not distinguished in the analysis presented below.).

Construction of the underground portions of Alternative would be completed by traditional direct-bury methods along the majority of the underground alignment with the exception of one channel crossing, which would require boring. Construction of Alternative 7 would generally be the same as the proposed Project; however, there would be some additional temporary land disturbance associated with the underground 66-kV subtransmission lines along Segment 7. New access and spur roads may also be required for the new approximately 1,200 foot ROW for a San Gabriel River crossing within Segment 8A associated with the overhead reroute. In general, land disturbance would be similar to that of the proposed Project.

The Affected Environment for Alternative 7 would be exactly the same as the Affected Environment for the proposed Project, as described in Section 3.13.2.2, with the exception of the existing roadway network within the Central and Southern Regions.

Central Region

The Affected Environment for the Central Region of Alternative 7 is identical to the proposed Project, except for how locating two portions of Segment 7 from MP 8.9 to MP 9.9 and from MP 11.4 to 12.025 underground would affect the existing roadway network and transit services as described below.

Existing Roadway Network

The roadway network crossed by Alternative 7 would be the same as that of the proposed Project; with the exception that the underground portions of this alternative would avoid aboveground crossings of Valley Boulevard, Peck Road, and Durfee Avenue. Additionally, the underground portion of this alternative would cross Valley Boulevard and would be constructed directly adjacent to a 300-foot segment of Peck Road and a 3,000-foot segment of Durfee Avenue.

Transit and Rail Services

Transit services along roads that would be crossed by or directly adjacent to the underground portions of Alternative 7 include Foothill Transit Routes 493, 497, 498, 499, and Silver Streak, and Los Angeles Metro Route 270.

Southern Region

The Affected Environment for the Southern Region of Alternative 7 is identical to the proposed Project, except for how the relocation of an approximately 1.63-mile portion of Segment 8A approximately 1,000 feet to the south would affect the existing roadway network as described below.

Existing Roadway Network

The roadway network crossed by Alternative 7 would be the same as that of the proposed Project; with the exception that the rerouted portion of this alternative would require two more overhead crossings of San Gabriel Boulevard than the proposed Project.

3.13.3 Applicable Laws, Regulations, and Standards

Construction of the Project could potentially affect access, traffic flow patterns, parking, transit, and bicycle facilities on public streets and highways. Therefore, it is necessary for SCE and/or the construction contractor to obtain encroachment permits or similar legal agreements from the public agencies responsible for the affected roadways and other applicable ROWs. Such permits are needed for ROWs that would be crossed by the transmission line as well as where construction activities would require the use of ROWs and easements for parallel installations. For the proposed Project, encroachment permits would be issued by Caltrans, and the various counties and cities through which the transmission line route would traverse. The proposed Project, including all helicopter construction activities, would also be required to comply with all appropriate regulations of the FAA and Restricted Military Areas.

3.13.3.1 Federal

Title 49, Code of Federal Regulations (CFR), Parts 171-177 governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles. To comply with the hazardous materials regulations, SCE would follow the guidelines set forth by the Federal Motor Carrier Safety Administration.

As part of the overall Special Use application process, the Applicant would be required to obtain approval for any maintenance of USDA Forest System roads or construction and/or maintenance on non-Forest System Roads on NFS lands.

According to Federal Aviation Regulations, Part 77, Section 77.13(a)(1), construction of objects greater than 200 feet tall from the ground surface would require FAA notification via FAA form 7460-1, Notice of Proposed Construction or Alteration, to the Manager of the FAA Air Traffic Division for review and approval of the project. Additionally, according to Section 77.23 (a)(2), objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles of an airport could be considered an obstruction to aviation activities. The obstruction standards would apply at the time of FAA form 7460-1. The Project, including any helicopter construction activities, would be required to comply with all appropriate regulations of the FAA.

3.13.3.2 State

Hazardous Waste Transport

The State of California has promulgated rules for hazardous waste transport that are contained in the California Code of Regulations, Title 26. Hauling would be carried out in accordance with State and federal regulations that include the Resource Conservation and Recovery Act (42 U.S. Code 6901 et seq.) and the California Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.). Additional regulations for the transportation of hazardous materials are outlined in the California Vehicle Code (Sections 2500 505, 12804 804.5, 31300, 3400, and 34500 501). The two State agencies with primary responsibility for enforcing federal and State regulations governing the transportation of hazardous wastes are the CHP and Caltrans.

The use of State highways for other than transportation purposes requires an encroachment permit, Caltrans form TR 0100. This permit is required for utilities, developers, and non-profit organizations for use of the State highway system to conduct activities other than transportation (e.g., landscape work, utility installation, film production) within the ROW. The application would be forwarded to the

appropriate Caltrans District office (~~7, which is where~~ the proposed Project is located within District 6, District 7, and District 8).

Military Restrictions

California Government Codes 65352, 65940, and 65944 require local agencies to refer proposed projects to the appropriate branches of the US Armed Forces for review if the project meets at least one of the following criteria:

- Projects located within 1,000 feet of a military installation;
- Projects located beneath a low-level flight path; or,
- Projects located within special use airspace as defined in Section 21098 of the Public Resources Code.

3.13.3.3 Local

Encroachment Permits

Construction of the proposed Project could potentially affect transportation ROWs, access, traffic flow, and parking on public streets and highways. Therefore, it would be necessary for SCE and/or the construction contractor to obtain encroachment permits or similar legal agreements from the public agencies responsible for each affected roadway or other transportation ROW. Such permits are needed for ROWs that would be crossed by the transmission line as well as for where transmission line construction activities would require the use of a public ROW for a parallel installation. These encroachment permits would be issued by Caltrans, the counties of Kern, Los Angeles, and San Bernardino, as well as the numerous cities through which the proposed transmission route traverses.

Congestion Management Programs

Congestion Management Programs (CMPs) define a network of state highways and arterials as well as level of service standards and related procedures for a given regional or local jurisdiction. CMPs within the proposed Project area include those implemented by the counties of Kern, Los Angeles, Orange, and San Bernardino.

The Kern Council of Governments (KCOG) administers the CMP in Kern County. The purpose of the KCOG CMP is to help ensure that a balanced transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system level of service performance standards and air quality improvement (KCOG, 2007). The Southern California Association of Governments (SCAG) administers the Congestion Management Process for Los Angeles, Orange, and San Bernardino counties. SCAG's Congestion Management Process is a comprehensive strategy designed to relieve traffic congestion and maintain high levels of service on roadways within the Southern California region (SCAG, 2008). SCAG has facilitated efforts by counties and subregions to develop County-level CMPs in cooperation with regional and subregional transportation providers, local governments, Caltrans, and the South Coast Air Quality Management District (SCAG, 2008).

All county CMPs share the same goal of reducing congestion and applying congestion relief strategies. However, there are different priorities in the selection of related strategies based on the needs of each county. Therefore, each county CMP differs in form and local procedure. By state statute, all CMPs must perform the same functions and must be consistent with the federal requirements. Performance standards from each County's CMP are summarized below.

Kern County. Level of Service "E" has been established as the minimum system-wide LOS traffic standard in the Congestion Management Plan. (KCOG, 2007).

Los Angeles County. For purposes of the County Congestion Management Plan, a significant impact occurs when the proposed project increases traffic volume on a Congestion Management Plan facility by two percent of capacity (LACMTA, 2004a).

Orange County. A Traffic Impact Analysis will be required for Orange County Congestion Management Plan purposes for all proposed developments generating 2,400 or more daily trips (OCTA, 2007).

San Bernardino County. Traffic Impact Analysis reports must be prepared to satisfy Congestion Management Plan requirements when a proposed project is forecast to equal or exceed the Congestion Management Plan threshold of 250 two-way peak hour trips generated (SANBAG, 2003).

Military Overflight

Kern County General Plan. Section 2.5.2, Airport Land Use Compatibility Plan (ALUCP), of the Circulation Element of Kern County's General Plan, includes the following policies regarding development in the vicinity of Edwards Air Force Base.

- Policy 1. Review land designations and zoning near public and private airports, Edwards Air Force Base and NAWS China Lake for compatibility.
- Policy 2. To the extent legally allowable prevent encroachment on public airport and military base operations from incompatible, unmitigated land uses.

Kern County ALUCP - Section 1.0 General Applicability. Section 1.7.1(c). Prior to the approval of a proposal involving any type of land use development, as stated in Section 1.6.1, or other review as required by a Specific Plan, specific findings shall be made that such development is compatible with the training and operational missions of the military aviation installations. Incompatible land uses that result in significant impacts on the military mission of Department of Defense installations or to the Joint Service Restricted R-2508 Complex that cannot be mitigated, shall not be considered consistent with this plan.

Kern County Zoning Ordinance. Section 19.08.160, Height of Structures, of the Kern County Zoning Ordinance restricts the height of structures or buildings to the maximum permitted heights shown in Figure 19.08.106 of the ordinance unless the military authority responsible for operations in that flight area first provides the planning director with written concurrence that the height of the proposed structure or building would create no significant military mission impacts (Kern County, 2007c).

3.13.4 Impact Analysis Approach

3.13.4.1 Criteria for Determining Impact Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that would result from the proposed Project and alternatives. Appropriate criteria have been identified and utilized to make these significance conclusions. The following significance criteria for Traffic and Transportation were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). Impacts of the proposed Project or alternatives would be considered significant and would require mitigation if:

- Criterion TRA1: A major roadway (arterial or collector classification) would be closed to through traffic as a result of construction activities and there would be no suitable alternative route available; or the installation of the transmission line within, adjacent to, or across a roadway would reduce the number of, or the available width of, one or more travel lanes

during the peak traffic periods, resulting in a temporary substantial disruption to traffic flow and/or substantial increased traffic congestion.

- Criterion TRA2: An increase in vehicle trips associated with construction workers or equipment would result in an unacceptable reduction in level of service on the roadways in the Project vicinity.
- Criterion TRA3: Construction activities would temporarily restrict access to or from adjacent land uses and there would be no suitable alternative access.
- Criterion TRA4: Construction activities or operations would restrict the movements of emergency vehicles (police cars, fire trucks, ambulances, paramedic units) and there would be no reasonable alternative access routes available.
- Criterion TRA5: Construction activities would disrupt bus transit service and there would be no suitable alternative routes or stops.
- Criterion TRA6: Construction activities within, adjacent to, or across a railroad right-of-way would result in a temporary disruption of rail traffic.
- Criterion TRA7: Construction activities would impede pedestrian movements or bike trails in the construction area and there would be no suitable alternative pedestrian/bicycle access routes.
- Criterion TRA8: Construction activities or staging activities would increase the demand for and/or reduce the supply of parking spaces and there would be no provisions for accommodating the resulting parking deficiencies.
- Criterion TRA9: Construction should not be inconsistent with regional and local transportation plans.
- Criterion TRA10: An increase in roadway wear in the vicinity of the construction zone would occur as a result of heavy truck or construction equipment movements, resulting in noticeable deterioration of a roadway surface or other features in the road ROW.
- Criterion TRA11: A Project structure, crane, or wires were to be positioned such that it could adversely affect aviation activities.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.13.4.2 Applicant-Proposed Measures (APMs)

APMs were identified by SCE in the PEA. Table 3.13-15 presents the APMs that are relevant to the issue area of Traffic and Transportation. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. Therefore, the following discussions of impact analysis assume that all APMs will be implemented as defined in the table. Additional mitigation measures are recommended in this section if it is determined that APMs do not fully mitigate the impacts for which they are presented.

Table 3.13-15. Applicant-Proposed Measures – Traffic and Transportation

APM TRA-1	Minimize Street Use. Construction activities would be designed to minimize work on or use of local streets.
APM TRA-2	Obtain Permits. When local streets must be used for more than normal traffic purposes, an encroachment permit or similar authorization would be obtained from Caltrans, County, and/or local jurisdictions (or other agency), as applicable.
APM TRA-3	Incorporate Protective Measures. Any construction or installation work requiring the crossing of a local street, highway, or rail line would incorporate the use of guard poles, netting, or similar means to protect moving traffic and structures from the activity. If necessary on state highways, continuous traffic breaks operated by the CHP would be planned and provided.
APM TRA-4	Prepare Traffic Management Plans. Traffic control and other management plans would be prepared where necessary to minimize project impacts on local streets.
APM TRA-5	Repair Damaged Streets. Any damage to local streets would be repaired, and streets would be restored to their pre-project condition.

3.13.4.3 Impact Assessment Methodology

This analysis first established baseline conditions for the affected environment of Traffic and Transportation, presented above in Section 3.13.2, which included a description of the major roadways that would be affected by construction of the proposed Project. These baseline conditions were evaluated based on their potential to be affected by construction activities as well as operation and maintenance activities related to the proposed Project and alternatives. Construction, operation, and maintenance activities were identified based on analysis provided in SCE's PEA. These activities were used as inputs into an impact assessment model that includes several variables, such as timing and location of construction activities, traffic volumes, road crossings, and proximity to airports. Impacts to Traffic and Transportation were then identified based on the predicted interaction between construction, operation, and maintenance activities with the affected environment.

3.13.5 Alternative 1: No Project/Action

Selection of the No Project/Action Alternative would mean that the proposed TRTP would not be implemented. As such, none of the associated Project activities would occur and the environmental impacts associated specifically with the proposed Project would not occur. Particularly no construction-related traffic would be added to the roadway system and no temporary road closures related to transmission line stringing activities would occur.

However, under the No Project/Action Alternative, some currently unknown plan would need to be developed to provide the transmission upgrades necessary to interconnect renewable generation projects in the Tehachapi area and to also address the existing transmission problems south of Lugo Substation. Similarly, other yet unspecified transmission upgrades would presumably be proposed in the future to provide the needed capacity and reliability to serve growing electrical load in the Antelope Valley. To interconnect wind projects in the Tehachapi area, it is possible that other electrical utilities with transmission facilities in the area, such as LADWP, might purchase some of the power from Tehachapi wind developers and integrate it into their system. Another possibility is the development of a private transmission line that could connect wind projects to the electrical grid. Any of these projects, which would occur as a result of the unfulfilled electrical transmission need in the absence of TRTP, are likely to produce similar impacts as those identified for the proposed Project. Transmission line construction utilizes some standard techniques such as tower construction and transmission line stringing which would result in the addition of construction-related traffic to roadways as well as temporary road closures, which would have similar traffic impacts regardless of the specific configuration of the transmission line.

3.13.6 Alternative 2: SCE's Proposed Project

3.13.6.1 Direct and Indirect Effects Analysis

Closure of roads or reduction of travel lanes (Criterion TRA1)

Impact T-1: Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion.

Construction of the proposed Project could result in roadway closures at locations where the construction activities, especially transmission line stringing, would be located within ROWs of public streets and highways. Although temporary closures of this nature would likely occur for only a few minutes at a time, even temporary road closures on roads with ADT greater than 10,000 vehicles per lane could

substantially disrupt traffic flow and substantially increase traffic congestion, particularly if road closures occurred during a.m. or p.m. peak hours of travel. In addition, delivery of large equipment and materials via truck ~~would~~ may also require temporary closures.

Northern Region

The Northern Region would require transmission line stringing over SR14, Elizabeth Lake Road, and Sierra Highway, as well as various other Kern County and Los Angeles County roads, as presented above in Table 3.13-4.

Central Region

As presented above in Table 3.13-5, transmission line stringing activities in the Central Region would require temporary closures of several freeways, highways and collector roads with high volume ADT, including I-210, I-605, SR60, SR19, I-10, and Huntington Boulevard, as well as several local municipal and Los Angeles County collector roads.

Southern Region

As presented above in Table 3.13-8, transmission line stringing activities in the Southern Region would require temporary closures of several freeways, highways and collector roads with high volume ADT, including SR60, SR19, I-605, SR57, SR71, SR83, and Fullerton Road, as well as stringing over several local municipal, Los Angeles County, and San Bernardino County collector roads.

SCE has committed to APMs TRA-1 (Minimize Street Use), TRA-2 (Obtain Permits), TRA-3 (Incorporate Protective Measures), and TRA-4 (Prepare Traffic Management Plans), which are summarized below and described in detail above in Table 3.13-15. APM TRA-1 requires construction activities be designed to minimize work on or use of local streets. APM TRA-2 requires obtaining encroachment or other permits as necessary when construction would require local streets to be used for more than normal traffic purposes. APM TRA-3 requires use of guard poles, netting, or similar means to protect moving traffic and structures when construction requires the crossing of local streets, highways, or rail lines. This measure would also require continuous traffic breaks operated by the CHP on state highways, if necessary be planned and provided. APM TRA-4 would require preparation of a traffic control plan where necessary to minimize Project impacts on local streets.

Mitigation Measures for Impact T-1

T-1a **Prepare Traffic Control Plans.** Prior to the start of construction, SCE shall submit Traffic Control Plans (TCPs) to all agencies with jurisdiction over public roads that would be affected by overhead construction activities as part of the required traffic encroachment permits. TCPs shall define the locations of all roads that would need to be temporarily closed due to construction activities, including aerial hauling by helicopter and conductor stringing activities. The TCPs shall define the use of flag persons, warning signs, lights, barricades, cones, etc. to provide safe work areas and to warn, control, protect, and expedite vehicular and pedestrian traffic. The measures included in the TCPs shall be consistent with the standard guidelines outlined in ~~the Caltrans Traffic Manual,~~ the Standard Specifications for Public Works Construction, the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD), and the Work Area Traffic Control Handbook (WATCH). Copies of the TCPs shall be sent to the FS and to the planning/or traffic departments of the affected local jurisdictions at least 30 days prior to the start of construction.

TCPs shall also include measures to avoid disruptions or delays in access for emergency service vehicles and to keep emergency service agencies fully informed of road closures, detours, and delays. Police departments, fire departments, ambulance services, and paramedic services shall be notified at least one month in advance by SCE of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness. Provisions shall be ready at all times to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies. TCPs shall also identify all emergency service agencies, include contact information for those agencies, assign responsibility for notifying the service providers, and specify coordination procedures. Copies of the TCPs shall be provided to all affected police departments, fire departments, ambulance and paramedic services. Documentation of coordination with service providers shall be provided to the CPUC and FS 30 days prior to the start of construction.

T-1b **Restrict lane closures.** To minimize traffic congestion and delays during construction to the extent feasible, SCE shall restrict all necessary lane closures or obstructions on major roadways, as designated by applicable County and City General Plans, associated with overhead construction activities to off-peak periods only. Unless absolutely necessary, lane closures must not occur between the peak hours of 6:00 and 9:00 a.m. and between the peak hours of 3:30 and 6:30 p.m., or as directed in writing by the affected public agency in the encroachment permit.

CEQA Significance Conclusion

Implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict lane closures), in addition to ~~AM~~APMs TRA-1, TRA-2, TRA-3, and TRA-4 would reduce the potential for substantial congestion as a result of construction-related roadway closures. APMs TRA-1 through TRA-4 require minimizing use of streets, obtaining relevant permits, preparation of traffic control plans and use of guard structures, netting, and traffic breaks to protect traffic. Additionally, to ensure that the traffic control plans required under APM TRA-4 address temporary road and lane closures that would be required during construction of the proposed transmission line, Mitigation Measures T-1a and T-1b are proposed. Implementation of these measures would reduce Impact T-1 to a less-than-significant level (Class II).

Unacceptable level of service reduction to vicinity roads (Criterion TRA2)

Impact T-2: Construction traffic would result in congestion on area roadways.

Construction of the proposed Project would generate additional traffic on regional and local roadways. Construction worker commute trips, Project equipment deliveries, and hauling materials such as support towers, concrete, conductor, and excavation spoils would increase existing traffic volumes in the Project area.

Workers commuting to construction sites would increase traffic in the Project area. Approximately 300 workers in separate construction crews, each comprised of between two and 100 workers, would work on the various aspects of the proposed Project over a 55-month period. Construction would require a peak of approximately 540 daily truck trips and average of approximately 190 daily truck trips. An average of approximately ~~75~~155 workers would commute to various locations along the proposed route ROW each workday. Transmission line workers would be dispersed in groups throughout the Project area and would not typically be working at the same place at any one time. Construction activities would occur concurrently at several locations along the right-of-way (ROW) within the counties of Kern, Los Angeles,

and San Bernardino. Assuming that each worker would travel in a personal vehicle this would represent a peak of 300 worker commute trips per day in addition to 540 truck trips per day. Worker and truck trips are assumed to be evenly dispersed along the entire 173-mile long transmission line route in the project regions discussed below. Therefore, during peak construction approximately 100 worker trips and 180 truck trips would be added to the regional roadway system of each project region. Haul truck traffic would include trucks carrying equipment and materials, spoils for disposal, and new and old tower support pieces. Trips would be made to and from various points along the transmission line route. The exact routes and scheduling of truck trips are not known at this time.

Northern Region

The Project-related commute traffic and construction truck/equipment activity is expected to be dispersed over the entire Project area and dispersed over time. Traffic volumes in the Northern Region are generally low to moderate. However, it is possible that Project-related construction traffic could contribute to congestion on heavily traveled roads such as SR14 and Elizabeth Lake Road or along narrow roadway segments.

Central Region

Construction vehicles would be added to several roadways in the Central Region that currently experience high traffic volumes, including I-210, I-605, SR60, SR19, I-10, and Huntington Boulevard, as well as several local municipal and Los Angeles County collector roads. Although Project-related commute traffic and construction truck/equipment activity is expected to be dispersed over the entire Project area and dispersed over time, given the dense urban development of this area and the high volumes of traffic on major roadways, it is likely that Project-related construction traffic could contribute to congestion.

Southern Region

Construction vehicles would be added to several roadways in the Southern Region that currently experience high traffic volumes, including SR60, SR19, I-605, SR57, SR71, SR83, and Fullerton Road, as well as stringing over several local municipal, Los Angeles County, and San Bernardino County collector roads. Although Project-related commute traffic and construction truck/equipment activity is expected to be dispersed over the entire Project area and dispersed over time, given the dense urban development of this area and the high volumes of traffic on major roadways, it is likely that Project-related construction traffic could contribute to congestion.

Mitigation Measure for Impact T-2

T-2 **Prepare Construction Transportation Plan.** Where construction traffic has the potential to significantly affect regional and local roadways by generating additional vehicle trips, SCE shall prepare a Construction Transportation Plan (CTP) describing alternate traffic routes, timing of commutes, reduction in crew-related traffic, and other mitigation methods for reducing construction-generated additional traffic on regional and local roadways. The CTP shall also require construction workers to park personal vehicles at primary and secondary marshalling yards and carpool to work locations in order to limit the number of construction vehicles on the road. Construction vehicles shall be required to park within the Project ROW or on access roads to the maximum extent possible. SCE shall submit the CTP to Caltrans and the affected local jurisdictions for review and approval at least 30 days prior to commencing construction activities.

CEQA Significance Conclusion

Construction vehicles would be added to several roadways throughout the Project area that currently experience high traffic volumes throughout all three regions of the proposed Project. Implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan) would reduce the number of construction-related vehicles traveling on regional and local roadways. Implementation of this measure would reduce Impact T-2 to a less-than-significant level (Class II).

Restricted access to properties (Criterion TRA3)

Construction of the proposed Project would not restrict access to driveways or otherwise affect access for the adjacent residences, institutions, businesses, and other uses. The proposed Project would not include any trenching or other excavation in road ROWs that would impede access to adjacent uses. Therefore, there would be no impact associated with restricted access to properties.

Restrict the movements of emergency vehicles (Criterion TRA4)

Impact T-3: Construction activities could temporarily interfere with emergency response.

Overhead construction activities could interfere with emergency response by ambulance, fire, paramedic, and police vehicles. Potential roadway segments that would be most impacted would be two-lane roadways, which provide one lane of travel per direction. On roadways with multiple lanes, the loss of a lane and the resulting increase in congestion could lengthen the response time for emergency vehicles to pass through the construction zone. Additionally, there is a possibility that emergency services would be needed at a location where access is temporarily blocked by the construction zone.

CEQA Significance Conclusion

Construction activities could interfere with emergency response vehicles. Mitigation Measure T-1a (Prepare Traffic Control Plans) includes measures, such as keeping emergency service agencies fully informed of road closures, detours, and delays and making ready at all times provisions to accommodate emergency vehicles. Additionally, Mitigation Measure T-1b (Restrict lane closures) would reduce the potential for roadway congestion to occur, which would also reduce the potential for interference with emergency services. Implementation of Mitigation Measures T-1a and T-1b would reduce Impact T-3 to a less-than-significant level (Class II).

Disruption to transit service (Criterion TRA5)

Impact T-4: Construction activities could temporarily disrupt transit routes.

Overhead stringing activities that would require short-term road closures associated with construction of the proposed transmission line would disrupt transit routes. Potential impacts would include scheduling delays and temporary bus reroutes.

Northern Region

The proposed transmission line route would not cross any of the AVTA local transit routes (AVTA, 2007). At its point of closest approach, the Segment 5 transmission route is approximately 1.25 miles to the west of the nearest Route 5 stop. However, the route would cross SR14, which is used by AVTA commuter bus routes 785 (to downtown Los Angeles), 786 (to West Los Angeles and Century City), and 787 (to West San Fernando Valley) (SCE, 2007a). Segment 5 would cross the UPRR/Metrolink line near the Vincent Grade/Acton Metrolink Station at approximately MP 16.7.

Central Region

The proposed transmission line routes of Segment 7 and Segment 11 of the proposed Project would cross several transit routes operated by the Los Angeles Metropolitan Transit Authority, Foothill Transit, Pasadena Area Transit System, Montebello Municipal Bus Lines, and Norwalk Transit District. Individual routes in the Central Region that would be crossed by Segment 7 and Segment 11 are presented above in Table 3.13-6 and Table 3.13-7, respectively. Segment 11 would cross the light rail Metro Gold Line at approximately MP 27.5 as well as UPRR and Metrolink lines at approximately MP 31.5 and MP 33.0, respectively. Segment 7 would cross the Metrolink rail line at approximately MP 8.9.

Southern Region

The proposed transmission line route of Segment 8 of the proposed Project would cross several transit routes operated by the Los Angeles Metropolitan Transit Authority, Foothill Transit, Montebello Municipal Bus Lines, Norwalk Transit District, and Omnitrans. Individual routes in the Southern Region that would be crossed by Segment 8 are presented above in Table 3.13-9.

Mitigation Measure for Impact T-4

T-4 **Avoid disruption of bus service.** SCE will coordinate with the Los Angeles Metropolitan Transit Authority, Foothill Transit, Pasadena Area Transit System, Montebello Municipal Bus Lines, Norwalk Transit District, and Omnitrans at least 30 days prior to construction in the respective service territory of each agency noted to reduce potential interruption of bus transit services. Documentation of coordination efforts shall be submitted to the CPUC upon request.

CEQA Significance Conclusion

Construction of the proposed transmission line would disrupt transit routes. Mitigation Measure T-4 (Avoid disruption of bus service) includes measures, such as coordination with transit providers, to avoid interruption of bus service. Implementation of this measure would reduce Impact T-4 to a less-than-significant level (Class II).

Disruption to rail traffic (Criterion TRA6)

Impact T-5: Construction activities would cause a temporary disruption to rail traffic or operations.

Overhead construction activities could interfere with rail traffic because construction of overhead transmission lines could require temporary use or closure of a railroad ROW. It would be necessary to halt through-rail traffic during stringing operations over railroads. In addition, delivery of large equipment and materials via truck would also require temporary closures. Temporary closures, although likely to occur only for up to a few minutes at a time, could cause back ups with freight and commuter trains and constrain circulation in the area.

Northern Region

Segment 10 of the proposed transmission line route would cross a spur of the UPRR line at approximately MP 1.0 and Segment 5 would pass immediately to the west of the Vincent Grade/Acton Metrolink Station parking lot and across the railroad tracks at approximately MP 16.7.

Central Region

Segment 11 would cross the light rail Metro Gold Line at approximately MP 27.5 as well as UPRR and Metrolink lines at approximately MP 31.5 and MP 33.0, respectively. Segment 7 would cross the Metrolink rail line at approximately MP 8.9.

Southern Region

Segment 8 would cross a UPRR / Metrolink rail line at approximately MP 4.8. APM TRA-3 requires that construction activity requiring the crossing of a rail line would incorporate the use of guard poles, netting, or similar means to protect moving traffic and structures from the activity. However these measures would not preclude the potential for interference with rail traffic.

Mitigation Measure for Impact T-5

T-5 **Obtain and comply with railroad permits.** SCE shall obtain permits/approvals from each of the affected railway operators (Union Pacific Railroad, Metrolink, and/or Amtrak) to ensure construction activities comply with each company's safety requirements and to avoid disruption to or congestion of rail traffic. Copies of permits shall be submitted to the CPUC prior to construction across or adjacent to rail lines.

CEQA Significance Conclusion

Construction of the proposed transmission line would disrupt railroad routes. Mitigation Measure T-5 (Obtain and comply with railroad permits) includes measures, such as coordination with transit providers to ensure safety and avoid interruptions of service. Implementation of this measure would reduce Impact T-5 to a less-than-significant level (Class II).

Impediment of pedestrian movements or bike paths (Criterion TRA7)

Impact T-6: Construction activities could temporarily interfere with the use of pedestrian/bicycle paths.

Pedestrian and bicycle circulation could be affected by transmission line construction activities if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bike routes were blocked.

Northern Region

Designated bicycle lanes do not exist along the Northern Region portion of the proposed Project route; however this would not necessarily preclude use of roads in this area by bicyclists or pedestrians.

Central Region

Segment 6 of the TRTP route is located within the ANF and would not cross any designated bike routes, which does not necessarily preclude use of roads in this area by bicyclists or pedestrians.

Most of the Segment 7 and Segment 11 routes are located in an urbanized area and would cross or run parallel to several roadways with separated sidewalks. Segment 7 would cross or run parallel to several designated bike paths and routes including: a Class III route along Royal Oaks Drive in Duarte near MP 1.5; a Class I bike path along the San Gabriel River near MP 10.5; a Class III bike route along Peck Road near MP 11; a Class I bike path in Whittier Narrows Recreation Area near MP 11.5; and a Class I bike bath along Rio Hondo River near MP 13.5. Segment 11 would cross a Class III bicycle path along SR2 in La Canada Flintridge just north of the Gould Substation (La Canada Flintridge, 1994) near MP 18.3.

Segment 11 would also cross several Class II and Class III bike paths between MP 26 and MP 29 in Pasadena located along New York Drive, Orange Grove Boulevard., Foothill Boulevard, Del Mar Boulevard, and San Pasqual Street.

Southern Region

Segment 8 would cross several designated bike routes including: Class I bike paths along the Rio Hondo River (MP 2.5), Whittier Narrows Recreation Area (MP 3.5) and the San Gabriel River (MP 4); a Class II bike route along Colima Road near MP 9.5; a Class II bike path along Edison Avenue between Magnolia Avenue and Cypress Avenue near MP 28.5; and a Class I bike path located north of Edison Avenue between Cypress Avenue and Euclid Avenue near MP 29.5.

Mitigation Measure for Impact T-6

T-6 **Ensure pedestrian and bicycle circulation and safety.** Where construction will result in temporary closures of sidewalks or other pedestrian facilities, SCE shall provide temporary pedestrian access, through detours or safe areas along the construction zone, where feasible. Where construction activity will result in bike route or bike path closures, appropriate detours shall be established, where feasible, and detour signs shall be posted. Detours and closures required for safe pedestrian and bicycle access through or around the construction area shall be identified in a circulation plan included in the TCP's required under Mitigation Measure T-1. All detours and related signage shall be consistent with the standard guidelines outlined in the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD).

CEQA Significance Conclusion

Construction of the proposed transmission line would disrupt pedestrian and bicycle routes. Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety) includes measures, such as providing pedestrian and bicycle access and detours, to avoid such disruption. Implementation of this measure would reduce Impact T-6 to a less-than-significant level (Class II).

Reduction in the supply of parking spaces (Criterion TRA8)

Impact T-7: Construction would result in localized shortages of public parking along the Project ROW.

The proposed transmission line route is an approximately 173-mile long linear route. As such, construction at any one location along the ROW would only occur for a limited amount of time before moving to another location along the ROW. Depending on the activity (tower erection, transmission line stringing, etc.), the duration of construction activities at any one location along the ROW (excluding marshalling yards, which would be utilized throughout construction) would range from a few minutes to a few days. However, construction along the proposed Project ROW would require workers to drive construction vehicles to sites under active construction. Construction workers would park construction vehicles and personnel in the immediate vicinity of active construction. In areas of dense urban or residential development, construction workers may have to park along roadsides, thereby utilizing designated parking spaces.

Northern Region

The Northern Region of the proposed Project is mostly rural and open space with little urban or residential development. The proposed Project route in this region would not traverse areas of dense urban or residential development. Most of the roadways crossed by the proposed Project route in this

region are rural and private roads with no designated parking spaces. The major roadways in this region, which are presented in Table 3.13-4, are state highways or local collectors that also lack areas of dense development and designated parking spaces. Construction workers would park along roadsides in this region; however, since there are no areas of concentrated commercial or residential development in this area, use of these roadways for construction parking would not be expected to displace parking opportunities for the public.

Central Region

Segment 6 of the TRTP route is located within the ANF and would not cross any areas of urban or residential development or areas with designated parking spaces. Although construction workers would park along roadsides along this segment, such activities would not be expected to result in a reduction of the local parking space supply.

Portions of Segment 7 (in the immediate vicinity of MP 1 and MP 11) and Segment 11 (MP 25.5 to MP 3 6.5) of the proposed Project would be located in areas of dense residential development. These segments would be constructed within existing ROW, which would allow construction workers to park vehicles in the ROW or on existing ROW access roads. However, depending on the intensity and physical logistics of specific construction activities, construction workers may be required to park along local residential roadways and major collector roads directly crossed by these portions of Segment 7 and Segment 11. The areas at which these segments cross roadways occur in residential areas or between urban centers with areas of commercial businesses or government offices. Therefore, the locations at which construction workers would park would not be expected to experience high rates of public utilization for parking.

Southern Region

Most of Segment 8 would be located in existing ROW in areas of industrial development or open space. Most of the roadways crossed by this segment do not experience high volumes of public street parking. Additionally, since this route would be located within existing ROW, construction workers would be expected to park vehicles within the ROW or on existing ROW access roads. However, a portion of Segment 8 (MP 23 to MP 25.5) would be located in an area of dense residential development in the cities of Chino and Chino Hills. Depending on the intensity and physical logistics of specific construction activities, construction workers may be required to park along local residential roadways and major collector roads directly crossed by Segment 8 in these areas. Such activities may result in the temporary reduction of residential parking space along roadways crossed by Segment 8 in these areas.

CEQA Significance Conclusion

Construction workers would park vehicles along local roadways in residential areas along proposed Project Segments 7, 8 and 11, thereby reducing the availability of parking spaces in these areas. Although the duration of construction activities at any one location along the ROW would be short term and the reduction of parking spaces at any location would be temporary, impacts would be significant. Implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan) would reduce the number of construction-related vehicles traveling to areas of active construction along the ROW and would require construction vehicles to be parked within the Project ROW or on ROW access roads to the maximum extent possible, thereby reducing the number of vehicles parked on public roadways. Implementation of this measure would reduce Impact T-7 to a less-than-significant level (Class II).

Construction would be inconsistent with transportation plans (Criterion TRA9)

As described above for Impact T-2, an average of approximately 75 workers would commute to various locations along the proposed route ROW each workday during Project construction. Transmission line workers would be dispersed in groups throughout the Project area and would not typically be working at the same place at any one time. Haul truck traffic would include trucks carrying equipment and materials, spoils for disposal, and new and old tower support pieces. Trips would be made to and from various points along the transmission line route. The dispersion of workers at various worksites along the approximate 173-mile route would preclude project-related construction traffic from exceeding any of the CMP thresholds of the affected counties described above in Section 3.13.3.3. Therefore, there would be no impact with regard to inconsistency with transportation plans.

Impact T-8: Construction would conflict with planned transportation projects.

Because final design of the Project has not been completed the precise location of transmission towers within the proposed ROW is currently unknown. The proposed Project could conflict with future transportation projects if it would place structures within transportation ROWs that would be developed with new transportation infrastructure.

Northern Region

The proposed transmission route would cross SR14 in the Vincent/Acton area. The Los Angeles County Metropolitan Transportation Authority has a long range plan that includes several alternatives to improve SR14. One alternative under consideration is to construct a new travel lane within the SR14 ROW (LACMTA, 2004b). As a result, general plans of cities in this region are being amended to incorporate corridor improvements as part of their official map, and require developers to dedicate ROW along the alignment. The proposed Project would conflict with the new travel lane if SCE were to place structures within the existing or planned SR14 ROW.

Central Region

No planned transportation projects with which the proposed Project could conflict have been identified in the Central Region of the Project area.

Southern Region

No planned transportation projects with which the proposed Project could conflict have been identified in the Southern Region of the Project area.

Mitigation Measure for Impact T-8

T-8 **Avoid conflicts with planned transportation improvements~~ to SR14~~.** Prior to final Project design SCE shall coordinate Project design with the California Department of Transportation (District 6, District 7 and District 8), ~~and~~ the Los Angeles County Metropolitan Transit Authority, and the traffic departments or public works departments of the counties of Kern, Los Angeles, and San Bernardino and the individual cities through which the proposed transmission route traverses, and to ensure that Project structures are appropriately placed to avoid conflict with ~~potential expansion of~~ any planned transportation projects~~SR14~~.

CEQA Significance Conclusion

The proposed Project would conflict with a new travel lane within SR14 if SCE were to place structures within the existing or planned SR14 ROW, resulting in a significant impact. Mitigation Measure T-8

(Avoid conflicts with planned improvements to SR14) would require coordination with Caltrans and the Los Angeles County Metropolitan Transit Authority to ensure that proposed Project structures would not be placed such that they would conflict with the future travel lane. Implementation of this measure would reduce Impact T-8 to a less-than-significant level (Class II).

Noticeable deterioration of road surfaces (Criterion TRA10)

Impact T-9: Construction vehicles and equipment could damage road ROWs.

SCE does not expect to cause any physical damage to roads, sidewalks, medians, etc., within public roads or sidewalks. However, there is the potential for unexpected damage to occur on features in road ROWs due to the operation of construction vehicles and equipment. APM TRA-5 (Repair Damaged Streets) would require any damage to local streets to be repaired, and streets be restored to their pre-Project condition.

CEQA Significance Conclusion

APM TRA-5 would ensure that any physical damage to roads, sidewalks, or medians as a result of construction would be restored to their pre-Project condition. Impact T-9 would be less than significant with no mitigation required (Class III).

Adverse effects to aviation activities (Criterion TRA11)

Impact T-10: Project transmission structures could present an aviation hazard.

According to the FAA, objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles of an airport could be considered an obstruction to aviation activities. Potential impacts to navigable airspace could occur during both construction and operation of a transmission line project due to the presence of physical impediments attributable to the proposed Project. Additionally, Projects located within potential military flight test pathways have the potential to result in conflicts between local communities and military installations and training activities.

Northern Region

Three airports are located within three nautical miles of Segment 4 and 5 of the proposed Project. The closest airport is Bohunks Airpark, located approximately one mile east of the Antelope Substation. Skyotee Ranch Airport is located approximately two miles southeast of the proposed Whirlwind Substation. Tehachapi Municipal Airport is located approximately three miles northwest of the Whirlwind Substation. Mojave Airport is located approximately six miles to the east of Segment 4. The height of the single-circuit 500-kV towers used for Segment 4 and Segment 5 would range from 113 feet to 188 feet.

A portion of Segment 4 is located within an area of Kern County that has been identified by Kern County zoning ordinance as one that requires limits to structures for protection of military operations. This is an area where the heights of structures are limited to 200 feet above ground elevation (Kern County, 2007a). As stated above, transmission towers associated with Segment 4 would be less than 200 feet tall and would therefore comply with this ordinance. Segment 4 is also located in Los Angeles County, which does not include similar restrictions in its ordinances. However, this portion of Segment 4 would be located beneath a low level military flight path (CMLUCA, 2008). California Government Codes 65352, 65940, and 65944 require local agencies to refer proposed projects that would be located beneath low level military flight paths to the appropriate branches of the US Armed Forces for review to ensure that

project structures would not create land use conflicts between local communities and military installations and training activities. However, the proposed Project would not require approval by a local agency; therefore Mitigation Measure T-10 is recommended to ensure the proposed Project is reviewed by an appropriate branch of the US Armed Forces.

Central Region

No elements of Segment 6 are near general aviation or larger airports. El Monte Airport is located approximately two miles west of Segment 7 MP 7 and approximately three miles east of Segment 11 MP 32. Shepherd Field is located approximately 3.6 miles southeast of the existing Mesa Substation. The height of the single-circuit 500-kV towers used for Segment 6, Segment 7, and Segment 11 would range from 75 feet to 220 feet. Since the proposed Project would result in construction of structures greater than 200 feet in height, pursuant to FAA guidelines, SCE would be required to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the Manager of the FAA Air Traffic Division for review and approval of the Project. Final design of the proposed transmission route would have to comply with FAA guidelines.

No portions of the proposed Project within the Central Region would be located in an area that would require review by the US Armed Forces (CMLUCA, 2008).

Southern Region

The LA/Ontario International Airport is located approximately 3.8 miles northwest of Segment 8A near MP 33. Chino Airport is located approximately two miles south of Segment 8 near MP 30. The height of the double-circuit 500-kV LSTs would be 147 feet to 255 feet. Since the proposed Project would result in construction of structures greater than 200 feet in height, pursuant to FAA guidelines, SCE would be required to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the Manager of the FAA Air Traffic Division for review and approval of the Project. Final design of the proposed transmission route would have to comply with FAA guidelines.

No portions of the proposed Project within the Southern Region would be located in an area that would require review by the US Armed Forces (CMLUCA, 2008).

Mitigation Measure for Impact T-10

T-10 **Notify US Military~~Air Force~~.** SCE shall provide a complete copy of the Project application, including the general location of the entire project alignment and the heights of towers to be located within each segment of the proposed Project to the Range Sustainability Officer of the Naval Air Systems Command. ~~Regional Environmental Officer for California Western Region Environmental Office of the US Air Force.~~

CEQA Significance Conclusion

Segment 4 of the proposed Project would be located beneath a low level military flight path which could result in conflicts with military flight test pathways. Mitigation Measure T-10 (Notify US Air Force) would ensure that the Project is reviewed by the US Air Force, which would ensure that the Project would not conflict with military training flights. Implementation of this measure would reduce Impact T-10 to a less-than-significant level (Class II).

3.13.6.2 Cumulative Effects Analysis

Geographic Extent

After construction, the proposed Project would have little transportation or traffic associated with it other than for routine inspection and maintenance activities and operations. Therefore, the only opportunity for cumulatively significant transportation and/or traffic impacts to occur would be during the approximate 56-month construction phase of the Project. Construction-related traffic impacts would mostly result from lane closures that would occur within the immediate vicinity of the proposed Project. Therefore, the geographic extent for the analysis of cumulative traffic and transportation impacts is defined as the area up to five miles from the proposed Project. This scope is appropriate because traffic impacts caused by the proposed Project would be limited to local streets and would be of short duration, and based on the Project impact analysis presented in Section 3.13.6.2, are unlikely to cause substantial delays or traffic congestion.

Existing Cumulative Conditions

The character of the area along the Project route varies from rural to urbanized. The most urbanized areas along the proposed Project route are within the Central and Southern Regions of the proposed Project, located south of the ANF. Development is occurring throughout the Project study area and as a result traffic increases are anticipated. Although SCAG and other transportation planning and management entities are developing additional roadways, roadway widening and transit projects, it is anticipated that the roadways in the Project area will continue to experience increased levels of traffic congestion as additional future land use developments are approved and population growth occurs.

Reasonably Foreseeable Future Projects and Changes

As discussed above, ongoing development throughout the cumulative effects area for Traffic and Transportation is dominated by residential developments, clustered in and around community developments on non-NFS lands. This trend in residential development is also representative of reasonably foreseeable future projects in the cumulative effects area, as supported by the aggressive population growth forecasted throughout the Project area. Reasonably foreseeable future projects within the Project area are expected to be characteristic of past and ongoing projects.

The Cumulative Scenario presents data regarding population growth in Kern and Los Angeles County; according to this information, the population in Kern County is expected to rise by 113 percent between the years 2000 and 2050 (SCAG, 2004 and U.S. Census Bureau, 2000). During the same time period, the population in Los Angeles County is expected to rise by varying degrees, depending on the city, with the cities of Lancaster and Palmdale experiencing growth of 117.5 percent and 186.5 percent, respectively (SCAG, 2004 and U.S. Census Bureau, 2000). It is expected that most projects within the ANF are focused on repairs, re-establishment, or rehabilitation of existing facilities. Such projects would not be expected to result in permanent increases in traffic on forest roads, but would contribute to deterioration of road surfaces. Expected growth in the areas south of the ANF ranges from about 5 percent or less (City of Industry, La Canada Flintridge, San Marino) to more than 90 percent (City of Ontario), between the years 2000 and 2030. Considering that the area is already highly urbanized, the lower growth projections could be an indication that those areas cannot accommodate further growth, while the higher projections indicate areas that are not yet fully built-out. As urban build-out continues, it is reasonably foreseeable that traffic on the regional roadway system will continue to increase.

Cumulative Impact Analysis

The potential for Traffic and Transportation impacts of the proposed Project to combine with the effects of other projects within the geographic scope of the cumulative analysis is described below.

- **Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion (Impact T-1).** Construction of the proposed Project could result in roadway closures at locations where the construction activities, especially transmission line stringing, would be located within ROWs of public streets and highways. Such closures are regulated by the applicable jurisdictional agency through encroachment permits which require specific measures to minimize disruption to local traffic flow. All projects requiring work within ROWs of public streets and highways are required to obtain encroachment permits. In order for a cumulative impact to occur, lane closures from different projects would have to occur at the same time and on the same road or a connecting road within close proximity (up to two miles) to the lane closure from the proposed Project. Past projects in the Project area would not combine with impacts of the proposed Project because construction of those projects is complete and lane closures associated with such construction would no longer be necessary. Therefore, it is considered unlikely that this impact of the proposed Project would combine with similar impacts of other projects to result in a cumulatively significant impact (Class III).
- **Construction traffic would result in congestion on area roadways (Impact T-2).** Construction of the proposed Project would temporarily increase traffic (through Project trip generation) on the regional and local roadways. Past development within the proposed Project area outside of the ANF has substantially contributed to congestion on area roadways. Current and reasonably foreseeable projects in these areas would also temporarily increase traffic in these areas during construction. Additionally, as discussed above, development and population growth in these areas is expected to continue to increase. It is reasonable to assume that several residential and commercial developments that are currently under construction in these areas would be completed and partially occupied by the time proposed Project construction begins in this area. Traffic associated with these future residential developments would contribute to congestion on area roadways. Temporary roadway congestion resulting from lane closures associated with construction of the proposed Project would combine with congestion resulting from past, present and future residential and commercial development to result in a significant cumulative impact. However, Mitigation Measure T-2 (Prepare Construction Transportation Plan) would minimize the proposed Project's contribution to this impact. Therefore, the proposed Project's contribution to a significant cumulative impact to congestion on regional and local roadways would not be ~~less than~~ cumulatively considerable and therefore less than significant (Class III).
- **Construction activities could temporarily interfere with emergency response (Impact T-3).** Lane closures associated with construction of the proposed Project could disrupt the routes traveled by emergency providers. Other current and reasonably foreseeable projects would have the same potential to restrict emergency service provider routes. If these and other projects required lane closures in the same vicinity of and at the same time as the proposed Project, impacts to emergency service providers would be significant. However, Mitigation Measure T-1a (Prepare Traffic Control Plans) requires construction activity to be coordinated in advance with emergency service providers to avoid restricting movements of emergency vehicles. Additionally lane closures associated with the proposed Project would be of very short duration. Therefore, the proposed Project's contribution to a potential significant impact would not be ~~less than~~ cumulatively considerable (Class III).
- **Construction activities could temporarily disrupt transit routes (Impact T-4).** Lane closures associated with construction of the proposed Project could disrupt the routes traveled by bus transit services. Other current and reasonably foreseeable projects would have the same potential to restrict transit service routes. If these and other projects required lane closures in the same vicinity of and at the same time as the proposed Project, impacts to transit service providers would be significant. However, Mitigation Measure T-4 (Avoid disruption of bus service) requires construction activity to be coordinated in advance with school districts and transit providers. Additionally lane closures associated with the proposed Project would be of very short duration. Therefore, the proposed Project's contribution to a potential significant impact would not be ~~less than~~ cumulatively considerable (Class III).
- **Construction activities would cause a temporary disruption to rail traffic or operations (Impact T-5).** The proposed Project would cross Union Pacific Railroad, Metrolink, and MTA Gold Line ROW and could

disrupt rail traffic. In order for a cumulative impact to occur, work within railroad ROWs required by different projects would have to occur at the same time and on the same ROW as the proposed Project. However, Mitigation Measure T-5 (Obtain and comply with railroad permits) would require a permit from railroad companies to enter railroad ROWs. Compliance with railroad permit requirements would ensure that proposed Project construction activities would not disrupt rail traffic. Other projects would be required to obtain similar permits; thus, railroad companies would be able to regulate the timing of potential disruptions through issuance of permits. Therefore, impacts of the proposed Project would not have the potential to combine with impacts of other reasonably foreseeable projects to result in a cumulative impact (No Impact).

- **Construction activities could temporarily interfere with the use of pedestrian/bicycle paths (Impact T-6).** Pedestrian and bicycle circulation could be affected by transmission line construction activities if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bike routes were blocked. If concurrent construction projects restricted pedestrian and/or bicycle movement within the immediate vicinity of such restrictions associated with the proposed Project, impacts would be significant. However, implementation of Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety) would render impacts of the proposed Project to less than cumulatively considerable by requiring establishment of alternative pedestrian and bicycle routes around the proposed Project construction zone for safe passage as well as temporary detours for trail users (Class III).
- **Construction would result in localized shortages of public parking along the Project ROW (Impact T-7).** Construction activities would result in short-term elimination of a limited amount of parking spaces immediately adjacent to the construction ROW where the ROW would cross roadways within relatively concentrated areas of residential development. It is possible that concurrent construction projects located within close proximity to these areas of the proposed Project (Segments 7, 8 and 11) would also result in temporary elimination of parking spaces. If several projects were to concurrently eliminate parking spaces at the same time and same location as the proposed Project, a cumulative impact would occur. However, since this impact would occur in residential areas, it is unlikely that other projects with the potential to eliminate substantial numbers of public parking spaces would be located in close proximity of the proposed Project. Additionally, Mitigation Measure T-2 requires that construction vehicles be parked within the transmission ROW. Therefore impacts of the proposed Project are not expected to combine with the impacts of other projects to result in a cumulative impact (No Impact).
- **Construction would conflict with planned transportation projects (Impact T-8).** The proposed Project and any other projects that would interface with a roadway or other transportation facility would be required to obtain an encroachment permit or other such agreement from the applicable jurisdictional agency. Complying with local permits and agreements would ensure appropriate coordination between project applicants and the affected agencies so that conflicts would be avoided or minimized. Therefore, impacts of the proposed Project would not have the potential to combine with similar impacts of other past, present and future projects to result in a significant impact (No Impact).
- **Construction vehicles and equipment could damage road ROWs (Impact T-9).** There is potential for unexpected damage to roads by vehicles and equipment to occur from construction vehicles. Other development projects that require heavy equipment to use the same roads utilized by proposed Project construction vehicles could result in similar damage to roads. If left unmitigated, road damage caused by the proposed Project, when combined with unrepaired road damage from past, present, and reasonably foreseeable projects would combine to be significant. However, APM TRA-5 (Repair Damaged Streets), which would be implemented as part of the proposed Project, would require any damage to local streets be repaired, and streets be restored to their pre-Project condition. Therefore, impacts of the proposed Project would not have the potential to combine with similar impacts of other past, present and future projects to result in a significant impact (No Impact).
- **Project transmission structures could present an aviation hazard (Impact T-10).** The proposed Project would result in construction of structures greater than 200 feet in height, and would place structures beneath potential military flight test pathways, which could result in an aviation hazard or obstruction hazard to nearby airports or military training activities. Other projects, such as transmission lines, radio towers, and buildings that exceed 200 feet in height or are located within military flight test pathways could combine with the proposed Project to be significant. However, the proposed Project, as well as any other project that would result in construction of features over 200 feet in height would be required to submit a Notice of Construction

to the FAA Air Traffic Division for review and approval. Final design of all projects with structures greater than 200 feet in height would have to comply with FAA guidelines. Projects located within military flight pathways would be required to submit the project application to the appropriate US Military Branch for review to ensure conflicts would not occur. Compliance with these procedures would ensure that potential impacts from multiple projects would not combine to result in a significant impact to civilian or military aviation activities (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

The proposed Project would not result in significant cumulative impacts; therefore, no additional mitigation measures are required.

3.13.7 Alternative 3: West Lancaster Alternative

3.13.7.1 Direct and Indirect Effects Analysis

The significance criteria used to identify Traffic and Transportation impacts are introduced in Section 3.13.4.1. Impacts associated with this alternative are presented below under the applicable significance criterion.

Closure of roads or reduction of travel lanes (Criterion TRA1)

Impacts associated with Criterion TRA1 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion) to occur. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for closing roads and travel lanes is the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict lane closures). With implementation of these measures, as described in Section 3.13.6.2, Impact T-1 of Alternative 3 would be less than significant (Class II).

Unacceptable level of service reduction to vicinity roads (Criterion TRA2)

Impacts associated with Criterion TRA2 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-2 (Construction traffic would result in congestion on area roadways) to occur. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for construction traffic to result in substantial congestion is the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan). With implementation of this measure, as described in Section 3.13.6.2, Impact T-2 of Alternative 3 would be less than significant (Class II).

Restricted access to properties (Criterion TRA3)

Construction of the re-routed portion of this alternative would not restrict access to driveways or otherwise affect access for the adjacent residences, institutions, businesses, and other uses. The re-routed portion of this alternative would not include any trenching or other excavation in road ROWs that would impede access to adjacent uses. The remaining portion of Alternative 3 is identical to Alternative 2 and

the potential for construction to restrict access would be the same as presented in Section 3.13.6.2. Therefore, Alternative 3 would result in no impact associated with restricted access to properties.

Restrict the movements of emergency vehicles (Criterion TRA4)

Impacts associated with Criterion TRA4 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-3 (Construction activities could temporarily interfere with emergency response) to occur. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for construction to interfere with emergency response would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-1a (Prepare Traffic Control Plans), which includes measures, such as keeping emergency service agencies fully informed of road closures, detours, and delays and making ready at all times provisions to accommodate emergency vehicles and Mitigation Measure T-1b (Restrict lane closures). With implementation of these measures, as described in Section 3.13.6.2, Impact T-3 of Alternative 3 would be less than significant (Class II).

Disruption to transit service (Criterion TRA5)

Impacts associated with Criterion TRA5 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-4 (Construction activities could temporarily disrupt transit routes) to occur. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for construction to interfere with transit service would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-4 (Avoid disruption of bus service). With implementation of this measure, as described in Section 3.13.6.2, Impact T-4 of Alternative 3 would be less than significant (Class II).

Disruption to rail traffic (Criterion TRA6)

Impacts associated with Criterion TRA6 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations) to occur. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for construction to interfere with rail traffic would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-5 (Obtain and comply with railroad permits). With implementation of this measure, as described in Section 3.13.6.2, Impact T-5 of Alternative 3 would be less than significant (Class II).

Impediment of pedestrian movements or bike paths (Criterion TRA7)

Impacts associated with Criterion TRA7 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths) to occur. The remaining portion of

Alternative 3 is identical to Alternative 2 and the potential for construction to interfere with pedestrian and bicycle movements would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety). With implementation of this measure, as described in Section 3.13.6.2, Impact T-6 of Alternative 3 would be less than significant (Class II).

Reduction in the supply of parking spaces (Criterion TRA8)

Impacts associated with Criterion TRA8 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW) to occur. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for construction to substantially reduce the number of parking spaces and result in localized shortages of public parking would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan). With implementation of this measure, as described in Section 3.13.6.2, Impact T-7 of Alternative 3 would be less than significant (Class II).

Construction would be inconsistent with transportation plans (Criterion TRA9)

Impacts associated with Criterion TRA9 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Trip generation associated with construction of this alternative would be identical to that of the proposed Project. Therefore, there would be no impact with regard to inconsistency with transportation plans.

Impact T-8 (Construction would conflict with planned transportation projects) would be the same under Alternative 34 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, placement of structures within transportation ROWs could conflict with future transportation projects. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, no planned transportation projects have been identified along the rerouted portion of Segment 4. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for construction to conflict with planned transportation projects (Impact T-8) would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-8 (Avoid conflicts with planned improvements to SR14). With implementation of this measure, as described in Section 3.13.6.2, Impact T-8 of Alternative 3 would be less than significant (Class II).

Noticeable deterioration of road surfaces (Criterion TRA10)

Impacts associated with Criterion TRA10 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-9 (Construction vehicles and equipment could damage road ROWs) to occur. The remaining portion of Alternative 3 is identical to Alternative 2 and the potential for construction to result in damage to road surfaces would be the same as presented in Section 3.13.6.2. APM TRA-5 (Repair Damaged Street) would be included as part of the Project in order to restore roads damaged by Project construction to their existing conditions. With implementation of APM TRA-5, as described in Section 3.13.6.2, Impact T-9 of Alternative 3 would be less than significant (Class III).

Adverse effects to aviation activities (Criterion TRA11)

Impacts associated with Criterion TRA11 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of part of Segment 4 of the proposed transmission line, it would be located in the same general location as the proposed Project with the same type of transmission towers and there would be no increase in the potential for Impact T-10 (Project transmission structures could present an aviation hazard) to occur. The remaining portion of Alternative 3 is identical to Alternative 2 and Impact T-10 would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-10 (Notify US Air Force). With implementation of this measure, as described in Section 3.13.6.2, Impact T-10 of Alternative 3 would be less than significant (Class II).

3.13.7.2 Cumulative Effects Analysis

The rerouted portion of the Alternative 3 route generally parallels the proposed Project route to the west. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 3 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Based on the substantial similarity of Alternative 3 to the proposed Project, the geographic extent for the analysis of cumulative impacts related to Traffic and Transportation for this alternative would be identical to that of the proposed Project, as described in Section 3.13.6.2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 3 are exactly the same as for Alternative 2, as described in Section 3.13.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 3 would be exactly the same as Alternative 2, described in Section 3.13.6.2.

Cumulative Impact Analysis

The minor re-route of the proposed transmission line associated with Alternative 3 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 3 would be exactly the same as cumulative impacts for Alternative 2, as described in Section 3.13.6.2.

The following impacts would not be cumulative in nature~~ly considerable~~ (No Impact): Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations), Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW), Impact T-8 (Construction would conflict with planned transportation projects), and Impact T-9 (Construction vehicles and equipment could damage road ROWs).

The following cumulative impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion), Impact T-2 (Construction traffic would result in congestion on area roadways), Impact T-3

(Construction activities could temporarily interfere with emergency response), Impact T-4 (Construction activities could temporarily disrupt transit routes), Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths), and Impact T-10 (Project transmission structures could present an aviation hazard).

As the cumulative effects of Alternative 3 would be the same as for the proposed Project, please see Section 3.13.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Alternative 3 would not result in significant cumulative impacts; therefore, no additional mitigation measures are required.

3.13.8 Alternative 4: Chino Hills Route Alternatives

3.13.8.1 Direct and Indirect Effects Analysis

The significance criteria used to identify Traffic and Transportation impacts are introduced in Section 3.13.4.1. Impacts associated with this alternative are presented below under the applicable significance criterion.

As described in Section 3.15.2.4 (Affected Environment: Alternative 4), this alternative would follow the same route as the proposed Project through the North and Central Regions, diverging from the proposed Project route along Segment 8A in the South Region, at S8A MP 19.2. Therefore, any impacts of the proposed Project that would occur between S8A MP 19.2 and 35.2 (16 miles) through Chino Hills, Chino, and Ontario, as well as along Segment 8C, would not occur under Alternative 4; however, impacts associated with Segment 8B (6.8 miles) of the proposed Project would occur under Alternative 4, same as Alternative 2. Where the proposed route for Alternative 4 diverges from the proposed Project route at S8A MP 19.2, it would turn to the southeast, crossing through part of Orange County, San Bernardino County, and the CHSP. Therefore, Alternative 4 would introduce the potential to affect resources in these areas which would not otherwise be affected under the proposed Project.

This alternative includes ~~four~~ five separate routing options: Route A, Route B, Route C, Route C Modified, and Route D. For the purposes of this impact analysis, the routing options for Alternative 4 are discussed in comparison to each other throughout the following section. As described, the alignment of Alternative 4 would be the same as the proposed Project along S8B (6.8 miles) and the entire route north of S8A MP 19.2; as such, please see Section 3.13.6.1 for a summary of Traffic and Transportation impacts that could potentially affect resources along the portion of the Alternative 4 route which is identical to the proposed Project route.

Closure of roads or reduction of travel lanes (Criterion TRA1)

Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the ~~four~~ five routing options which are described below. As described in Section 3.13.6.2, construction activities could result in roadway closures, which could substantially disrupt traffic flow and substantially increase traffic congestion on roads with ADT greater than 10,000 vehicles per lane.

All ~~four~~ five Alternative 4 routes would avoid crossing six major roadways that would be crossed by the proposed Project route, including Chino Hills Parkway, SR71, Hope Street, Central Avenue, Edison

Avenue, Mountain Avenue, and SR83. All ~~four~~ five routing options of this alternative would also cross SR142. Since each of these routes would cross fewer major roadways than the proposed Project, the potential for Impact T-1 to occur, as well as the duration for which it would occur would be reduced. Nevertheless, implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict lane closures), as described in Section 3.13.6.2, would be required to reduce Impact T-1 of Alternative 4 to a less-than-significant level (Class II).

Unacceptable level of service reduction to vicinity roads (Criterion TRA2)

Impact T-2 (Construction traffic would result in congestion on area roadways) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the ~~four~~ five routing options which are described below. As described in Section 3.13.6.2, the addition of construction-related traffic on area roadways would contribute to congestion on roadways with high ADT volumes.

All ~~four~~ five Alternative 4 routes would avoid crossing six major roadways that would be crossed by the proposed Project route, including Chino Hills Parkway, SR71, Hope Street, Central Avenue, Edison Avenue, Mountain Avenue, and SR83. All ~~four~~ five routing options of this alternative would also cross SR142. Since each of these routes would cross fewer major roadways than the proposed Project, the potential for Impact T-2 to occur, as well as the duration for which it would occur would be reduced. Nevertheless, implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan), as described in Section 3.13.6.2, would be required to reduce Impact T-2 of Alternative 4 to a less-than-significant level (Class II).

Restricted access to properties (Criterion TRA3)

All ~~four~~ five routes under Alternative 4 would be located in rural areas and would not have the potential to restrict access to driveways or otherwise affect access for the adjacent residences, institutions, businesses, and other uses. The re-routed portions of this alternative would not include any trenching or other excavation in road ROWs that would impede access to adjacent uses. The remaining portion of Alternative 4 is identical to Alternative 2 and the potential for construction to restrict access would be the same as presented in Section 3.13.6.2. Therefore, Alternative 4 would result in no impact associated with restricted access to properties.

Restrict the movements of emergency vehicles (Criterion TRA4)

Impact T-3 (Construction activities could temporarily interfere with emergency response) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the ~~four~~ five routing options which are described below. As described in Section 3.13.6.2, lane closures associated with construction activities could lengthen the response time for emergency vehicles to pass through the construction zone.

All ~~four~~ five Alternative 4 routes would avoid crossing ~~63~~ 46 roadways that would be crossed by the proposed Project route. All ~~four~~ five routing options of this alternative would also cross SR142 as well as two (Route C, Route C Modified, and Route D) or three (Route A and Route B) smaller two-lane canyon roads. Since each of these routes would cross fewer major roadways than the proposed Project, the potential for Impact T-3 to occur, as well as the duration for which it would occur would be reduced. Nevertheless, implementation of Mitigation Measure T-1a (Prepare Traffic Control Plans), which includes measures, such as keeping emergency service agencies fully informed of road closures, detours, and

delays and making ready at all times provisions to accommodate emergency vehicles and Mitigation Measure T-1b (Restrict lane closures) would be required, as described in Section 3.13.6.2, to reduce Impact T-3 of Alternative 4 to a less-than-significant level (Class II).

Disruption to transit service (Criterion TRA5)

Impact T-4 (Construction activities could temporarily disrupt transit routes) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the ~~four~~ five routing options which are described below. As described in Section 3.13.6.2, lane closures associated with construction activities would disrupt transit routes through scheduling delays and temporary bus reroutes. All ~~four~~ five Alternative 4 routes would cross one less transit route (Omnitrans Route 65) than the proposed Project and would therefore incrementally reduce Impact T-4 (Construction activities could temporarily disrupt transit routes). Nevertheless, implementation of Mitigation Measure T-4 (Avoid disruption of bus service) would be required, as described in Section 3.13.6.2, to reduce Impact T-4 of Alternative 4 to a less-than-significant level (Class II).

Disruption to rail traffic (Criterion TRA6)

Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, construction activities could interfere with rail traffic because construction of overhead transmission lines could require temporary use or closure of a railroad ROW. None of the ~~four~~ five routes of Alternative 4 would increase or decrease the number of railroad crossings compared to the proposed Project, and there would be no increase or decrease in the potential for Impact T-5 to occur. Therefore the potential for construction to interfere with rail traffic would be the same as presented in Section 3.13.6.2 for the proposed Project, and would require implementation of Mitigation Measure T-5 (Obtain and comply with railroad permits). With implementation of this measure, as described in Section 3.13.6.2, Impact T-5 of Alternative 4 would be less than significant (Class II).

Impediment of pedestrian movements or bike paths (Criterion TRA7)

Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the ~~four~~ five routing options which are described below. As described in Section 3.13.6.2, pedestrian and bicycle circulation could be affected by transmission line construction activities if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bike routes were blocked.

All ~~four~~ five Alternative 4 routes would avoid crossing ~~two~~ one Class II bike route~~s, one Class I bike route,~~ and several sidewalks in the cities of Chino and Chino Hills. However, as presented in Section 3.13.2.4, each of these routing options would cross or be located directly adjacent to several fire trails, roads, and/or trails in CHSP that are used by hikers and bicyclists. The number of trails crossed or located in the immediate proximity of each Alternative 4 route is listed below:

- Route A: 12 trails
- Route B: 12 trails
- Route C: ~~6~~ 5 trails
- Route C Modified: 4 trails
- Route D: 5 trails.

Therefore the potential for construction to interfere with pedestrian and bicycle paths would be slightly increased compared to the proposed Project. Routes A and B would result in the most instances of potential conflicts, followed by Routes C (original and Modified) and D. Similar to the proposed Project, implementation of Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety) would be required to reduce Impact T-6 to a less-than-significant level (Class II).

Reduction in the supply of parking spaces (Criterion TRA8)

Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1) with the exception of the ~~four~~ five routing options which are described below. As described in Section 3.13.6.2, parking of construction-related vehicles in public roadways in areas of relatively dense commercial or residential development would result in shortages of public parking.

All ~~four~~ five Alternative 4 routes would avoid most of the relatively dense residential developments in the cities of Chino and Chino Hills that would be affected by the proposed Project. Although this alternative would include Segment 8B, this 6.8-mile portion of Alternative 4 is located in a mostly rural area where adequate parking exists. Additionally each of these routing options would be located in areas with no concentrated commercial or residential development. Therefore, use of the roadways crossed by all ~~four~~ five routing options for construction parking would not displace parking opportunities for the public. Therefore the potential for Impact T-7 to occur would be reduced. Nevertheless, implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan), as described in Section 3.13.6.2, would be required to reduce Impact T-7 of Alternative 4 to a less-than-significant level (Class II).

Construction would be inconsistent with transportation plans (Criterion TRA9)

Impacts associated with Criterion TRA9 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Trip generation associated with construction of this alternative would be substantially similar to that of the proposed Project. While the actual number of trips added to the roadway during project construction may vary slightly from that of the proposed Project, transmission line workers would be similarly dispersed in groups throughout the Project area and would not typically be working at the same place at any one time. The dispersion of workers at various worksites along the approximate 173-mile route would preclude project-related construction traffic from exceeding any of the CMP thresholds described above in Section 3.13.3.3. Therefore, there would be no impact with regard to inconsistency with transportation plans.

Impact T-8 (Construction would conflict with planned transportation projects) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, placement of structures within transportation ROWs could conflict with future transportation projects. Although this alternative introduces a re-route of part of Segment 8 of the proposed transmission line, no planned transportation projects have been identified along any of the ~~four~~ five routing options of Alternative 4. The remaining portion of Alternative 4 is identical to Alternative 2 and the potential for construction to conflict with planned transportation projects (Impact T-8) would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-8 (Avoid conflicts with planned improvements to SR14) to ensure impacts would be less than significant (Class II).

Noticeable deterioration of road surfaces (Criterion TRA10)

Impact T-9 (Construction vehicles and equipment could damage road ROWs) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the ~~four~~ five routing options which are described below. As described in Section 3.13.6.2, operation of construction vehicles and equipment could result in unexpected damage to roadways along the proposed ROW.

All ~~four~~ five Alternative 4 routes would avoid crossing ~~63~~ 46 roadways that would be crossed by the proposed Project route. All ~~four~~ five routing options of this alternative would also cross SR142 as well as two (Route C and Route D) or three (Route A and Route B) smaller two-lane canyon roads. Since each of these routing options would cross fewer roadways than the proposed Project, the potential for Impact T-9 to occur would be reduced. APM TRA-5 (Repair Damaged Street) would be included as part of the Project in order to restore roads damaged by Project construction to their existing conditions. With implementation of APM TRA-5, as described in Section 3.13.6.2, Impact T-9 of Alternative 4 would be less than significant (Class III).

Adverse effects to aviation activities (Criterion TRA11)

Impact T-10 (Project transmission structures could present an aviation hazard) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, construction objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles of an airport could be considered an obstruction to aviation activities. Additionally, projects located within potential military flight test pathways have the potential to result in conflicts between local communities and military installations and training activities.

Although this alternative introduces ~~four~~ five different routing options for a portion of Segment 8 of the proposed Project, none of the routing options would result in construction of shorter or taller towers than the proposed Project, and would not increase or decrease the potential for Impact T-10 to occur. Additionally, no portions of any of the ~~four~~ five routing options would be located in an area that would require review by the US Armed Forces (CMLUCA, 2008).

The remaining portion of Alternative 4 is identical to Alternative 2 and Impact T-10 would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-10 (Notify US Air Force). With implementation of this measure, as described in Section 3.13.6.2, Impact T-10 of Alternative 4 would be less than significant (Class II).

3.13.8.2 Cumulative Effects Analysis

The rerouted portion of this alternative route generally parallels the proposed Project route approximately three miles south from the proposed Project route. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. However this alternative would cross approximately 60 fewer roadways in the Chino and Chino Hills area than the proposed Project, and would therefore have an incrementally decreased impact to cumulative impacts in this area than the proposed Project. Based on the substantial similarity of Alternative 4 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project.

Geographic Extent

Based on the substantial similarity of Alternative 4 to the proposed Project, the geographic extent for the analysis of cumulative impacts related to Traffic and Transportation for this alternative would be identical to that of the proposed Project, as described in Section 3.13.6.2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 4 are exactly the same as for Alternative 2, as described in Section 3.13.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 4 would be exactly the same as Alternative 2, described in Section 3.13.6.2.

Cumulative Impact Analysis

The minor re-route of the proposed transmission line associated with Alternative 4 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 4 would be exactly the same as cumulative impacts for Alternative 2, as described in Section 3.13.6.2.

The following impacts would not be cumulative in nature~~ly considerable~~ (No Impact): Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations), Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW), Impact T-8 (Construction would conflict with planned transportation projects), and Impact T-9 (Construction vehicles and equipment could damage road ROWs).

The following cumulative impacts would ~~be cumulatively considerable but~~ less than significant (Class III): Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion), Impact T-2 (Construction traffic would result in congestion on area roadways), Impact T-3 (Construction activities could temporarily interfere with emergency response), Impact T-4 (Construction activities could temporarily disrupt transit routes), Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths), and Impact T-10 (Project transmission structures could present an aviation hazard).

As the cumulative effects of Alternative 4 would be the same as for the proposed Project, please see Section 3.13.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Alternative 4 would not result in significant cumulative impacts; therefore, no additional mitigation measures are required.

3.13.9 Alternative 5: Partial Underground Alternative

3.13.9.1 Direct and Indirect Effects Analysis

The significance criteria used to identify Traffic and Transportation impacts are introduced in Section 3.13.4.1. Impacts associated with this alternative are presented below under the applicable significance criterion.

Alternative 5 would follow the same route as the proposed Project; however, an approximately 3.5-mile portion of Segment 8 would be constructed underground from MP 8A 21.9 to MP 8A 25.4. Therefore, any impacts that would occur within the Northern and Central Regions of the proposed Project and within the Southern Region between S8A MP 0.0 and S8A MP 21.9 would also occur for Alternative 5; as such, please see Section 3.13.6.1 for a summary of Traffic and Transportation impacts that could potentially affect resources along the portion of the Alternative 5 route which is identical to the proposed Project route.

Closure of roads or reduction of travel lanes (Criterion TRA1)

Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the 3.5-mile underground portion of Alternative 5 as described below. As described in Section 3.13.6.2, construction activities could result in roadway closures, which could substantially disrupt traffic flow and substantially increase traffic congestion on roads with ADT greater than 10,000 vehicles per lane.

The underground portion of Alternative 5 would cross under approximately 11 roadway segments crossed by Segment 8 of the proposed Project from MP 8A 21.9 to MP 8A 25.4. Alternative 5 would cross under Chino Hills Parkway and 10 smaller residential roadways.

Because Alternative 5 would be located underground and all construction activities along this route would occur underground (with the exception of excavation of the entry, exit, and elevation shafts), construction of the underground portion of this Alternative would cross fewer major roadways than the proposed Project and the potential for Impact T-1 to occur would be reduced. Nevertheless, implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict lane closures), as described in Section 3.13.6.2, would be required to reduce Impact T-1 of Alternative 5 to a less-than-significant level (Class II).

Unacceptable level of service reduction to vicinity roads (Criterion TRA2)

Construction of the underground portion of Alternative 5 would avoid temporary closures to approximately 11 roadways in the Southern Region. Additionally, underground construction would require a substantial number of construction-related trips to area roadways, compared to Alternative 2, due to haul trips necessary to transport excavation spoils from the site as well as additional equipment and materials required for underground construction (e.g., concrete and other infrastructure). Roadways that would be affected by Alternative 5 construction that currently experience high traffic volumes include SR60 and SR71.

Although Project-related commute traffic and construction truck/equipment activity is expected to be dispersed over the entire Project area and dispersed over time, given the dense urban development of this area and the high volumes of traffic on major roadways, it is likely that Project-related construction traffic could contribute to congestion. Although the underground portion of Alternative 5 would cross fewer major roadways than the proposed Project, the potential for Impact T-2 to occur, as well as the duration for which it would occur, would be increased. Therefore, implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan), as described in Section 3.13.6.2, would be required to reduce Impact T-2 of Alternative 5 to a less-than-significant level (Class II).

Restricted access to properties (Criterion TRA3)

Construction of the underground segment of Alternative 5 would not restrict access to driveways or otherwise affect access for the adjacent residences, institutions, businesses, and other uses. The re-routed portion of this alternative would not include any trenching or other excavation in road ROWs that would impede access to adjacent uses. The remaining portion of Alternative 5 is identical to Alternative 2 and the potential for construction to restrict access would be the same as presented in Section 3.13.6.2. Therefore, Alternative 5 would result in no impact associated with restricted access to properties.

Restrict the movements of emergency vehicles (Criterion TRA4)

Impact T-3 (Construction activities could temporarily interfere with emergency response) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the 3.5-mile underground portion of this alternative. As described in Section 3.13.6.2, lane closures associated with construction activities could lengthen the response time for emergency vehicles to pass through the construction zone. Because the underground portion of this alternative would cross 11 fewer roadways than the proposed Project, the potential for Impact T-3 to occur would be reduced. Nevertheless, implementation of Mitigation Measure T-1a (Prepare Traffic Control Plans), which includes measures, such as keeping emergency service agencies fully informed of road closures, detours, and delays and making ready at all times provisions to accommodate emergency vehicles and Mitigation Measure T-1b (Restrict lane closures) would be required, as described in Section 3.13.6.2, to reduce Impact T-3 of Alternative 5 to a less-than-significant level (Class II).

Disruption to transit service (Criterion TRA5)

Impacts associated with Criterion TRA5 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative would result in a 3.5-mile portion of Segment 8 being constructed underground, the aboveground portion that the underground route would replace does not cross the path of any transit routes. Therefore, there would be no increase or decrease in the potential for Impact T-4 (Construction activities could temporarily disrupt transit routes) to occur. The remaining portion of Alternative 5 is identical to Alternative 2 and the potential for construction to interfere with transit service would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-4 (Avoid disruption of bus service). With implementation of this measure, as described in Section 3.13.6.2, Impact T-4 of Alternative 5 would be less than significant (Class II).

Disruption to rail traffic (Criterion TRA6)

Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, construction activities could interfere with rail traffic because construction of overhead transmission lines could require temporary use or closure of a railroad ROW. Although this alternative would result in a 3.5-mile portion of Segment 8 being constructed underground, the aboveground portion that the underground route would replace does not cross the path of any rail lines. Therefore, there would be no increase or decrease in the potential for Impact T-5 to occur. The potential for construction to interfere with rail traffic would be the same as presented in Section 3.13.6.2 for the proposed Project, and would require implementation of Mitigation Measure T-5 (Obtain and comply with railroad permits). With implementation of this measure, as described in Section 3.13.6.2, Impact T-5 of Alternative 5 would be less than significant (Class II).

Impediment of pedestrian movements or bike paths (Criterion TRA7)

Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, pedestrian and bicycle circulation could be affected by transmission line construction activities if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bike routes were blocked.

The aboveground portion that the underground Alternative 5 route would replace does not cross any designated bicycle routes. However, the underground portion of Alternative 5 would be located in a mostly residential area and would avoid crossing 11 roads that would be crossed by Segment 8 of the proposed Project. Therefore, construction of the underground portion of this alternative would result in an incremental decrease in the potential for construction activities to impede pedestrian movement along the 3.5-mile underground route. The remaining portion of Alternative 5 is identical to Alternative 2 and the potential for construction to interfere with pedestrian and bicycle movements would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety). With implementation of this measure, as described in Section 3.13.6.2, Impact T-6 of Alternative 5 would be less than significant (Class II).

Reduction in the supply of parking spaces (Criterion TRA8)

Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.13.6.1) with the exception of the 3.5-mile portion of this alternative that would be constructed underground. As described in Section 3.13.6.2, parking of construction-related vehicles in public roadways in areas of relatively dense commercial or residential development would result in shortages of public parking.

Construction of the underground portion of this alternative would extend the construction duration for Segment 8 by approximately 24 months. Therefore, use of the roadways in the immediate vicinity of the eastern and western ends of the underground portion of this alternative for parking of construction vehicles would occur for up to 24 months longer than under the proposed Project. Therefore the potential for Impact T-7 to occur would be substantially increased and implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan), as described in Section 3.13.6.2, would be required to reduce Impact T-7 of Alternative 5 to a less-than-significant level (Class II).

Construction would be inconsistent with transportation plans (Criterion TRA9)

Impacts associated with Criterion TRA9 for Alternative ~~3~~ 5 would be the same as impacts associated with this criterion for the proposed Project. Trip generation associated with construction of this alternative would be substantially similar to that of the proposed Project. While the actual number of trips added to the roadway during project construction may vary slightly from that of the proposed Project, transmission line workers would be similarly dispersed in groups throughout the Project area and would not typically be working at the same place at any one time. The dispersion of workers at various worksites along the approximate 173-mile route would preclude project-related construction traffic from exceeding any of the CMP thresholds described above in Section 3.13.3.3. Therefore, there would be no impact with regard to inconsistency with transportation plans.

Impact T-8 (Construction would conflict with planned transportation projects) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, placement of structures within transportation ROWs could conflict with future transportation

projects. However, although this alternative would place approximately 3.5 miles of Segment 8 of the proposed transmission line underground, no planned transportation projects have been identified along this portion of Alternative 5. The remaining portion of Alternative 5 is identical to Alternative 2 and the potential for construction to conflict with planned transportation projects (Impact T-8) would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-8 (Avoid conflicts with planned improvements to SR14) to ensure impacts would be less than significant (Class II).

Noticeable deterioration of road surfaces (Criterion TRA10)

Impact T-9 (Construction vehicles and equipment could damage road ROWs) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.13.6.1), with the exception of the 3.5-mile underground portion of Segment 8. As described in Section 3.13.6.2, operation of construction vehicles and equipment could result in unexpected damage to roadways along the proposed ROW.

Because this alternative would result in increased construction traffic (worker commute trips as well as delivery of equipment and materials to and from the endpoints of the underground portion of the route) on roadways in the vicinity of Segment 8 than the proposed Project and for up to 24 months longer than construction of the proposed Project, the potential for Impact T-9 to occur would be substantially increased. However, APM TRA-5 (Repair Damaged Streets) would be included as part of the Project in order to restore roads damaged by Project construction to their existing conditions. With implementation of APM TRA-5, as described in Section 3.13.6.2, Impact T-9 of Alternative 5 would be less than significant (Class III).

Adverse effects to aviation activities (Criterion TRA11)

Impact T-10 (Project transmission structures could present an aviation hazard) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, construction objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles of an airport could be considered an obstruction to aviation activities. Additionally, projects located within potential military flight test pathways have the potential to result in conflicts between local communities and military installations and training activities.

Because 3.5 miles of this alternative would be constructed underground, the potential for Alternative 5 to affect aviation activities would be incrementally reduced compared to the proposed Project. However, the remaining portion of Alternative 5 is identical to Alternative 2 and Impact T-10 would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-10 (Notify US Air Force). With implementation of this measure, as described in Section 3.13.6.2, Impact T-10 of Alternative 5 would be less than significant (Class II).

3.13.9.2 Cumulative Effects Analysis

This alternative would avoid crossing approximately 11 roadways that are crossed by this portion of the proposed Project route. Construction of Alternative 5 would last up to 24 months longer than construction of the proposed Project. However, with the exception of the 3.5-mile underground portion of Segment 8, this alternative would follow the same route as the proposed Project, and as such, Alternative 5's contribution to cumulative impacts would be similar or identical to that of the proposed Project.

Geographic Extent

Based on the substantial similarity of Alternative 5 to the proposed Project, the geographic extent for the analysis of cumulative impacts related to Traffic and Transportation for this alternative would be identical to that of the proposed Project, as described in Section 3.13.6.2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 5 are exactly the same as for Alternative 2, as described in Section 3.13.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 5 would be exactly the same as Alternative 2, described in Section 3.13.6.2.

Cumulative Impact Analysis

Construction of 3.5 miles of Segment 8 underground would result in nearly identical impacts as identified in Section 3.13.6.2 for the proposed Project. Although the longer duration of construction associated with Alternative 5 would increase the potential for Impacts T-2 and T-7 to occur, the overall contribution of Alternative 5 to potential cumulative impacts would be the same as that of the proposed Project as described in Section 3.13.6.2, because the effects of Impact T-2 (Construction traffic would result in congestion on area roadways) would be distributed evenly over time and Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW) would not have the potential to combine with impacts of other projects in the vicinity of the underground portion of Alternative 5.

As described in Section 3.13.6.2, the following impacts would not be cumulative in nature~~ly considerable~~ (No Impact): Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations), Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW), Impact T-8 (Construction would conflict with planned transportation projects), and Impact T-9 (Construction vehicles and equipment could damage road ROWs).

The following cumulative impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion), Impact T-2 (Construction traffic would result in congestion on area roadways), Impact T-3 (Construction activities could temporarily interfere with emergency response), Impact T-4 (Construction activities could temporarily disrupt transit routes), Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths), and Impact T-10 (Project transmission structures could present an aviation hazard).

As the cumulative effects of Alternative 5 would be the same as for the proposed Project, please see Section 3.13.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Alternative 5 would not result in significant cumulative impacts; therefore, no additional mitigation measures are required.

3.13.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

3.13.10.1 Direct and Indirect Effects Analysis

The significance criteria used to identify Traffic and Transportation are introduced in Section 3.13.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criteria.

Alternative 6 would require a substantial increase in helicopter construction of transmission towers; however the route of this alternative would be identical to that of the proposed Project and would therefore cross and affect the same roadways, rail lines, bikeways, and pedestrian paths, as the proposed Project. The increased helicopter construction associated with this alternative may result in a slight increase in the total number of construction equipment and workforce required to travel to the helicopter staging areas, as well as an incremental increase in the overall construction schedule for Segment 6 and Segment 11. Therefore, construction activities for Segment 6 and Segment 11 of Alternative 6, as well as temporary construction-related impacts to Traffic and Transportation would occur for an incrementally longer duration than the impacts of the proposed Project identified in Section 3.13.6.1.

Closure of roads or reduction of travel lanes (Criterion TRA1)

Impacts associated with Criterion TRA1 for Alternative 6 would be similar to impacts associated with this criterion for Alternative 2 (as discussed in Section 3.13.6.2), with the exception of roadways located in close proximity to helicopter staging areas. Helicopter staging area #6 would be located directly adjacent to Upper Big Tujunga Canyon Road. Helicopter flights to and from this site may require temporary closures of this roadway during construction that would not be required during construction of any other alternative. Therefore, the potential for Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion) to occur would be increased. The remaining portion of Alternative 6 is identical to Alternative 2 and the potential for closing roads and travel lanes is the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict lane closures). With implementation of these measures, as described in Section 3.13.6.2, Impact T-1 of Alternative 6 would be less than significant (Class II).

Unacceptable level of service reduction to vicinity roads (Criterion TRA2)

Delivery of additional equipment and workers required for helicopter construction would result in an incremental increase in the number of construction vehicles traveling on roadways within the ANF. However, these roadways, primarily Angeles Crest Highway, Big Tujunga Canyon Road, and SR-2, experience low volumes of traffic; therefore the incremental increase in construction traffic associated with Alternative 6 is not likely to result in substantial congestion. However, the remaining portion of Alternative 6 is identical to Alternative 2 and the potential for construction traffic to result in substantial congestion is the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan). With implementation of this measure, as described in Section 3.13.6.2, Impact T-2 of Alternative 6 would be less than significant (Class II).

Restricted access to properties (Criterion TRA3)

Helicopter staging areas that would be used under Alternative 6 would be located within the ANF and would not be located proximate to driveways of residences, institutions, businesses, or other uses and

would therefore not have the potential to result in restricted access to such uses. The remaining portion of Alternative 6 is identical to Alternative 2 and the potential for construction to restrict access would be the same as presented in Section 3.13.6.2. Therefore, Alternative 6 would result in no impact associated with restricted access to properties.

Restrict the movements of emergency vehicles (Criterion TRA4)

Impacts associated with Criterion TRA4 for Alternative 6 would be similar to impacts associated with this criterion for the proposed Project. This alternative would cross the same streets at the same locations as the proposed Project, however, because two helicopter staging areas would be located directly adjacent to or in close proximity to Upper Big Tujunga Canyon Road and Angeles Forest Highway, temporary closures of each of these roadways that would not be required during construction of any other alternative may be required. Such closures would result in an incremental increase in the potential for construction to result in delays to emergency vehicles. Therefore, implementation of Mitigation Measure T-1a (Prepare Traffic Control Plans), which includes measures, such as keeping emergency service agencies fully informed of road closures, detours, and delays and making ready at all times provisions to accommodate emergency vehicles and Mitigation Measure T-1b (Restrict lane closures) as described in Section 3.13.6.2, would be required to reduce Impact T-3 of Alternative 6 to a less-than-significant level (Class II).

Disruption to transit service (Criterion TRA5)

Impacts associated with Criterion TRA5 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces different construction methods and the use of helicopter staging areas in the ANF, the transmission route would cross the same streets at the same locations as the proposed Project and there would be no increase in the potential for Impact T-4 (Construction activities could temporarily disrupt transit routes) to occur. The remaining portion of Alternative 6 is identical to Alternative 2 and the potential for construction to interfere with transit service would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-4 (Avoid disruption of bus service). With implementation of this measure, as described in Section 3.13.6.2, Impact T-4 of Alternative 6 would be less than significant (Class II).

Disruption to rail traffic (Criterion TRA6)

Impacts associated with Criterion TRA6 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces different construction methods and the use of helicopter staging areas in the ANF, there are no rail crossings in the ANF. Additionally the transmission route would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations) to occur. The remaining portion of Alternative 6 is identical to Alternative 2 and the potential for construction to interfere with rail traffic would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-5 (Obtain and comply with railroad permits). With implementation of this measure, as described in Section 3.13.6.2, Impact T-5 of Alternative 6 would be less than significant (Class II).

Impediment of pedestrian movements or bike paths (Criterion TRA7)

Impacts associated with Criterion TRA7 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces different construction methods and the use of helicopter staging areas in the ANF, the transmission route would cross the same streets at

the same locations as the proposed Project and there would be no increase in the potential for Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths) to occur. The remaining portion of Alternative 6 is identical to Alternative 2 and the potential for construction to interfere with pedestrian and bicycle movements would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety). With implementation of this measure, as described in Section 3.13.6.2, Impact T-6 of Alternative 6 would be less than significant (Class II).

Reduction in the supply of parking spaces (Criterion TRA8)

Alternative 6 would result in the addition of an incrementally higher number of construction-related vehicles traveling to the Project site. However, the increased number of workers required to construct Segment 6 and Segment 11 would be traveling to staging areas within the ANF which are not located near any public parking areas. Therefore, implementation of Alternative 6 would not reduce the supply of parking spaces along the portions of Segment 6 and Segment 11 located within the ANF. The remaining portion of Alternative 6 is identical to Alternative 2 and the potential for construction to substantially reduce the number of parking spaces and result in localized shortages of public parking would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan). With implementation of this measure, as described in Section 3.13.6.2, Impact T-7 of Alternative 6 would be less than significant (Class II).

Construction would be inconsistent with transportation plans (Criterion TRA9)

Impacts associated with Criterion TRA9 for Alternative ~~3~~ 6 would be the same as impacts associated with this criterion for the proposed Project. Trip generation associated with construction of this alternative would be substantially similar to that of the proposed Project. While the actual number of trips added to the roadway during project construction may vary slightly from that of the proposed Project, transmission line workers would be similarly dispersed in groups throughout the Project area and would not typically be working at the same place at any one time. The dispersion of workers at various worksites along the approximate 173-mile route would preclude project-related construction traffic from exceeding any of the CMP thresholds described above in Section 3.13.3.3. Therefore, there would be no impact with regard to inconsistency with transportation plans.

Impact T-8 (Construction would conflict with planned transportation projects) would be the same under Alternative ~~4~~ 6 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, placement of structures within transportation ROWs could conflict with future transportation projects. Although this alternative introduces different construction methods and the use of helicopter staging areas in the ANF, the route of this alternative is identical to that of Alternative 2 and the potential for construction to conflict with planned transportation projects (Impact T-8) would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-8 (Avoid conflicts with planned improvements to SR14). With implementation of this measure, as described in Section 3.13.6.2, Impact T-8 of Alternative 6 would be less than significant (Class II).

Noticeable deterioration of road surfaces (Criterion TRA10)

Impact T-9 (Construction vehicles and equipment could damage road ROWs) of Alternative 6 would be similar to that of the proposed Project (please see Section 3.13.6.1), with the exception of roads in the vicinity of Segment 6 and Segment 11. As described in Section 3.13.6.2, operation of construction vehicles and equipment could result in unexpected damage to roadways along the proposed ROW.

However, because this alternative would use several centralized staging areas for construction of Segment 6 and Segment 11, fewer roadways would be traveled by construction vehicles under construction of Alternative 6 than under construction of Alternative 2. Therefore, compared to the proposed Project, the potential for Impact T-9 to occur would be decreased, but would still exist. However, APM TRA-5 (Repair Damaged Street) would be included as part of the Project in order to restore roads damaged by Project construction to their existing conditions. With implementation of APM TRA-5, as described in Section 3.13.6.2, Impact T-9 of Alternative 6 would be less than significant (Class III).

Adverse effects to aviation activities (Criterion TRA11)

Impacts associated with Criterion TRA11 for Alternative 6 would be the same as impacts associated with this criterion for the proposed Project. Alternative 6 would result in placement of the same number and type of towers in the same location along Segment 6 and Segment 11 as the proposed Project and there would be no increase in the potential for Impact T-10 (Project transmission structures could present an aviation hazard) to occur. The remaining portion of Alternative 6 is identical to Alternative 2 and Impact T-10 would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-10 (Notify US Air Force). With implementation of this measure, as described in Section 3.13.6.2, Impact T-10 of Alternative 6 would be less than significant (Class II).

3.13.10.2 Cumulative Effects Analysis

This alternative consists of helicopter construction of substantial portions of Segment 6 and Segment 11 that are located within the ANF. This alternative would follow the exact same route as the proposed Project and would result in similar or identical impacts to traffic and transportation as the proposed Project. The remainder of this alternative route would be identical to that of the proposed Project and would therefore result in identical impacts as the proposed Project. As a result, this alternative traverses the same land uses as the proposed Project route and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 6 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Based on the substantial similarity of Alternative 6 to the proposed Project, the geographic extent for the analysis of cumulative impacts related to Traffic and Transportation for this alternative would be identical to that of the proposed Project, as described in Section 3.13.6.2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 6 are exactly the same as for Alternative 2, as described in Section 3.13.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 6 would be exactly the same as Alternative 2, described in Section 3.13.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 6 would be cumulative in nature~~ly considerable~~ if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. Delivery of additional equipment and workers required for helicopter construction would result in an

incremental increase in the number of construction vehicles traveling on roadways within the ANF. Therefore Alternative 6 would result in the addition of a slightly higher number of construction-related trips to area roadways during construction of Segment 6 and Segment 11. This increase in traffic would also incrementally increase the contribution of Alternative 6 to cumulative Impact T-1 and Impact T-2. However, as described in Section 3.13.10.1, mitigation measures would be implemented to reduce the contribution of Alternative 6 to these impacts to a less-than-significant level. Therefore, the modified configuration of the proposed Project transmission line associated with Alternative 6 would not substantially affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 6 would be the same as cumulative impacts for Alternative 2, as described in Section 3.13.6.2.

The following impacts would not be cumulative in nature~~ly considerable~~ (No Impact) for the same reasons as discussed in Section 3.13.6.2: Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations), Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW), Impact T-8 (Construction would conflict with planned transportation projects), and Impact T-9 (Construction vehicles and equipment could damage road ROWs).

The following cumulative impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion), Impact T-2 (Construction traffic would result in congestion on area roadways), Impact T-3 (Construction activities could temporarily interfere with emergency response), Impact T-4 (Construction activities could temporarily disrupt transit routes), Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths), and Impact T-10 (Project transmission structures could present an aviation hazard).

As the cumulative effects of Alternative 6 would be the same as for the proposed Project, please see Section 3.13.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Alternative 6 would not result in significant cumulative impacts; therefore, no additional mitigation measures are required.

3.13.11 Alternative 7: 66-kV Subtransmission Alternative

3.13.11.1 Direct and Indirect Effects Analysis

The significance criteria used to identify Traffic and Transportation are introduced in Section 3.13.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criteria.

Alternative 7 would generally follow the same route as the proposed Project; however two portions of Segment 7 in the Central Region would be constructed underground from S7- MP 8.9 – S7-MP 9.9 and from S7- MP 8.9 – S7-MP 9.9. Additionally, a portion of Segment 8A in the Southern Region would be rerouted to the south between S8A MP 2.2 and S8A MP 3.8.Therefore, any impacts that would occur within the Northern Region of the proposed Project and along all segments of the Central Region except Segment 7 would also occur for Alternative 7; as such, please see Section 3.13.6.1 for a summary of Traffic and Transportation impacts that could potentially affect resources along the portion of the Alternative 7 route which is identical to the proposed Project route.

Closure of roads or reduction of travel lanes (Criterion TRA1)

Impacts associated with Criterion TRA1 for Alternative 7 would be similar to impacts associated with this criterion for the proposed Project. However, trenching required for construction of the underground portions of Segment 7 within Valley Boulevard and adjacent to Durfee Avenue would require temporary closure of Valley Boulevard and potential closure of Peck Road and Durfee Avenue for a longer duration than the overhead crossings proposed under Alternative 2. Additionally, the rerouted portion of Segment 8 of Alternative 7 would result in two more crossings and commensurate temporary closure of San Gabriel Boulevard than the proposed Project. Therefore, the potential for Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion) to occur would be increased compared to that of the proposed Project, as presented in Section 3.13.6.2. However, with implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict lane closures), as described in Section 3.13.6.2, Impact T-1~~2~~ of Alternative 7 would be less than significant (Class II).

Unacceptable level of service reduction to vicinity roads (Criterion TRA2)

Impacts associated with Criterion TRA2 for Alternative 7 would be similar to impacts associated with this criterion for the proposed Project. However, the additional duration of lane closures required for construction of the underground and rerouted portions of the proposed transmission line would incrementally increase the potential for Impact T-2 (Construction traffic would result in congestion on area roadways) to occur. However, with implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan), as described in Section 3.13.6.2, Impact T-2 of Alternative 7 would be less than significant (Class II).

Restricted access to properties (Criterion TRA3)

Impact T-11: Underground construction activities would temporarily restrict access to properties.

The underground portion of Alternative 7 would be located immediately adjacent to Peck Road and Durfee Avenue, which serve adjacent businesses. During excavation of the trench for the underground cable, access to property driveways would be temporarily disrupted and possibly blocked. This could potentially disrupt businesses. To reduce the severity of the impact to less-than-significant levels, Mitigation Measure T-11 is recommended (Class II). This impact is specific to the construction activities associated with the underground portions of Alternative 7 and does not apply to the proposed Project or other proposed alternatives.

Mitigation Measures for Impact T-1

T-11 **Provide Continuous Access to Properties.** SCE shall provide at all times the ability to quickly lay a temporary steel plate trench bridge upon request to ensure driveway access to businesses, and shall provide continuous access to properties when not actively constructing the underground alignment. In the event that trench stability could be compromised by the laying of a temporary steel plate bridge during an early phase of trench construction, SCE may defer a request for access to the soonest possible time until the stability of the trench has been assured, provided SCE has provided 48-hour advance notification of the potential for disrupted access to any business that may experience such delayed access. The notification shall include information on restoring access and the estimated amount of time that access may be blocked. In addition, SCE shall develop construction plans that will minimize blocked access during the workday.

Restrict the movements of emergency vehicles (Criterion TRA4)

Impacts associated with Criterion TRA4 for Alternative 7 would be similar to impacts associated with this criterion for the proposed Project. However, the additional duration of lane closures required for construction of the underground and rerouted portions of the proposed transmission line would incrementally increase the potential for Impact T-3 (Construction activities could temporarily interfere with emergency response) to occur. However, with implementation of Mitigation Measure T-1a (Prepare Traffic Control Plans), which includes measures, such as keeping emergency service agencies fully informed of road closures, detours, and delays and making ready at all times provisions to accommodate emergency vehicles and Mitigation Measure T-1b (Restrict lane closures), as described in Section 3.13.6.2, Impact T-3 of Alternative 7 would be less than significant (Class II).

Disruption to transit service (Criterion TRA5)

The underground portions of this route would cross Valley Boulevard and would be located directly adjacent to Durfee Avenue, which are utilized by five Foothill Transit bus routes and one Los Angeles Metro bus route. Lane closures required for construction of the underground portions of Alternative 7 would be of longer duration than closures required for the proposed Project would incrementally increase the potential for Impact T-4 (Construction activities could temporarily disrupt transit routes) to occur. However, with implementation of Mitigation Measure T-4 (Avoid disruption of bus service), as described in Section 3.13.6.2, Impact T-4 of Alternative 7 would be less than significant (Class II).

Disruption to rail traffic (Criterion TRA6)

Impacts associated with Criterion TRA6 for Alternative 7 would be identical to impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of portions of Segment 7 and Segment 8 of the proposed transmission line, it would cross the same rail lines at the same location as the proposed Project and there would be no increase in the potential for Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations) to occur. The remaining portion of Alternative 7 is identical to Alternative 2 and the potential for construction to interfere with rail traffic would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-5 (Obtain and comply with railroad permits). With implementation of this measure, as described in Section 3.13.6.2, Impact T-5 of Alternative 7 would be less than significant (Class II).

Impediment of pedestrian movements or bike paths (Criterion TRA7)

The underground portion of Alternative 7 would be located immediately adjacent to Peck Road and Durfee Avenue, which serve adjacent businesses. During excavation of the trench for the underground cable, access to sidewalks would be temporarily disrupted and possibly blocked, which would increase the potential for Impact T-6 (Construction activities could temporarily interfere with the use of pedestrian/bicycle paths) to occur. However, with implementation of Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety), as described in Section 3.13.6.2, Impact T-6 of Alternative 7 would be less than significant (Class II).

Reduction in the supply of parking spaces (Criterion TRA8)

Impacts associated with Criterion TRA8 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of portions of Segment 7 and Segment 8 of the proposed transmission line, no public parking exists on along the

roadway segments that would be affected by the underground and rerouted portions Alternative 7. Therefore there would be no increase in the potential for Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW) to occur. The remaining portion of Alternative 7 is identical to Alternative 2 and the potential for construction to substantially reduce the number of parking spaces and result in localized shortages of public parking would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan). With implementation of this measure, as described in Section 3.13.6.2, Impact T-7 of Alternative 7 would be less than significant (Class II).

Construction would be inconsistent with transportation plans (Criterion TRA9)

Impacts associated with Criterion TRA9 for Alternative ~~3~~ 7 would be the same as impacts associated with this criterion for the proposed Project. Trip generation associated with construction of this alternative would be substantially similar to that of the proposed Project. While the actual number of trips added to the roadway during project construction may vary slightly from that of the proposed Project, transmission line workers would be similarly dispersed in groups throughout the Project area and would not typically be working at the same place at any one time. The dispersion of workers at various worksites along the approximate 173-mile route would preclude project-related construction traffic from exceeding any of the CMP thresholds described above in Section 3.13.3.3. Therefore, there would be no impact with regard to inconsistency with transportation plans.

Impact T-8 (Construction would conflict with planned transportation projects) would be the same under Alternative ~~4~~ 7 as it would for the proposed Project (please see Section 3.13.6.1). As described in Section 3.13.6.2, placement of structures within transportation ROWs could conflict with future transportation projects. Although this alternative introduces a re-route of portions of Segment 7 and Segment 8 of the proposed transmission line, no planned transportation projects have been identified along the rerouted portions of Segment 7 or Segment 8. The remaining portion of Alternative 7 is identical to Alternative 2 and the potential for construction to conflict with planned transportation projects (Impact T-8) would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-8 (Avoid conflicts with planned improvements to SR14). With implementation of this measure, as described in Section 3.13.6.2, Impact T-8 of Alternative 7 would be less than significant (Class II).

Noticeable deterioration of road surfaces (Criterion TRA10)

Impacts associated with Criterion TRA10 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of portions of Segment 7 and Segment 8 of the proposed transmission line, it would cross the same streets at the same general location as the proposed Project and there would be no increase in the potential for Impact T-9 (Construction vehicles and equipment could damage road ROWs) to occur. The remaining portion of Alternative 7 is identical to Alternative 2 and the potential for construction to result in damage to road surfaces would be the same as presented in Section 3.13.6.2. APM TRA-5 (Repair Damaged Street) would be included as part of the Project in order to restore roads damaged by Project construction to their existing conditions. With implementation of APM TRA-5, as described in Section 3.13.6.2, Impact T-9 of Alternative 7 would be less than significant (Class III).

Adverse effects to aviation activities (Criterion TRA11)

Impacts associated with Criterion TRA11 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a re-route of portions of

Segment 7 and Segment 8 of the proposed transmission line, it would be located in the same general location as the proposed Project with the same type of transmission towers and there would be no increase in the potential for Impact T-10 (Project transmission structures could present an aviation hazard) to occur. The remaining portion of Alternative 7 is identical to Alternative 2 and Impact T-10 would be the same as presented in Section 3.13.6.2, and would require implementation of Mitigation Measure T-10 (Notify US Air Force). With implementation of this measure, as described in Section 3.13.6.2, Impact T-10 of Alternative 7 would be less than significant (Class II).

3.13.7.2 Cumulative Effects Analysis

The rerouted portions of the Alternative 7 route generally parallel the proposed Project route to the south. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 7 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Based on the substantial similarity of Alternative 7 to the proposed Project, the geographic extent for the analysis of cumulative impacts related to Traffic and Transportation for this alternative would be identical to that of the proposed Project, as described in Section 3.13.6.2.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 7 are exactly the same as for Alternative 2, as described in Section 3.13.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 7 would be exactly the same as Alternative 2, described in Section 3.13.6.2.

Cumulative Impact Analysis

The rerouting and undergrounding short portions of the proposed transmission line associated with Alternative 7 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 7 would be exactly the same as cumulative impacts for Alternative 2, as described in Section 3.13.6.2.

The following impacts would not be cumulative in nature~~ly considerable~~ (No Impact): Impact T-5 (Construction activities would cause a temporary disruption to rail traffic or operations), Impact T-7 (Construction would result in localized shortages of public parking along the Project ROW), Impact T-8 (Construction would conflict with planned transportation projects), and Impact T-9 (Construction vehicles and equipment could damage road ROWs).

The following cumulative impacts would be ~~cumulatively considerable but~~ less than significant (Class III): Impact T-1 (Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion), Impact T-2 (Construction traffic would result in congestion on area roadways), Impact T-3 (Construction activities could temporarily interfere with emergency response), Impact T-4 (Construction activities could temporarily disrupt transit routes), Impact T-6 (Construction activities could temporarily

interfere with the use of pedestrian/bicycle paths), and Impact T-10 (Project transmission structures could present an aviation hazard). Unlike Alternatives 2 through 6, Alternative 7 involves underground construction activities that could potentially block access to property entrances and driveways (Impact T-11). If other projects required the use of the same public ROW at the same time as the proposed Project, the regulatory agency responsible for issuing the encroachment permit would ensure that work within a public road would not occur simultaneously with the proposed Project to avoid significant cumulative impacts (Class III).

As the cumulative effects of Alternative 7 would be the same as for the proposed Project, please see Section 3.13.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Alternative 7 would not result in significant cumulative impacts; therefore, no additional mitigation measures are required.

3.13.12 Impact Significance Summary

Table 3.13-16 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on Traffic and Transportation. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.13.6 through 3.13.10 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.13.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Table 3.13-16. Summary of Impacts and Mitigation Measures – Traffic and Transportation

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt 7	NFS Lands*	
T-1: Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	T-1a: Prepare Traffic Control Plans. T-1b: Restrict lane closures.
T-2: Construction traffic would result in congestion on area roadways.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	T-2: Prepare Construction Transportation Plan.
T-3: Construction activities could temporarily interfere with emergency response.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	T-1a, T-1b
T-4: Construction activities could temporarily disrupt transit routes.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	T-4: Avoid disruption of bus service.
T-5: Construction activities would cause a temporary disruption to rail traffic or operations.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	T-5: Obtain and comply with railroad permits.
T-6: Construction activities could temporarily interfere with the use of pedestrian/bicycle paths.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	T-6: Ensure pedestrian and bicycle circulation and safety.
T-7: Construction would result in localized shortages of public parking along the Project ROW.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	T-2

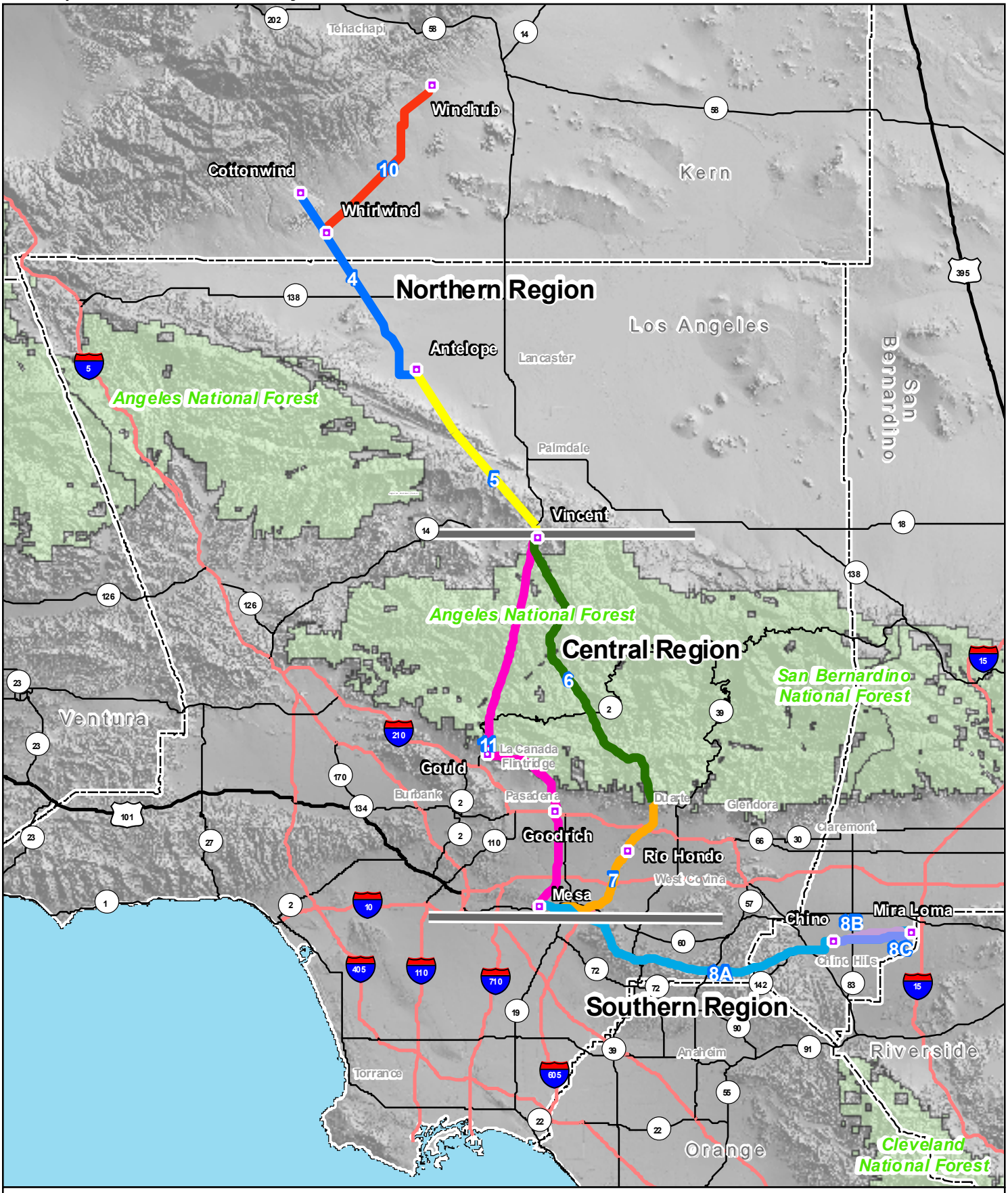
Table 3.13-16. Summary of Impacts and Mitigation Measures – Traffic and Transportation

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt 7	NFS Lands*	
T-8: Construction would conflict with planned transportation projects.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	T-8: Avoid conflicts with planned transportation improvements~~ to SR14~~.
T-9: Construction vehicles and equipment could damage road ROWs.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended
T-10: Project transmission structures could present an aviation hazard.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	No	T-10: Notify US ~~Air Force~~Military.
T-11: Underground construction activities would temporarily restrict access to properties.	N/A	No Impact	No Impact	No Impact	No Impact	No Impact	Class II	No	T-11: Provide continuous access to properties.

N/A = Not Available

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.



Substation
TRTP Region Boundaries

Proposed Route
Segment 4
Segment 5
Segment 6
Segment 7
Segment 8A
Segment 8B
Segment 8C
Segment 10
Segment 11

SCE 2007,
USDA Forest Service 2007

Figure 3.13-1

TRTP Site Location Map

0 2.5 5 10 15 20 Miles

3.14 Visual Resources

3.14.1 Introduction

This section describes effects on Visual Resources that would be caused by implementation of the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to Visual Resources are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

The information and analysis that is presented in this section has been derived from the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report* (Lee Roger Anderson, 2009~~8~~). While this section presents the findings of the *Visual Resources Specialist Report*, please refer to that report for more detailed information on Project effects on Visual Resources.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following issues related to Visual Resources that were raised during scoping are addressed in this section:

- Concern that Project may be inconsistent with Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA) Resource Management goals and policies for visual resources.
- Question regarding proposed use of lattice steel towers (LSTs) versus tubular steel poles (TSPs).
- Request that the document analyze visual impacts from the perspective of the hiker, cyclist, or horseback rider. Colima Road, Hacienda Road, and Harbor Boulevard are proposed as scenic corridors in the most recent update to the County of Los Angeles General Plan.
- Concern that Project will significantly impact aesthetic quality of the Puente Hills from a recreationists' perspective. The Los Angeles County Schabarum Trail, a National Park Service recreational historic route of Juan Bautista De Anza, runs underneath or near the lines throughout the jurisdiction of the PHLNHPA. Of particular concern is the new line within eastern portion of Powder Canyon will bisect a currently undisturbed vista area and would be directly visible upon entrance into the Preserve and before reaching the public parking area.
- Concern that the current route through Chino Hills has a strong negative impact. The proposed route slices through the heart of this community and creates a significant blemish on the aesthetics of the city. Taller towers would block view of the mountains and would ruin the views from homes.
- General concerns with the visual quality and aesthetics of the transmission lines and towers. Project will impact community character, especially for those within a close proximity to the existing corridor.
- Concern that River Commons at the Duck Farms was planned around existing towers, and that moving or enlarging the towers will have a potentially significant adverse aesthetic impact from the permanent alteration of the site's scenic integrity, and by blocking and or partially blocking views. Construction impacts, larger towers, new sources of light and glare, new or expanded substations, and new access roads would potentially degrade the aesthetic quality of the River Commons.
- Concern that it is already unsightly to see the transmission towers on the mountains across Colima Road. Adding bigger towers is not acceptable especially if it does not benefit Hacienda Heights.
- General concerns regarding taller towers, and the associated visual impacts to neighborhoods in Diamond Bar.

- Concern that additional power lines will increase blight, particularly in Segments 4 and 5, around the Antelope Substation, and west of Antelope Valley Freeway.
- The City of Ontario recommends the use of TSPs instead of "skeletal design" to mitigate aesthetic impacts created by the Project. The City also recommends use of TSPs for the 220kV towers that will be placed close to existing or planned residential developments.
- Suggested use of TSPs in Hacienda Heights area unless the towers are twice as tall as existing structures; requested use of simulated photos (from different viewing points) to compare impacts of structure types. Concerns the effects of visual impacts on wildlife corridors.
- Recommendation that the EIR/EIS consider the style of towers to be used within the Pacific Crest Trail corridor to minimize the effect of the view, and the scar on the surrounding land.
- Concern that Project has the potential to substantially degrade the visual quality of County of Los Angeles parks and trails. Request that mitigation measures include realignment of the transmission lines and vegetation or other screening at the base of the towers up to 10 to 12 feet in height.

Summary and Comparison of Alternatives

Table 3.14-1, on the following page, presents some key factors related to visual resources for each alternative. It is important to note that the “Environmental Issues” indicated in Table 3.14-1 are not impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.14.4.1 (Criteria for Determining Impact Significance), are described in Sections 3.14.5 through 3.14.11.

Table 3.14-1. Summary Comparison of Environmental Issues – Visual Resources

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Temporary visual contrast resulting from construction activities and equipment	In the short term, existing visual conditions and landscapes would not be affected. However, there will continue to be a need for T/L project(s) to be implemented somewhere. The specific visual impacts of future T/L project(s) are not known.	Project construction activities including road improvements, heavy equipment use, and helicopter staging areas would be visible from sensitive receptor locations as strong visual contrasts.	*Slightly less than Alt. 2 due to minor re-route.* Construction activities along Segment 4 would not be visible in the immediate foreground of 110th Street West for two miles.	*Less than Alt. 2 due to shorter overall Project length and fewer visual effects in Chino Hills, Chino, and Ontario, but slightly more ~~Greater~~ than Alt. 2 due to construction activities in and/or near Chino Hills State Park (CHSP).~~effects in the CHSP.~~* Construction of double-circuit 500-kV T/L~~activities~~ would not occur along S8A from MP 19.2 to 35.2, but would be visible ~~within the Chino Hills State Park (CHSP), including~~ from Carbon Canyon Rd and other roads and trails near and within ~~the~~ CHSP. ~~Impact V-1 would not occur on S8 from MP 19.2 to 35.2.~~	*Greater than Alt. 2 due to underground construction.* The underground portion of S8 would introduce the following visual contrasts: large earth-moving and boring equipment; truck trips to remove excavated materials; and large areas of land for disposal of excavated materials.	*Greater than Alt. 2 due to helicopter visibility.* Within the ANF, less access and spur road improvement would occur and associated visual contrast would be less; however, helicopter use would be more intense (construction of ~~143~~ 148 towers via helicopter vs. 33 for Alt. 2) and temporary visual contrast would be substantial.	*Slightly greater than Alt. 2 due to 66-kV re-route in South Area.* Temporary visual contrast of equipment for underground construction would be greater in and near Whittier Narrows and the Duck Farm (South Area).
Visual contrast due to introducing T/L structure(s) where none currently exist	In the short term, existing visual conditions and landscapes would not be affected. However, there will continue to be a need for T/L project(s) to be implemented somewhere. The specific visual impacts of future T/L project(s) are not known.	Construction in new ROW (S10, S4, S8A) would modify existing landscape character from "natural" (S4, S10) and "urban park" (S8A) to "industrial"; in these areas, new T/L towers would be the tallest structures in the landscape, creating skyline interference to landscape views.	*Slightly less than Alt. 2 due to minor re-route.* Direct alternation of landscape views would be less along 110th Street West in Lancaster (S4).	*Same as Alt, 2 for Segments 4, 10, and 8A (in Rose Hills Memorial Park). Greater than Alt. 2 for Alt. 4 Routes C, C Modified, and D, where portions of Segment 8A would be constructed in a new ROW north of CHSP where there are no existing T/Ls.~~Greater than Alt. 2 due to~~*	*Slightly less than Alt. 2 due to underground.* In the long-term the underground portion of Alt. 5 would result in fewer overhead structures being installed.	*Same as Alternative 2.*	*Slightly greater than Alt. 2 due to re-routed subtransmission lines.* A new 66-kV subtransmission line would be introduced along San Gabriel Boulevard and Durfee Road, which are currently characterized as urban landscape character.

Table 3.14-1. Summary Comparison of Environmental Issues – Visual Resources

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
				~~*effects in the CHSP.*~~ ~~Adverse effects would not occur along S8A, MP 19.2 to 35.2. Routes 4C and 4D be in new ROWs near and within CHSP, introducing the tallest structures in the landscape and creating skyline interference to landscape views~~			
Visual contrast due to increasing T/L structure size and/or type where T/L structures currently exist[1]	Future T/L towers would be sited at unknown location(s); the extent and location of future visual effects is unknown.~~In the short term, existing visual conditions and landscapes would not be affected. However, there will continue to be a need for T/L project(s) to be implemented somewhere. The specific visual impacts of future T/L project(s) are not known.~~	Single-circuit and ~~D~~double-circuit 500-kV T/L structures would be larger and taller than existing 220-kV structures and result in the following visual contrasts: increased prominence and industrial character; structure skylining; increased background landscape obstruction; lower scenic integrity conditions in the ANF. Project-specific~~;~~ Forest Plan amendments would be needed for Standards ~~ANF S1 (PCT)~~S9 and S10 (SIOs).	*Same as Alternative 2.*	*Less than Alt. 2 due to shorter overall Project length and fewer visual effects in Chino Hills, Chino, and Ontario, but slightly greater ~~Greater~~ than Alt. 2 due to taller structures in and/or near~~effects in the CHSP.~~* Adverse effects of taller structures would not occur along S8A from MP 19.2 to 35.2, but each ~~Each~~ route of Alt. 4 would introduce new and/or larger structures in and/or near ~~the~~ CHSP.	*Slightly less than Alt. 2 due to underground.* A transition station would be installed at each end of the underground portion, but new overhead double-circuit 500-kV T/L structures (LSTs) would not be introduced along the underground segment.	*Less than Alt. 2 due to use of color treatments to galvanized steel LSTs. Same Project-specific Forest Plan amendments would be needed for Standards S9 and S10 (SIOs).* ~~*Less than Alt. 2 due to better compliance with Forest Standard ANF S1.*~~ ~~In the ANF, a TSP (vs LST) would be used at the PCT Trailhead at Mill Creek Summit, thus allowing the current trail location to remain and better complying with Standard ANF S1; a Forest Plan amendment would not be required in this one location.~~	*Less than Alt. 2 due to undergrounding 66-kV.* The underground installation of subtransmission lines through Whittier Narrows and the Duck Farm would decrease adverse visual effects.

[1] The Forest Supervisor may approve a project that would lower the Scenic Integrity Objectives level without a Forest Plan amendment, as long as the decrease would not be greater than one SIO level (for instance if a project would achieve a Moderate SIO in an area designated for a High SIO). See the detailed discussion of SIOs achieved by mileposts (MP) for Segments 6 and 11 under Alternatives 2 and 6. A drop of more than one level of SIO would require a Forest Plan amendment.

Table 3.14-1. Summary Comparison of Environmental Issues – Visual Resources

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Visual contrast due to clearing and grading activities	In the short term, existing visual conditions and landscapes would not be affected. However, there will continue to be a need for T/L project(s) to be implemented somewhere. The specific visual impacts of future T/L project(s) are not known.	Roads (access / spur) in the ANF would be improved, resulting in substantial adverse visual effects including strong soil color contrasts. Visual effects from spur road improvement would not occur for 33 structures that would be constructed via helicopter. Thirteen~~Twelve~~ helicopter staging areas would be cleared / graded in the ANF and would result in visual scarring and contrast similar to roads.	*Same as Alternative 2.*	*Slightly greater than Alt. 2 due to clearing and grading effects ~~effects in~~on hillsides in ~~the~~ and/or near CHSP.* Adverse visual effects would be introduced to the CHSP as a result of clearing and grading activities for Routes A through D; however, these clearing and grading effects would not occur along S8A from MP 19.2 to MP 35.2.	*Temporary contrast would be greater than Alt. 2 due to u~~/g~~ ~~const~~nderground construction.* Substantial earthwork would be required for installation of underground infrastructure and would introduce temporary adverse visual effects.	*Less than Alt. 2 due to fewer access road and spur road improvements.* Fewer access/spur roads would be constructed due to ~~increased helicopter construction~~more structures being constructed by helicopter~~n~~ (148~~3~~ for Alt. 6 vs. 33 for Alt.2); adverse visual effects of spur roads would not occur for the 148~~3~~ helicopter-constructed towers. Other roads, such as West Fork National Scenic Bikeway, would not be widened or result in visual contrast. ~~One less helicopter staging area (11 vs. 12 for Alt. 2) would be cleared.~~	*Same as Alternative 2.* Additionally, v~~V~~egetative clearing and earthwork associated with the underground portions of Alternative 7 and pulling/splicing locations for the new overhead line would temporarily affect existing landscape character and visual quality in the vicinity of Whittier Narrows and the Duck Farm.
Sunlight reflection and glint and glare from new metal surfaces	In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future project(s) are not known.~~In the short term, existing visual conditions and landscapes would not~~	When viewed from higher vantage points, such as a mountain road, or crest trail, sunlight reflecting off new conductors and new metal towers would cause ~~color and texture~~glint contrasts.	*Same as Alternative 2.*	*Slightly less than Alt. 2 due to non-build along Segment 8A from MP 19.2 to 35.2.* Routes 4A through 4D would have new double-circuit 500-kV LSTs and conductors that could be viewed from ridgetop trails in CHSP; however, no new ~~towers~~ T/Ls would be installed along S8A from MP 19.2 to MP 35.2, thereby lessening	*Slightly less than Alternative 2. ~~Medium and dark colored galvanizing treatments for the towers in ANF would cause them to reflect less light for sections of Segments 6 and 11.Same as Alternative 2.~~*	*Same as Alternative 2~~,~~ ~~except that medium and dark colored galvanizing treatments in ANF would reflect less light overall and would reduce sunlight glint.~~.*	*Same as Alternative 2.*

Table 3.14-1. Summary Comparison of Environmental Issues – Visual Resources

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
	~~be affected. However, there will continue to be a need for T/L project(s) to be implemented somewhere. The specific visual impacts of future T/L project(s) are not known.~~			Project length and the amount of new metal surfaces.			
Long-term loss or degradation of scenic viewshed(s)	In the short term, existing visual conditions and landscapes would not be affected. However, there will continue to be a need for T/L project(s) to be implemented somewhere. The specific visual impacts of future ~~T/L~~ project(s) are not known.	The Project ~~W~~would traverse and/or be visible from multiple designated or eligible scenic highways and trails, thereby directly degrading and causing the long-term loss of scenic quality of the viewsheds.	*Same as Alternative 2.*	*Slightly greater than Alt. 2 due to effects to Carbon Canyon Road.* Routes 4A through 4D, including 4C Modified, would traverse Carbon Canyon Road (SR 142), which is an Eligible State Scenic Highway.	*Same as Alternative 2.*	*Less than Alt. 2 due to decreased road construction~~.~~ in the ANF.* Fewer access/spur roads would be constructed or improved in the ANF. Helicopter staging area #5 would be visible at background distances from the PCT along Santa Clara Divide; however, no helicopter staging areas would be visible from the Angeles Crest Scenic Byway~~Highway~~, I-210, West Fork National Scenic Bikeway Trail, or State Routes 39 and 57~~or State Highway 39~~.	*Same as Alternative 2.*
Non-compliance with established visual resource management plans or landscape conservation plans [1]	In the short term, existing visual conditions and landscapes would not be affected. However~~,~~ there will continue to be a need for T/L project(s) to be implemented somewhere. The	The Project ~~W~~would be inconsistent with Forest Plan Standards ~~Standard ANF S1,~~ LMP (Part 3) ~~Aesthetic Standards ANF~~ S9 and~~&~~ S10, with the High Scenic Integrity Objective of NFS lands, and Goal Visual-	*Same as Alternative 2.*	*Greater than Alt. 2 due to conflict with the CHSP General Plan.* Routes 4A through 4D, including 4C Modified, would be in conflict with the CHSP General Plan's goals for visual resource management.	*Same as Alternative 2.*	*Less than Alt. 2 due to better compliance with Forest Plan Standards S9 and S10 because of use of colored galvanizing treatments.* ~~*on LSTs in ANF.*~~ ~~*Less than Alt. 2 due to compliance with Forest Standard S1.*~~	*Same as Alternative 2.*

Table 3.14-1. Summary Comparison of Environmental Issues – Visual Resources

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
	specific visual impacts of future ~~T/L~~ project(s) are not known.	1 and Objective Visual-1.2 of the PHLNHPA Resource Management Plan.				~~Use of a TSP at the PCT Trailhead at Mill Creek Summit would provide consistency with Forest Standard S1 and would not require an amendment to the Forest Plan.~~	

[1] Following are the Forest Plan Standards that apply to visual resource management on the ANF:

- ANF S1 - Pacific Crest Trail - Protect scenic integrity of foreground views as well as from designated viewpoints. Where practicable, avoid establishing nonconforming land uses within the viewshed of the trail (Liebre-Sawmill, Santa Clara Canyons, Soledad Front Country and Angeles High Country). (p. 76)
- ~~ANF~~ S9: Design management activities to meet the Scenic Integrity Objectives (SIOs) shown on the Scenic Integrity Objectives Map.
- ~~ANF~~ S10: Scenic Integrity Objectives will be met with the following exceptions: Minor adjustments not-to-exceed a drop of one SIO level is allowable with the Forest Supervisor's approval.
- Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.

The Forest Supervisor may approve a project in the ANF that would lower the Scenic Integrity Objectives level without a Forest Plan amendment, as long as the decrease would not be greater than one SIO level (for instance if a project would achieve a Moderate SIO in an area designated for a High SIO). See the detailed discussion of SIOs achieved by mileposts (MP) for Segments 6 and 11 under Alternatives 2 and 6.

A drop of more than one level of SIO would require a Forest Plan amendment.

~~• Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.~~

~~The Forest Supervisor may approve a project in the ANF that would lower the Scenic Integrity Objectives level without a Forest Plan amendment, as long as the decrease would not be greater than one SIO level (for instance if a project would achieve a Moderate SIO in an area designated for a High SIO). See the detailed discussion of SIOs achieved by mileposts (MP) for Segments 6 and 11 under Alternatives 2 and 6. A drop of more than one level of SIO would require a Forest Plan amendment.~~

3.14.2 Affected Environment

Based on the description of SCE's proposed Project and alternatives, and in consultation with the CPUC and Forest Service, the Visual Resources Technical Team defined the Study Area for the visual resource analysis as the viewsheds from which the proposed Project and alternatives might be seen, including immediate foreground, foreground, middleground, and background viewing distances. Viewing distance is distance between the viewed object and viewer. When a viewer is closer in proximity to a viewed object, more detail can be seen and there is greater potential influence of the object on visual quality. For this analysis, four viewing distances were used:

- Immediate foreground (approximately between 0 and 300 feet from viewers)
- Foreground (approximately between 300 feet and 0.5mile)
- Middleground (approximately between 0.5 and 4 miles)
- Background (beyond approximately 4 miles)

To facilitate the visual resource analysis, and to be compatible with the recreation and wilderness analysis, the Visual Resources Study Area was divided into three sub-areas:

North Area: The North Area extends from the Windhub Substation (Milepost [MP] 0.0 of the proposed Project's Segment 10) to the Vincent Substation (MP 17.8 of the proposed Project's Segment 5). The North Area includes proposed Project Segments 4, 5, 9, and 10 and traverses parts of southern Kern and northern Los Angeles Counties, as well as the incorporated cities of Lancaster and Palmdale. The Windhub, Cottonwood, Whirlwind, Antelope and Vincent Substations are situated in the North Area.

Center Area: The Center Area is located between the Vincent Substation (MP 0.0 of the proposed Project's Segments 6 and 11) and the southern boundary of the ANF (MP 24.5 of the proposed Project's Segment 11 and MP 26.9 of the proposed Project's Segment 6). The majority of the Center Area falls within the jurisdictional boundaries of the ANF and includes all of the proposed Project's Segment 6 and approximately 70 percent of Segment 11. The Gould Substation, part of Segment 9, is located just outside of the ANF's jurisdictional boundaries, but was included as part of the Center Area because of its visual context to the ANF and the fact that Segment 11 continues past Gould Substation inside the ANF boundary.

South Area: The South Area extends from the southern boundary of the ANF (MPs 0.0 and 24.5 of the proposed Project's Segments 7 and 11, respectively) to the Mira Loma Substation (MPs 35.2, 6.8 and 6.4 of the proposed Project's Segments 8A, 8B and 8C, respectively). The South Area includes the Goodrich, Rio Hondo, Mesa, Chino, and Mira Loma Substations and traverses lands within Los Angeles and San Bernardino Counties, as well as multiple incorporated cities.

3.14.2.1 Baseline Data Collection Methodology

For all segments of the proposed Project and its alternatives, baseline data were collected using an approach that incorporated a combination of information review, agency consultation, analysis of aerial photographs and satellite imagery (Google Earth, 2007-2009), review of maps, field reconnaissance, site analysis, and on-site photography. Existing information was used to the extent possible and appropriate, including the Proponent's Environmental Assessment that was prepared by SCE and the Visual Resource Report prepared by CH2M-Hill for SCE (SCE, 2007a, Elizabeth Cutler, 2007; Thomas Priestley, 2007).

Baseline data were collected for the environmental setting using the following methodology:

- A general overview and site reconnaissance was conducted for each route segment and alternative route.
- Locations of sensitive receptor locations were mapped on existing USGS topographic maps and/or aerial photographs showing freeways, streets, roads, residences, trails, and recreation areas.
- Viewpoints were identified from which the proposed Project and/or alternatives would be seen.
- From all of these viewpoints, the most critical views were selected as "possible key observation points" (Possible KOPs).
- From all Possible KOPs, the most critical were selected as KOPs for analysis, based on their ability to exemplify visual resource impacts at a particular location. KOPs that were analyzed are representative of visual resource impacts to a particular landscape unit. See Figure 3.14-1 – Key Observation Points in the Map & Figure Series Volume.
- Color photographs of existing conditions and corresponding visual simulations are found in the Map & Figure Series Volume.
- More detailed information about these baseline data may be found in the *Visual Resource Specialist Report*.

For each KOP analyzed in the EIR/EIS, a photograph and simulation has been printed on 11 by 17 inch-paper. If the reader stands at the exact location of the KOP looking in the direction the photo was taken, each photograph and simulation will appear "life-size" when held approximately 18-inches away from the viewer's eyes. In the Sections 3.14.2.3 through 3.14.2.8, the existing visual situation is described in detail for each KOP. In the Impact Analysis (Sections 3.14.5 through 3.14.11), future visual effects of the proposed Project were predicted for each KOP by using the computerized visual simulations. Please see the Map & Figure Series Volume for a map of all the KOPs, as well as "life-size" pairs of before and after photographs and simulations.

The multi-jurisdictional nature of the proposed Project required a highly integrated, dual-faceted approach to the visual analysis. Specifically, on National Forest System Lands (NFS lands) the visual analysis compared predictions of future visual conditions with the Desired Condition and Scenic Integrity Objectives (SIOs) described in the 2005 ANF Land Management Plan (Forest Plan) and in the Nationwide Forest Service Scenery Management System (SMS). Scenic integrity is defined as the state of naturalness, or conversely, the state of disturbance, created by human activities or alterations. Integrity is stated in degrees of deviation from existing or desired landscape character.

For non-National Forest System (non-NFS) lands, the visual analysis used the Visual Sensitivity/Visual Change (VS/VC) method to assess the visual effects of the proposed Project on existing landscapes. This dual methodology approach was necessary because the SMS analysis must be used for NFS lands, however, SMS classifications with established management objectives cannot be applied on private lands (non-NFS lands). For non-NFS lands, VS/VC criteria were ascertained from the County and City General Plans that have criteria for visual resource management, and from state and county scenic highway standards. Regardless of jurisdiction, visual simulations were prepared in order to show future visual conditions after Project completion.

While these two methodologies – SMS and VS/VC – are similar in several respects, there are some differences, as explained below. The approach of this visual analysis was to seamlessly integrate the methodologies so that the overall presentation of information, analysis, and conclusions are consistent and easy for the reader to understand and follow.

Visual Sensitivity/Visual Change Methodology (VS/VC)

The VS/VC methodology used to analyze the proposed Project and its alternatives included a characterization of the visual sensitivity of existing landscapes and the characteristics of existing visual

changes apparent in the landscape. At each KOP, existing conditions of the landscape and viewing circumstances were described, leading to a conclusion about the viewpoint's overall visual sensitivity.

Visual sensitivity consists of three components: visual quality; viewer concern; and, viewer exposure. The description of visual quality notes the existing natural landscape features and built structures that contribute to overall visual quality. Viewer concern can be described as the expectations for the landscape that are held by the viewing public. These concerns were elicited during scoping and from planning documents. Viewer concern is often reflected in public policy documents that identify landscapes of special concern (vista points, scenic trails, ridgeline protection ordinances, etc.) or roadways with special scenic status (scenic highways). Viewer exposure also affects a landscape's overall visual sensitivity. Landscapes that have very low viewer exposure (based on landscape visibility, viewing distance, number of people who view the landscape, or duration of time that the landscape can be viewed) will tend to be less sensitive to overall visual change in the context of human experience of visual impacts. Landscapes with higher viewer exposure are more sensitive to overall visual changes.

Project-induced visual change was determined for each KOP based on field studies of anticipated visual contrast, Project dominance, and the potential for view impairment, that is, potential of the proposed structure to block, obstruct, or impair the view of the backdrop landscape, skyline, or higher quality landscape features. Project-induced visual change can result from aboveground facilities, vegetation removal, landform modification, Project component size or scale relative to existing landscape characteristics, and the placement of Project components relative to developed features. The experience of visual change can also be affected by the degree of available screening by vegetation, landforms, architecture and other structures; distance from the observers; atmospheric conditions; and angle of view.

As described in detail above, computerized visual simulations were prepared to aid in the assessment of visual change and overall impact significance, which was arrived at by evaluating the extent of visual change in the context of the existing visual sensitivity.

For the North and South Areas (non-NFS lands), in order to accommodate the various State, county and city regulations presented in Section 3.14.3 and in Appendix C of the *Visual Resources Specialist Report*, the visual analysis used a single methodology to determine the degree of impact significance, after considering two factors – overall visual sensitivity and visual change. Table 3.14-2 illustrates the general relationship between visual sensitivity and visual change. This table was used primarily as a consistency check between individual KOP evaluations. Determinations of visual sensitivity and visual change were based primarily on analyst experience and site-specific circumstances at each KOP.

The relationships presented in Table 3.14-2 are intended as a guide only, recognizing that site-specific circumstances may warrant a different conclusion. However, it is reasonable to conclude that lower visual sensitivity ratings combined with lower visual change ratings will generally correlate well with lower degrees of impact significance. Conversely, higher visual sensitivity ratings combined with higher visual change ratings will tend to result in higher degrees of visual impact occurring at the site.

Table 3.14-2. General Guidance for Review of Visual Impact Significance for Non-NFS Lands

Visual Sensitivity	Visual Change				
	Low	Low to Moderate	Moderate	Moderate to High	High
Low	Not Significant [1]	Not Significant	Adverse but Not Significant [2]	Adverse but Not Significant	Adverse but Not Significant
Low to Moderate	Not Significant	Adverse but Not Significant	Adverse but Not Significant	Adverse but Not Significant	Adverse and Potentially Significant [3]
Moderate	Adverse but Not Significant	Adverse but Not Significant	Adverse but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant
Moderate To High	Adverse but Not Significant	Adverse but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant [4]
High	Adverse but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant	Significant

Table Notes:
Not Significant – Impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.
Adverse but Not Significant – Impacts are perceived as negative but do not exceed environmental thresholds.
Adverse and Potentially Significant – Impacts are perceived as negative and may exceed environmental thresholds depending on Project and site-specific circumstances.
Significant – Impacts with feasible mitigation may be reduced to levels that are not significant or avoided all together. Without mitigation, significant impacts would exceed environmental thresholds.

Implicit in this rating methodology is the acknowledgment that for a visual impact to be considered significant, two conditions generally exist: (1) the existing landscape is of reasonably high quality and is relatively valued by viewers; and (2) the perceived incompatibility of one or more elements or characteristics of the proposed Project tends toward the high extreme, leading to a substantial reduction in visual quality.

USDA Forest Service Scenery Management System (SMS) Methodology

In 1995, the Forest Service updated its nationwide Visual Management System and renamed it the Scenery Management System (SMS) (USDA Forest Service, 1995). In 2005, the Pacific Southwest (PSW) Region of the Forest Service adopted new Forest Plans for its four Southern California National Forests, and implemented the SMS for the Los Padres, Angeles, San Bernardino, and Cleveland National Forests. The purpose of SMS is to methodically inventory, manage, and monitor visual and scenic resources on National Forest System lands. The goal of the Forest Service SMS is to manage NFS lands to attain the highest possible visual quality of landscape aesthetics and scenery for the public in perpetuity, commensurate with other appropriate public uses, costs, and benefits.

The TRTP visual resource analysis used the Forest Service SMS methodology to evaluate SCE's proposed Project and its effects on landscape aesthetics and visual quality in the ANF and to ascertain compliance with the Forest Plan for all NFS lands that would be crossed by SCE's proposed Project or its alternatives.

For planning purposes, the ANF has been divided by the Forest Service into a series of geographic units, each of which is called a "Place." The ANF Forest Plan assigned Place designations to 11 areas throughout the ANF. Of the 11 Places, five would be crossed by the proposed Project (see Map & Figure

Series Volume, Figure 3.14-2 - Angeles National Forest Landscape Places and Scenic Integrity Objectives Segment 6 and 11). They are, from north to south:

- Soledad Front Country
- Angeles High Country
- Angeles Uplands West
- Big Tujunga Canyon (only a tiny corner)
- The Front Country

These Landscape Places are described in more detail in the *Visual Resource Specialist Report* with excerpts from the Forest Plan descriptions for these five Places. The Forest Plan established standards for each Place, including a theme, setting, desired condition and program emphasis section. These four descriptions provide visual resource management direction of the ANF.

- **Theme -** refers to images of the landscape that can be defined with a brief set of physical, visual or cultural attributes that encapsulate the sense of place.
- **Setting -** provides a description of the landscape character of the Place. The Forest Service describes landscape character as "an overall visual and cultural impression of landscape attributes; the physical appearance and cultural context of a landscape that gives it an identity and 'sense of place'" (USDA Forest Service, 1995).
- **Desired Condition -** paints a picture of what the Place could be as the national forest implements activities to move toward the overall forest-wide desired conditions.
- **Program Emphasis -** identifies priority activities the national forest will emphasize in the next three to five years.

The Forest Service SMS uses Theme, Setting, Desired Condition, Program Emphasis, and Scenic Integrity Objectives to evaluate, manage, and monitor visual resources, landscape aesthetics, and scenery on NFS lands. Desired Condition expresses the highest quality goal for a given landscape. A Scenic Integrity Objective (SIO) defines the minimum level of visual quality to which any National Forest landscape should be subjected, in other words, the minimum acceptable standard for visual quality for an area (see Map & Figure Series Volume, Figure 3.14-2). The following paragraphs describe these two key components of the SMS.

Desired Condition (Maximum Standard)

With regard to attaining the highest possible visual quality, the 2005 Angeles Forest Land Management Plan established a maximum standard of Desired Condition for each landscape "Place."

- Desired Condition expresses the maximum level of desired condition for each given landscape Place.
- Desired Condition captures the function of the landscape to be maintained and the landscape character and attributes that visitors have come to appreciate and expect to see.
- Desired Condition represents the sustainable image pursued by the Forest Service for each landscape Place.
- Combined, the elements of Desired Condition and SIO succinctly capture the landscape's sense of place.

Scenic Integrity Objective or SIO (Minimum Standard)

In order to define the degrees of deviation from the natural or natural-appearing landscape character that may occur at any given time, the Forest Service uses Scenic Integrity Objectives or SIOs. SIOs represent the minimum standard of scenic integrity to which landscapes are to be managed. ~~All land management activities, including TRTP, must ensure that these minimum levels are achieved. The 2005 Forest Plan allows for a project to achieve one level below the established SIO(s), but only with the Forest~~

~~Supervisor's approval. Temporary drops of more than one SIO level are allowed during and immediately following the implementation of the project provided that the SIO level(s) are met within a three year period (maximum).~~

SIOs were established and mapped for the ANF in the 2005 Land Management Plan for Southern California Forests. There are five SIOs, and additionally, there is a sixth level of landscape alteration that is excessive, where human-caused deviations are extremely dominant and inappropriate for NFS lands. This level of scenic integrity is never used as a management objective; however, it is useful for inventorying existing visual conditions or for predicting future scenic conditions of proposed projects~~ such as TRTP~~. Table 3.14-3 presents the five Scenic Integrity Objectives, with definitions for each Scenic Integrity Level.

Table 3.14-3. Scenic Integrity Objectives and Definitions for NFS Lands

Scenic Integrity Objective (SIO)	Definition
Very High SIO	Landscapes where the valued landscape character "is" intact with only minute if any visual deviations. The existing landscape character is expressed at the highest possible level.
High SIO	Landscapes where the valued landscape character "appears" intact. Visual deviations (human-made structures) may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not evident.
Moderate SIO	Landscapes where the valued landscape character "appears slightly altered." Noticeable deviations must remain visually subordinate to the landscape character being viewed.
Low SIO	Landscapes where the valued landscape character "appears moderately altered." Visual deviations (human-made structures) begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.
Very Low SIO	Landscapes where the valued landscape character "appears heavily altered." Visual deviations (human-made structures) may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside the landscape being viewed. However, visual deviations (human-made structures) must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.
For Inventory and Scenic Effect Prediction Purposes Only	
Unacceptably Low Scenic Integrity [1]	A scenic integrity level (never an objective) where human activities of vegetation and landform alterations or human-made structures are excessive and totally dominate the natural or natural-appearing landscape character. Landscapes where the valued landscape character being viewed appears extremely altered. Visual deviations are extremely dominant and borrow little if any form, line, color, texture pattern or scale from the natural landscape character. Landscapes of this level of integrity need rehabilitation. Unacceptable alterations are "what not to do to any landscape," regardless of the distance from which the activity may be observed.

[1] According to the SMS, there is a level of landscape alteration that is excessive, where deviations are extremely dominant. This level of scenic integrity is to be used for inventory purposes only – it must not be used as a management objective. This level of scenic integrity, "Unacceptably Low Scenic Integrity" or "Unacceptably Altered," is useful for inventorying existing facilities, and for predicting future scenic integrity of proposed projects and activities.

~~As described in Section 2.2.14 (Alternative 2 – Forest Service Permits and Plan Amendments), it is expected that amendment(s) to the 2005 Forest Plan would be required under the proposed Project, which would include altering SIOs along the Project route.~~ Table 3.14-4, below, provides the SIOs which are currently assigned to Forest lands that would be traversed by the proposed Project (Segment 11 and Segment 6) in the ANF, presented geographically by Milepost (MP), from the north to the south.

Table 3.14-4. Scenic Integrity Objectives by Mile for Alternative 2 (SCE's Proposed Project)

MP (Proposed Project)	SIO	Definition
Segment 11 MP 1.5 to 6.8 MP 6.9 to 8.7 MP 9.9 to 11.3 MP 11.5 to 15.2 MP 15.3 to 19.7 MP 19.8 to 24.5	High	Landscapes where the valued landscape character "appears" intact. Visual deviations (human-made structures) may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not evident.
Segment 11 MP 6.8 to 6.9 MP 8.7 to 9.9 MP 11.3 to 11.5 MP 15.2 to 15.3 MP 19.7 to 19.8	Moderate	Landscapes where the valued landscape character "appears slightly altered." Noticeable deviations must remain visually subordinate to the landscape character being viewed.
Segment 6 MP 1.4 to 10.6 MP 10.8 to 12.1 MP 12.3 to 13.5 MP 13.6 to 26.9	High	Landscapes where the valued landscape character "appears" intact. Visual deviations (human-made structures) may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not evident.
Segment 6 MP 10.6 to 10.8 MP 12.1 to 12.3 MP 13.5 to 13.6	Moderate	Landscapes where the valued landscape character "appears slightly altered." Noticeable deviations must remain visually subordinate to the landscape character being viewed.

The Direct, Indirect, and Cumulative Effects Analysis for Alternatives 2 through 7 are described in detail in Sections 3.14.6 through 3.14.11. The anticipated effects of construction and operation of the proposed Project or an alternative to the Project would result, in most cases, in conditions that would be inconsistent with the existing established SIOs described in Table 3.14-4. Therefore, ~~a~~Project-specific ~~n amendment~~ amendments to the 2005 Forest Plan for Forest Standards S9 and S10 would be necessary in order for the Forest Supervisor to approve the Project. ~~specific to SIOs would be necessary to change SIO levels to be consistent with conditions expected after implementation of the Project.~~ Table 3.14-5, below, is organized by MP, from north to south, and provides a description of those locations along Segments 11 and 6, within the ANF, where ~~how~~ the proposed Project and each of its alternatives would be inconsistent with existing ~~SIOs~~ SIOs established for the Forest.

The anticipated SIO inconsistencies outlined in Table 3.14-5 assume that all relevant mitigation measures recommended for visual resource management in this EIR/EIS would be implemented. If visual resource mitigation measures are not implemented by the Decision Makers at the CPUC and/or FS, then the predicted SIO levels in Table 3.14-5 will not be attained, and future scenic integrity would be lower. There are other variables affecting the predicted SIO outcomes. Viewsheds of affected landscapes may be greater than the utility corridor's 1,000-foot width or the ROW width of a few hundred feet. For re-opening, widening, and/or improvement of existing access roads and spur roads in the Forest, the exact limits of new cuts and fills are not known at this time. New cuts and fills, plus the construction of new roads that would be approximately 16 feet wide, could alter the predicted SIO changes listed in Table 3.14-5.~~would need to be changed in the 2005 Forest Plan for the proposed Project and each alternative to the Project, organized by Milepost (MP), from north to south.~~

Table 3.14-5. Inconsistencies with Established Scenic Integrity Objectives ~~Amendments to~~of the 2005 Forest Plan – Proposed Project and Alternatives

Alternative~~Forest Plan Elements~~	Inconsistencies with Established Scenic Integrity Objectives (SIO)
Alternative 1 No Project/Action	N/A ~~No Changes Required to Existing Scenic Integrity Objectives~~
Alternative 2 SCE's Proposed Project (For ~~Changes required inside rights of way in ANF for~~ Segments 11 and 6 within the ANF)	Segment 11: An Unacceptably Low Level of Scenic Integrity would occur in an area designated as High SIO for a total of 10.45 Miles (from MP 1.5 to 2.25, MP 3.0 to 4.25, MP 11.5 to 14.75, MP 19.2 to 19.7, and MP 19.8 to 24.5) A Very Low SIO would occur in an area designated as High SIO for a total of 3.4 Miles (from MP 4.75 to 6.8 and MP 6.9 to 8.25) A Low SIO would occur in an area designated as High SIO for a total of 6.2 Miles (from MP 8.25 to 8.7, MP 9.9 to 11.3, MP 14.75 to 15.2, and MP 15.3 to 19.2)~~High SIO to Unacceptably Low SI for a total of 10.45 Miles~~ ~~(from MP 1.5 to 2.25, MP 3.0 to 4.25, MP 11.5 to 14.75, MP 19.2 to 19.7, and MP 19.8 to 24.5)~~ ~~High SIO to Very Low SIO for a total of 3.4 Miles~~ ~~(from MP 4.75 to 6.8 and MP 6.9 to 8.25)~~ ~~High SIO to Low SIO for a total of 6.2 Miles~~ ~~(from MP 8.25 to 8.7, MP 9.9 to 11.3, MP 14.75 to 15.2, and MP 15.3 to 19.2)~~ A Moderate SIO would occur in an area designated as High SIO for a total of 0.75 Miles (from MP 2.25 to 3.0) [1]~~High SIO to Moderate SIO for a total of 0.75 Miles~~ ~~(from MP 2.25 to 3.0) [1]~~ An Unacceptably Low Level of Scenic Integrity would occur in an area designated as Moderate SIO for a total of 0.1 Mile (from MP 19.7 to 19.8) A Very Low SIO would occur in an area designated as a Moderate SIO area for a total of 0.1 Mile (from MP 6.8 to 6.9) A Low SIO would occur in an area designated as a Moderate SIO area for a total of 1.5 Miles (from MP 8.7 to 9.9, MP 11.3 to 11.5, and MP 15.2 to 15.3) [1] *Total in Segment 11 = 22.5 miles* ~~Segment 11:~~ ~~Moderate SIO to Unacceptably Low SI for a total of 0.1 Mile~~ ~~(from MP 19.7 to 19.8)~~ ~~Moderate SIO to Very Low SIO for a total of 0.1 Mile~~ ~~(from MP 6.8 to 6.9)~~ ~~Moderate SIO to Low SIO for a total of 1.5 Miles~~ ~~(from MP 8.7 to 9.9, MP 11.3 to 11.5, and MP 15.2 to 15.3) [1]~~ Segment 6: An Unacceptably Low Level of Scenic Integrity would occur in an area designated as High SIO for a total of 11.0 Mile (from Mile MP 1.4 to 8.0, MP 13.1 to 13.5, and MP 13.6 to 17.6) A Very Low SIO would occur in an area designated as High SIO for a total of 3.7 Mile (from 8.0 to 10.6, MP 10.8 to 11.5, and MP 17.6 to 18.0) A Low SIO would occur in an area designated as High SIO for a total of 6.6 Mile

Table 3.14-5. Inconsistencies with Established Scenic Integrity Objectives ~~Amendments too~~f the 2005 Forest Plan – Proposed Project and Alternatives

Alternative~~Forest Plan Elements~~	Inconsistencies with Established Scenic Integrity Objectives (SIO)
	(from MP 11.5 to 12.1, MP 12.3 to 13.1, MP 19.0 to 21.4, and MP 24.1 to 26.9) A Moderate SIO would occur in an area designated as High SIO for a total of 3.7 Mile (from MP 18.0 to 19.0 and MP 21.4 to 24.1) [1] An Unacceptably Low Level of Scenic Integrity would occur in an area designated as Moderate SIO for a total of 0.1 Mile (from MP 13.5 to 13.6) A Very Low SIO would occur in an area designated as Moderate SIO for a total of 0.2 Mile (from MP 10.6 to 10.8) A Low SIO would occur in an area designated as Moderate SIO for a total of 0.2 Mile (from MP 12.1 to 12.3) [1] *Total in Segment 6 = 25.5 miles* TOTAL IN SEGMENTS 6 AND 11 = 48.0 MILES ~~High SIO to Unacceptably Low SI for a total of 11.0 Mile~~ ~~(from Mile MP 1.4 to 8.0, MP 13.1 to 13.5, and MP 13.6 to 17.6)~~ ~~High SIO to Very Low SIO for a total of 3.7 Mile~~ ~~(from 8.0 to 10.6, MP 10.8 to 11.5, MP 17.6 to 18.0)~~ ~~High SIO to Low SIO for a total of 6.6 Mile~~ ~~(from MP 11.5 to 12.1, MP 12.3 to 13.1, MP 19.0 to 21.4, and MP 24.1 to 26.9)~~ ~~High SIO to Moderate SIO for a total of 3.7 Mile~~ ~~(from MP 18.0 to 19.0 and MP 21.4 to 24.1) [1]~~ ~~Segment 6:~~ ~~Moderate SIO to Unacceptably Low SI for a total of 0.1 Mile~~ ~~(from MP 13.5 to 13.6)~~ ~~Moderate SIO to Very Low SIO for a total of 0.2 Mile~~ ~~(from MP 10.6 to 10.8)~~ ~~Moderate SIO to Low SIO for a total of 0.2 Mile~~ ~~(from MP 12.1 to 12.3) [1]~~
Alternative 3 West Lancaster Alternative (~~Changes required inside rights of way in ANF for~~ For Segments 11 and 6 within the ANF)	Same ~~changes~~ as Alternative 2
Alternative 4 Chino Hills Route Alternatives (~~Changes required inside rights of way in ANF f~~For~~or~~ Segments 11 and 6 within the ANF)	Same ~~changes~~ as Alternative 2
Alternative 5 Partial Underground Alternative (~~Changes required inside rights of way in ANF f~~For Segments 11 and 6 within the ANF)	Same ~~changes~~ as Alternative 2
Alternative 6 Maximum Helicopter Construction in the ANF (~~Changes required inside rights of way in ANF f~~For Segments 11 and 6 within the ANF)	Segment 11: An ~~High SIO to~~ Unacceptably Low Level of Scenic Integrity would occur in an area designated as ~~SI~~ High SIO for a total of 5.2 Miles (from MP 19.2 to 19.7 and MP 19.8 to 24.5) A ~~High SIO to~~ Very Low SIO would occur in- an area designated as High SIO for a total of 2.0 Miles

Table 3.14-5. Inconsistencies with Established Scenic Integrity Objectives ~~Amendments to~~of the 2005 Forest Plan – Proposed Project and Alternatives

Alternative~~Forest Plan Elements~~	Inconsistencies with Established Scenic Integrity Objectives (SIO)
	(from MP 1.5 to 2.25 and MP 3.0 to 4.25) A ~~High SIO to~~ Low SIO would occur in- an area designated as High SIO for a total of 12.85 Miles (from MP 4.75 to 6.8, MP 6.9 to 8.25, MP 8.25 to 8.7, MP 9.9 to 11.3, MP 11.5 to 14.75, MP 14.75 to 15.2, and MP 15.3 to 19.2) A ~~High SIO to~~ Moderate SIO would occur in- an area designated as High SIO for a total of 0.75 Mile (from MP 2.25 to 3.0) ~~1~~ ~~Segment 11:~~ An ~~Moderate SIO to~~ Unacceptably Low Level of Scenic Integrity would occur in an area designated as ~~SI~~ Moderate SIO -for a total of 0.1 Mile (from MP 19.7 to 19.8) A ~~Moderate SIO to~~ Very Low SIO would occur in- an area designated as Moderate SIO -for a total of 0.1 Mile (from MP 6.8 to 6.9) A ~~Moderate SIO to~~ Low SIO would occur in- an area designated as Moderate SIO for a total of 1.5 Miles (from MP 8.7 to 9.9, MP 11.3 to 11.5, and MP 15.2 to 15.3) ~~1~~ *Total in Segment 11 = 22.5 miles* Segment 6: An ~~High SIO to~~ Unacceptably Low Level of Scenic Integrity would occur in an area designated as ~~SI~~ High SIO -for a total of ~~11.0~~13.6 Miles (from Mile MP 1.4 to 8.0, MP 8.0 to 10.6, -MP 13.1 to 13.5, and MP 13.6 to 17.6) A ~~High SIO to~~ Very Low SIO would occur in- an area designated as High SIO for a total of ~~3.7~~1.1 Miles (from ~~8.0 to 10.6,~~ MP 10.8 to 11.5, and MP 17.6 to 18.0) A ~~High SIO to~~ Low SIO would occur in- an area designated as High SIO for a total of ~~4.2~~6.6 Miles (from MP 11.5 to 12.1, MP 12.3 to 13.1, MP 19.0 to 21.4, and MP 24.1 to 26.9) A ~~High SIO to~~ Moderate SIO would occur in- an area designated as High SIO -for a total of ~~6.1~~3.7 Miles (from MP 18.0 to 19.0~~, MP 19.0 to 21.4,~~ and MP 21.4 to 24.1) ~~1~~ ~~Segment 6:~~ An ~~Moderate SIO to~~ Unacceptably Low Level of Scenic Integrity would occur in an area designated as ~~SI~~ Moderate SIO for a total of 0.1 Mile (from MP 13.5 to 13.6 MP) A ~~Moderate SIO to~~ Very Low SIO would occur in- an area designated as Moderate SIO -for a total of 0.2 Mile (from MP 10.6 to 10.8) A ~~Moderate SIO to~~ Low SIO would occur in- an area designated as Moderate SIO -for a total of 0.2 Mile (from MP 12.1 to 12.3) ~~1~~ *Total in Segment 6 = 25.5 miles* TOTAL IN SEGMENTS 6 AND 11 = 48.0 MILES
Alternative 7 66-kV Subtransmission Alternative (~~Changes required inside rights of way in ANF~~ ~~f~~For Segments 11 and 6 within the ANF)	Same ~~changes~~ as Alternative 2

Note: It is predicted that Alternatives 2, 3, 4, 5, and 7 would achieve the Very Low SIO in areas designated as Moderate SIO for Segments 11 and 6 because topographic screening would not hide these tall new T/L structures.

[1] The Forest Supervisor may approve a project in the ANF without a Forest Plan amendment, as long as the SIO decrease would not be greater than one SIO level (for instance if a project would achieve a Moderate SIO in an area designated for a High SIO).
The following Forest-specific Design Criteria and Place-specific Standards are applicable to the proposed Project:

- ANF S1 - Pacific Crest Trail - Protect scenic integrity of foreground views as well as from designated viewpoints. Where practicable, avoid establishing nonconforming land uses within the viewshed of the trail (Liebre-Sawmill, Santa Clara Canyons, Soledad Front Country and Angeles High Country). (p. 76)
- S9: Design management activities to meet the Scenic Integrity Objectives (SIOs) shown on the Scenic Integrity Objectives Map.
- S10: Scenic Integrity Objectives will be met with the following exceptions: (1) Minor adjustments not-to-exceed a drop of one SIO level is allowable with the Forest Supervisor's approval. (2) Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.

~~[1] The Forest Supervisor may approve a project in the ANF that would lower the Scenic Integrity Objectives level without a Forest Plan amendment, as long as the decrease would not be greater than one SIO level (for instance if a project would achieve a Moderate SIO in an area designated for a High SIO).~~

~~The suggested SIO changes shown in Table 3.14-5 assume that all relevant mitigation measures recommended for visual resource management in this EIR/EIS will be implemented. If visual resource mitigation measures are not implemented by the decision makers at the CPUC and/or FS, then the predicted SIO levels in Table 3.14-5 will not be attained. Viewsheds of affected landscapes may be greater than the utility corridor's 1,000-foot width or the ROW width of a few hundred feet.~~

3.14.2.2 Regional Setting

From a visual resource perspective, the proposed Project and its alternatives span a wide variety of landscapes, including: rugged mountains of the Tehachapi Wind Resource Area in Southern Kern County; flat valley floors with desert scrub or agricultural fields in the Antelope Valley in Southern Kern and Northern Los Angeles Counties; barren, rolling foothills south of Vincent Substation; remote, rugged landscapes of the ANF; and rapidly developing urban and suburban landscapes of the Los Angeles Basin and Inland Empire of Western San Bernardino County and Northern Orange County.

3.14.2.2.1 North Area

Near the Tehachapi Wind Resource Area (TWRA) and in the Antelope Valley, vegetation is generally low, dry scrub and grasses, or agricultural fields that provide little or no vegetative screening for transmission lines, substations, and other utility infrastructure. Travelways in the TWRA are paved, two-lane roads that twist and turn through the rugged topography. Existing wind turbine generators (also called wind farms) dominate the visual character in the mountains and gentle slopes of the TWRA. In the Antelope Valley, travelways are primarily unpaved agricultural field roads and paved access roads on a one-mile grid. Scattered ranch houses, outbuildings, and windbreaks are located along paved, gravel and dirt roads that follow the one-mile grid pattern in the Antelope Valley. Existing transmission line corridors and substations are visually evident in the Antelope Valley.

3.14.2.2.2 Pacific Crest Trail

The Pacific Crest National Scenic Trail (PCT) would be crossed by the proposed Project in three locations; once in the North Area and twice in the Center Area. The PCT is 2,650 miles long, extending from Mexico to Canada and running generally along the north-south oriented mountain ridges of California (Sierra Nevada), Oregon, and Washington (Cascade Range). It is the westernmost of the National Scenic Trails and has the greatest elevation change of all, extending from low desert valleys in Southern California, along the Sierra Nevada, and into rainforests of the Pacific Northwest (SCE, 2007a). The Pacific Crest Trail Association (PCTA) is a non-profit membership group dedicated to the preservation and protection of the trail. Use of the PCT is limited to non-mechanized means of travel. Every year, thousands of hikers and horseback riders use some portion of the PCT and approximately 300

through-hikers attempt to complete the entire trail in a single season (PCTA, 2007). In 1993, the PCTA signed a Memorandum of Understanding (MOU) with the Forest Service and other land management agencies including the US Department of Interior (DOI), the National Park Service (NPS), and the Bureau of Land Management (BLM). This MOU identifies the PCTA as the federal government's "major partner" in the management of the PCT (PCTA, 2007). As described in the PCTA's Strategic Plan, which was approved on July 15, 2006, the PCTA's mission is to "...protect, preserve, and promote the Pacific Crest National Scenic Trail as an internationally significant resource for the enjoyment of hikers and equestrians, and for the value that wild and scenic lands provide to all people".

The PCT crosses through the North Area in a south-to-north direction. Although the PCT is usually situated on ridgelines, it is routed off ridges in several places within the North Area due to a lack of necessary easements through private property (see Map & Figure Series Volume, Figure 3.14-1). In the vicinity of Segment 4, the PCT does not have its own trail tread, but rather, generally follows access roads associated with the Los Angeles Aqueduct (SCE, 2007a). Although most of the PCT is situated to follow ridgelines, it has been diverted northeast of the nearest ridgeline in the area of Segment 4 due to the location of private property (Tejon Ranch) where easements for the trail have not been granted. Segment 4 would traverse the PCT at S4 MP 2.7.

The PCT crosses through the Center Area in an east-to-west direction. In the Center Area, the PCT is located on ridgelines, consistent with the vision for a "crest" trail (see Figure A-2 – Angeles National Forest Landscape Places and Scenic Integrity Objectives Segments 6 and 11 in Appendix A of the *Visual Resources Specialist Report*, September 2009). East of Segment 6, the PCT is situated on the north side of the mountains, providing views to the Mojave Desert to the north, as it traverses undeveloped landscapes dominated by oak and pine vegetation covering steep mountainsides. As the PCT approaches Mill Creek Summit, the visual environment becomes dominated by three paved parking lots at the trailhead, a Forest Service fire station, and a day use recreation site. At the PCT trailhead, the PCT feeder trail is situated directly downhill from an existing 220-kV LST that would be replaced with a new 500-kV LST. Segment 6 would traverse over the PCT at S6 MP 7.3. Leaving Mill Creek Summit, the PCT then crosses the Angeles Forest Highway and proceeds west along the south side of the Santa Clara Divide. This location provides panoramic views to viewsheds in a southern direction, into the Tujunga Creek watershed. West of Mill Creek Summit, the PCT crosses the Mount Gleason Road (Santa Clara Divide Road) at a saddle, and then proceeds on the north side of the mountains, heading west toward Segment 11. Therefore, the PCT provides numerous viewing opportunities to the north and south into different viewsheds. Segment 11 would traverse over the PCT at S11 MP 7.6, just southwest of Big Buck Campground. The landscape in this vicinity is dominated by natural appearing forests of pine, cedar, and oak trees.

3.14.2.2.3 Center Area

Throughout the Center Area, in the ANF, dense shrubs and tall conifer trees cover steep mountainsides leading down into narrow canyons, providing some vegetative and landform screening. Water features are mostly absent in this landscape, except along major rivers in canyon bottoms and at the Big Tujunga Reservoir, which is not accessible for recreationists. Narrow, twisting, two-lane paved mountain roads wind through the ANF in a north-south direction (Angeles Forest Highway) and east-west direction (~~Angeles Crest Highway~~Angeles Crest Scenic Byway) and TRTP would cross over both of these highways at different locations. These two major roads, along with the Upper Big Tujunga Canyon Road, provide scenic viewing opportunities, opportunities for "driving for pleasure," and access linkages between the Antelope Valley and the Los Angeles Basin. The Pacific Crest Trail, Big Tujunga Canyon Trail (12W02), Clear Creek Trail, Alder Creek Trail (11W05), Silver Moccasin National Recreation Trail

(11W06), Gabrieleno National Recreation Trail (11W14), Rincon-Red Box OHV Trail (2N23), Upper and Lower Winter Trail to Mount Zion (11W15 & 11W14A), Silver Fish Trail (1N29), and the San Gabriel River National Scenic Bike Trail (2N25.1) are all popular recreation trails, designed and managed specifically for pedestrian, equestrian, bicyclists, and/or OHV-users. They provide access, recreation, and scenic viewing opportunities within the ANF. SCE's proposed Project would be visible from these trails. Additionally, the proposed Project would be visible from several developed and undeveloped recreation areas, including Mill Creek Summit Picnic Area, PCT Trailheads at Mill Creek Summit and Mount Gleason Road, Monte Cristo Campground, Vetter Mountain Lookout, Silver Moccasin Trailhead, Rincon/Shortcut OHV Trailhead, Messenger Flats Campground, Gould Mesa Campground, and Millard Campground. Additional vantage points where the proposed Project would be viewed include Mount Wilson, Cobb Estate, Mount Lowe, Mount Disappointment, and Strawberry Peak.

The Angeles Crest ~~Highway~~ Scenic Byway (State Highway 2) through the ANF is a National Scenic Byway and a State Scenic Highway as it winds along the spine of the San Gabriel Mountains. "America's Byways®" is the umbrella term used for marketing the collection of 125 distinct and diverse roads designated by the U.S. Secretary of Transportation. America's Byways include the National Scenic Byways and All-American Roads (National Scenic Byways Program, 2008~~http://www.byways.org~~). The proposed Project's Segment 6 and Segment 11 would cross over the ~~Angeles Crest Highway~~Angeles Crest Scenic Byway in four different locations (at approximately S11 MP 16.0, 17.7, and 18.4 for Segment 11 and at S6 MP16.8 for Segment 6). Portions of Segments 6 and 11 would be visible at foreground and middleground viewing distances from the ~~Angeles Crest Highway~~Angeles Crest Scenic Byway. The proposed Project would also ~~would~~ be visible at foreground, middleground, as well as background viewing distances from the Angeles Forest Highway (County Highway N3) and the Upper Big Tujunga Canyon Road (Forest Service Road 3N19.2), which are both heavily used Forest roadways.

Viewing distances help determine how the proposed Project will affect scenic quality. Foreground views provide a high degree of discernible detail, including unobstructed close-up views of landscape features. Middleground views provide a moderate degree of discernable detail, and also allow the viewer to judge visual elements within the context of the overall landscape composition. Although background views provide a muted degree of detail, at a background distance (greater than 4 miles) viewers can distinguish vegetative changes, large openings or disturbances, and large rock outcrops. Texture disappears and colors flatten at this distance, but landform ridgelines and horizon lines are dominant visual characteristics. The role of background in providing scenic quality lies mainly in its capacity as a contrasting and softened backdrop, or in scenic vista or overlook situations.

There are numerous gravel turnouts and informal viewpoints along the aforementioned roadways and near the proposed Project ROW where motorists frequently stop and from which they can enjoy panoramic views of the Mojave Desert to the north, the San Gabriel Mountains in the ANF, and the San Gabriel and Pomona Valleys to the south. There are very few locations where the proposed Project would be completely screened from view. This fact is demonstrated by the extensive areas of High SIO and the relatively small and scattered locations designated with Moderate Scenic Integrity Objective from the Forest Plan's SIO map for the ANF (see Figure 3.14-2 in the Map & Figure Series Volume).

3.14.2.2.4 South Area

In the South Area, the urban and suburban areas of Los Angeles and San Bernardino Counties, vegetation is both low-growing native grasses and shrubs, or culturally introduced street-tree plantings and residential/commercial landscapes. Topography ranges from flat valley floors to rolling hills to steep

hillsides. Natural drainages are almost non-existent, as most urban rivers and streams have been modified with concrete channels. Urban infrastructure, including freeways, existing transmission lines, electric substations, drainage channels, plus single-story and multi-story buildings dominates the South Area. A multitude of scenic viewing opportunities of the proposed Project and its alternatives are provided by the numerous freeways, State highways, arterial roads, and literally thousands of residential streets in these urban and suburban areas. Additionally, many county, city, and regional parks and trails offer scenic viewing opportunities. The State has designated portions of the Orange Freeway (State Highway 57) as "Eligible" to become a State Scenic Highway where it traverses largely undeveloped hills between Brea and Diamond Bar, and TRTP would cross State Highway 57 in this vicinity. Colima Road, Hacienda Road, and Harbor Boulevard are proposed as scenic corridors in the most recent update to the County of Los Angeles General Plan. Los Angeles County has designated several other roads as Priority Two Scenic Highways, also indicating a high sensitivity for scenic integrity of landscapes. Portions of Interstate 210 (I-210) and State Highways 39 and 57 are either designated as, or eligible for, State Scenic Highway status and portions of the proposed Project would be visible from these roadways.

Almost the entire extent of the proposed Project's Segments 4 through 11 is visually impacted by existing transmission line infrastructure, with the exception of Segment 10, which involves the establishment of an all new ROW. Although the proposed Project primarily would be located within established utility corridors, any increase in industrial character caused by larger and/or additional transmission towers and conductors and that is noticeable to sensitive viewing populations (e.g., community residents, recreational travelers on local trails, roads, and freeways, equestrians, hikers, picnickers, campers, and back-country recreationists) likely would be perceived as an adverse visual change. Likewise, a new ROW with new transmission lines, such as Segment 10 and various routes ~~as~~that are part of the Chino Hills Alternative likely would be perceived as an adverse visual change.

3.14.2.3 Alternative 2: SCE's Proposed Project

Provinces, Landscape Units, and KOPs

Alternative 2, SCE's proposed Project, extends from the approved Windhub Substation, located in Kern County, to the existing Mira Loma Substation in the City of Ontario. The following description of existing visual resources along the proposed Project's ROW has been divided into the three geographic areas defined in Section 3.14.2 (the North, Center and South Areas). However, it is noted that ~~I~~in addition to these three geographic areas ~~(North, Center, and South) described above~~, the landscape can be further subdivided. It is important to identify and map existing landscape character at different scales: macro-scale and micro-scale. At a macro-scale, large geographic areas having consistent existing landscape character are called landscape provinces. At a micro-scale, small distinct landscape areas having consistent existing landscape character are called landscape units. For the proposed Project, a landscape unit is defined as an identifiable transmission line segment or span that contains the view and/or is an area where landscape conditions are generally similar.

Starting in the North Area at Windhub Substation and proceeding through the Center Area to the Mira-Loma Substation in the South Area, the proposed Project route can be subdivided into nineteen (19) landscape units, based on similar landscape conditions and characteristics.

This section documents the existing visual conditions in each of the landscape units through which the proposed transmission line would pass. Please refer to Appendix B of the *Visual Resources Specialist Report* for a set of maps that provide a detailed look at each landscape unit and KOP location, and

Appendix D of the *Visual Resources Specialist Report* for photographs of representative views (landscape character photos) in each landscape unit.

North Area: Antelope Valley Landscape Region

The North Area, the Antelope Valley Landscape Region, consists of four landscape units (1-4), extending from the Tehachapi Mountains in the north to the Vincent Substation in the south, as provided in Appendix B (Landscape Unit Maps and Key Observation Points) of the *Visual Resources Specialist Report*. ~~shown in the landscape unit maps included in the Map & Figure Series Volume. These maps show major landforms, major streets and roads, and the location of photograph viewpoints for KOPs used as the basis for simulations and analysis in the North Area.~~

Landscape Unit 1

Landscape Unit 1 extends roughly from the base of the Tehachapi Mountains in the north to just north of the Antelope Substation in the south. Landscape Unit 1 is characterized primarily by its undeveloped nature and its rural/agricultural developments in the desert of Antelope Valley. Views throughout Landscape Unit 1 have the common theme of being expansive, with few view obstructions and many distant mountain views. Vegetation is limited primarily to grasses with low shrubs. Larger trees are notably absent and trees associated with human development are mainly windbreaks. Expansive valley views with distant mountains are the major natural visual features in this landscape unit (refer to Figures B-2, B-3, and B-4 in Appendix B of the *Visual Resources Specialist Report* for maps of Landscape Unit 1).

Land uses in and near Landscape Unit 1 that influence landscape character are largely comprised of utilities (scattered transmission lines throughout) and transportation (paved two-lane roads and local roads on a one-mile grid). With the exception of scattered rural residences, the landscape unit is primarily undeveloped. The far northern end of the landscape unit is dominated by the presence of wind turbines associated with wind development in the Tehachapi Mountains and by the Cal Cement facility. The PCT crosses the northwest corner of Landscape Unit 1 in a southwest-northeast direction. The PCT generally follows access roads and trails associated with the Los Angeles Aqueduct in this vicinity (SCE, 2007a). Although most of the PCT is situated to follow ridgelines, it has been diverted northeast of the nearest ridgeline in this area due to the location of private property (Tejon Ranch) where easements for the trail have not been granted. Segment 4 would traverse the PCT at MP 2.7. Fields devoted to irrigated and un-irrigated field crops are found in the central portion of Landscape Unit 1, particularly in the vicinity of the proposed Whirlwind Substation. Major roads in Landscape Unit 1 include Oak Creek Road at the far north, Tehachapi-Willow Springs Road, Rosamond Boulevard, and Highway 138, all of which are paved roads. There is also a one-mile grid of paved and unpaved local roads throughout the unit. Toward the southern end of Landscape Unit 1, the Antelope Valley California Poppy Reserve, a 1,745-acre California State Park located on the Antelope Buttes at an elevation of approximately 2,600 to 3,000 feet, is an important area of recreational land use, albeit seasonal in the spring.

Important human-made features that can be seen within Landscape Unit 1 include the transmission lines, open pit mine operations, and the grid of paved and unpaved roads. The existing transmission lines are among the most visible human-made features in this landscape area.

Segment 10 would establish a new ROW through the desert and Segment 4 would follow the existing Antelope-Magunden transmission line corridor. There is no existing transmission ROW in the vicinity of Segment 10. The existing transmission ROW throughout Segment 4 varies between 0 and 580 feet in

width. Existing transmission structures throughout Segment 4 are a mix of LSTs carrying either 220-kV or 500-kV conductors. The future Windhub Substation was approved as a part of the Antelope Transmission Project, Segment 3 (also known as ATP Segment 3 or TRTP Segment 3). The proposed Whirlwind Substation does not currently exist and is a necessary part of the proposed Project.

Sensitive viewers in Landscape Unit 1 include scattered homeowners with views of the transmission corridor and people driving throughout the unit, particularly on Oak Creek Road, Tehachapi-Willow Springs Road, Rosamond Boulevard, and Highway 138. Sensitive viewers also include seasonal visitors to the Antelope Valley California Poppy Reserve. The level of visual sensitivity varies by type of viewer and view duration and exposure, but is generally considered low-to-moderate for most of Landscape Unit 1, given the limited number of residences, minimal traffic, but high visual exposure and lack of vegetative or landform screening. The exception to this rule is the California Poppy Reserve and surrounding landscapes during poppy blooming season, generally March 31 to May 31 each year. Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 1.

The study corridor in Landscape Unit 1 traverses through Kern and Los Angeles counties jurisdictions. Applicable laws, regulations, and standards relative to scenic quality for transmission lines in Landscape Unit 1 are included in Appendix C of the *Visual Resources Specialist Report*. There are no designated state or local scenic highways located within Landscape Unit 1.

KOP-North-1 – Oak Creek Canyon Road (Segment 10)

KOP-North-1 was established on Oak Creek Canyon Road looking west toward the site of the future Windhub Substation that was approved as part of ATP 2-3. Segment 10 of TRTP would start at the future Windhub Substation, approximately 200 feet south of Oak Creek Canyon Road on a relatively flat desert plain of the Mojave Desert, and approximately one mile east of the Cal Cement Substation access road, and proceed southwest across the desert. At this location, the desert appears flat, but is actually gently sloping, northwest to southeast. Looking west along Oak Creek Canyon Road, the Tehachapi Wind Resource Area is to the north (right) and the undeveloped Mojave Desert is on the south (left) side of the road (see Map & Figure Series Volume, Figure 3.14-3a. (For all KOP figures with pairs of photographs/ simulations, the "a" designates the photograph of existing landscape conditions and the "b" designates the computerized visual simulation). The future Windhub Substation would be a 500/220/66-kV facility. The site of Segment 10 MP 0.0 and the future Windhub Substation is approximately one mile away from this vantage point, a middleground viewing distance. Figure 3.14-3a (see Map & Figure Series Volume) is representative of existing conditions seen at foreground and middleground viewing distances near S10 MP 0.0 to S10 MP 17.

- **Viewer Exposure: moderate-to-high.** Because there is no landscape screening by landforms or vegetation, the proposed TRTP 500-kV single-circuit transmission lines (and future Windhub Substation) would be highly visible in the middleground and foreground from Oak Creek Canyon Road. The number of viewers would be low-to-moderate. For all of these viewers, the duration of view would be brief because of the speed of travel and viewer exposure therefore would be moderate-to-high.
- **Viewer Concern: low.** Many people who travel on Oak Creek Canyon Road work in the wind industry or at Cal Cement and can be expected to have low concern for visual impacts that would be caused by Windhub Substation and the transmission lines. Travelers on this road may be concerned with visual resources, but most are traveling through the area to other, more scenic destinations. Overall, viewer concern is estimated to be low.
- **Visual Quality: low.** The primary focal points in this landscape are the numerous rows of large, white wind turbine generators that occupy the skyline to the north. The axial view created by Oak Creek Canyon Road leads the viewers' eye to secondary focal points – angular landforms of Tehachapi Mountains visible on the

skyline. The motion of spinning rotors on existing wind turbine generators adds visual interest, but detracts from the natural-appearing landscape character and changes it to an industrial character landscape, resulting in a low visual quality rating.

- **Overall Visual Sensitivity:** low-to-moderate. For viewers on Oak Creek Canyon Road in general, and from KOP-North-1 specifically, the moderate-to-high viewer exposure, low viewer concern, and low visual quality, lead to a low-to-moderate overall visual sensitivity of the visual setting and viewing characteristics.

KOP-North-2 – Tehachapi Willow Springs Road (Segment 10)

KOP-North-2 was established on Tehachapi Willow Springs Road, looking northwest, at the point where the road turns northwest, after running straight north for many miles in the Mojave Desert. A new 500-kV transmission line would exit Windhub Substation and head south across the flat, undeveloped desert plains. For the proposed Project from S10 MP 0.0 to S10 MP 17.0, the only vantage points of sensitive receptors are Oak Creek Canyon Road (see KOP-North-1), Tehachapi Willow Springs Road (Map & Figure Series Volume, Figure 3.14-4a), and Rosamond Boulevard near 170 Street West.

The proposed Project would cross over the Tehachapi Willow Springs Road at approximately S10 MP 4.3 and would follow along the Los Angeles Aqueduct from approximately S10 MP 7.5 to S10 MP 15.8. The aqueduct is an underground facility, with access roads being the only aboveground feature. As such, the aqueduct is not a landscape feature and does not attract attention. Figure 3.14-4a (see Map & Figure Series Volume) is representative of existing conditions seen at foreground and middleground viewing distances from S10 MP 3.0 to S10 MP 9.0.

- **Viewer Exposure: moderate-to-high.** The proposed Project would vary from zero miles to two miles away from sensitive receptor locations, and therefore, would be classified as foreground and middleground viewing distances. Because there is no landscape screening by landforms or vegetation, the proposed Project would be highly visible in the middleground and foreground from Tehachapi Willow Springs Road, as well as both Oak Creek Canyon Road. The number of viewers on Tehachapi Willow Springs Road would be moderate, and on Oak Creek Canyon Road would be low-to-moderate. For all of these viewers, the duration of view would be moderate-to-brief because of the speed of travel, resulting in a moderate-to-high viewer exposure.
- **Viewer Concern: low.** People could view the transmission line from both Oak Creek Canyon and Tehachapi Willow Springs Roads. Many people who travel these roads work in the wind industry, at Cal Cement, or nearby agricultural operations. They can be expected to have low concern for visual impacts that would be caused by the proposed Project's transmission line. Travelers on these roads may be concerned with visual resources, but most are traveling through the area to other, more scenic destinations. Overall, viewer concern is estimated to be low.
- **Visual Quality: low.** From S10 MP 0.0 to S10 MP 16.8, the landscape is characterized by a gently sloping desert plain, tilted slightly southeast, covered with gray-green creosote bush scrub and widely scattered Joshua trees. Widely spaced, shallow desert washes are obscured by this vegetation and are not visually evident to passers-by. The primary focal points in this landscape are the wind turbine generators on the skyline in the Tehachapi Wind Resource Area. The secondary focal point is the flat desert plain that creates a horizontal line in front of the rugged, barren, wind-swept mountains. The overall visual quality of the affected landscape is low.
- **Overall Visual Sensitivity: low-to-moderate.** For viewers on Tehachapi Willow Springs Road in general, and from KOP-North-2 specifically, the low visual quality, low viewer concern, and moderate-to-high viewer exposure lead to a low-to-moderate overall visual sensitivity.

KOP-North-3 – 170th Street West (Segments 4, 9, 10)

KOP-North-3 was established on 170th Street West, about 1.5 miles south of Rosamond Boulevard, looking north toward the site of the TRTP Whirlwind Substation and two new 220-kV transmission lines of Segment 4 entering the proposed Whirlwind Substation from the northwest and one new 500-kV transmission line of Segment 10 entering from the northeast. Then one new 500-kV transmission line

would proceed southeast toward Antelope Substation (see Map & Figure Series Volume, Figure 3.14-5a). The location chosen for the KOP is located just south of the substation and transmission corridor, looking north into the Tehachapi Mountains.

The existing view from this KOP reveals widely scattered tumbleweeds on the immediate foreground plain, a sloping plain covered with dense creosote bush scrub that is contained by rolling hills in the middleground and the Tehachapi Mountains in the background. The PCT traverses the dense creosote brushfield in this landscape, although it is not visible in Figure 3.14-5a. It generally follows access roads and trails associated with the Los Angeles Aqueduct before resuming a trail tread in the mountains to the right, further north. Although most of the PCT is situated to follow ridgelines, it has been diverted northeast of the nearest ridgeline (downhill onto the flats) in this area due to the location of private property (Tejon Ranch) where easements for the trail have not been granted. The two new 220-kV transmission lines of Segment 4 would cross over the PCT at S4 MP 2.7.

Faintly visible against the middleground hills are several existing transmission lines of the Antelope-Magunden corridor. Undeveloped flat lands on the west side of 170th Street give way to agricultural fields on the east side (out of view of Figure 3.14-5a, but visible from this KOP). The human-made elements of these transmission lines become somewhat transparent against the landform backdrop.

- **Viewer Exposure: moderate.** The proposed Project would vary from zero to one mile away from viewers on 170th Street West at KOP-North-3 and from viewers on Rosamond Boulevard, and therefore would be classified as foreground and middleground viewing distances. Because there is no landscape screening by landforms or vegetation, the proposed Whirlwind Substation and dual 220-kV transmission lines would be highly visible in the foreground and middleground from 170th Street and Rosamond Boulevard. The number of viewers on 170th Street is low because it is a rural agricultural road, but is moderate to high for Rosamond Boulevard. For all of these viewers, the duration of view would be moderate-to-brief because of the speed of travel, resulting in a moderate viewer exposure.
- **Viewer Concern: low.** People could view the proposed dual 220-kV transmission lines of Segment 4 as they enter the proposed Whirlwind Substation from the northwest and as the lines proceed southeast away from the Substation. Viewer concern is expected to be low, because the existing transmission lines have not been seen as objectionable by local residents, and no comments were received in scoping that opposed the proposed substation site.
- **Visual Quality: moderate.** The combination of flat desert plain with scattered tumbleweeds, sloping plains leading up to rolling hills, with a mountainous backdrop in a near-natural state, create a visually interesting composition that has moderate-to-high existing visual quality. The presence of existing transmission lines slightly decreases the overall visual quality to an overall moderate level.
- **Overall Visual Sensitivity: low-to-moderate.** For viewers on 170th Street West and Rosamond Boulevard in general, and from KOP-North-3 specifically, the moderate viewer exposure, low viewer concern, and moderate visual quality lead to a low-to-moderate overall visual sensitivity.

KOP-North-4 – California Poppy Reserve (Segment 4)

KOP-North-4 was established at the Antelope Buttes Vista Point within the Antelope Valley California Poppy Reserve, looking northeast (see Map & Figure Series Volume, Figure 3.14-6a). The Poppy Reserve is a day-use park, with a visitor center that is open from March 31 through May of each year to correspond with the typical poppy season. There are eight miles of trails that traverse the Antelope Buttes throughout the park. This KOP was selected because the Poppy Reserve is a heavily-visited destination during poppy season. This specific location is a viewing point identified on the Poppy Reserve trail map and is the viewpoint that is closest to the transmission corridor.

The foreground of KOP-North-4 consists of the rolling hills of the Antelope Buttes, gently sloping down to the valley through which the existing transmission corridor, as seen in the middleground, traverses

approximately 1.4 miles in the distance. Due to the distance to the transmission corridor and because the transmission towers are situated with a landform backdrop, they become somewhat transparent and their visibility is relatively low. Also visible in the middleground are scattered residences, while the more urban areas of Lancaster and Palmdale and distant mountains are visible in the background. Most of the area visible from KOP-North-4 is undeveloped, with the low grasses and shrubs typical of Landscape Unit 1.

- **Viewer Exposure: high.** The proposed Project Segment 4 would vary from 1.4 miles to several miles away from sensitive receptors at the Poppy Reserve, making this a middleground view. Visibility to the new transmission line would be high because no landform or vegetative screening is available; however, there would be a landform backdrop as explained above. Large numbers of people would view this landscape during poppy blooming season and because this is a vista point and high point on a hiking trail system that is eight miles long, the duration of view would be long. Therefore, viewer exposure would be high.
- **Viewer Concern: high.** People come to the Poppy Reserve to view poppies in bloom and to experience this unique landscape. Viewers at this KOP have come specifically to see the unique landscape at the Poppy Reserve and viewer concern is high for this valued landscape. New transmission line structures would increase the already industrial character of the transmission line corridor in this otherwise rural and natural-appearing landscape.
- **Visual Quality: high.** The expansive views of the Antelope Buttes' rolling hills and Antelope Valley with mountains in the distance are visually pleasing. The vegetative cover of low grasses has minimal visual variety, but poppies provide much greater visual interest during their short blooming season. At that time, this landscape would have a high visual quality. As depicted in Figure 3.14-6a, existing visual quality during the out-of-bloom season is low, and is further degraded by the visual clutter of existing transmission lines that are marching across the Antelope Valley from north to south. The transmission corridor has LSTs of various sizes and designs, further cluttering the view. Faintly visible residences in the distance and urban areas of Palmdale are minor focal points in this landscape but do not detract from the naturalness of the view as much as the transmission lines. Therefore, taking the worst case scenario during poppy blooming season, this landscape has high existing visual quality.
- **Overall Visual Sensitivity: high.** For visitors to the California Poppy Reserve during poppy-blooming season in general, and from KOP-North-4 specifically, the high viewer exposure, high viewer concern, and high visual quality lead to a high overall visual sensitivity.

KOP-North-5 – 110th Street at Silverwind Way (Segment 4)

KOP-North-5 was established on 110th Street near its intersection to Silverwind Way, a private road. At this location, 110th Street is a Priority 2 County Scenic Highway. This view is looking northwest across the Antelope Valley toward the Tehachapi Mountains in the background (see Map & Figure Series Volume, Figure 3.14-7a). This location was selected to generally characterize the existing landscape in the North Area in the location of SCE's proposed Project and also the West Lancaster Alternative (see Section 3.14.2.4, Alternative 3). SCE's proposed Project would follow along 110th Street West for approximately two miles. Views from county roads in this vicinity encompass a predominantly natural-appearing landscape setting with limited development other than the existing roads and a few scattered ranch buildings.

West 110th Street is a straight north-south road that gradually descends in elevation from Portola Ridge into the flat Antelope Valley. Under the proposed Project, new 500-kV transmission lines and LSTs would be located on the east side of the road, right next to the county road ROW. These structures would be very visually evident in the immediate foreground of West 110th Street from S4 MP 15.8 to S4 17.9, a distance greater than 2 miles, and would be very visually evident and incongruent with the natural-appearing scenery.

- **Viewer Exposure: high.** Because there is no landscape screening by landforms or vegetation, the proposed Project would be highly visible in the foreground and middleground of views from KOP-North-5 and all along 110th Street West for more than two miles. Although the duration of view for residents on Silverwind Way is extended, the number of potential viewers is relatively low. The number of viewers on 110th Street West is low-to-moderate, except in spring when the poppies bloom and the number of viewers is high and duration of view is moderate. Viewer exposure is therefore high.
- **Viewer Concern: high.** Visitors and residents enjoy the predominantly natural setting with distant, panoramic sightlines to the Antelope Valley and Tehachapi Mountains. The widely scattered ranches have predominantly horizontal structures (one story buildings) and predominantly horizontal windbreaks of low-growing trees and evergreen shrubs. The vertical character of the existing transmission line structures are visible and contrast with the horizontal nature of the panoramic, open-space landscape. Although residents and visitors also accept the existing electric transmission infrastructure, any increase in industrial character visible from this county scenic highway, or blockage/impairment of skyline views by tower structures in the immediate foreground, would be perceived by viewers as an adverse visible change.
- **Visual Quality: moderate-to-high.** The predominant visual elements of this scene are the horizontal lines of the Antelope Valley and the rugged diagonal lines created by the background mountain ranges. The existing 500-kV transmission lines are prominent vertical features in the middleground. Colors in the landscape include bright orange poppies in spring, green sage and grasses in winter, spring and early summer, and tan grasses in summer and autumn. The existing transmission lines diminish the scenic integrity of this landscape, reducing what would otherwise be a high level of visual quality, especially when viewed in springtime with poppies in bloom, to a moderate-to-high level.
- **Overall Visual Sensitivity: high.** For visitors to Antelope Valley in general and KOP-North-5 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality, lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 2

Landscape Unit 2 consists of the Antelope Substation and extends approximately 1 to 1.5 miles to the north and south of the substation. Landscape Unit 2 is roughly the dividing point in the Antelope Valley between the flat, undeveloped areas to the north and the more developed, hilly areas to the south. Landscape Unit 2 has been designated to capture potential views of the proposed expansion of the Antelope Substation. The area surrounding the Antelope Substation is characteristic of the flat high desert, with low, scrubby vegetation. The landscape gently slopes from south to north, away from the Portola Ridge, with distant Sierra Pelona Mountains further to the south (refer to Figure B-4 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 2).

Photo P-2.2 from Appendix D of the *Visual Resources Specialist Report* shows typical views looking north through Landscape Unit 2. From this location, the landscape slopes gently northward, away from Portola Ridge, with views extending across the high desert plain to the far distant Tehachapi Mountains in the background. Expansive valley views with distant mountains are the major natural visual features in Landscape Unit 2.

Land uses in and near Landscape Unit 2 that influence landscape character are largely comprised of utility and transportation infrastructure (composed of transmission line corridors and the grid of paved and unpaved roads found throughout the Antelope Valley). Residences and homesteads are scattered throughout Landscape Unit 2, but there are no planned residential developments present. The existing transmission corridor is a major human-made feature in Landscape Unit 2. The existing Antelope Substation is approximately 13.8 acres in size, and the upgrade would require approximately 18 additional acres to the southeast (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 2.

Sensitive viewers in Landscape Unit 2 include scattered homeowners with views of the transmission corridors and Antelope Substation. Because these viewers are stationary, the level of visual sensitivity is considered high. The study corridor in Landscape Unit 2 traverses through both the City of Lancaster and Los Angeles County jurisdictions. Applicable laws, regulations, and standards relative to scenic quality for transmission lines Landscape Unit 2 are included in Section 3.14.3 and in Appendix C of the *Visual Resources Specialist Report*. There are no designated state or local scenic highways located within Landscape Unit 2.

KOP-North-6 – Avenue J at Antelope Substation (Segment 9)

KOP-North-6 was established on Avenue J looking southwest at the existing Antelope Substation. The camera location is just slightly east of the proposed expansion area for the Antelope Substation, as shown in Figure 3.14-1 (see Map & Figure Series Volume), the KOP Map. KOP-North-6 was selected to represent views of the substation expansion by travelers driving west on Avenue J and from the scattered residences in the Project vicinity.

The existing view from KOP-North-6 is shown in Figure 3.14-8a (see Map & Figure Series Volume). Avenue J and the flat high desert landscape form the foreground of KOP-North-6, extending toward the existing Antelope Substation and the proposed expansion area for the substation. The view from KOP-North-6 is dominated by the existing substation itself, and existing transmission lines leading into the substation from the northwest (right side of Figure 3.14-8a) and extending from the substation toward the southeast (left side of Figure 3.14-8a). In the middleground is Portola Ridge, which forms the backdrop for this KOP. Faintly visible in the middleground are scattered residences at the base of the Portola Ridge. Present, but not clearly visible, is the California Aqueduct, which follows the base of the Portola Ridge and seen as a horizontal line in the landscape. Vegetation is sparse, typical of Landscape Unit 2. The human-made elements of substation, transmission lines, and Avenue J in KOP-North-6 dominate the view. Where not obscured by the existing Antelope Substation, the backdrop of the Portola Ridge is the primary natural visual feature from this KOP.

- **Viewer Exposure: moderate-to-high.** Because there is no landscape screening by landforms or vegetation, the proposed Antelope Substation expansion would be highly visible in the foreground as seen from Avenue J and middleground from other nearby roads and residences. The number of viewers is currently low-to-moderate; the duration of view would be brief for travelers and long for residents. Therefore, viewer exposure would be moderate-to-high.
- **Viewer Concern: moderate.** KOP-North-6 was selected to represent views from travelers on Avenue J and residents in the vicinity of the Antelope Substation and the concern level for viewers is expected to be moderate.
- **Visual Quality:** low-to-moderate. Rolling hills of Portola Ridge make a visually pleasing backdrop, but low grasses on this flat landscape lack visual interest. Existing transmission lines with a mix of structure types and heights, criss-crossing conductors, and the existing Antelope Substation are major human-made features that create a major reduction in overall visual quality for this landscape, reducing visual quality to a low-to-moderate level.
- **Overall Visual Sensitivity: moderate.** For viewers on Avenue J in general, and from KOP-North-6 specifically, the moderate-to-high viewer exposure, moderate viewer concern, and low-to-moderate visual quality, lead to a moderate overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 3

This landscape unit extends from approximately 1.5 miles south of the Antelope Substation to approximately 1.5 miles north of the Vincent Substation. Much of Landscape Unit 3 lies within the cities of Lancaster and Palmdale, and traverses future developments proposed in areas at the western fringes of

these communities. Landscape Unit 3 is characterized by the rolling hills of Portola Ridge, Ritter Ridge, and Sierra Pelona Ridge that divide the high desert of the Antelope Valley in the north from Soledad Canyon and the ANF to the south. Although largely undeveloped currently, multiple large-scale residential developments are proposed and/or underway along some segments of the proposed Project route for Segment 5. For maps showing Landscape Unit 3, refer to Figures B-4 and B-5 in Appendix B of the *Visual Resources Specialist Report*.

The northern portion of Landscape Unit 3 is characterized by a gently increasing slope as the transmission corridor heads south toward Portola Ridge. Vegetation on Portola Ridge is sparse, with low scrub brush. In this location, existing transmission lines are clearly visible on the ridgeline as the transmission corridor drops into Anaverde Valley. The landscape in this vicinity is gently sloping with rounded hills. Vegetation is notably absent in the foreground, as grading for a future residential development is underway, with grasses and low-growing brush on the middleground hills.

A number of residences are visible at the base of Sierra Pelona Ridge, which has the same low scrubby vegetation as the other mountain ridges in Landscape Unit 3. Existing land uses in Landscape Unit 3 that influence landscape character are primarily comprised of utility (transmission lines) corridors and scattered residences and homesteads at the base of the mountain ridges throughout the unit. Future proposed land uses in Landscape Unit 3 include the major residential developments of Anaverde, Ritter Ridge, and Quail Valley. The study transmission corridor is a major human-made feature in Landscape Unit 3. Existing ROW cross-sections for Segment 5 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW associated with Segment 5 is 200 feet wide. The existing transmission ROW in Segment 5 varies between 380 and 920 feet wide. Existing transmission structures along Segment 5 are a mix of LSTs carrying either 220-kV or 500-kV conductors and tubular steel towers carrying 220-kV conductors (SCE, 2007a).

Sensitive viewers in Landscape Unit 3 include residents with views of the transmission corridor, and travelers on the roads that cross the ridgelines in the vicinity of Landscape Unit 3, particularly Elizabeth Lake Road and Godde Hill Road. The level of visual sensitivity ranges from moderate (for travelers) to high (for residents). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 3.

The study corridor in Landscape Unit 3 traverses through jurisdictions that include the cities of Lancaster and Palmdale and Los Angeles County. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 3 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. There are no designated State scenic highways located within Landscape Unit 3, but several roads are called out as Priority 2 County Scenic Highways in the County of Los Angeles General Plan (including 110th Street, Johnson Road, Elizabeth Lake Road, and Bouquet Canyon Road) (County of Los Angeles, 2005).

KOP-North-7 – Avenue L Near Olive Grove (Segment 5)

KOP-North-7 was established on Avenue L near an existing homestead with an olive grove, looking southeast. The proposed Project would traverse the flat desert plain of Antelope Valley, following multiple existing transmission lines in the Antelope-Vincent Corridor (see Map & Figure Series Volume, Figure 3.14-9a). Segment 5 would remove two existing 220-kV lines and replace them with one new 500-kV line in the same alignment. Additionally, Segment 2 of the already approved Antelope Transmission Project would remove the line of wooden 66-kV transmission poles and replace them with 75-foot-tall, light-weight, direct-buried TSPs, 180 feet west of and parallel to the existing alignment of the existing

wooden structures. Following this relocation, Segment 2 will construct the proposed 500-kV LSTs in the location of the existing 66-kV transmission poles. Figure 3.14-9a (see Map & Figure Series Volume) is representative of existing conditions seen at foreground and middleground viewing distances from S5 MP 0.0 to S5 MP 4.4.

- **Viewer Exposure: moderate-to-high for residences, moderate for roads.** The proposed Project would be highly visible from nearby residential properties at KOP-North-7. Sensitive receptors also would be located on Avenue L, 70th Street West, and at the residential developments just east of the utility corridor and north and south of Avenue M. The proposed Project would be vary from zero miles to 0.5 miles away, and therefore, would be classified as foreground viewing distances. Currently, the number of viewers is low at these widely scattered residences, but from each, the duration of view is extended, resulting in high viewer exposure. From roads that cross the Study Area, the number of viewers is low-to-moderate and duration of view is brief because of travel speeds, resulting in moderate viewer exposure.
- **Viewer Concern: low for residences, high for roads.** From roads throughout the Study Area, viewer concern is the same as described for KOP-North-6 above for most of the year. For a few weeks in spring, viewer concern is high when poppies are in bloom. From residences within this portion of the Study Area, viewer concern is low, based on the fact that many houses and homesteads have been built immediately adjacent to the Antelope-Vincent utility corridor and existing transmission lines.
- **Visual Quality: low.** Looking southeast, the primary focal point in this landscape is Portal Ridge, a fairly horizontal grass-covered ridgeline with scattered evergreen shrubs. The secondary focal point is the horizontal line formed by the desert plain as it meets the foot of Portal Ridge. The California Aqueduct runs along the lower slopes, and is visible as a faint horizontal line, but does not attract attention. Within the Study Area from S5 MP 0.0 to S5 MP 4.4, the visual quality of this landscape is low because of the lack of topographic features, water features, or interesting vegetation on the desert floor, and the presence of multiple transmission lines that visually clutter the landscape.
- **Overall Visual Sensitivity: low-to-moderate for residences, moderate for roads.** For residents living near the proposed Project at S5 MP 0.0 to S5 MP 4.4, and from KOP-North-7 specifically, the moderate-to-high viewer exposure, low viewer concern, and low visual quality lead to a low-to-moderate overall visual sensitivity. For travelers on nearby roads, the moderate viewer exposure, high viewer concern, and low visual quality lead to a moderate overall visual sensitivity for the current situation.

KOP-North-8 – Avenue N at Agena Road (Segment 5)

KOP-North-8 was established on Avenue N at Agena Road, looking south (see Map & Figure Series Volume, Figure 3.14-10a). From S5 MP 4.4 to S5 MP 6.4, the proposed Project would cross over the crest of Portal Ridge. Because Portal Ridge forms a landscape backdrop for much of the Antelope Valley and the City of Lancaster, any skylining of additional industrial character structures would be a potential visual impact. There are numerous major roads from which the proposed Project would be viewed with Portal Ridge as a backdrop or with towers seen on the skyline, including 70th Street West, 60th Street West, Avenue M-8, Godde Hill Road, and Avenue N. Numerous minor roads and residential streets also provide views to the proposed Project for nearby residents and visitors to Lancaster. A new development is currently under construction at the Quartz Hill Water Treatment Plant of the Antelope Valley East Kern (AVEK) Water Agency, in the immediate foreground of KOP-North-8.

- **Viewer Exposure: high.** Because there is no screening by landforms or vegetation, the proposed Project would be highly visible on the slopes of Portal Ridge at foreground and middleground viewing distances from S5 MP 4.4 to S5 MP 6.4, and specifically as seen from KOP-North-8. The duration of view would be extended from these residential neighborhoods, and the number of potential viewers would be high; therefore the overall viewing exposure would be high.
- **Viewer Concern: moderate.** Visitors and residents enjoy the predominantly rural setting with panoramic sightlines to Portal Ridge on the west side of Lancaster. Nearby residents enjoy the natural-appearing backdrop to their homes and neighborhoods, with panoramic vistas to the round landforms and mottled

vegetation. Because residents are familiar with and accepting of existing transmission lines in the Antelope-Vincent corridor, viewer concern is determined to be moderate.

- **Visual Quality: low-to-moderate.** The primary focal point in this landscape is now the new construction in the immediate foreground, plus the skyline ridge, which forms an extensive vertical backdrop against the flat desert plain and flat residential neighborhoods of Lancaster. Secondary focal points are the vertical lines and angular forms of the various transmission line structures in the Antelope-Vincent Corridor, which are seen crossing Portal Ridge in this view. The California Aqueduct forms a horizontal line crossing the lower slopes of Portal Ridge throughout this portion of the Study Area, and in the foreground of this view, a chain link fence surrounds the Antelope Valley East Kern (AVEK) Water Treatment Facility that is undergoing new construction. Portal Ridge in its natural state exhibits a moderately high degree of intactness and coherence of form and character with moderate visual variety. But the presence of transmission lines and the aqueduct has introduced an industrial character to this otherwise natural-appearing landscape, lowering visual quality to a low-to-moderate level. Figure 3.14-10a (see Map & Figure Series Volume) is representative of existing conditions seen at foreground and middleground viewing distances from S5 MP 4.4 to S5 MP 6.4.
- **Overall Visual Sensitivity: moderate.** For residents and visitors to western Lancaster in general and KOP-North-8 specifically, the high viewer exposure, moderate viewer concern, and low-to-moderate visual quality lead to a moderate overall visual sensitivity of the visual setting and viewing characteristics.

KOP-North-9 – Godde Hill Road (Segment 5)

At approximately S5 MP 6.4, the proposed Project would cross over Godde Hill Road, just downhill on the north side of Godde Pass on Portal Ridge. KOP-North-9 was established on Godde Hill Road at the center of the existing utility corridor, looking southeast. There is a turnout at this location along the twisting, two-lane paved road. During site investigations, it was noted at several times that people were stopped at the turnout, looking at the five existing transmission lines that cross the road at this location (see Map & Figure Series Volume, Figure 3.14-11a).

- **Viewer Exposure: moderate-to-high.** The proposed Project Segment 5 would be situated in the middle of this utility corridor, and would replace two existing 220-kV lines with one 500-kV line. This utility corridor is visible from zero miles to 0.5 miles away, resulting in foreground viewing distances. Figure 3.14-11a (see Map & Figure Series Volume) is representative of existing conditions seen at foreground viewing distances from S5 MP 6.3 to S5 MP 6.7. Because there is no screening by landforms or vegetation, Segment 5 would be highly visible on the slopes of Portal Ridge at foreground viewing distances as seen from KOP-North-9. The duration of view would be brief on this twisting mountain road, and the number of potential viewers would be high; therefore the overall viewing exposure would be moderate-to-high.
- **Viewer Concern: moderate.** No residences are located along Godde Hill Road in the vicinity of KOP-North-9. While driving over Godde Pass, visitors and residents enjoy the predominantly rural setting with panoramic sightlines to the City of Lancaster on the north and Leona Valley to the south. During public meetings held in Quartz Hill for the already approved Antelope-Pardee Transmission Project, Segment 1 (TRTP 1), residents of Leona Valley spoke in opposition to the Antelope-Pardee Alternative 5 in their Leona Valley neighborhoods, but did not speak in opposition to the proposed crossing of Godde Hill Road or refer to visual impacts in this vicinity (Aspen, 2006a). Because residents are familiar with and accepting of existing transmission lines in the Antelope-Vincent corridor, viewer concern is determined to be moderate at Godde Hill Road.
- **Visual Quality: low-to-moderate.** The primary focal points in this landscape are the industrial character transmission line towers and conductors that punctuate the skyline view of Portal Ridge and the different tower configurations of each line. Secondary focal points are the scattered dark-green and gray-green shrubs on the gently rolling, grass-covered hillsides. Access and spur roads are present in the landscape, but have revegetated to such an extent that they are not visually evident. The interesting landforms and vegetative patterns have moderate visual quality, but the presence of these industrial character structures lowers visual quality to a low-to-moderate level.
- **Overall Visual Sensitivity: moderate.** For residents and visitors traveling over Portal Ridge and Godde Pass on Godde Hill Road, and as seen from KOP-North-9 specifically, the moderate-to-high viewer exposure,

moderate viewer concern, and low-to-moderate visual quality lead to a moderate overall visual sensitivity of the visual setting and viewing characteristics.

KOP-North-10 – Elizabeth Lake Road (Segment 5)

KOP-North-10 was established on Elizabeth Lake Road (a Second Priority County Scenic Highway) near several existing rural ranchettes, looking north (see Map & Figure Series Volume, Figure 3.14-12a). From S5 MP 6.7 to S5 MP 7.9, the proposed Project would be visible from Elizabeth Lake Road and these residential ranchettes. The proposed Project Segment 5 would replace two existing 220-kV lines with one 500-kV line and would pass near one uninhabited and three inhabited residences in this vicinity, which includes the AV Buffalo Ranch. At approximately S5 MP 7.5, the proposed Project would enter property owned by Ritter Ranch Development, a large planned development currently under construction. Figure 3.14-12a (see Map & Figure Series Volume) is representative of existing conditions seen at foreground viewing distances from S5 MP 6.7 to S5 MP 7.9.

- **Viewer Exposure: high.** The proposed Project would be highly visible from these residential properties because it would cross directly behind existing houses. As seen from Elizabeth Lake Road, the proposed Project would be highly visible on the slopes of Portal Ridge at foreground viewing distances from S5 MP 6.7 to S5 MP 7.9, and specifically as seen from KOP-North-10. The duration of view would be extended from these residential neighborhoods, and the number of potential viewers would be moderate. With the development of Ritter Ranch, immediately adjacent to this KOP, the number of viewers is predicted to be high. Therefore the overall viewing exposure would be high.
- **Viewer Concern: high.** During scoping meetings held in Rosamond and Palmdale for the already approved Antelope Transmission Project, Segment 2 (ATP 2), residents of the three occupied houses spoke in opposition to the proposed Segment 2 route based on visual impacts, housing, and land use impacts (Aspen, 2006b). Residents suggested possible realignments but did not oppose the proposed Project; their primary concern related to the desire to protect existing homes. Neighbors along Elizabeth Lake Road also spoke in opposition of the proposed alignment and in support of their friends and neighbors. The road is less than 0.5 mile from the proposed Project, and three houses are directly adjacent to the utility corridor, making this a foreground landscape view. Based on the intensity of comments during scoping, viewer concern is determined to be high.
- **Visual Quality: moderate-to-high.** The primary focal points in this landscape are its unique wildlife (American Bison) and the horizontal skyline backdrop formed by Portal Ridge. Additional focal points are created by the large, industrial transmission line structures of various designs and configurations – tall, narrow, gray LSTs, wider, shorter, gray LSTs, and white TSPs. Secondary focal points are the houses and ranch buildings, fence lined driveways, and residential landscaping. Newly graded earth is exhibited in the immediate foreground and Elizabeth Lake Road is being widened and straightened by the Ritter Ranch Developers. Without the transmission lines on the skyline, this rural, pastoral landscape would exhibit high visual quality, but the introduction of these towers and conductors has lowered the visual quality to a moderate-to-high level.
- **Overall Visual Sensitivity: high.** For residents of Elizabeth Lake Road in general and KOP-North-10 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-North-11 – Sierra Pelona Ridge from Avenue S (Segment 5)

KOP-North-11 was established on Avenue S looking southwest at Sierra Pelona Ridge. As before, two existing 220-kV lines would be replaced by one 500-kV line in this vicinity leading into the Vincent Substation south of the Antelope Freeway (I-14). Visual characteristics of the landscape are similar from approximately S5 MP 14.8 to S5 MP 20.2. This KOP is typical of views from many different vantage points, including new residential streets in the Anaverde and Palmdale 1000 Developments, existing residential streets in Palmdale~~ and Acton~~, Tuckerway Ranch Road, Peaceful Valley Road, and Avenue S (see Map & Figure Series Volume, Figure 3.14-13a). Currently under construction, the Anaverde

Development is visible on the right in Figure 3.14-13a and the proposed Palmdale 1000 Development would be constructed on vacant lands to the left side in Figure 3.14-13a.

- **Viewer Exposure: high.** Because there is no screening by landforms or vegetation, the proposed Project would be highly visible on the slopes of Sierra Pelona Ridge at foreground and middleground viewing distances from S5 MP 14.8 to S5 MP 20.2 in general, and specifically as seen from KOP-North-11. The duration of view would be brief from Avenue S, but long for residents and the number of potential viewers would be high; therefore the overall viewing exposure would be high.
- **Viewer Concern: high.** Visitors and residents enjoy the predominantly rural setting with panoramic sightlines to the eastern end of Sierra Pelona Ridge in the City of Palmdale. Nearby residents enjoy the natural-appearing backdrop to their homes and neighborhoods, with panoramic vistas to the grass-covered, rounded landforms. Because residents are familiar with and accepting of existing transmission lines in the Antelope-Vincent corridor and because many comments were received about visual impacts during scoping meetings, viewer concern is determined to be high.
- **Visual Quality: moderate.** The primary focal points in this landscape are the rounded landforms that create a strong horizon line at Sierra Pelona Ridge, the rolling, grass-covered foothills beneath, and the communication towers on the skyline. Secondary focal points are the transmission lines with various structure designs and configurations (LSTs and TSPs) and the row of wooden poles at the sub-transmission line along Avenue S. Because of the multitude of existing and new streets near this segment of the proposed Project, it would be seen at foreground and middleground viewing distances. From approximately S5 MP 14.8 to S5 MP 20.2, the proposed Project would be located at a midslope location, below the skyline, and new towers and conductors therefore would not be seen in silhouette from most vantage points, and would not degrade the visual quality. Figure 3.14-13a (see Map & Figure Series Volume) is representative of existing conditions seen at foreground and middleground viewing distances from S5 MP 14.8 to S5 MP 20.2. The overall visual quality of this portion of the proposed Project is moderate.
- **Overall Visual Sensitivity:** moderate-to-high. For residents and visitors who travel along Avenue S looking at Sierra Pelona Ridge in Palmdale and other vantage points described above, and KOP-North-11 specifically, the high viewer exposure, high viewer concern, and moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 4: Soledad Pass

This landscape unit is centered on the Vincent Substation and includes parts of Soledad, Kentucky Springs, and Aliso Canyons. It is situated between Landscape Unit 3 to the north and the ANF and Landscape Unit 5 to the south. This landscape unit is entirely located within unincorporated Los Angeles County. Segments 6 and 11 pass through this landscape unit and the expansion of Vincent Substation, Segment 9, is located here. For a map of Landscape Unit 4, refer to Figure B-6 in Appendix B of the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report*.

Landscape Unit 4 is surrounded by a series of rounded low hills covered with arid vegetation consisting mostly of grasses and low shrubs. Hillsides and canyons contain patches of larger shrubs and trees such as junipers and oaks. Several of the intermittent streams found in the unit are lined with sparse riparian vegetation.

Land uses in and near this area that influence landscape character include utility, transportation, residential, and some scattered areas of commercial and light industrial. The Vincent Substation and the transmission lines that feed into and out of it are the most visible human-made elements in the unit. A number of transmission corridors pass through the unit from numerous directions and all are quite visible. Transportation features are also highly visible and influence landscape character. The most visually dominant is Highway 14 (the Antelope Valley Freeway) which follows the west side of Soledad Canyon and is the backbone of a major transportation corridor that includes the Union Pacific railroad track (which is used for transporting freight and commuter trains), the Metrolink Light Rail train station,

Buffalo Ridge Road, Soledad Canyon Road, Carson Mesa Road, and the Sierra Highway. The Angeles Forest Highway runs through the unit in a north-south direction and provides access to the substation and ANF beyond. In addition to the transportation elements mentioned, numerous local public and private roads, generally unpaved, are scattered throughout the unit. They provide access to residential areas and isolated residences. Additionally, the Metrolink station is located on the west side of the tracks in this unit and faces east. Residential areas include the community of Soledad, a subdivision west of the substation that is centered on Foreston Road, an area near the Vincent Fire Station (west of Highway 14), and scattered rural residences accessed from the Angeles Forest Highway and Aliso Valley Road.

Sensitive viewers in this landscape unit include homeowners who can view the substation and transmission corridors, residents in the general vicinity of the unit, people waiting at the Metrolink station, and people driving on the freeway, highways, and roads. The level of visual sensitivity varies by type of viewer and view duration, and distance zone. Residents have views of long duration and varying distance zones. They are quite familiar with the nearby landscape and their concern level is assumed to be high. Drivers and commuters have shorter duration views and are assumed to have a moderate level of visual concern.

Existing ROW cross-sections for Segments 5, 6, and 11 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW associated with Segment 5 varies from 200 to 680 feet wide; with Segment 11, the existing ROW is between 200 to over 400 feet wide; and with Segment 6, it is 200 to 400 feet wide. In some~~Some~~ portions of Segment 5, the existing transmission ROW ~~in Segment 5~~ is 680 feet wide. In some locations along Segments 11 and 6, the ROW is up to 1,090 feet wide where the transmission lines diverge from one another. Existing transmission structures throughout this area are ~~a mix of~~ LSTs ~~and TSPs~~ at varying heights carrying either 220-kV or 500-kV conductors. The existing Vincent Substation is approximately 13.4 acres in size (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 4.

The study corridor in Landscape Unit 4 traverses through Los Angeles County jurisdiction. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 4 are included as part of a comprehensive table included in Section 3.14.3 and in Appendix C of the *Visual Resources Specialist Report*. There are no designated state or local scenic highways located within Landscape Unit 4.

KOP-North-12 – Sierra Highway and Antelope Valley Freeway (Segment 5)

KOP-North-12 was established on the Sierra Highway looking northeast at the Antelope Valley Freeway corridor. At approximately S5 MP 20.4 to S5 MP 20.6, the proposed Project would cross over the Antelope Valley Freeway (a six-lane highway), the Sierra Highway (a two-lane highway), and the Acton/Vincent Grade Metrolink railroad (two-tracks) (see Map & Figure Series Volume, Figure 3.14-14a).

- **Viewer Exposure: high.** Because there is no screening by landforms or vegetation, the proposed Project would be highly visible in the foreground and middleground as seen from KOP-North-12. The duration of view would be brief for travelers on the Sierra Highway and Antelope Valley Freeway, moderate for commuters at the train station, and high for residents in the Hidden Valley area, just to the left (north) of Figure 3.14-14a. The number of viewers would be high, considering the volume of traffic on all three travel routes, leading to a high viewer exposure rating.
- **Viewer Concern: moderate-to-high.** Because of the multitude of existing transportation routes in this segment, the proposed Project would be seen at foreground and middleground viewing distances. From approximately S5 MP 20.2 to S5 MP 20.9 as represented in Figure 3.14-14a (see Map & Figure Series Volume), the proposed Project would be visible against the skyline from many different angles and views, and therefore, new towers and conductors would be seen in silhouette from various vantage points. Figure 3.14-14a is representative of existing conditions seen at foreground and middleground viewing distances from

S5 MP 20.2 to S5 MP 20.9. Travelers on the Sierra Highway and Antelope Valley Freeway enjoy the panoramic views of Soledad Pass that are portrayed in this view, but the primary use on both of these thoroughfares is for commuting. Therefore, the concern with scenic attributes of the landscape would be moderate for commuters, but would be high for residents, leading to an overall moderate-to-high rating. Any blockage or impairment of views to the skyline, such as would occur with the new transmission line in the proposed Project, may be seen as an adverse visible change.

- **Visual Quality: low.** The primary focal points in this landscape are the rounded landforms that create a strong horizon line as Sierra Pelona Ridge terminates at Soledad Pass in the center of Figure 3.14-14a, multiple LSTs and TSPs of various transmission lines crossing the highways, and on the right, the rolling, grass-covered foothills of the San Gabriel Mountains that create enclosure for this view. The proposed Project Segment 5 would replace two 220-kV lines with one 500-kV line, as seen in the center of Figure 3.14-14a, and the new transmission line would cross this view from left to right on its way to the Vincent Substation. Existing visual quality of the undeveloped landscape in this view was low-to-moderate and the introduction of the freeway, highway, railroad, and transmission lines has lowered visual quality to a low level.
- **Overall Visual Sensitivity: moderate.** For travelers on the Sierra Highway, Antelope Valley Freeway and railroad in general, and KOP-North-12 specifically, the high viewer exposure, moderate-to-high viewer concern, and low visual quality lead to a moderate overall visual sensitivity of the visual setting and viewing characteristics.

KOP-North-13 – Acton/Vincent Grade Metrolink Park and Ride (Segment 5)

KOP-North-13 was established at the Acton/Vincent Grade Metrolink Park and Ride access road, looking south to the Vincent Substation. The proposed Project would be located approximately 0.1 mile west of the Acton/Vincent Grade Metrolink Park and Ride and looking south from this facility, the Vincent Substation and a multitude of transmission lines are visible (see Map & Figure Series Volume, Figure 3.14-15a). Looking between the two LSTs in the center of Figure 3.14-15a, the viewer can see a multitude of parallel transmission lines exiting the Vincent Substation and heading south over the San Gabriel Mountains into Landscape Unit 5. The proposed Project would remove two existing 220-kV lines and replace them with one 500-kV line that would lead into the substation. Figure 3.14-15a is representative of the proposed Project from S5 MP 20.5 to its terminus at S5 MP 21.6 in the substation. The Angeles Forest Highway is approximately 0.25 mile east of this location, and it runs parallel to the transmission line, thereby affording foreground views to the proposed Project.

- **Viewer Exposure: high.** Because there is no screening by landforms or vegetation, the proposed Project would be highly visible in the foreground as seen from KOP-North-13. The duration of view would be moderate for commuters at the train station. The number of viewers would be high, considering the volume of traffic, leading to a high viewer exposure rating.
- **Viewer Concern: moderate.** Commuters at the Park and Ride enjoy the panoramic views of Soledad Canyon, as portrayed in this view, on their way to Los Angeles. However, the primary use at the Park and Ride is for commuting. Therefore, the concern with scenic attributes of the landscape would be moderate.
- **Visual Quality: low.** The focal points in this landscape are all of the industrial character transmission lines, towers, and conductors that dominate the landscape. Many of the towers and lines are seen in silhouette against the skyline, furthering their visual contrast with the natural landscape. Natural vegetation in the area consists of native grasses, sagebrush, scrub pine, and junipers, all of which provide little-to-no vegetative screening for the large industrial character structures. The existing Vincent Substation is located on a small knoll surrounded by hills at the upper end of Soledad Canyon near Soledad Pass and south of the City of Palmdale. Figure 3.14-15a (see Map & Figure Series Volume) is representative of existing conditions seen at foreground and middleground viewing distances from S5 MP 20.5 to its terminus at the existing Vincent Substation at S5 MP 21.6. The resulting visual quality of this landscape is low.
- **Overall Visual Sensitivity: moderate.** For commuters at the Acton/Vincent Grade Metrolink Park and Ride in general, and KOP-North-13 specifically, the high viewer exposure, moderate viewer concern, and low visual quality lead to a moderate overall visual sensitivity of the visual setting and viewing characteristics.

Center Area: San Gabriel Mountains Landscape Region

The Center Area (San Gabriel Mountains Landscape Region) consists of Landscape Units 5 through 8. All of TRTP Segment 6 and approximately 46 percent of Segment 11 would occur inside the ANF boundary, the Center Area. As discussed in Section 3.14.2.1, the landscape units selected to represent the ANF in this analysis are based upon "Places" identified in the ANF Forest Plan.

The Center Area (San Gabriel Mountains Landscape Region) crossed by SCE's proposed Project would include the northern half of Segment 11 (to the west) and all of Segment 6 (to the east). The proposed Project would traverse portions of five Landscape Places, as described in the Forest Plan (see Map & Figure Series Volume, Figure 3.14-2). These five Landscape Places are, from north to south:

- Soledad Front Country Landscape Place (Landscape Unit 5)
- Angeles High Country Landscape Place (Landscape Unit 6)
- Angeles Uplands West Landscape Place (Landscape Unit 7)
- Big Tujunga Canyon Landscape Place (a very tiny corner of this Place is crossed by Segment 11)
- The Front Country Landscape Place (Landscape Unit 8)

As described in Section 3.14.2.1, the Forest Service has developed statements of Desired Condition and mapped SIOs for public lands it administers. See Table 3.14-4 for a list of the SIOs by mile for the proposed Project (Segment 11 and Segment 6) in the ANF. (These same elements of visual resource management are not available for non-NFS lands in either the North or South Areas, where the Visual Sensitivity/Visual Change methodology was used for ~~this~~ that analysis.) Because the Forest Service has specific scenic management direction in the Forest Plan, the Forest Service SMS was used for the analysis of visual resources in the Center Area. As previously mentioned, visual resource factors that are discussed in the Center Area include existing scenic integrity as well as Desired Condition and~~,~~ SIOs, as well as existing scenic integrity. Existing scenic integrity is defined as the current scenic condition of the landscape considering previous human alterations. And in order to better assess the existing scenic conditions, it is essential to know the "Places" and their descriptions on the Forest that the Project would cross as they provide direction in the management of the ANF. Understanding the Desired Condition and Program Emphasis of a Place was valuable for establishing landscape units for the proposed Project. This information helped determine the consistency of the proposed Project with the scenery-related goals for the ANF. Definitions of Desired Conditions and Program Emphasis are described below.~~. The proposed Project would traverse portions of five Landscape Places, as described in the Forest Plan: the Soledad Front Country; the Angeles High Country; the Angeles Uplands West; a tiny corner of the Big Tujunga Canyon; and the Front Country.~~

Landscape Unit 5: Soledad Front Country

The northern edge of this unit abuts the southern edge of Landscape Unit 4 and the boundary of the ANF. Although most of the unit is located within the ANF, there are in-holdings of private land that are surrounded by the ANF and are part of unincorporated Los Angeles County. Both Segments 6 and 11 pass though this landscape unit. For a map showing Landscape Unit 5, refer to Figure B-6 in Appendix B of the *Visual Resources Specialist Report*.

This landscape unit is a transition zone between the lower elevations with more highly developed Soledad Canyon – Antelope Valley area and the much less developed ANF. It includes a variety of terrain from rolling hills in the northern portion to steeper and more enclosed terrain of the southern parts. The lower (northern) portions of the landscape unit are relatively open in appearance and include the bottoms of

Kentucky Springs Valley and Bear Canyon. The canyon bottoms contain streams (most of which are intermittent) and washes. Traveling south through Landscape Unit 5 on Angeles Forest Highway and Aliso Canyon Road brings viewers into steeper, higher, and more rugged terrain. Views in the southern (higher) portions of the landscape unit are more confined by the steep topography than in the northern (lower) parts. Nearby vegetation is composed of shrubs of varying sizes (mixed chaparral) which is present on most slopes and is seen as patterns of dense patches with large openings. Coniferous trees such as pine and juniper are found at higher elevations. Various species of oaks, sycamores, and other vegetation are present in dense woodlands along shaded slopes and in the canyons. Some streams and washes contain riparian vegetation. Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 5.

Human use of areas near (but outside of) the landscape unit is changing the unit's appearance and areas nearby the unit. As stated in the ANF Forest Plan:

> ~~"~~*The cultural landscape of the Soledad Front Country is rapidly converting from rural to urban due to the development of housing tracts along the national forest boundary. Human influences, such as urban development, intensive use areas, transportation corridors, utility corridors, sand and gravel mining, road cuts and flood control channels are creating strong visual contrasts and user conflicts within this Place. Most facilities and trails are located along drainages, ridge tops or cut into hillsides. Urban development is affecting access to National Forest System roads and trails, and residents of adjacent developments are creating social trails on national forest land. Encroachment has increased due to urbanization resulting in problems of trespass, fire, and resource damage.*~~"~~

Existing human-made features within Landscape Unit 5 that are readily apparent to the general public include the Angeles Forest Highway (which is an important route into and through the ANF), Aliso Canyon Road, numerous dirt roads and fuel breaks, and three major transmission corridors. Several areas of in-holdings along Aliso Canyon Road and Angeles Forest Highway contain scattered residences and associated buildings that are both within and near the landscape unit.

Existing ROW cross-sections for Segment 6 (Figures 2.2-10 to 2.2-18) and Segment 11 (Figures 2.2-56 to 2.2-63) are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW associated with Segment 6 varies from 200 to 800 feet wide. For Segment 11, the existing ROW varies from 180 to 560 feet wide. Existing transmission structures throughout ~~all~~ both Segments 6 and 11 are ~~a mix of~~ LSTs ~~and TSPs~~ at varying heights, carrying either 220-kV or 500-kV conductors (SCE, 2007a).

Compared to the other four landscape units in the ANF that are crossed by the proposed Project, Landscape Unit 5 does not have many recreation areas or opportunities. Therefore this Unit does not receive much public recreation use. It does however, receive considerable vehicle traffic as growing numbers of people use Angeles Forest Highway to enter the Forest or to commute (and avoid State Highway 14 and Interstate 5) between the greater Antelope Valley area and the San Gabriel Valley-Los Angeles area. These commuters are among the various types of viewers that view the Landscape Unit 5. Viewers primarily include Forest visitors driving for pleasure and scenic enjoyment, local residents driving to/from home, and commuters driving through this Unit. ~~drive back and forth (and avoid State Highway 14 and Interstate 5) between the greater Antelope Valley area and the San Gabriel Valley Los Angeles area. These commuters are among the various types of viewers that view the Landscape Unit 5. Viewers primarily include Forest visitors (mainly on weekends), local residents and people driving through the unit.~~ These types of viewers have different concern levels. Nearby residents are considered to

have a high concern level, both as property owners and as part of the relatively low numbers of recreationists that use this area. Forest visitors can be included as part of the relatively low numbers of recreationists that use this area, but most drive through this Unit to get to other areas of the Forest further south. However, this Unit is the first section of the Forest they encounter on the way to their final recreation destination. Because of the aforementioned reasons, Forest visitors and general area residents looking at the landscape as they drive through it may be considered to have a moderate concern level for scenery. On the other hand, weekday commuters just passing through the Unit are considered to have a low-to-moderate concern for scenery.

USDA Forest Service Management Direction Relative to Scenic Quality

ANF Forest Plan. The following descriptions of Theme, Setting, Desired Condition and Program Emphasis are cited directly from the ANF Forest Plan for the Soledad Front County Place and are relevant for Landscape Unit 5.

> ***Theme:*** *The Soledad Front Country Place functions as a scenic backdrop and transitional landscape between the rapidly urbanizing Mojave Desert and Los Angeles Basin. The flow of people and materials through this transitional landscape links the greater Los Angeles area to the Mojave Desert. The growing communities along California Interstate 14 are transforming this area from rural to urban in character. Residents of these new communities have the scenic views of the San Gabriel Mountains from their homes and travel corridors. The Pacific Crest National Scenic Trail occurs on a portion of the Place.*
>
> ***Setting:*** *The Soledad Front Country Place runs northeast to southwest along both sides of California State Highway 14 along the Santa Clara and Soledad Rivers. This landscape is commonly defined as the area between California Interstate 5 at the southern end and the intersection of California State Highway 138 at the northern end. The northwest and southeast boundaries are, in general, defined by the area visible from California Highway 14. There is a Special Interest Area that highlights the heritage resource values of the area.*
>
> *Elevations in the area range from about 2,100 feet to 3,000 feet. The broad floodplain of the Soledad River (with its various side drainages) dominates this landscape. The broad floodplain (which leads to steep slopes with rounded summits) is the most prevalent landform in this Place.*
>
> ***Desired Condition:*** *The Soledad Front Country Place is identified as a "Key Place" for its natural appearing area that functions as a scenic backdrop and transitional landscape. The valued landscape attributes to be preserved over time are the dramatic canyon and rugged mountain views, the presence of pine and juniper stands, and a well-defined age class mosaic with patches in chaparral. Heritage resources are managed to standard under a comprehensive and integrated management plan. Wildlife linkages connecting the San Gabriel Mountains to the Castaic and Santa Susana Mountains are established and functioning. Habitat conditions for threatened, endangered, proposed, candidate and sensitive species are improving over time. Exotic species are reduced and controlled over time. Private land between the two mountain ranges is acquired and the Pacific Crest National Scenic Trail is connected.*
>
> ***Program Emphasis:*** *Management emphasis is expected to focus on the protection of communities from the threat of fire, the management of high levels of recreation use, and the maintenance of urban and forest infrastructures (facilities). The success of this emphasis is dependent on a sustainable level of development and the delicate balance between the needs of people and the effects of those uses on the*

plant and animal communities in the national forest. Uses must be balanced to promote the conservation of valuable natural resources and to sustain the needs of people. The significance of the heritage resources in the Place is recognized through the designation of special areas managed for the heritage resource value. Special emphasis will be given to acquiring private land between the San Gabriel and Sierra Pelona Mountain Ranges in order to connect the Pacific Crest National Scenic Trail. The national forest will focus on protection of open space and boundary management in anticipation of future adjacent development.

Other Plans. The private in-holdings that are located within Landscape Unit 5 are not under the jurisdiction of the ANF. They are in unincorporated Los Angeles County and land use and potential regulations related to aesthetics or scenery are regulated by the County's General Plan (Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*). There are no officially designated State Scenic Highways in Landscape Unit 5.

The TRTP visual analyst and the ANF landscape architect examined the proposed Project on the ground and from sensitive receptor locations during several days of site visits that occurred over a period of months, in order to evaluate and analyze different viewing conditions, times of day, and seasons of the year. In sum, site reconnaissance visits in the ANF occurred between May 2007 and April 2008. From among hundreds of possible key observation points (KOPs) and after careful evaluation, 20 KOPs were selected as typical viewing conditions for the analysis. Then, from many photographs taken at each KOP, the most appropriate photographs were selected for analysis of existing conditions and simulations of Project-based potential future visual ~~The best quality photographs taken from each of these KOPs were selected for analysis and simulations of existing and Project-based potential future visual conditions. Of~~conditions. Of those 20 KOPs the two that best exemplify Landscape Unit 5 are KOP-Center-1 and KOP-Center-2, which are captured in the KOP analyses below:

KOP-Center-1 – Angeles Forest Highway (Segment 6)

KOP-Center-1 (see Map & Figure Series Volume, Figure 3.14-16a) is located on NFS lands along the Angeles Forest Highway, looking south, near the intersection of Mount Emma Road and the Angeles Forest Highway. Because most proposed Project activities visible from this KOP would occur on federal lands administered by the ANF, the SMS methodology was used for this visual assessment. Figure 3.14-16a represents the existing condition of the site and displays Segment 6 on the skyline. Undeveloped hillsides of the ANF are visible in the middleground. Looking south along the highway, existing lattice towers of Segment 6 are visible on the skyline to the right side of the photo. ~~Undeveloped hillsides of the ANF are visible in the middleground. Figure 3.14-16a represents the existing condition of the site and displays Segment 6 on the skyline.~~ Existing LSTs are barely visible on the hillside below these skylined structures, because they blend very well with the landform backdrop. ~~Because most proposed Project activities visible from this KOP would occur on federal lands administered by the ANF, the SMS methodology was used for this visual assessment.~~

The "Existing Conditions" photograph is the same as the "No Project/Action Alternative" for KOP-Center-1, and this is consistent for all KOPs in the Center Area (see Figure 3.14-16a, Existing Conditions for KOP-Center-1).

- **Scenic Integrity Objective: High.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is a natural appearing area that functions as a scenic backdrop and transitional landscape.

- **Existing Scenic Integrity: High, with Areas of Low.** NFS lands visible from the Angeles Forest Highway and Mount Emma Road (KOP-Center-1) are predominantly natural-appearing, consisting of middleground and background views to brush-covered hillsides and rounded landforms that contain and enframe the overall composition. The vegetation is finely-textured brushfields with many hues of dark- and medium-green colors and tan-colored, grassy mountainsides in the background. The landscape exhibits a high degree of intactness and coherence of form and character with a moderate amount of visual variety. However, this harmony of form and character is interrupted on the skyline by the geometric forms of three separate existing 220-kV transmission line towers. Several existing lattice steel towers are situated below the skyline and they tend to blend with the landform backdrop and are barely visible in this photograph. However, these back-dropped structures are visually evident when viewed from on-the-ground. Overall, the existing scenic integrity of this NFS landscape is high, with little or no deviations of form, line, color, texture, or scale, except for the existing skylined transmission towers with their inherent industrial character that attract attention and begin to dominate the valued landscape character being viewed. They reduce these certain areas of the existing landscape to levels of low scenic integrity.~~The landscape visible from the Angeles Forest Highway and Mount Emma Road is common to the area south of the Vincent Substation leading into the ANF. Landforms are typically rolling hills covered with sparse, low-growing vegetation of sagebrush and chemise, giving the landscape a mottled appearance. Vegetation is so short that it does not provide screening, but landforms provide some visual screening. Transmission towers are visible on the skyline, disrupting the horizon. Wooden utility poles follow the highway and create additional visual contrasts. Other than these utility structures, the landscape has high scenic integrity.~~

  ~~Although the immediate foreground is dominated by the highway itself, NFS lands visible from the Angeles Forest Highway (KOP-Center-1) are predominantly natural-appearing, consisting of middleground and background views to brush-covered hillsides and rounded landforms that contain and enframe the overall composition. The vegetation is finely-textured brushfields with many hues of dark- and medium-green colors and tan-colored, grassy mountainsides in the background. The landscape exhibits a high degree of intactness and coherence of form and character with a moderate amount of visual variety. However, this harmony of form and character is punctuated on the skyline by the dark gray vertical lines and geometric forms of three separate existing 220-kV transmission line towers. Several existing LSTs are situated between the skyline and the viewer; however, they tend to blend with the landform backdrop and are barely visible in this photograph. Still, these back-dropped structures are visually evident from on-the-ground. Overall, the existing scenic integrity of this NFS landscape is high, with no deviations of form, line, color, texture, or scale, however, the existing skylined transmission towers, with their inherent industrial character, attract attention and begin to dominate the valued landscape character being viewed, and they reduce these certain areas of the existing landscape to levels of low scenic integrity.~~

KOP-Center-2 – Angeles Forest Highway (Segment 6)

KOP-Center-2 (see Map & Figure Series Volume, Figure 3.14-17a) was established during consultation with the ANF landscape architect on the northbound side of the Angeles Forest Highway that leads towards Lancaster. It is located approximately one-mile north of Mill Creek Summit, headed northbound toward Lancaster and Palmdale. The image in Figure 3.14-17a was taken at the approximate boundary between Landscape Units 5 and 6, and looking into Landscape Unit 5, it is representative of the forest landscapes in that unit, with portions of Landscape Units 4 and 3 visible in the background.

- **Scenic Integrity Objective: High.** In the 2005 Forest Plan, the entire landscape in this Unit of the Forest is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is a natural appearing area that functions as a scenic backdrop and transitional landscape.
- **Existing Scenic Integrity: High, with Areas of Unacceptably Low.** Although the immediate foreground is dominated by the highway itself, NFS lands visible from the Angeles Forest Highway (KOP-Center-2) are predominantly natural-appearing, consisting of middleground and background views to brush-covered hillsides and rounded landforms that contain and enframe the overall composition. The vegetation is finely-textured brushfields with many hues of dark- and medium-green colors and tan-colored, grassy mountainsides

in the background. The landscape exhibits a high degree of intactness and coherence of form and character with a moderate amount of visual variety. However, this harmony of form and character is interrupted~~punctuated~~ on the skyline by the ~~dark brown and gray vertical lines and~~ geometric forms of the existing 220-kV transmission line towers. Existing transmission lines are visible as discordant visual elements in the foreground along the highway for more than three miles. Overall, the existing scenic integrity of this NFS landscape is high, with very few deviations of form, line, color, texture, or scale. However, the size and scale of existing skylined transmission towers, with their inherent industrial character, makes them very prominent in contrast to ~~are excessive and totally dominate~~ the natural-appearing landscape character. This reduces certain areas of the existing landscape to levels of unacceptably low scenic integrity, as is evident from Figure 3.14-17a at KOP-Center-2.

Landscape Unit 6: Angeles High Country

Landscape Unit 6 begins approximately above the intersection of ANF Highway and Aliso Canyon Road, continues up and over the northern crest of the San Gabriel Mountains, and ends adjacent to Landscape Unit 7. Both Segments 6 and 11 pass though this landscape unit (refer to Figure B-6 and the top portion of Figure B-7 in Appendix B of the *Visual Resources Specialist Report* for maps showing Landscape Unit 6).

Two transmission corridors (Segment 11 – westerly and Segment 6 – easterly) pass through a relatively narrow portion of the Angeles High Country Place at its western extent. Both Segments 6 and 11 would ~~both~~ cross over the PCT in this landscape unit. The LMP description of this landscape Place's Theme, Setting, and Desired Condition states:

Theme: *The Angeles High Country Place is characterized by the highest elevations in Los Angeles County including the tallest peak in the county, Mt. Baldy (10,064 feet). The Place functions as a year-round mountain recreation landscape for the greater Los Angeles Area and is associated with winter snowplay, opportunities for solitude, hiking through spectacular big tree-cover vistas and includes historic and scenic mountain resorts. The Pacific Crest National Scenic Trail is located here and traverses the entire width of the Place. It is one of the "Key Places" representing the most picturesque national forest locations, containing its own landscape character.*

Setting: *The Angeles High Country Place is located at the top of the Angeles National Forest and is regarded by many as the core area of the national forest. Elevations within the Place range from approximately 5,000 feet to approximately 10,060 feet. The area is characterized by steep slopes with sharp to rounded summits surrounding small alpine valleys. The Place exhibits a forested (tree-covered) environment offering community linkages between the national forest and the surrounding urban areas. The area is a truly unique setting where, on a clear day, visitors are offered panoramic views including the urban center of Los Angeles and the Pacific Ocean to the west and the Mojave Desert to the north. …Trees are seen as tight clumps, scattered individuals, or groups on north-facing slopes. The predominant plant communities include Coulter pine and mixed conifer on the south facing slopes and bigcone Douglas fir and Jeffrey pine on the north facing slopes. Oaks are present in dense woodlands along the shaded slopes of the canyons. Deciduous trees and shrubs are typical in riparian areas.*

Desired Condition: *The Angeles High Country Place is a key place that is valued for its scenic quality and is maintained as a naturally evolving and natural appearing landscape that functions as a year-round forested mountain recreation area. The valued landscape attributes to be preserved over time are large conifer trees in groups and as scattered individual specimens, views of distant landscapes, and oak woodlands along the shaded slopes of the canyons. The built environment portrays a rustic,*

historic image. Habitat conditions for threatened, endangered, proposed, candidate and sensitive species are improving over time. Exotic species are reduced and controlled over time.

Program Emphasis: *Management emphasis is focused on forest health particularly relative to community protection from fire around Wrightwood and large recreation complexes while maintaining the big tree character, vistas and natural appearing landscapes. … The Angeles Crest Scenic Byway Corridor Management Plan (discussed below) is implemented; rural routes showcase key destinations off the Scenic Byway, and the Interforest Transportation Route linking the Scenic Byways of southern California is established. … Management of special-use authorizations will occur along with resolution of water diversion issues. The focus is toward finding a balance that will result in a sustainable level of human use and the sustainability of forest health. Special emphasis on managing the Pacific Crest National Scenic Trail and other National Recreation Trails that occur here will also be given.*

Landscape Unit 6 generally has a very natural appearance. Human-made features that are visible to the general public include Angeles Forest Highway, Forest Service facilities (buildings, storage, parking, picnic area) at Mill Creek Summit, Mount Gleason Road, Camp Louis Routh Camp 5 (a Los Angeles County Department of Corrections facility), communication towers on Mount Gleason, utility corridors, fuel breaks, unpaved Forest roads, trails, and campgrounds. As mentioned above, the Angeles Crest Scenic ~~Highway and~~ Byway also traverses portions of the Angeles High Country Place, and this will be discussed later, in Landscape Units 7 and 8.

Existing ROW cross-sections for Segment 6 and Segment 11 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 6 is 200 to 800 feet, and with Segment 11, it is 200 to over 400 feet. Existing transmission structures throughout ~~all the s~~Segments 6 and 11 in the Center Area are ~~a mix of~~ LSTs ~~and TSPs~~ at varying heights, carrying either 220-kV or 500-kV conductors (SCE, 2007a). The primary viewers of this landscape unit are people recreating in it or people driving through it to reach attractions in the Forest or locations beyond it. Please refer to Figures D-12 and D-13 in Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 6.

Recreationists are considered to have high concern for scenery and people driving through the unit are generally either commuters with low-to-moderate concern levels or people driving for pleasure who would have moderate-to-high levels of concern.

KOP-Center-3 – Mount Gleason Road (Segment 6)

KOP-Center-3 (see Series Volume, Figure 3.14-18a) was established on Mount Gleason Road, about 3 miles west of Mill Creek Summit, looking southeast, down to Segment 6. The existing utility corridor that encompasses Segment 6 is very visible against the dark green, uniform textured, chaparral-covered mountainsides in the Angeles High Country. Existing 220-kV and 500-kV LSTs have a landform backdrop and are barely visible in Figure 3.14-18a, but by connecting the lines created by sunlight reflecting off existing conductors, it is possible to distinguish and locate the transmission line structures. These conductors were specified to be "non-reflective and non-refractive" but in actuality they are quite visually evident during certain lighting conditions, such as shown in this mid-afternoon photograph depicted in Figure 3.14-18a.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the

natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is a key place that is valued for its scenic quality and is maintained as a naturally evolving and natural appearing landscape that functions as a year-round forested mountain recreation area.

- **Existing Scenic Integrity: High, with Areas of Very Low.** The landscape visible from Mount Gleason Road is predominantly natural-appearing, consisting of foreground, middleground, and background landscapes with dense, dark green chamise and chaparral covered mountainsides. There is very little vegetative pattern in this landscape and the sun angle and shadows emphasize the ruggedness of the steep slopes and broken terrain. The natural landscape has a coherent form and character with substantial visual variety~~ created by the rugged, folded terrain~~. The existing 220-kV and 500-kV transmission lines were constructed prior to development and application of the Forest Service Visual Management System or the new Scenery Management System, and therefore, these lines are not in compliance. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the highly discordant transmission line conductors that glow with reflected sunlight, leading the eye to the almost transparent, industrial-character steel lattice towers. Access and spur roads to the existing towers are visually evident and further emphasize the reflectivity of the conductors, causing the valued landscape character to appear heavily altered. This leads to a rating of very low scenic integrity for the utility corridor.

KOP-Center-4 – Southbound Angeles Forest Highway (Segment 6)

KOP-Center-4 (see Map & Figure Series Volume, Figure 3.14-19a) was established on the Angeles Forest Highway, going southbound away from Mill Creek Summit, looking downhill and to the south-southwest. In crossing over Mill Creek Summit, Segment 6 would also traverse the PCT at S6 MP 7.3. Similar to the existing visual impacts that were seen from KOP-Center-3 on Mount Gleason Road, the existing utility corridor that would be upgraded by Segment 6 is very visible against the dark green, uniform textured, chaparral-covered mountainsides in the Angeles High Country. Some of the existing 220-kV and 500-kV LSTs have a landform backdrop but many are situated against the skyline and are very visible in Figure 3.14-19a and on the ground. Sunlight reflecting off existing conductors and steel lattice towers creates strong visual contrasts. As mentioned before, these conductors were specified to be "non-reflective and non-refractive" but in actuality they are quite visually evident during certain lighting conditions, such as shown in this mid-afternoon photograph depicted in Figure 3.14-19a. This view is typical from Mill Creek Summit, southbound on the Angeles Forest Highway for approximately 2.5-to-3 miles.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is a key place that is valued for its scenic quality and is maintained as a naturally evolving and natural appearing landscape that functions as a year-round forested mountain recreation area.
- **Existing Scenic Integrity: High, with Areas of Unacceptably Low.** The landscape visible from KOP-Center-4 and the Angeles Forest Highway is predominantly natural-appearing, consisting of foreground, middleground, and background landscapes with dense, dark green chemise and chaparral covered mountainsides. Vegetative patterns are evident from this view, with changes in riparian vegetation color and texture occurring in the draws. The sun angle and shadows emphasize the ruggedness of the steep slopes and broken terrain. The natural landscape has a coherent form and character with substantial visual variety created by the rugged, folded terrain. The existing 220-kV and 500-kV transmission lines were constructed prior to development and application of the Forest Service Visual Management System or the new Scenery Management System, and therefore, these lines are not in compliance. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the highly discordant transmission line conductors that glow with reflected sunlight, leading the eye to very visually evident, industrial-character steel lattice towers. Access and spur roads to the existing towers are evident and further emphasize the reflectivity of the conductors. These manmade features are prominent ~~excessive~~ and ~~begin to totally~~ dominate the landscape character, leading to a rating of unacceptably low scenic integrity for the utility corridor.

KOP-Center-5 – Northbound Angeles Forest Highway (Segment 6)

KOP-Center-5 (refer to Map & Figure Series Volume, Figure 3.14-20a) was established on the Angeles Forest Highway approximately 2-air-miles south of Mill Creek Summit, traveling northbound toward the Summit and looking uphill to the northeast. Similar to the existing visual impacts that were seen from KOP-Center-3 on Mount Gleason Road and KOP-Center-4 southbound on the Angeles Forest Highway, the existing utility corridor that would be used by Segment 6 is very visible against the dark green, uniform textured, chaparral-covered mountainsides in the Angeles High Country. Some of the existing 220-kV and 500-kV LSTs have a landform backdrop and are barely visible, but many are situated against the skyline and are very visible as seen in Figure 3.14-20a and on the ground. Even though the time of day was similar to that for KOPs-Center-3 and 4, in this image sunlight reflecting off existing conductors is not a problem, because the angle of view is different. However, the conductors may, and most likely will, reflect sunlight at some point in time throughout the day. The steel lattice towers create strong visual contrasts when seen against the skyline, and draw attention away from the natural landscape features (see Figure 3.14-20a). This view is typical for northbound travelers for approximately 2.5 miles as they climb toward Mill Creek Summit on the Angeles Forest Highway.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is a key place that is valued for its scenic quality and is maintained as a naturally evolving and natural appearing landscape that functions as a year-round forested mountain recreation area.
- **Existing Scenic Integrity: High, with Areas of Low.** The landscape visible from the Angeles Forest Highway in general, and KOP-Center-5 specifically, is predominantly natural-appearing, consisting of foreground, middleground, and background landscapes with dense, dark green chemise and chaparral covered mountainsides. There is very little vegetative pattern in this landscape view. The sun angle and shadows emphasize the ruggedness of the steep slopes and broken terrain. The natural landscape has a coherent form and character with substantial visual variety created by the rugged, folded terrain. The existing 220-kV and 500-kV transmission lines were constructed prior to development and application of the Forest Service Visual Management System or the new Scenery Management System; and therefore, these lines are not in compliance. The natural landscape exhibits a high degree of intactness and scenic integrity, but the highly discordant transmission line structures and the access and spur roads leading to those towers are visually evident and moderately alter the valued landscape character, leading to a rating of low scenic integrity for the utility corridor.

Landscape Unit 7: Angeles Uplands West

Landscape Unit 7 is located between Landscape Unit 6 to the north (which is at generally higher elevations) and Landscape Unit 8 to the south (which is located at generally lower elevations). Both Segment 11 (westerly) and Segment 6 (easterly) pass through this landscape unit in a north-south direction (refer to Figure B-7 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 7). This landscape unit contains a major portion of State ~~Highway~~ Route 2 – the Angeles Crest Scenic ~~Highway and Scenic~~ Byway. Segment 11 passes immediately adjacent to the Big Tujunga Reservoir and Segment 6 is located immediately adjacent to the southwest corner of the San Gabriel Mountain Wilderness as they pass through Landscape Unit 7. The LMP description of this landscape Place's Theme, Setting, Desired Condition, and Program Emphasis states:

> ***Theme:*** *The Angeles Uplands West Place is a popular, expansive, chaparral-covered landscape that serves as a mid-elevation gateway to the high country (Angeles High Country Place). This area provides dramatic canyon panoramas along the Angeles Crest Scenic Byway. Visitors can also find*

recreation experiences that provide challenge in a remote setting. It is one of the "Key Places" representing the most picturesque national forest locations, containing its own landscape character.

Setting: *The Angeles Uplands West Place is located between the Front and High Country Places. Elevations in the Place range between approximately 2,500 feet to approximately 6,300 feet. The slopes are steep on the southern aspect of the Place, with sharp to rounded summits and deep narrow canyons similar to other mid-elevation Places on the Angeles National Forest. The Place is accessed from routes that pass through the Front Country Place. These routes (including the Angeles Crest Scenic Byway) lead visitors to dramatic canyon panoramas and rugged mountain background views. This Place includes portions of designated wilderness areas that have been proposed for wilderness evaluation, and Inventoried Roadless Areas.*

Slopes are steep on the southern aspect of the Place, with sharp to rounded summits and deep narrow canyons similar to other mid-elevation Places on the ANF. Canyons have steep rocky sides and are dense with upland vegetation. There is considerable diversity in the vegetation between the north- and south-facing slopes and along shaded slopes and canyons. The landscape is generally natural or near-natural in appearance. Human influence is most apparent in the developed and dispersed recreation facilities and travel ways. Developed recreation is limited by the character of the landscape within the Place. Dispersed recreation is emphasized, including hiking, backpacking, equestrian use, bicycling, mountain biking, hang gliding, hunting, fishing, and off-highway vehicle (OHV) use. The condition of trails varies, and other infrastructures such as campgrounds and trailheads are aging. The intense level of recreation use generates user conflicts on roads, trails and other areas.

The Place supports multiple uses that are valuable to the public. Many of the utility service infrastructures that support the greater Los Angeles urban area are present within this landscape. Several county roads and California State highways serve as major high-speed commuter routes from inland valleys and the desert to the Los Angeles Basin.

Desired Condition: *The Angeles Uplands West Place is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas fir and Coulter pine, and a well-defined age class mosaic in chaparral.*

Program Emphasis: *Management emphasis is focused on forest health, particularly protection of pockets of large conifers. Management is also focused on the high levels of recreation use, as well as the urban and national forest infrastructure present, in a balanced and sustainable manner consistent with preserving the dramatic canyon panoramas. Historic Vetter Lookout will be a focal point for interpretation and community outreach. The Angeles Crest Scenic Byway Corridor Management Plan is implemented and rural routes showcase key destinations of the Scenic Byway.*

Angeles Crest Scenic Byway Corridor Management Plan. The Angeles Crest Scenic Byway passes through Landscape Unit 7. The Angeles Crest Scenic Byway has a Corridor Management Plan, as described below:

California State Highway 2 was designated a California State Scenic Highway in 1971 and a National Forest Scenic Byway in 1990. The 55-mile-long byway begins outside of the ANF in La Cañada-Flintridge and continues over the San Gabriel Mountains through the ANF to the Los Angeles/San Bernardino County line. A ~~Draft~~ Corridor Management Plan (CMP) has been developed for the byway. Although the CMP is secondary to the Forest Plan and County of Los Angeles General Plan,

in terms of enforcement stature, it does reflect the local community's vision for a byway and represents a commitment to maintain and enhance the Byway's intrinsic qualities. The CMP was developed with the input of numerous agencies and non-agency groups.

The ANF manages the Forest lands that the Byway passes through and is responsible for ensuring consistency between the Forest Plan and the CMP. National Forest Scenic Byways are classified as having a concern level of 1 (out of 3), which indicates the highest level of public concern about alterations to the viewed landscape. The Byway passes through three Forest Plan Places (Front Country, Angeles Uplands West, and the Angeles High Country) and three landscape units (Landscape Unit 6 – Angeles High Country, Landscape Unit 7 – Angeles Uplands, and Landscape Unit 8 – Foothills Front Country).

For the portion of the Byway that passes through non-Forest lands (in-holdings), Los Angeles County is responsible for management of the Byway as directed under the portions of the County of Los Angeles General Plan that relate to designated scenic highways.

Existing ROW cross-sections for Segments 6 and 11 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 6 varies from 200 to 800 feet, and with Segment 11 it is 200 to over 400 feet. Existing transmission structures throughout ~~all the s~~Segments 6 and 11 in the Center Area are ~~a mix of~~ LSTs ~~and TSPs~~ at varying heights carrying either 220-kV or 500-kV conductors. Please refer to Figures D-14 and D-15 in Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 7.

KOP-Center-6 – Upper Big Tujunga Canyon Road - Southbound (Segment 6)

KOP-Center-6 (see Map & Figure Series Volume, Figure 3.14-21a) is located on Upper Big Tujunga Canyon Road between Lynx Gulch and Alder Gulch, approximately one mile northwest of KOP-Center-7 and approximately two-air-miles north of the Angeles Crest Scenic Byway. The image in Figure 3.14-21a was taken looking east, capturing a portion of the proposed Project's Segment 6 as it crosses the mountain slopes of the Upper Big Tujunga Canyon. In this~~that~~ image and on the ground, existing towers and conductors along the Segment 6 alignment are very visible as they cross the midslope landscape, and so are the cut slopes of the SCE access roads ~~are visible in this view~~. Vetter Mountain Lookout is the white dot located on the high-point of the skyline ridge. Existing transmission lines where Segment 6 would be located are approximately 0.5 miles away from KOP-Center-6. Viewing duration is long for highway users, as there are multiple viewing opportunities toward Segment 6 from various vantage points along the road. Viewers are generally not commuters, and therefore Forest visitors in this vicinity would be expected to have high concern for scenery.

Human-made objects visible from this point include the road itself and gray colored LSTs in the middleground. Vetter Mountain Lookout is the white dot on the highest part of the skyline. With the exception of the road and transmission corridor passing through it, the rest of the landscape viewed from this KOP appears intact and has a natural-appearing landscape character.

This view encompasses upper Big Tujunga Canyon and adjacent mountains, and this part of the canyon is wide and open compared to the narrow, lower canyon, where slopes are steeper. A variety of vegetation including chaparral shrubs and conifer stands can be seen in the canyon and on adjacent slopes.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition

is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.

- **Existing Scenic Integrity: High, with Areas of Low.** The landscape visible from Upper Big Tujunga Canyon Road in general, and KOP-Center-6 specifically, is predominantly natural-appearing, consisting of foreground, middleground, and background landscapes with dense, dark green chaparral and evergreen tree-covered mountainsides. There are interesting vegetative patterns in this landscape view that are created by the folded terrain and microclimates. ~~The sun angle and shadows emphasize the ruggedness of the steep slopes and broken terrain.~~ The moderate slopes and rolling terrain are not as visually dominant as the terrain in many other parts of the Forest and therefore the existing transmission lines in this corridor have a stronger visual presence. The natural landscape has a coherent form and character with substantial visual variety created by the ~~rugged,~~ folded terrain and moderate slopes. In this utility corridor, the existing 220-kV and 500-kV transmission lines were constructed prior to development and application of the Forest Service Visual Management System or the new Scenery Management System, and therefore, these lines are not in compliance. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the discordant transmission line structures and access road cutslopes~~,~~ which ~~further~~ detract from scenic integrity, leading to a rating of low scenic integrity for the utility corridor. ~~This landscape currently does not meet the ANF High SIO because of the presence of human-made features.~~

KOP-Center-7 – Upper Big Tujunga Canyon Road - Northbound (Segment 6)

KOP-Center-7 (see Map & Figure Series Volume, Figure 3.14-22a) is located on the northbound side of Upper Big Tujunga Canyon Road, at an elevation of approximately 3,900 feet, approximately one-air-mile north of the Angeles Crest Scenic Byway, looking north. It is approximately 1.5 miles north and downhill of the intersection of Big Tujunga Canyon Road and the Angeles Crest Scenic Byway, also referred to as the Shortcut Saddle~~Highway~~. The transmission corridor is very visible along this section of road because the road parallels and crosses under transmission lines in several locations. From this view, Segment 6 towers and conductors are very visible in the foreground, and they are visible in the middleground from the point where they cross over the Angeles Crest ~~Highway~~ Scenic Byway (behind the view of this photograph) and then continue north, as shown in Figure 3.14-22a. Segment 6 would be visible in the immediate foreground of the Upper Big Tujunga Canyon Road for approximately three miles past the intersection of the Angeles Crest Scenic Byway.

KOP-Center-7 was selected to represent the foreground and middleground views that people driving north along the road would have of Segment 6 of the transmission corridor. This gently sloping hillside is almost at the top of the Angeles Crest. The sloping terrain is covered with thick chaparral shrubs and small trees. Views from this location are somewhat contained by the relatively low adjacent terrain, but in general, this location has expansive views that extend above the ridgelines and over nearby vegetation. This section of the Upper Big Tujunga Canyon Road is not a commuter route, but is in the heart of the ANF. ~~Therefore, v~~Viewers from this location are people who are recreating or driving for pleasure and their concern for scenery is moderate-to-high.

Human-made objects visible from this point include the road itself, LSTs that are protruding above the skyline, and tan-colored cutslopes of the access and spur roads along the transmission corridor. With the exception of the road and transmission corridor passing through it, the landscape viewed from this KOP appears intact and has a natural-appearing landscape character.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition

is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.

- **Existing Scenic Integrity: High, with Areas of Unacceptably Low.** The landscape visible from Upper Big Tujunga Canyon Road, in general, and KOP-Center-7, specifically, is predominantly natural-appearing, consisting of foreground and middleground landscapes with dense, dark green chaparral and evergreen tree-covered mountainsides. There are interesting vegetative patterns in this landscape view that are created by the folded terrain and microclimates. The moderate slopes and rolling terrain are not as visually dominant as the terrain in many other parts of the Forest and therefore the transmission lines in this corridor have a stronger visual presence. ~~Although vegetation appears fairly intact, the overall view from this KOP, and for approximately three miles along this road, is dominated by the road and existing transmission line corridor with tall lattice towers.~~ The natural landscape exhibits a high degree of intactness and scenic integrity, except for the highly discordant transmission line structures and access/spur road cutslopes~~,~~ which detract from scenic integrity. These manmade features are prominent ~~visually excessive~~ and ~~begin to totally~~ dominate the landscape character, leading to a rating of unacceptably low scenic integrity for the utility corridor.

KOP-Center-8 – Vetter Mountain Lookout (Segment 6)

KOP-Center-8 (see Map & Figure Series Volume, Figure 3.14-23a) is located at Vetter Mountain Lookout at an elevation of approximately 5,890 feet, looking southwest toward the Mount Wilson electronic site on the skyline. Segment 6 towers and conductors are very visible as they cross over the Angeles Crest ~~Highway~~ Scenic Byway and two middleground ridges. Cutslopes of this ~~Highway~~ highway are very visible in this view. Additionally, a few scattered, smaller cutslopes of the Upper Big Tujunga Canyon Road are visible below the Lookout. Vetter Mountain Lookout is a National Scenic Byway destination ~~and is~~ located on a high-point on the western end of a long flat ridge on which Charlton Flat Picnic Area is located. Both of these recreation sites are accessed from the Angeles Crest Scenic Byway ~~by way of Forest Service Road 3N16.2 that continues west from Charlton Flats Road 3Na6.1, toward the lookout~~. The lookout is located at the end of an approximately 1-mile trail from the trailhead parking area at the end of Forest Service Road 3N16.1. Vehicular access is available to the interpretive volunteers who work at the lookout and Forest Service personnel. From the lookout, views to the west and southwest reveal Segment 6 as it crosses upper slopes of the Upper Big Tujunga Canyon. ~~Segment 6 is between approximately 1.1 to 1.3 miles away.~~ Viewing duration is long for visitors to this destination and forest visitors would be expected to have high concern for scenery.

This view encompasses upper Big Tujunga Canyon and adjacent mountains, and this part of the canyon is wide and open compared to the narrow, lower canyon, where slopes are steeper. A variety of vegetation including chaparral shrubs and conifer stands can be seen in the canyon and on adjacent slopes.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.
- **Existing Scenic Integrity: High, with Areas of Moderate.** The landscape visible from Vetter Mountain Lookout (and Charlton Flats) in general, and KOP-Center-8 specifically, is predominantly natural-appearing, consisting of foreground, middleground, and background landscapes with dense, dark green chaparral and evergreen tree-covered mountainsides. There are interesting vegetative patterns in this landscape view that are created by the folded terrain and microclimates. The sun angle and shadows emphasize the ruggedness of the

steep slopes and broken terrain. The natural landscape has a coherent form and character with substantial visual variety created by the rugged, folded terrain. On the skyline, electronic facilities at Mount Wilson are visible and attract attention. On the midslopes, the existing utility corridor contains 220-kV and 500-kV transmission lines that were constructed prior to development and application of the Forest Service Visual Management System or the new Scenery Management System; and therefore, these lines are not in compliance. Also on the midslopes, existing highway cutslopes are partially shielded from view by dark shadows. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the visually discordant electronic sites, transmission line structures, and highway cutslopes. Access and spur roads to the existing towers are evident beyond the Angeles Crest ~~Highway~~Scenic Byway, and further detract from scenic integrity, leading to a rating of moderate scenic integrity for the utility corridor. This landscape currently does not meet the ANF High SIO because of the presence of these human-made features.

KOP-Center-9 – Angeles Crest Scenic Byway (Westbound) & Rincon-Shortcut Trailhead (Segment 6)

KOP-Center-9 (see Map & Figure Series Volume, Figure 3.14-24a) is located on the Angeles Crest Scenic Byway just east of the Shortcut Saddle Area, looking west at the Rincon-Shortcut OHV Trailhead. Existing LSTs with orange and black "bat ears" ~~and conductors~~ are very visible in this view as ~~they~~ the conductors cross over the highway and trail. The Rincon-Shortcut OHV Trail follows the corridor of Segment 6 for approximately seven-air-miles; and towers, conductors, and spur roads would be very visible from this OHV Trail. OHV users are generally classified as moderate or low concern levels for scenic quality; however, this view is also seen by travelers on the Angeles Crest Scenic Byway, ~~which~~ who have ~~has~~ been classified as having high concern for scenic quality.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.
- **Existing Scenic Integrity: High, with Areas of Very Low.** The landscape visible from the Angeles Crest Scenic Byway and Rincon Trailhead in general, and KOP-Center-9 specifically, is predominantly natural-appearing, consisting of foreground and middleground landscapes with dense, dark green chaparral and evergreen tree-covered mountainsides. There are interesting vegetative patterns in this landscape view that are created by the folded terrain and shadows in the landscape. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the highly discordant transmission line structures, one of which has aircraft warning colors and symbols. This~~, which~~ further detracts from scenic integrity and makes the landscape look heavily altered, leading to a rating of very low scenic integrity for the utility corridor.

KOP-Center-10 – Angeles Crest Scenic Byway (Eastbound) (Segment 6)

KOP-Center-10 (see Map & Figure Series Volume, Figure 3.14-25a) is located on the Angeles Crest Scenic Byway approximately 1.5 miles west of the Shortcut Saddle Area, at the southern crest of the San Gabriel Mountains at an elevation of approximately 4,350 feet. This location was selected to represent middleground views of the Segment 6 transmission corridor as seen by people driving up the highway. The view is to the highway corridor, utility corridor crossing, and the surrounding landscape. ~~Figure 3.14-25a~~ Although it is not a formal vista point, numerous tire tracks indicate it has major use as a scenic viewing area. ~~was taken from a small, unpaved turnout, and, although it is not a formal vista point, numerous tire tracks and footprints indicate it has major use as a scenic viewing area.~~ There are several well-used, unpaved turnouts along this segment of the Byway, of which this is one. It represents views that people have when they stop at the pullouts along this section of the highway and look at the

landscape. Viewing duration from this location is short for drivers as they tend to focus on the sinuous road, but of medium length when they pull over for the view~~, but long for those who stop at the pullouts~~. The level of concern for viewers from this scenic byway is high.

Views from KOP-Center-10 to the east include rugged terrain composed of mountains, ridgelines, and canyons. The south-facing slopes are covered with medium- to low-growing chaparral shrubs with a large cut-and-fill slope on the highway ahead, and areas of exposed earth and rock along the Segment 6 utility corridor. Just above the transmission line is the San Gabriel Mountain Wilderness. The proposed route for Segment 6 does not enter the San Gabriel Wilderness Area. However, it is positioned directly adjacent to a portion of the southwestern boundary between S6 MP 18.0 and MP 18.5. Views are extensive from this location, including views southward to the San Gabriel Valley.

The steep mountainsides are dominant visual elements. Rock faces from road cuts-and-fills and the transmission corridor are also highly visible elements from this KOP. These human-made elements are located within the immediate foreground to middleground. The road cuts and fill are quite visible due to their contrast in color, shape, and size (scale). The transmission corridor elements are less visible, but are prone to attracting~~drawing~~ attention to themselves when the sun glints off of the conductors at certain times of the day, such as shown in Figure 3.14-25a. The towers on the skyline ridgeline are also more visible than other corridor elements. ~~Except for the road cuts and fill and the transmission corridor, t~~The viewed landscape is intact and has a natural-appearing ~~character~~character, except for the road cuts and fills and the twin transmission lines.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.
- **Existing Scenic Integrity: High, with Areas of Low.** The landscape visible from the Angeles Crest Scenic Byway in general, and KOP-Center-10 specifically, is predominantly natural-appearing, consisting of foreground and middleground landscapes with dense, dark green chaparral-covered mountainsides and scattered ~~clumps~~ stands of evergreen trees. There are interesting vegetative patterns in this landscape view that are created by the folded terrain and shadows in the landscape. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the highly discordant transmission line structures, which make the ~~valued~~ landscape character appear moderately altered. They detract from the otherwise high scenic integrity, leading to a rating of low scenic integrity for the utility corridor.

KOP-Center-11 – Silver Moccasin Trailhead (Segment 6)

KOP-Center-11 (see Map & Figure Series Volume, Figure 3.14-26a) is located on the Angeles Crest Scenic Byway at the Shortcut Saddle Area, looking southwest from the Silver Moccasin Trailhead at an elevation of approximately 4,750 feet and was selected to represent views of Segment 6 transmission corridor from a popular, high elevation recreation area. This area is adjacent to and just east of the Rincon-Shortcut OHV Trailhead discussed in KOP-Center-9, ~~that is displayed~~ above. The proposed Segment 6 would traverse Shortcut Saddle at S6 MP 16.7. ~~KOP Center 9 was selected to represent views of Segment 6 transmission corridor from a popular, high elevation recreation area.~~ The Shortcut Saddle area has a picnic area, large paved parking area, and interpretive signage. ~~The proposed Segment 6 would traverse Shortcut Saddle at S6 MP 16.7.~~ In addition, a number of different types of trails converge in this area, such as the Silver Moccasin National Recreation Trail that passes in a north-south direction over the

Angeles Crest Scenic Byway in this area. ~~In addition, a number of different types of trails converge in this area. The Silver Moccasin National Recreation Trail passes in a north-south direction over the Angeles Crest Highway in this area.~~ Because of the parking area, many people start hiking the trail from this location (the portion of the trail south of the highway is also known as Shortcut Canyon Trail (Robinson, 2007). This area is also a terminus for the Rincon-Shortcut OHV Trail. Most of the viewers from this location are either people hiking on the Silver Moccasin Trail or people parking at the trailhead and taking advantage of the spectacular views to the south. Viewer level of concern for scenic values is high in this area.

Existing LSTs and conductors are very visible in this view as they cross over the saddle and proceed south along the southwestern border of the San Gabriel Mountain Wilderness, which is situated to the left of the structures. A portion of the Mount Wilson electronic site is visible on the skyline to the right side of the photograph. The existing utility corridor crosses over the trail as both proceed downhill and southward to the Los Angeles Basin.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.
- **Existing Scenic Integrity: High, with Areas of Unacceptably Low.** The landscape visible from the Silver Moccasin Trailhead in general, and KOP-Center-11 specifically, is predominantly natural-appearing, consisting of foreground and middleground landscapes with dense, dark green chaparral and evergreen tree-covered mountainsides. There are interesting vegetative patterns in this landscape view that are created by the folded terrain and shadows in the landscape. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the highly discordant transmission line structures. These manmade features are prominent ~~visually excessive~~ and ~~begin to totally~~ dominate the landscape character, leading to a rating of unacceptably low scenic integrity for the utility corridor.

KOP-Center-12 – Cogswell Reservoir & National Scenic Bikeway (Segment 6)

KOP-Center-12 (see Map & Figure Series Volume, Figure 3.14-27a) was established on Cogswell Reservoir Dam, looking west. KOP-Center-12 is located at the west end of the West Fork San Gabriel River National Scenic Bikeway, and just south of the San Gabriel Wilderness, at an elevation of approximately 2,415 feet. The bikeway is a popular, paved recreation trail that follows along the south side of the West Fork San Gabriel River. The trail starts at the West Fork Day Use Trailhead off Highway 39, and then proceeds westward for approximately 5.5 miles, following an easy gradient, and passing several small waterfalls of tributaries that flow into the West Fork. At the western end of the trail, the gradient becomes steeper for the last 0.25 mile, as the road pitches up to the dam. Bicyclists are rewarded with this view from the dam, looking west-southwest toward the divide between the San Gabriel and Anita Canyon watersheds.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas

along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.

- **Existing Scenic Integrity: High, with Areas of ~~Low~~Moderate.** Existing 220-kV and 500-kV lattice structures are visible on the skyline, as are access and spur roads cutting across the mountainside and leading to each LST. When the reservoir is full, there is no "bathtub ring" effect and scenic integrity is high for this landscape. Overall, the existing scenic integrity of this natural-appearing National Forest landscape is high, with no deviations of form, line, color, texture, or scale except for the seasonal bathtub ring at the reservoir in the foreground and existing transmission lines, access roads, and spur roads near the skyline in the middleground. These manmade features create strong visual contrasts and make the valued landscape character appear slightly~~moderately~~ altered. They detract from the otherwise high scenic integrity and reduce certain areas of this landscape to a level of Moderate~~low~~ scenic integrity.

KOP-Center-13 –Mount Zion (Segment 6)

KOP-Center-13 (see Map & Figure Series Volume, Figure 3.14-28a) is located on Mount Zion looking northeast from an elevation of approximately 3,575 feet. Mount Zion is a mountain peak just north of Chantry Flat Picnic Area and Trailhead. Chantry Flat is a popular recreation destination featuring American Disability Act (ADA) accessible facilities at the picnic area and a trail-riding concessionaire under special use permit from the Forest Service. The picnic area is situated north of the City of Arcadia and is approximately 1-mile north of the ANF boundary on a narrow, sinuous, paved, two-lane road. KOP-Center-13 was selected because it offers a vantage point to several LSTs of Segment 6, as seen from the top of Mount Zion and~~. This location~~ exhibits middleground views of the Segment 6 transmission line structures as seen from this heavily used recreation trail. While hiking to this KOP on a weekday, the visual analyst and Forest Service landscape architect encountered several parties of hikers. Weekend use is higher than weekday use, and concern for scenery is high for this viewshed.

From this vantage point, the tops of 10 lattice steel structures are visible to the naked eye; five are very evident on the skyline near the right-center of this view, and others just barely are visible on the skyline to the left of the saddle.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.
- **Existing Scenic Integrity: High, with Areas of Moderate.** ~~Although m~~Most of the area seen from this KOP is visually intact and natural-appearing, meeting the definition of High SIO. However, the existing transmission line does not. The five existing lattice structures stand out on the middleground skyline and attract attention, and then other lattice structures become evident, once the attention is drawn to the skyline. ~~Most of the NFS lands in this area are visually intact and meet the definition of High SIO. However, the existing transmission line does not, and~~ The existing transmission line corridor meets the definition of moderate scenic integrity because the valued landscape character appears slightly altered, and the transmission lines remain visually subordinate to the landscape character being viewed.

This concludes the analysis of individual KOPs for Segment 6. Following is a north-to-south analysis of KOPs for Segment 11.

Landscape Unit 6: Angeles High Country

Landscape Unit 6 begins approximately above the intersection of ANF Highway and Aliso Canyon Road, continues up and over the northern crest of the San Gabriel Mountains, and ends adjacent to Landscape

Unit 7. Segment 11 passes though this landscape unit (refer to Figure B-6 and the top portion of Figure B-7 in Appendix B of the *Visual Resources Specialist Report* for maps showing Landscape Unit 6).

The Segment 11 transmission corridor passes through a relatively narrow portion of the Angeles High Country Place at its western extent. Segment 11 would both cross over the PCT in this landscape unit, north of the CDF Camp 16 on Mount Gleason Road. The LMP description of this landscape Place's Theme, Setting, and Desired Condition are fully described at the introduction to KOP-Center-3, above.

KOP-Center-14 – Pacific Crest Trail (Segment 11)

KOP-Center-14 (see Map & Figure Series Volume, Figure 3.14-29a) was established on the Pacific Crest Trail (PCT), just north of the Mount Gleason Road and just west of Big Buck Campground, looking north toward two existing parallel transmission lines: a set of 220-kV towers and conductors on the left and a set of 500-kV towers and conductors on the right. This viewpoint was selected to characterize the existing landscape visible to hikers and equestrians on the PCT in the vicinity of the proposed Project. Tan and reddish-colored soils are visible at the base of existing tower in the middleground, leading off to the right to an access road near the skyline. This is evidence of the access roads that have been used to construct and maintain the existing transmission line.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is a key place that is valued for its scenic quality and is maintained as a naturally evolving and natural appearing landscape that functions as a year-round forested mountain recreation area.

  The Pacific Crest Trail Association's April 2005 edition of the PCT Communicator featured an article "Protecting the PCT Experience" authored by Mike Dawson (2005), Trail Operations Director for PCTA. The article focuses on PCTA's policy regarding scenery. It describes that in October 2004, the PCTA's Board of Directors accepted the Scenery Management System as a primary method for delineating the PCT management corridor and defining acceptable management within that corridor. Since the SMS formally applies consideration of constituent preferences, this PCTA policy is useful information for program and project planning that might influence the PCT user's experience. The article quotes a PCTA resolution: "Further be it resolved, that the PCTA deems that the foreground zone defined by SMS combined with a minimum corridor width of 500 feet, should be used to define the primary PCNST management corridor, and that actions in the middleground should also meet the Scenic Integrity Objective for those lands. The minimum SIO assigned to lands within the foreground of the trail tread and clearly related viewpoints, campsites and water sources should be "High" as defined in the handbook, while the SIO of lands in the middleground should be a minimum of "Moderate" as defined in the handbook." The above SIO assignments are consistent with the Forest Plan. The article concludes, "Representatives of PCTA shall advocate such designations within planning documents affecting the PCT experience and shall use the SMS to judge whether management actions that are proposed are appropriate on public lands." (PCT Communicator, April 2005)
- **Existing Scenic Integrity: High, with Areas of Low.** The landscape visible from the PCT is predominantly natural-appearing, consisting of a foreground and middleground landscape with dense, dark green Douglas fir, oak, and pine trees on north-facing slopes and chaparral shrubs with widely scattered pine trees on south-facing slopes, creating a mosaic of patterns scattered across these steep mountainsides. ~~The natural landscape has a good coherence of form and character with substantial visual variety.~~ The natural landscape exhibits a high degree of intactness, or scenic integrity, except for the few distinct manmade features – the transmission lines with industrial-character, tall, geometric lattice towers. Access and spur roads to the existing towers are evident and attract attention. When viewed for long durations in the foreground or middleground, as when hiking on the PCT, the existing transmission line towers are very evident as vertical, angular structures that create glare and contrast with the natural landscape. These discordant features attract attention from the harmony of the natural form and character of the landscape, especially transmission towers that are in the foreground or are silhouetted against the skyline in the middleground. These discordant elements do not

borrow form, line, color or texture from the natural-appearing landscape, and create a moderately altered landscape. Therefore, the existing transmission line towers meet the definition of low ~~inherent~~ scenic integrity.

KOP-Center-15 – Mount Gleason Road (Eastbound) (Segment 11)

KOP-Center-15 (see Map & Figure Series Volume, Figure 3.14-30a) was established on the Mount Gleason Road, approximately 0.3-miles east of Camp 16, looking northeast toward the ridgetop and an existing pull-out on the north side of the road. The proposed route for Segment 11 would not traverse this landscape, but would be located approximately 0.3-miles west of this location. However, this KOP is relevant because ~~in this vicinity~~ SCE proposes to construct a helicopter staging area (SCE #1) in this vicinity for the proposed Project. (However, this SCE-proposed helicopter staging area would not be used for Alternative 6, the Maximum Helicopter Alternative.) This viewpoint was selected to characterize the existing landscape visible to recreationists and Camp personnel driving eastbound on Mount Gleason Road in the vicinity of the proposed Project. ~~Tan and reddish colored soils are visible at the pull-out.~~

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is a key place that is valued for its scenic quality and is maintained as a naturally evolving and natural appearing landscape that functions as a year-round forested mountain recreation area.
- **Existing Scenic Integrity: High, with Areas of Borderline Moderate-to-Low.** The landscape visible from the Mount Gleason Road is predominantly natural-appearing, consisting of large-scale, panoramic views to middleground and background landscape, such a shown at KOP-Center-3. However, this is a foreground view toward the proposed Project's (Alternative 2) helicopter staging area (~~fly yard~~Site #1) and it does not show panoramic views; rather, it shows details in the landscape that are somewhat discordant. The dense, dark green brushfields are interrupted by cut and fill slopes of the road itself, and by an access road that follows along the ridgeline and powerline with wooden poles that interrupt the skyline. The natural landscape exhibits a moderate degree of ~~intactness, or~~ scenic integrity, except for the distinct man-made features: the power line with its H-frame wooden poles, and the cut and fill slopes with bare earth. ~~, and grass/shrubs growing along the roadside. These discordant features distract from the harmony of the natural form and character of the landscape. From this view, built features attract attention, especially the wooden poles and the road itself.~~ These discordant elements do not borrow form, line, color or texture from the natural-appearing landscape, but they are not extremely dominant; ~~and,~~ therefore, this scene is on the borderline between moderate and low ~~inherent~~ scenic integrity.

Landscape Unit 7: Angeles Uplands West

Landscape Unit 7 is located between Landscape Unit 6 to the north (which is at generally higher elevations) and Landscape Unit 8 to the south (which is located at generally lower elevations). Segment 11 passes through this landscape unit in a north-south direction (refer to Figure B-7 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 7). The LMP description of this landscape Place's Theme, Setting, Desired Condition, and Program Emphasis are described as an introduction to KOP-Center-6 through KOP-Center-11, above.

KOP-Center-16 – Angeles Forest Highway (Southbound) (Segment 11)

KOP-Center-16 (see Map & Figure Series Volume, Figure 3.14-31a) was established on the Angeles Forest Highway, approximately 0.25-miles north of the intersection of the Highway and the Lower Big Tujunga Canyon road, looking west toward the skyline and an existing access road that leads to an existing underground water tank that is used for fire-fighting. Although the proposed route for Segment 11 would not traverse this landscape, but instead would be located approximately 0.5-miles west of this

location, this KOP was chosen because at this location, there is a proposed helicopter staging area for Alternative 6 (Maximum Helicopter Alternative). However, this site would not be used for the proposed Project (Alternative 2). This viewpoint was selected to characterize the existing landscape visible to recreationists and commuters driving southbound on the Angeles Forest Highway in the vicinity of the proposed Project. This ridgeline is visible for a very short time, based on speed of traffic on the Highway and the narrow ~~and~~ curving nature of this portion of the highway. The gray colors of the asphalt road dominate the scene, and dark green evergreen trees and chaparral cover the mountainside in this vicinity. The flat area on the skyline is completely covered with Spanish broom, and this large leveled area overlooks the Tujunga Creek Canyon. This flat area is visible to travelers on the Highway, although viewing duration is short as drivers focus on the sinuous road. Two types of users travel on this road: commuters and recreationists. It is assumed that commuters have some regard for scenic values, but in general, may have only a low-to-moderate concern level. Recreationists, on the other hand, are generally driving for pleasure and have a high concern level.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.
- **Existing Scenic Integrity: Low.** ~~The landscape visible from the Angeles Forest Highway is predominantly modified by the highway, water tank, and former parking area on the skyline.~~ This highway provides panoramic views to the Tujunga Canyon and steep mountainsides. However, because of the direction of view of this photograph, these panoramic views are not shown. Rather, details in the landscape that are somewhat discordant are displayed, and the landscape appears moderately altered. This is a foreground view toward the proposed helicopter staging area #10 for Alternative 6. This same area is not proposed as a helicopter staging area for Alternative 2. The natural landscape no longer exhibits a high degree of intactness, or scenic integrity, because of the manmade features that have begun to dominate the valued landscape character – the highway itself, the cut and fill slopes with bare earth, and the flattened skyline~~,~~ caused by an abandoned parking lot on the right side of the skyline and a buried water tank on the left half of the skyline in this view. These discordant elements do not borrow form, line, color or texture from the natural-appearing landscape, giving this scene ~~, and this scene has~~ low ~~inherent~~ scenic integrity.

KOP-Center-17 – Angeles Forest Highway (Northbound) (Segment 11)

KOP-Center-17 (see Map & Figure Series Volume, Figure 3.14-32a) is located on the Angeles Forest Highway approximately three miles north of its intersection with the Angeles Crest Scenic Byway. This location was selected to represent middleground and background views of the Segment 11 transmission corridor as seen by people driving north and down into the Big Tujunga Canyon on their way to Palmdale, Lancaster, or the Antelope Valley. This view is typical of the view northward for approximately 0.5 miles along this twisting, narrow highway. The existing, utility corridor crosses over the highway just south of this vantage point, and then proceeds toward Mount Gleason -- the background ridge in this view. The image in Figure 3.14-32a was taken from a large, unpaved turnout, and although it is not a formal vista point, numerous tire tracks and footprints and ~~voluminous~~ litter piles indicate it is used as a stopping point and scenic viewing area. Footprints indicate people exit their vehicles, which leads to the conclusion that people have a longer duration of view, than if they were simply driving by and not stopping. There are several well-used, unpaved turnouts along this segment of the Highway, of which this is one. It represents views that people have when they stop at the pullouts along this section of

the highway and look at the landscape. Viewing duration from this location is short for drivers, as they tend to focus on the sinuous road, but long for people who exit their vehicles and walk around to look at the landscape from these numerous pull-outs. Two types of users travel on this road: commuters and recreationists. It is assumed that commuters have some regard for scenic values, but in general, may have only a low-to-moderate concern level. Recreationists, on the other hand, are generally driving for pleasure and have a high concern level.

~~Steep hillsides and folded terrain draw attention down into the bottom of Big Tujunga Canyon. Likewise, the folded terrain with interesting shadows draws attention away from the horizontal skyline ridges, which also are very scenic. Vegetation patterns are interesting, and bare soils are evidence of the access and spur roads that follow along the transmission line corridor. Obviously, the setting sun casts rays of light that dramatically illuminate the two parallel transmission lines in this corridor. The influence of human activity is very evident with the presence of highly visible access/spur roads and transmission line towers that appear all the way to the horizon. The landscape character of this area is natural-appearing, except for the steel lattice towers, conductors, access roads, and spur roads.~~

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.
- **Existing Scenic Integrity: High, with Areas of Very Low.** The smooth vegetation and the folded terrain with interesting shadows draws attention away from the horizontal skyline ridges and down into the bottom of Big Tujunga Canyon. The setting sun casts rays of light that particularly dramatically illuminate the two parallel transmission lines in this corridor. The influence of human activity is very evident with the presence of highly visible bare soils from access/spur roads and transmission line towers that appear all the way to the horizon. The landscape character of this area is natural-appearing, except for the steel lattice towers, conductors, access roads, and spur roads. Segment 11 of the proposed Project would remove the existing line of 220-kV towers and conductors to the west (left side of photo) and construct new, taller, wider single-circuit 500-kV lattice steel towers (100 to 220 feet tall) in the same alignment.

  The landscape visible from the Angeles Forest Highway in general, and KOP-Center-17 specifically, is predominantly natural-appearing, consisting of foreground, middleground, and background landscapes with interesting patterns of dense, dark green chaparral-covered mountainsides. The folded terrain and shadows create interesting patterns in this landscape view. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the highly discordant transmission line structures, which detracts from the high scenic integrity. The utility corridor appears heavily altered and visual deviations (human-made structures) strongly dominate the view, leading to a rating of very low scenic integrity for the utility corridor.

KOP-Center-18 – Clear Creek Outdoor Education Camp (Segment 11)

KOP-Center-18 (see Map & Figure Series Volume, Figure 3.14-33a) is located on a nature trail just west of the Clear Creek Outdoor Education Camp. This camp is operated by the Los Angeles Unified School District, under special use permit from the Forest Service. The camp access is a single-lane, paved road that takes off from the Angeles Forest Highway approximately 1-mile north of its intersection with the Angeles Crest Scenic Byway. The nature trail at this location is wide enough for a motor vehicle, but provides access for the 80 students who come to camp for a week at a time. The camp has a three-year waiting list, according to the Assistant Director (Calderon, 2007; Gardina, 2007). This location was selected to represent foreground, middleground, and background views of the Segment 11 transmission

corridor as seen by students hiking on the nature trail down into Clear Creek, a tributary of Big Tujunga Creek. This view, looking northwest, is representative~~typical~~ of the view for approximately ¼-mile along this trail before it crosses under the transmission lines.

The focal point of this landscape is the background mountain with interesting vegetative patterns and ~~bare~~ rock outcrops that attract attention. The jagged skyline further dominates the viewers' attention away from the foreground slope, which is covered by dense, evenly textured chaparral vegetation. There is a reddish-colored knob in the middleground that does not attract much attention, however, on the top of it, there are two existing transmission LSTs. Both towers have a landform backdrop, and are hardly visible from this vantage point, but the conductors shine in the early morning sunlight, as is evident in this view. On the skyline to the right, one more tower is visible against the blue sky. ~~The conductors shine in the early morning sunlight in this view.~~

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition is maintained as a natural appearing landscape that functions as a mid-elevation recreation gateway to the High Country. The valued landscape attributes to be preserved over time are dramatic canyon panoramas along the scenic byway, the presence of bigcone Douglas-fir and Coulter pine, and a well-defined age class mosaic in chaparral.
- **Existing Scenic Integrity: High, with Areas of Low.** The landscape visible from the Clear Creek Outdoor Education Center in general, and KOP-Center-18 specifically, is predominantly natural-appearing, consisting of foreground, middleground, and background landscapes with interesting tan rock patterns and a mosaic of ~~mottled,~~ dark green chaparral-covered mountainsides, leading the eye to a jagged skyline in the background. The folded terrain and shadows create high visual interest in this landscape view. The natural landscape exhibits a high degree of intactness and scenic integrity, except for the discordant transmission line conductors that lead viewers' attention to the LST on the right skyline. The existing LST in the middle of this view blends almost completely with the mottled background landscape patterns, and if it were not for the horizontal lines created by the conductors, this LST would meet the definition of moderate scenic integrity. However, the existing transmission line begins to dominate the valued landscape character and detracts from scenic integrity, leading to a rating of low scenic integrity for the utility corridor.

Landscape Unit 8: The Front Country

Landscape Unit 8 is located south of Landscape Unit 7, which is situated to the north and is generally at higher elevations, and north of the greater Los Angeles Basin. The foothills of the San Gabriel Mountains serve as a part of the scenic backdrop for the greater Los Angeles area. The Forest Plan considers the Foothill Place to be one of the ANF's "Key Places" which represents some of the most picturesque areas of ANF. Both Segment 11 (to the west) and Segment 6 (to the east) pass through The Front County Landscape Unit (refer to Figures B-7 and B-8 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 8). The Forest Plan description of the Front Country Place applies to this landscape unit as well. The LMP description of this landscape Place's Theme, Setting, Desired Condition, and Program Emphasis states:

> ***Theme:*** *The scenic mountain backdrop for the greater Los Angeles area. This Place provides portals from the Los Angeles Basin, (with its 15 million plus population), to the national forest. This 'backyard' landscape is extensive and includes the 60 miles from Lytle Creek to Newhall Pass. It is one of the "Key Places" representing the most picturesque national forest locations, containing its own landscape character.*

Setting: *The Front Country Place rises dramatically from the Los Angeles Basin from an elevation of approximately 300 feet to an elevation of approximately 6,000 feet. The communities that make up the urban interface of the San Bernardino, San Fernando, and San Gabriel Valleys define the lower elevation edge of the Place. The area is easily accessible from various points along the Interstate 5, 15, and 210 travel corridors. The trails through the Place offer national forest visitors dramatic urban panoramas and views to rugged mountain backdrops.*

The southern aspect of the Place includes steep slopes with sharp to rounded summits and deep narrow canyons. The steeper reaches of the slopes are typically barren and highly eroded. Canyons characteristically have steep, rocky sides and are often strewn with large distinctive boulders. The Mediterranean climate of southern California affects vegetation types and water availability. Perennial water is present only in the largest creeks and rivers. Chaparral is the most dominant plant community. Canyon and coast live oaks grow along the shaded slopes of the canyons.

The cultural landscape of the Place is generally characterized by urban influences resulting in a modified character in many areas. The modified setting is often inconsistent with the types of recreation opportunities visitors are seeking. In other areas, steep slopes limit access (protecting resources) resulting in feelings of remoteness and solitude while enjoying hidden treasures that include, springs, waterfalls, a variety of landscapes, and many recreation experiences including hunting and fishing. Access is limited by a trail system that some think is not meeting the needs of the recreating public. Some trails are located in poor locations (steep, unstable areas) requiring high maintenance. There is also a network of user created trails that are the cause of resource problems in many areas. The developed sites in the Place are aging and do not meet the needs of the modern recreation user. Many facilities cannot accommodate modern vehicles and at a fundamental level do not meet the requirements of the Americans with Disabilities Act (ADA) or the National Forests and Grasslands Built Environmental Image Guide (BEIG). In many areas within the Place, managers feel that the levels of recreation use are exceeding the capacity of the facilities.

The Place has numerous electronic and communication sites located on ridgelines and mountain tops. Many of the utility corridors that support the Los Angeles Basin are located in the Place, as well as flood control structures and dam facilities. Finally, there are many unauthorized activities occurring in the Place resulting in resource problems.

The ANF is easily accessible from various points along the Interstates 5, 15, and 210 travel corridors. Numerous trails offer national forest visitors dramatic urban panoramas and views to rugged mountain backdrops. The southern aspect of the Front County includes steep slopes with sharp to rounded summits and deep narrow canyons.

The steeper reaches of the slopes are typically barren and highly eroded. Canyons characteristically have steep, rocky sides and are often strewn with large distinctive boulders. Perennial water is present only in the largest creeks and rivers. Deciduous trees and shrubs occupy riparian areas. Chaparral is the most dominant plant community, while canyon and coast live oaks grow along the shaded slopes of the canyons. The Front County Place is viewed by the residents of adjacent communities as their backyard. The area is intensively used resulting in user conflicts, trash, non-permitted uses, parties, car dumping, graffiti, and other activities that compromise national forest resources. The Front Country Place has numerous human-made features that are visual elements. Some of the more visible include electronic and communication sites located on ridgelines and mountain tops, utility corridors, and flood control structures and dam facilities. Many areas near this

place (but outside of the ANF) are heavily developed. They include vast stretches of subdivisions and residential areas of varying ages.

Desired Condition: *The Front Country Place is maintained as a natural appearing landscape that functions as a 'first impression' scenic backdrop for the Los Angeles/San Bernardino metropolitan area, and a national forest portal for its 15 million residents. The valued landscape attributes to be preserved over time are the rugged and wild appearing mountain silhouettes, dramatic undisturbed views to urban and mountain landscapes especially from trails and roads, coast live oaks along the shaded slopes of the canyons, and a well-defined age-class mosaic in chaparral.*

Program Emphasis: *Management emphasis is on protecting communities from the threat of fire, managing for high recreation use levels, and maintaining urban and national forest infrastructure (facilities) consistent with the natural setting. An extensive trail network is managed to provide opportunities for hiking, biking, and equestrian trips of short duration and to provide linkages to the national forest trail network and the Pacific Crest Trail. Picnic areas and campgrounds along the Front Country Place provide close to home "first visit" opportunities. Mount Wilson is managed as a major trail destination, vista point and astronomical research site. The national forest will focus on open space protection along the urban interface. Local communities and the national forest cooperate to develop environmental education and conservation stewardship programs relevant to urban students and families especially for the San Gabriel Canyon entry point.*

Existing ROW cross-sections for Segments 6 and 11 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 6 is 200 to 800 feet, and with Segment 11, it is 200 to over 400 feet. Existing transmission structures throughout the segments are LSTs carrying either 220-kV or 500-kV conductors (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 8.

This landscape unit has a variety of viewers because of its proximity to urban areas. The concern level ranges from high for nearby residents and recreationists, to moderate for residents living farther away from the ANF (but still able to view it) and for people driving on roads that pass through the unit. The most sensitive viewers of the unit would likely be residents living ~~closest to the landscape unit. Residents living~~ in the area near the ANF (and within private in-holdings) have high levels of concern. Recreationists hiking on nearby trails, picnicking, camping, and participating in other activities, such as driving the Angeles Crest Scenic Byway, also have high levels of concern for the visual environment. People driving the Angeles Crest Scenic Byway and the Angeles Forest Highway for commuting or other non-viewing purposes, as well as those driving area roads, are more likely to have different levels of concern, ranging from low, to moderate, to high.

KOP-Center-19 – Gould Substation from Angeles Crest Scenic Byway (Segment 11)

KOP-Center-19 (see Map & Figure Series Volume, Figure 3.14-34a) is located adjacent to the ~~Angeles Crest Highway~~Angeles Crest Scenic Byway in a paved pullout and overlook at an elevation of approximately 2,500 feet, approximately 0.5 mile north of the Gould Substation, looking south toward downtown Los Angeles, which is barely visible in the background. This location was selected to represent middleground views of the Segment 11 transmission corridor and the existing Gould Substation, as seen by people driving downhill on the highway or stopped at this developed pullout. The overlook is northwest of the City of Pasadena and north of the City of La Cañada Flintridge. This heavily used overlook was selected as a KOP because it is part of the Angeles Crest Scenic Byway, its popularity as a high use area (due in part to its proximity to developed communities), its easy access~~the closeness of the~~

~~210 Freeway (approximately 1.5 miles to the south)~~, the spectacular views it offers, and its visual proximity to Segment 11 of TRTP and the Gould Substation, which are focal points in this panoramic landscape. The overlook was identified in the Angeles Crest Scenic Byway Corridor Management Plan as "Vista Point, Milepost 27.23" and was listed as a potential site for interpretative development.

The existing view from KOP-Center-19 takes in the lower foothills of the San Gabriel Mountains that line both sides of the Arroyo Seco, the San Rafael Hills to the south, and other more distant hills and mountains. On especially clear days, the Pacific Ocean and Catalina Island can be seen in the distance to the west. The foothills in the foreground are thickly vegetated with native chaparral vegetation. Ornamental trees and landscaping can be seen in the residential areas situated on the hilltops south of the Gould Substation.

A variety of land uses that influence landscape character can be observed from this location. They include conservation (on ANF and City of Pasadena watershed protection lands), utility, and residential. Human-made features that can be seen in the foreground to middleground from this KOP include the Gould Substation, several utility corridors, local electric distribution lines, and residences. On clear days, high-rise buildings in downtown Los Angeles can be viewed beyond the Gould Substation. Middleground and background ~~Distant~~ views take in residential areas of La Cañada Flintridge, Pasadena, and Los Angeles beyond. Viewers consist primarily of people who drive to the overlook specifically to take in the view and people driving on the ~~Angeles Crest Highway~~Angeles Crest Scenic Byway who pull over for brief views. Their viewing duration ranges from short to moderate and their concern level is high. Because of the open nature of this location when looking southeast, south, and southwest, the views are very expansive and take in a variety of landscape character types. The landscapes seen from this KOP are complex and the view is a good example of an urban/wildland interface. The undeveloped, heavily vegetated foreground and middleground areas are best described as having a natural-appearing landscape character. The transmission corridor is characteristic of large-scale utility infrastructure. Nearby residential areas and areas beyond have an urban or suburban landscape character.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the entire ANF landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition would maintain the Forest as a natural appearing landscape that functions as a 'first impression' scenic backdrop for the Los Angeles/San Bernardino metropolitan area, and a national forest portal for its 15 million residents. The valued landscape attributes to be preserved over time are the rugged and wild appearing mountain silhouettes, dramatic undisturbed views to urban and mountain landscapes especially from trails and roads.
- **Existing Scenic Integrity: High.** Although the Gould Substation and areas beyond are not in the ANF, the foreground and middleground landscapes of this view are within the National Forest and contribute much value to the scene. NFS lands are largely intact in this view, and meet the definition of High SIO. Urban areas beyond the Forest boundary do not have a scenic integrity objective.

KOP-Center-20 – Forest Road to Millard Campground (Segment 11)

KOP-Center-20 (see Map & Figure Series Volume, Figure 3.14-35a) is located on Forest Road 2N65.2, also shown on maps as the Chaney Trail, leading to the Millard Campground just north of the City of Altadena at an elevation of approximately 2,090 feet, looking west. This location is approximately 0.5 miles north of and inside the ANF boundary. This location was selected to represent immediate foreground views of the Segment 11 transmission corridor along this recreation road and trail. The road to the campground was gated at this location and several cars were parking alongside the road, indicating

recreationists were using this location along the road as a trailhead for additional recreation pursuits. It is expected that all viewers on this dead-end road are recreationists who have a high concern for scenic values. There are additional recreation trails in this vicinity from which recreationists would view Segment 11 [see Section 3.15 (Wilderness and Recreation)].

Two existing double-circuit 220-kV transmission structures are evident from this vantage point in the landscape; the LST on the left has an unused position on the right side of the tower, where no insulators or conductors are located. In this portion of Segment 11 from the Gould Substation to the Mesa Substation, new insulators would be hung on the vacant positions of these existing 220-kV double-circuit towers and new conductors would be strung.

- **Scenic Integrity Objectives.** In the 2005 Forest Plan, the landscape in this vicinity is mapped as High SIO, where the management direction states that human activities should not be visually evident. Human-caused deviations may be present but must repeat the form, line, color, texture, and pattern common to the natural landscape character so completely and at such a scale that they are not evident. The Desired Condition would maintain the Forest as a natural appearing landscape that functions as a 'first impression' scenic backdrop for the Los Angeles/San Bernardino metropolitan area, and a national forest portal for its 15 million residents. The valued landscape attributes to be preserved over time are the rugged and wild appearing mountain silhouettes, dramatic undisturbed views to urban and mountain landscapes especially from trails and roads.
- **Existing Scenic Integrity: High, with Areas of Unacceptably Low.** ~~Although most of the area seen from this KOP is visually intact and natural-appearing, the two lattice structures in the immediate foreground stand out and attract attention.~~ Most of the NFS lands in this area are visually intact and meet the definition of High SIO. However, the existing transmission lines are very prominent and ~~totally~~ dominate in contrast to the natural-appearing landscape character and, therefore, the transmission line meets the definition of unacceptably low scenic integrity.

South Area: San Gabriel Valley and Inland Empire Landscape Region

The San Gabriel Valley/Inland Empire Landscape Region consists of Landscape Units 9 through 19, extending south from the southern boundary of the ANF to the Mesa Substation, then east to the Chino and Mira Loma Substations.

Landscape Unit 9: Duarte/Bradbury/Irwindale

This landscape unit is bounded on the north by the southern border of the ANF, on the south by the Foothill Freeway (Interstate 210 or I-210), and extends approximately one mile east and west of the transmission corridor. Landscape Unit 9 contains the developed areas of Duarte, an eastern portion of Bradbury, and a small portion of Irwindale north of the Foothill Freeway (refer to Figure B-8 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 9).

The terrain within this landscape unit is generally flat in its central and southern areas. Moderate slopes are present in the northern residential areas, with steeper slopes to the north in the undeveloped foothills of the San Gabriel Mountains, leading up to the southern boundary of the ANF. Development within the landscape unit consists primarily of single-family residential neighborhoods, and some of these lie in close proximity to the transmission corridor. Commercial development is concentrated along Huntington Drive. As is typical for many of SCE's transmission corridors, several nurseries are present within the Right-of-Way (ROW) itself. The Rancho Duarte Golf Course is located within and around the transmission corridor north of Huntington Drive, and the Avila Gardens Residence for Seniors is located immediately south of the golf course and adjacent to the transmission corridor. Some industrial land uses are present south of Huntington Drive near the San Gabriel River channel and immediately north of I- 210. A residential neighborhood is also present south of Huntington Drive and west of the transmission corridor.

Vegetation in this cultural landscape consists of a variety of planted deciduous trees, palm trees, various shrubs, and grass lawns. Native chaparral evergreens dominate the undeveloped San Gabriel Mountains to the north. The most visually dominant features in this landscape unit are the San Gabriel Mountains to the north and the two sets of electric transmission towers and conductors that define the central axis of the landscape unit.

Segment 7 of the proposed Project would traverse Landscape Units 9 and 10, and terminate in Landscape Unit 12 at the existing Mesa Substation. Existing ROW cross-sections for Segment 7 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 7 is 200 to 250 feet. Existing transmission structures in these segments are LSTs carrying 220-kV conductors. Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 9.

Viewers of the transmission corridor within Landscape Unit 9 include residents within their homes, particularly those with views oriented toward the corridor, pedestrians, bicyclists, and motorists traveling on surface roads, plus motorists passing through the landscape unit on I-210.

The study corridor in Landscape Unit 9 traverses through the cities of Duarte, Bradbury, and Irwindale. Applicable laws, regulations, and standards relative to the scenic quality for Landscape Unit 9 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*.

The City of Bradbury has adopted ridgeline and view preservation regulations. There are no designated State or local scenic highways located within Landscape Unit 9.

KOP-South-1 – Royal Oaks/Tocino Intersection, Duarte (Segment 7)

KOP-South-1 represents views from generally level terrain looking north toward the San Gabriel Mountains along the transmission corridor. Viewers from this KOP include residents with static views from their homes, and pedestrians, bicyclists, and motorists traveling on the area's streets (see Map & Figure Series Volume, Figure 3.14-36a). This KOP is located within a residential neighborhood in the south-central portion of the landscape unit immediately adjacent to the transmission corridor, looking north-northeast. Because only non-NFS lands are visible in the view, the VS/VC methodology applies to this KOP. Figure 3.14-36a is representative of existing conditions seen at foreground viewing distances from S7 MP 0.0 to S7 MP 1.8.

The existing foreground view from KOP-South-1 includes houses, a paved street, parked automobiles, grass lawns, shrubs, a wide variety of attractive trees, some residential overhead utility wires, and the high-voltage transmission towers and conductors present approximately 300 feet to the north-northeast. The middleground view contains the San Gabriel Mountains with chaparral evergreen vegetation, which are natural-appearing and relatively untouched. However, pairs of transmission towers and conductors also are visible in the middleground view, and even though they have a landform backdrop, the existing lattice structures are visually evident, especially for the pair of towers that are exposed above the skyline.

- **Viewer Exposure: high.** The proposed Project would be highly visible from these residential properties because it would cross directly behind existing houses at foreground viewing distances. As seen from these neighborhoods, the proposed Project also would be highly visible on the barren slopes of the San Gabriel Mountains at middleground viewing distances. The duration of view would be extended from these residential neighborhoods, and the number of potential viewers would be moderate-to-high. Therefore, the overall viewing exposure would be high.

- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in single-family homes, on neighborhood streets, golfers, and residents at the nearby Avila Gardens Senior Center. The level of viewer sensitivity is high.
- **Visual Quality: moderate-to-high.** The overall visual quality for KOP-South-1 is moderate-to-high. The slopes and high ridgeline of the San Gabriel Mountains provide a dramatic and attractive backdrop to this residential view, and the vegetation (particularly the contrasting mix of palm and deciduous trees) provides an element of special visual interest. The visual intactness of the residential area is average, although the transmission structures encroach upon the foreground view. The visual unity of the residences and streetscape is moderately high; the landforms, vegetation and residential structures fit well together. However, the scale and geometric forms of the transmission structures contrast strongly with these other visual elements, and these existing industrial-character structures protrude above the skyline in both the foreground and middleground, creating additional contrasts. Without the transmission lines in this view, this landscape would exhibit high visual quality, but the introduction of these towers and conductors has lowered the visual quality to a moderate-to-high level.
- **Overall Visual Sensitivity: high.** For residents of Duarte in general and KOP-South-1 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 10: I-605 Corridor

Landscape Unit 10 is bounded on the north by the Foothill Freeway (I-210), on the south by the Pomona Freeway (Highway 60), and extends approximately one mile east and west of the transmission corridor (refer to Figures B-8 and B-9 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 10). Landscape Unit 10 is centered along the corridor of the San Gabriel River Freeway (I-605) and the San Gabriel River channel, which generally run north-to-south. The transmission corridor generally parallels the river and freeway, with the conductors crossing the river and freeway at some locations.

This landscape unit is approximately eight miles long and passes through multiple jurisdictions. From north to south Landscape Unit 10 includes: the central portion of Irwindale; a western portion of Baldwin Park; a small western spur of the City of Industry; and, a southeastern portion of South El Monte.

The terrain within this landscape unit is generally flat, with the most significant relief occurring within the San Gabriel River channel and the Santa Fe Flood Control Basin (see KOP-South-2 below). Development consists primarily of freeway structures and industrial facilities, including several large gravel quarry facilities. Residential neighborhoods are present east and west of the transmission corridor, but these are somewhat visually isolated from the transmission towers and conductors by the intervening freeway and the San Gabriel River. An exception to this occurs in the southwestern portion of the landscape unit in South El Monte (see KOP-South-3 below). Other major features within Landscape Unit 10 include the Irwindale Speedway south of Live Oak Avenue, several schools, the California Country Club northeast of the I-605/Highway 60 interchange, and the Santa Fe Dam Recreation Area.

The Santa Fe Recreation Area is an 836-acre Los Angeles County Park situated north of the Santa Fe Dam, a flood-control structure for the San Gabriel River. The majority of the park is located southeast of the I-210/I-605 interchange, with a smaller section southwest of this interchange. The park includes floodwater spreading grounds; hiking, biking, and equestrian trails; campsites; picnic areas; a children's water play area; and a 70-acre lake. The lake and vicinity are the primary use areas within the park. The portion of the transmission corridor that passes through the park is not visible from the lake area, but the transmission towers are faintly visible atop the ridgeline within the San Gabriel Mountains to the north. Other areas of the park with views closer to the transmission corridor are generally undeveloped and

accessible via hiking, biking, or equestrian trails. The transmission corridor is also likely visible from a private remote-controlled model airplane club located west of I-605 in the northwest portion of the park.

Vegetation within Landscape Unit 10 consists of shrubs, trees, and grasses near the San Gabriel River channel, other trees, shrubs, and grasses at various locations along the corridor, and several nurseries within SCE's ROW.

The most visually dominant features in this landscape unit are I-605, the San Gabriel River channel, and the electric transmission towers and conductors. Existing ROW cross-sections for Segment 7 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 7 is 200 to 365 feet wide. Parts of the Segment 7 transmission corridor include two sets of structures; the taller structures are double-circuit LSTs carrying 220-kV conductors; the shorter structures are single-circuit LSTs carrying 220-kV conductors. The last part of Segment 7 includes a third set of LSTs of intermediate height that carry two sets of 66-kV conductors. Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 10.

Viewers of the transmission corridor within Landscape Unit 10 include motorists traveling along I-605, residents living in proximity to the corridor, and pedestrians, bicyclists, and motorists traveling on nearby surface roads. Given the utilitarian nature of this freeway corridor and the high travel speeds, the visual sensitivity of the roadway travelers is considered to be moderate, at most.

The study corridor in Landscape Unit 10 traverses through the cities of Irwindale, Baldwin Park, Arcadia, El Monte, Industry, and South El Monte. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 10 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. There are no designated State or local scenic highways located within Landscape Unit 10.

KOP-South-2 – I-605 Corridor Between I-210 & Arrow Hwy, Irwindale (Segment 7)

This KOP is located just south of the I-210/I-605 interchange, looking south on the southbound I-605 freeway and it represents a typical view for motorists traveling south along this freeway (see Figure ~~A~~3.14-37a – Existing Conditions for KOP-South-2 – I-605 Corridor Between I-210 & Arrow Hwy, Irwindale).

- **Viewer Exposure: moderate-to-high.** The proposed Project would be highly visible from the 605 freeway as there is no topographic or vegetative screening in front of these large, industrial structures. Foreground features include the concrete freeway surface, automobiles, lamp posts, freeway signage, and the high-voltage transmission towers and conductors crossing the freeway approximately 800 feet in front of the viewer to the southwest. The Santa Fe Flood Basin Spillway Channel is visible to the right (west) and beneath the upcoming bridge. The middleground view contains more of the freeway and the transmission towers and conductors further to the south. The background view contains a faint view of the Puente Hills, which are more visible on days with clear air-quality. The number of viewers is high, but the duration of view is brief-to-moderate, depending on traffic. Because drivers' focus is primarily concerned with traffic and safe driving, overall viewer exposure is moderate-to-high.
- **Viewer Concern: low.** Viewers in this area consist primarily of motorists traveling along I-605. There is an industrial nature in this freeway corridor and during non-rush-hour, there are high speeds and short viewing times at this KOP. During rush-hour, lanes are crowded with stop-and-slow traffic and drivers' attention is on safety and traffic, not visual quality concerns, and therefore, the overall level of visual sensitivity is considered low.
- **Visual Quality: low.** The overall visual quality for KOP-South-2 is low. The level of vividness in this view is low; the Puente Hills are only faintly visible and the relief provided by the Santa Fe Flood basin is slight, vegetation is minimal, and the human-made elements of the freeway and the transmission structures are not

memorable features. The visual intactness is low with the transmission structures encroaching upon the view of the distant hills and sky. The visual unity is also low; the view is reasonably coherent for an industrial freeway corridor, but the transmission structures of varying designs detract from the harmony of the view.

- **Overall Visual Sensitivity: low-to-moderate.** For viewers on I-605 in general and KOP-South-2 specifically, the moderate-to-high viewer exposure, low viewer concern, and low visual quality lead to a low-to-moderate overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-3 – Linard Street/Kayann Place Intersection, South El Monte (Segment 7)

This KOP is located within a residential neighborhood in the southern portion of Landscape Unit 10, in close proximity to the proposed transmission corridor (see Map & Figure Series Volume, Figure 3.14-38a). Foreground features include the street, sidewalk, parked automobiles, single-family residences, light poles, grass lawns, introduced landscaping trees and shrubs, a freeway billboard, and residential utility wires, with the high-voltage transmission towers and conductors visible approximately 500 feet to the east. In the middleground above a rooftop on the right side of Figure 3.14-38a, a small portion of the San Jose Hills is visible.

- **Viewer Exposure: high.** The proposed Project would be highly visible from this residential neighborhood, as there is no topographic or vegetative screening in front of these large, industrial structures. Viewing distance to the transmission line is foreground and immediate foreground from these houses. The number of viewers is moderate and viewing time is extended from these streets, houses, and yards.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in these single-family homes and on neighborhood streets. Given the residential nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: low-to-moderate.** The overall visual quality for KOP-South-3 is low-to-moderate. The level of vividness in this view is moderately low; other than the distant San Jose Hills, the terrain is essentially flat. The visual encroachment of industrial structures (transmission towers and conductors) and freeway commercial structures (billboard) are prominently visible against the sky, reducing visual quality in this neighborhood. Landscaping vegetation within the neighborhood adds some visual interest. The visual unity is somewhat below average due to the contrast between the geometric forms and out-of-scale transmission structures and the other elements of the residential neighborhood. Without the existing transmission lines in this view, this landscape would exhibit moderate visual quality, but the introduction of these towers and conductors and billboard has lowered the visual quality to a low-to-moderate level.
- **Overall Visual Sensitivity: moderate-to-high.** For residents of South El Monte in general and KOP-South-3 specifically, the high viewer exposure, high viewer concern, and low-to-moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 11: San Gabriel Valley

Landscape Unit 11 is located in the San Gabriel Valley. The north end of the unit begins at the southern boundary of the ANF and the southern end of Landscape Unit 8. From the ANF boundary, the transmission corridor heads in a generally southern direction through Altadena, Pasadena, San Gabriel, Temple City, Rosemead, and Monterey Park. The southern terminus is the boundary of Landscape Unit 12, where the transmission line enters the Mesa Substation (refer to Figures B-8 and B-9 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 11). The northern end of Landscape Unit 11 begins in the southern foothills of the San Gabriel Mountains and follows the east side of Eaton Canyon (a major wash complex that contains the Eaton Wash Dam) downstream into the flat San Gabriel Valley. The unit traverses generally level terrain to its southern end where it passes over low hills to the Landscape Unit 12 boundary.

The extreme northern part of the landscape unit in the vicinity of Eaton Wash contains the least developed areas of Segment 11. Even in this area, however, residences are found on the adjacent hillsides. Most of

the unit passes through the heavily developed middle of the San Gabriel Valley and includes an assortment of land use types that influence landscape character. Where the transmission corridor is intersected by major arterials such as Sierra Madre Boulevard, Colorado Boulevard, Huntington Drive, Las Tunas Drive, Mission Boulevard, Valley Boulevard, and Garvey Boulevard, nearby land uses (outside of the corridor) tend to be commercial, with some professional-office and residential uses. These areas tend to have a landscape character that is relatively low rise urban commercial. Between the major arterials, land uses are more varied as is landscape character. Uses include well established neighborhoods of single-family residential, concentrated areas of multifamily residential of varying ages and styles, commercial, and light industrial. The landscape character varies according to land use, but from parts of all of these areas components of the transmission corridor (primarily towers and to a lesser extent conductors) can be seen from behind or between buildings and trees.

The transmission corridor is part of the existing landscape and is seen from many areas near it. Towers and conductors are most apparent where the corridor is intersected by streets and allows viewers to look up and down the transmission corridor and see multiple towers and conductors. This is particularly true where land uses under the conductors within the corridor ROW allow clear views and where vegetation has not been planted adjacent to streets to screen views. The transmission corridor is especially visible in areas where public parks have been developed within the ROW, and people have immediate foreground views of corridor elements like towers and conductors.

Existing ROW cross-sections for Segment 11 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 11 is 200 to over 400-feet. Existing transmission structures in Segment 11 are two sets of LSTs carrying 220-kV conductors and in Segment 11, existing transmission structures include two sets 140-foot-tall LSTs carrying 220-kV conductors and two sets of 80-foot-tall LSTs carrying 66-kV conductors (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 11.

The types of viewers of the transmission corridor found within this landscape unit are as varied as land use types. They include residents, employees, people driving past or through the unit, and recreationists. Viewing sensitivity is likewise diverse. It can be assumed that people living near the transmission corridor would be the most visually sensitive and would have a high visual concern level, and that people passing by or through the area would be less visually sensitive and would have a low visual concern level.

The transmission corridor in Landscape Unit 11 traverses through the unincorporated community of Altadena and the cities of Pasadena, San Gabriel, Temple City, Rosemead, and Monterey Park jurisdictions. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 11 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. There are no designated state or local scenic highways located within Landscape Unit 11.

Because the SCE's proposed Project would not replace towers and would involve adding three conductors to existing unused tower cross arms, there would be very little change to the existing visual environment or visual quality. Therefore, no KOPs were selected for this landscape unit.

Landscape Unit 12: Mesa Substation/Montebello Town Center

Landscape Unit 12 surrounds the Mesa Substation and the Montebello Town Center and is located in parts of the cities of Montebello and Monterey Park (refer to Figure B-9 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 12). The terrain within this unit is hilly and crossed

by a number of utility corridors, including Segments 6 and 11 of the proposed Project. The Mesa Substation is located in a low, broad valley between the Montebello Hills to the southeast and lower hills to the northwest. The Montebello Town Center is situated on a high terrace surrounded by gentle slopes of the Montebello Hills. Land uses in this landscape unit are extremely diverse and that diversity greatly influences landscape character. The area around the substation has an array of land uses, including the substation itself, transmission corridor, and other utility corridors that feed into or exit from the substation, a commercial landscape nursery under one of the utility ROWs, the Operating Industries Incorporated (OII) Landfill (on the northwest edge of the Montebello Hills), Highway 60, office parks, light industry, commercial, vacant lands, arterial roads, a memorial park and residential areas.

Of this array of land uses, the most visually dominating are the north-facing terraced slope of the OII Landfill, Highway 60, the utility corridors, and the Mesa Substation. The landscape character of this part of Landscape Unit 12 is best described as mixed, with the presence of large scale landfill, transportation, and utility infrastructure.

Land uses around the Montebello Town Center are also diverse. They include commercial (primarily the Montebello Town Center), light manufacturing, hotel, residential (north of Highway 60), transportation (Highway 60 and several freeway interchanges and major arterial bridges over Highway 60), utility corridor, and oil extraction. The southern portion of the unit that includes part of the Montebello Hills serves as a visual backdrop to this unit. This area includes an active oil field and contains a utility corridor. The oil field contains oil pumping equipment, out-buildings, numerous paved and unpaved roads, and scattered groupings of trees (mostly eucalyptus) and natural-appearing shrubs and underbrush. The area immediately surrounding the Montebello Town Center has a landscape character that is typical of large regional malls in Southern California. Elements include large areas of paved parking, large, rather low scale buildings, and attractive landscaping and signage. The area south of the Montebello Town Center on the Montebello Hills is best described as having a mineral extraction-industrial landscape character that is edged by a utility corridor. The most visually dominating features in this landscape unit are the Montebello Hills, the Montebello Town Center, the transportation elements described previously, the oil field, and utility corridors.

Existing ROW cross-sections for Segment 7 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 7 is 200 to 500 feet. Existing transmission structures in Segment 7 include three sets of LSTs carrying 220-kV conductors plus a set of three distribution lines. Segment 11 includes two sets of 140 foot-tall LSTs carrying 220-kV conductors and two sets of 80 foot-tall LSTs carrying 66-kV conductors (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 12.

A wide variety of people view Landscape Unit 12, including: shoppers; employees of the Town Center, office buildings, and other businesses; people driving through the unit; and, residents. Because of the extensive large-scale development that has occurred in this area and generally short viewing duration of most viewers, viewer sensitivity is considered to be low-to-moderate.

The proposed Project corridor in Landscape Unit 12 traverses through the cities of Monterey Park and Montebello. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 12 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. There are no designated State or local scenic highways located within Landscape Unit 12.

KOP-South-4 – Paramount Boulevard, Montebello Hills (Segment 7)

KOP-South-4 was established on Paramount Boulevard heading east near the Montebello Boulevard intersection. This location represents a foreground view of the transmission corridor for people driving southeast on Paramount Boulevard to North Montebello Boulevard and is similar to other views of the transmission corridor from nearby travelways. Paramount Boulevard is used to access the Montebello Town Center, approximately 0.25 mile downhill to the left (northeast), to connect with San Gabriel Boulevard and to access office park and residential areas to the south (see Map & Figure Series Volume, Figure 3.14-39a).

- **Viewer Exposure: moderate-to-high.** The proposed Project would be highly visible from this intersection, as there is no topographic or vegetative screening in front of these large, industrial structures. Viewing distance to the transmission line is immediate foreground and foreground from this intersection and these roads. The number of viewers is high and viewing time is brief from these streets.
- **Viewer Concern: low.** Viewers from this location are drivers passing through to another location. People stopped at the traffic light have direct views of this landscape, but viewing duration is relatively brief, even when stopped for a red light, and attention is mainly to cross-traffic. Therefore, viewing sensitivity is considered to be low.
- **Visual Quality: low-to-moderate.** People waiting for a red light at this location or passing through this intersection to North Montebello Boulevard have immediate foreground and foreground views of the northwest edge of the Montebello Hills oil field and the proposed transmission corridor. The oil field contains scattered areas of eucalyptus trees, shrubs, and underbrush; areas that have been cleared of all vegetation; paved and unpaved roads; and various types of equipment related to oil extraction. It is surrounded by chain link fencing. North Montebello Boulevard has a new appearance with new sidewalks and young street trees that line it and visually tie into the Montebello Town Center. Views from this KOP are contained by the slope of the Montebello Hills and a grove of trees along the top of the hills. Human-made objects are very apparent in the immediate foreground and the landscape is dominated by human influence, including traffic signals, street lights, electric distribution lines, and transmission structures. The paved streets, three parallel lines in the proposed transmission corridor, and the grove of trees on the Montebello Hills are dominant visual features. This visually complex landscape has mixed character that includes transportation, utility, and mineral extraction. Despite the presence of a partially forested hillside in the foreground, the viewed landscape encompasses an unusual mix of land uses and human-made elements that intrude on the view. The presence of these elements and the condition of the land in the oil field negatively effect vividness, intactness, and unity and contribute to visual quality rating of low-to-moderate.
- **Overall Visual Sensitivity: low-to-moderate.** For travelers on Paramount Boulevard and Montebello Boulevard in general and KOP-South-4 specifically, the moderate-to-high viewer exposure, low viewer concern, and low-to-moderate visual quality lead to a low-to-moderate overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-5 – Montebello Town Center, Montebello Hills (Segment 7)

KOP-South-5 was established at the main entrance on the southern side of the Montebello Town Center. It represents views that shoppers have as they leave the shopping complex. As they enter the parking area, they see cars and landscaped islands ahead and beyond that, transmission towers and conductors on the skyline (see Map & Figure Series Volume, Figure 3.14-40a). Three sets of transmission lines are present on the north slope of the Montebello Hills, and two structure types are present in this view – LSTs on the left and TSPs on the right.

- **Viewer Exposure: moderate-to-high.** The view from this location is contained by the walls of the shopping center building and the hills beyond, leading the viewers' eyes to the skyline with transmission lines protruding into the blue sky seen in Figure 3.14-40a. (The FedEx truck is a temporary focal point in this photograph but is not a permanent visual element in this landscape, and is, therefore, ignored in this analysis.) Viewing distance ranges from immediate foreground (the shopping center) to foreground (the skyline hills and transmission corridor). Attention is focused on the sidewalks, parking lot, vehicles, the

utility corridor on the skyline, and hills. Viewers consist primarily of shoppers and employees leaving the shopping center to access their vehicles or the nearby bus stop. The number of viewers is high, duration of view is brief, and therefore, viewer exposure is moderate-to-high.

- **Viewer Concern: low.** Viewers from this location are shoppers exiting the mall and drivers passing through the parking lot. Peoples' attention is mainly focused on finding a parking space, finding their car, or vehicular/pedestrian cross-traffic. Therefore, viewer concern is considered to be low.
- **Visual Quality: moderate.** The landscape character of this view is a mixture of shopping center, natural-appearing landscape (the hillside) and industrial-appearing (the utility corridor). Vegetative cover on the slope is essentially unbroken and includes natural-appearing trees, shrubs, and underbrush. From this location facilities and developments associated with the oil field cannot be seen. Ornamental landscaping associated with the shopping center is also visually prominent from this location and would be even more prominent during times of year when the trees have leaves. Human-made visual features dominate the view from this location – ornamental trees, sidewalk, parking area, vehicles, light standards for parking, and walls of the shopping center are quite visible in the immediate foreground. Beyond the parking area, the three lattice towers of the transmission corridor are quite visible as are other electric transmission lines and smaller distribution lines along the top of the hillside.

  The existing conditions assessment of the view from KOP-South-5 determined that the quality of the natural setting elements (topography and natural-appearing vegetation) is moderate-to-high. The quality of the Town Center building and its ornamental landscaping is typical of a well-managed major urban shopping center. The view from this KOP is not of the shopping center, but is rather focused on the parking lot and areas beyond. This view produces average ratings for vividness, intactness, and unity. The parking lot and vehicles introduce utilitarian elements into the viewed landscape, and the transmission lines introduce an incongruent industrial character to the overall landscape scene, lowering the visual quality. When all of these factors are considered, the resulting visual quality rating is moderate.
- **Overall Visual Sensitivity: moderate.** For shoppers at Montebello Town Center in general and KOP-South-5 specifically, the moderate-to-high viewer exposure, low viewer concern, and moderate visual quality lead to a moderate overall visual sensitivity of the visual setting and viewing characteristics.

South Area: Segment Components

Landscape Unit 13: Whittier Narrows

This landscape unit extends from San Gabriel Boulevard on the western boundary east to I-605. Landscape Unit 13 is characterized as an area of highly developed industrial and residential uses in Los Angeles County's San Gabriel Valley and with highly developed outdoor recreation areas within an established flood control basin (Whittier Narrows) under the jurisdiction of the U.S. Army Corps of Engineers (refer to Figure B-9 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 13).

Whittier Narrows flood control basin is located within a natural gap in the hills that form the southern boundary of the San Gabriel Valley. The Rio Hondo and San Gabriel River follow through this gap. The Rio Hondo flows across the landscape unit from north to south in the western portion of the unit and the San Gabriel River flows across Landscape Unit 13 from north to south in the eastern portion of the unit. Mission Creek, east of Rosemead Boulevard, is one of the remaining natural streambeds of the Rio Hondo. Other waterways are contained in concrete channels.

The northern portion of the landscape unit outside the Whittier Narrows Recreation Area is highly developed and comprised of industrial and residential land use. The Whittier Narrows Dam is located in the southern portion of Landscape Unit 13. A large nursery is located at the intersection of Rosemead Boulevard and Durfee Road. The transportation system within the landscape unit ranges from local streets to State routes (State Highway 60) to interstate highways (I-605).

The Whittier Narrows Recreation Area is a 1,400-acre park located within the Whittier Narrows flood control basin. It is managed by Los Angeles County Department of Recreation and Parks and the City of Pico Rivera. The basin is near the communities of South El Monte, Rosemead, and Montebello. The Whittier Narrows Recreation Area provides fishing lakes, comfort stations, picnic areas, playgrounds, a nature center, an equestrian facility, trails, a multipurpose athletic complex, a military museum, soccer fields, golf course, volleyball courts, and archery, skeet, pistol and trap ranges. Tennis courts are also provided and include a pro shop. Rentals are available for boats, surreys, bikes, and group area picnics. Special events include carnivals, festivals, and dog shows (Whittier Narrows Recreation Area. 2008 and Santa Monica Mountains Conservancy [SMMC], 2004b~~SMMC, 2004b~~).

Bosque del Rio Hondo, located within the Whittier Narrows Recreation Area just one mile south of State Highway 60, offers year-round trail access to one of the remaining natural streambeds of the Rio Hondo, as well as seasonal creeks, picnic areas, access to bike paths and equestrian trails, parking facilities, and restroom facilities. The park design visually integrates the natural riverfront with the adjacent land to provide a riverfront setting for passive recreation. A continuing program of native revegetation has restored the river ecosystem and has improved habitat for resident and migratory birds. Additionally, the Whittier Narrows area is a main connection point for access to the San Gabriel River Bike Trail to the west (28 miles long) and the Los Angeles River bikeway via Rio Honda to the east (29 miles long) used by bicyclists and inline skaters (Santa Monica Mountains Conservancy [SMMC], 2004a~~SMMC, 2004a~~).

Additionally, the Pico Rivera Sports Arena, also located in Landscape Unit 13, is one of the largest Mexican-style "Rancho de Charro" (rodeo ring) facilities in the United States. It annually hosts more than a dozen shows featuring rodeo performers and other celebrities, often presented in combination with a traditional Mexican rodeo. Professional boxing, wrestling and American-style rodeo s are also presented.

Views throughout Landscape Unit 13 include the presence of the existing transmission corridors (both SCE and the City of Los Angeles Department of Water and Power [LADWP] corridors). The existing ROW has been encroached upon by numerous recreation venues (e.g., horse stables, sports arena, parkland, archery/shooting range, fishing lake, picnic areas, hiking trails) and agricultural activities (e.g., nurseries) throughout the landscape unit over the years. The common theme of the views from various locations in the landscape unit is the presence of multiple existing transmission lines within the foreground, middleground, and background views. Native plants and landscape plantings soften the presence of the structures in some locations; however, the height of the towers exceeds the height of existing vegetation, so the transmission line structures dominate the visual environment.

Vegetation within the landscape unit varies from native riparian and woodland plant species in the natural areas associated with the Whittier Narrows Nature Center and adjacent Bosque de Rio Hondo to the landscaped and irrigated plantings associated with parkland, residential, and industrial portions of the area. Ruderal and non-native species are associated with disturbed-but-undeveloped and non-maintained portions of the landscape unit. Larger trees and shrubs associated with human development are notably present. Within the flood basin floor, views are restricted to the foreground and middleground due to the presence of the native plants and landscape plantings. Views that include the adjacent low lying hills east and west of the basin floor in the background are available from near the western and eastern boundaries of the landscape unit.

There are two established transmission corridors within the landscape unit: the Segment 7 corridor travels east-to-west across the middle portion of Landscape Unit 13; and Segment 8 (8A) travels west-to-east across the southern portion the unit. At the very western end of the landscape unit, Segments 7 and 8A

are located within the same transmission corridor. Within this landscape unit, both Segments 7 and 8A are located within Los Angeles County. Segment 7 crosses through South El Monte (approximately 0.3 mile) and unincorporated County of Los Angeles (approximately 2.4 miles); and, Segment 8A crosses through unincorporated County of Los Angeles (approximately 1.6 miles) and Pico Rivera (approximately 0.6 mile).

Existing ROW cross-sections for Segments 7 and 8 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 7 is 200 to 250 feet; the ROW associated with Segment 8 varies from 150 to 425 feet wide. Existing transmission structures in Segment 7 and 8 include a variety of LSTs carrying 66-kV and 220-kV conductors (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 13.

Land uses in and near Landscape Unit 13 that influence landscape character largely are comprised of recreation, industrial, agricultural, residential, transportation, flood control, and utility (developed transmission corridors throughout the landscape unit). The unit is highly developed outside the Whittier Narrows Recreation Area and is well maintained and managed within the Recreation Area.

Sensitive viewers in Landscape Unit 13 include recreational users of the Whittier Narrows Recreation Area and Bosque del Rio Hondo and people driving throughout the landscape unit. The level of visual sensitivity varies by type of viewer and view duration and exposure, but is generally considered to be moderate-to-high, given the large amount of acreage devoted primarily to recreational use within the flood control basin.

The study corridor in Landscape Unit 13 traverses through the jurisdictions of the cities of Pico Rivera, South El Monte, Industry, and Los Angeles County. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 13 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. There are no designated state or local scenic highways located within Landscape Unit 13.

KOP-South-6 – Legg Lake, Whittier Narrows, L.A. County (Segment 7)

This KOP was established at Legg Lake Park, on the western shore of the lake, looking southeast toward the proposed Segment 7 transmission corridor. Legg Lake Park is open daily, and affords the general public access to fishing, picnicking, wildlife-watching, and other outdoor recreation. The expansive park view has level topography and a dramatic waterfront picnic area. Water features are fairly rare in the Los Angeles Basin; consequently, Legg Lake is a dramatic visual element in this landscape (see Map & Figure Series Volume, Figure 3.14-41a). The foreground of this KOP contains maintained park lawns and landscaping. Picnic areas under the transmission lines include picnic tables on concrete pads, barbecue facilities, trash receptacles, lawns, native and non-native trees.

- **Viewer Exposure: high.** The proposed Project Segment 7 would be highly visible from this recreational park at Legg Lake, as there is no topographic screening and vegetative screening is shorter than the existing and proposed large, industrial-character structures. Viewing distance to the transmission line is foreground and immediate foreground from this vantage point and other locations within the park. Existing vegetation screens the middleground and background views. The number of viewers is high and duration of view is extended, and therefore, viewer exposure is high.
- **Viewer Concern: high.** Viewers in this area consist of recreationists who have come to enjoy the unique environment of Legg Lake, enjoy the open space, wildlife, and picnic areas. Given the recreational nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: moderate-to-high.** The presence of a large water feature is unique in the Los Angeles Basin, as described above, and even though the landforms are relatively flat, vegetation is attractive and well

maintained, consistent with a developed park setting. The overall park view exhibits an intact landscape, except for the encroachment of transmission line structures on the skyline. This encroachment is offset somewhat by the evergreen trees in the foreground, providing an overall expansive park view. The unity of the view is moderate-to-high because the view is consistent with a developed park setting, and the mature trees help to visually screen the bases of the transmission structures. The overall existing visual quality of the view from this KOP is moderate-to-high.

- **Overall Visual Sensitivity: high.** For people visiting and recreating at Legg Lake in general and KOP-South-6 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 14: Rose Hills

Landscape Unit 14 extends approximately from the I-605 to southeast of Rose Hills Memorial Park. Landscape Unit 14 is characterized by the distinctive land uses of Rose Hills Memorial Park and Puente Hills Landfill and includes the communities immediately adjacent to these land uses (refer to Figure B-9 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 14).

Landscape Unit 14 begins as the existing transmission corridor crosses the San Gabriel River and then the I-605 from west to east. The landscape is flat and dominated by the presence of the I-605 and transmission lines in the vicinity. The transmission corridor quickly climbs into the Puente Hills in the vicinity of Rio Hondo Junior College. The landscape around Rio Hondo Junior College is hilly and vegetated with grasses, midsize shrubs, and trees. The remainder of Landscape Unit 14 is primarily comprised of Rose Hills Memorial Park to the south and west of Segment 8, and Puente Hills Landfill and open space associated with the Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA) to the north and east of Segment 8.

Existing land uses in and near Landscape Unit 14 that influence landscape character are primarily comprised of Rose Hills Memorial Park and Puente Hills Landfill. Recreational uses, open space, and some areas of residential development are also present.

Existing ROW cross-sections for Segment 8 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 8 is 150 to 310 feet wide. Existing transmission structures in Segment 8 include between one and three sets of LSTs carrying 220-kV conductors (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 14.

Viewers in Landscape Unit 14 include visitors to Rose Hills Memorial Park, residents with existing and/or future views of Segment 8, and travelers on the I-605. The level of visual sensitivity ranges from low (motorists) to high (residents and Memorial Park visitors).

Segment 8 of the proposed Project traverses through Landscape Unit 14, and includes land falling under the jurisdictions of the City of Industry and Los Angeles County (including the community of Hacienda Heights).

Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 14 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. There are no designated state or local scenic highways located within Landscape Unit 14.

KOP-South-7 – Buddhist Columbarium at Rose Hills Memorial Park (Segment 8A)

KOP-South-7 is located at the Buddhist Columbarium at Rose Hills Memorial Park. This KOP was selected to represent views of the Project through the Memorial Park. The immediate foreground of this KOP consists of the fencing and paving at the edge of the Buddhist Columbarium, while the foreground and middleground consists of various portions of the Memorial Park. Also in the middleground is a large agricultural area, which will be developed in the future as part of the Memorial Park extending to the ridgeline. An existing transmission line traverses this agricultural area. The San Gabriel Mountains form an attractive snowcapped feature in the background. Vegetation as seen in KOP-South-7 alternates between the rigid landscaping of the Park, the natural but orderly vegetation in the agricultural area, and small areas of native grasses and shrubs at the edge of the Memorial Park and along the ridgeline (see Map & Figure Series Volume, Figure 3.14-42a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible from this vantage point at the Columbarium, as there is no topographic or vegetative screening for the existing or proposed large, industrial-character transmission structures. Viewing distance to the transmission line is foreground from this vantage point. Additionally, due to its high number of visitors and numerous roadways, chapels, and expansive grounds, the Memorial Park offers several other vantage points of the transmission line at different viewing distances, including immediate foreground, foreground, and middleground. The number of viewers is high and duration of view is extended, leading to an overall high viewer exposure.
- **Viewer concern: moderate-to-high.** Rose Hills Memorial Park is open to the public, but has no official designation as a tourist attraction or scenic vista. However, the Buddhist Columbarium at the Memorial Park is situated to serve as a scenic vista point and a location for contemplation and meditation. As such, the level of visual concern is considered moderate-to-high.
- **Visual Quality: moderate-to-high.** KOP-South-7 has a highly visual, interesting mix of landforms, from the gentle slopes of the Memorial Park to the rolling hills and mountains beyond in the middleground and background, with a similarly interesting mix of vegetation, ranging from the landscaping of the Memorial Park, agricultural areas, and natural grasses and shrubs. A small lake with a waterfall that is under construction at the Memorial Park adds a pleasant, formal water feature to the view. The view has a relatively high level of intactness, as the human-made development is context sensitive, and the view has high overall coherence that is minimally disturbed by the presence of the transmission line that crosses the agricultural area, mostly below the skyline. The overall existing visual quality of the view from this KOP is moderate-to-high.
- **Overall Visual Sensitivity: moderate-to-high.** For people visiting the Buddhist Columbarium at Rose Hills Memorial Park in general and KOP-South-7 specifically, the high viewer exposure, moderate-to-high viewer concern, and moderate-to-high visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 15: Hacienda Heights

This landscape unit extends approximately from Rose Hills Memorial Park on the west to State Highway 57 on the east. Landscape Unit 15 is characterized by the Puente Hills, with open space along the ridgeline and residential development located primarily on the north side of the hills (refer to Figure B-9 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 15).

Landscape Unit 15 includes approximately nine miles of Segment 8A and includes the unincorporated communities of Hacienda Heights and Rowland Heights and small portions of the cities of Whittier and La Habra Heights.

Landscape Unit 15 generally traverses the ridgeline of the Puente Hills. The transmission corridor through Landscape Unit 15 passes through a variety of open space and residential areas. The transmission corridor crosses over residential areas in a number of locations throughout the landscape unit. Residential

development in Landscape Unit 15 extends into the hills right up to the ridgeline, with existing transmission lines on the skyline. Existing land uses in Landscape Unit 15 that influence landscape character are largely limited to the recreational uses/open space and residential uses described above.

Existing ROW cross-sections for Segment 8 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW associated with Segment 8 is 150 to 340 feet wide. Existing transmission structures in Segment 8 include between one and three sets of LSTs carrying 220-kV conductors (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 15.

Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 15 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. There are no designated State or local scenic highways located within Landscape Unit 15.

KOP-South-8 – Colima Road, Hacienda Heights (Segment 8A)

KOP-South-8 was established from the passenger's seat of a vehicle on Colima Road, just west of the intersection of Hacienda Boulevard. This KOP was selected to represent views for local residents traveling west-southwest on Colima Road into the residential areas north of the transmission corridor. This is a typical streetscape view of a divided four-lane collector street in Hacienda Heights with convenience commercial development at the intersection (see Map & Figure Series Volume, Figure 3.14-43a).

- **Viewer Exposure: moderate-to-high.** The proposed Project Segment 8 would be highly visible from this vantage point. The foreground view from Colima Road exhibits adjacent commercial development, and on the ridgeline of this foreground view, Colima Road leads to residential areas and undeveloped hills of Hacienda Heights with transmission lines and towers visible on the skyline. Because the skyline is less than 0.5 mile away, all of this view is in the foreground distance zone. The number of viewers is high, but the view duration is brief from this KOP, leading to a moderate-to-high viewer exposure.
- **Viewer Concern: moderate-to-high.** Viewers would be motorists, passengers on busses, and pedestrians. People stopped at the traffic light at the intersection of Hacienda and Colima (behind the camera about 100-feet), or driving on Colima, have direct views of this landscape with relatively brief viewing durations, but the destinations are residential areas. As such, the level of visual sensitivity is considered moderate-to-high.
- **Visual Quality: moderate.** KOP-South-8 has visually pleasing landforms, with the foreground gently rising into the Hacienda Hills. There is a mix of vegetation in the view, from the planted decorative trees along Colima Road and in the residential areas adjacent to the road, to the low grasses on the undeveloped hillside. Human-made development is the focus of the foreground view, and the transmission structures and conductors and overhead distribution lines adjacent to Colima detract from visual quality. The view generally lacks intactness as a result of encroaching development. The tree-lined Colima Road ties the view together, but unity of the view is diminished by the commercial development. The overall existing visual quality of the view from this KOP is moderate.
- **Overall Visual Sensitivity: moderate-to-high.** For people driving on Hacienda Road or Colima Road in general and KOP-South-8 specifically, the moderate-to-high viewer exposure, moderate-to-high viewer concern, and moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-9 – Hsi Lai Buddhist Temple (Segment 8A)

KOP-South-9 was established at the front entrance steps of the Hsi Lai Buddhist Temple in Hacienda Heights. The Temple is a well-known landmark, notable for its prominence as a spiritual and cultural center and also as a tourist destination. The Temple is open to the public daily. KOP-South-9 was selected to represent typical views to the surrounding landscape and the proposed transmission corridor from the

Temple main entrance and steps above the main parking area (see Map & Figure Series Volume, Figure 3.14-44a).

- **Viewer Exposure: high.** The foreground view of KOP-South-9 consists of the Temple parking area and main gate (just visible on the right side of Figure 3.14-44a) at the top of the stairs leading to the Main Entrance. The foreground also includes residential areas below the parking lot. The middleground view includes more residential areas and the existing transmission corridor on the skyline ridge, approximately 0.75 to one mile away. The number of viewers is high, and duration of view from the Temple and grounds is extended, leading to an overall high viewer exposure.
- **Viewer Concern: moderate.** It should be noted that because the vividness of the Temple itself is high because of its architectural style, and typical views for visitors to the Temple are usually of the Temple itself, not of the landscape visible from the Temple. KOP-South-9 was selected to represent views of the transmission corridor from the Temple main entrance for regular visitors and tourists. The concern level for viewers is considered moderate to the surrounding landscape and skyline.
- **Visual Quality: moderate-to-high.** The rolling hills beyond the Temple are an attractive landform, and the native vegetation on the undeveloped hills is equally attractive. The human-made features of the Temple result in a high level of vividness, which is reduced by the presence of the transmission line on the skyline. Overall intactness and unity of the view is high, but visual quality of this landscape is reduced by the transmission towers and conductors that encroach on the middleground view. Therefore, the overall existing visual quality of this KOP is moderate-to-high.
- **Overall Visual Sensitivity: moderate-to-high.** For people arriving and leaving from the Hsi Lai Buddhist Temple and grounds in general and from KOP-South-9 specifically, the high viewer exposure, moderate viewer concern, and moderate-to-high visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-10 – Pathfinder Park, Rowland Heights (Segment 8A)

KOP-South-10 was established directly under the transmission lines at Pathfinder Park in Rowland Heights. It was selected because this is a recreational area located adjacent to a large number of residences, and the transmission corridor passes directly overhead. The view is of a grassy area adjacent to picnic tables bordered by decorative trees and walking paths and an access road. Facilities at the park include a recreation center, ball fields, picnic areas with shelters, tennis courts, lawns, and playground (see Map & Figure Series Volume, Figure 3.14-45a).

- **Viewer Exposure: high.** The proposed Project would be highly visible from this park, as there is no topographic or vegetative screening in front of these large, industrial structures. Viewing distance to the transmission line is immediate foreground and foreground from this park. The skyline is less than 0.5 mile away, making this a foreground view to the rolling hills with various types of native vegetation, transmission lines and towers, and some residential development. The number of viewers is high and viewing time is extended from all facilities within Pathfinder Park, making this a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist of recreationists who have come to enjoy the facilities and relax at Pathfinder Park, play sports, or enjoy the open space and picnic areas. Given the recreational nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: moderate-to-high.** The gentle slope of the foreground leading into the rolling hills at the skyline is visually pleasing with moderately high vividness, as is the broad expanse of landscaped park grass leading into the hillsides with native vegetation. The transmission corridor represents a major human-made feature that strongly detracts from the natural-appearing quality of the view. The unity and intactness of this view are both relatively high, but diminished by the transmission corridor encroaching upon the view. Therefore, the overall existing visual quality of the view from this KOP is moderate-to-high.
- **Overall Visual Sensitivity: high.** For people relaxing, visiting, and recreating at Pathfinder Park in general and KOP-South-10 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 16: Diamond Bar

Landscape Unit 16 is bounded on the west by the Puente Hills, on the east by the City of Chino Hills, and extends approximately one mile north of the transmission corridor, and south through the western portion of Chino Hills State Park (CHSP). Landscape Unit 16 contains the southwest portion of Diamond Bar and unincorporated portions of Los Angeles County to the south (refer to Figures B-9 and B-10 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 16).

The terrain within this landscape unit consists of rolling hills with some intervening valleys. Development within the landscape unit consists primarily of single-family residential neighborhoods, with commercial development occurring along some portions of the area's major arterials. The transmission corridor passes through several residential neighborhoods, including some gated communities. These gated communities could not be accessed during the field investigation portion of this study.

Vegetation in Landscape Unit 16 consists of native chaparral on the undeveloped hills, and a variety of ornamental trees, shrubs, ground covers, and grasses in residential and commercial areas. The most visually dominant features in this landscape unit are the rolling hills, both developed and undeveloped, and the transmission towers and conductors from some viewing perspectives.

Existing ROW cross-sections for Segment 8 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW associated with Segment 8 is 150 to 250 feet wide. Existing transmission structures in Segment 8 include one or two sets of LSTs carrying 220-kV conductors (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 16.

Viewers of Segment 8 within Landscape Unit 16 include residents within their homes, pedestrians, bicyclists, and motorists traveling on surface roads, and motorists passing through the landscape unit on the Orange Freeway (State Highway 57), which is a State-designated eligible scenic highway (see KOP-South-11 below). For some portions of Segment 8, likely viewers would be those traveling on unpaved roads, and hikers in the undeveloped hills.

The study corridor in Landscape Unit 16 traverses through the jurisdictions of the City of Diamond Bar and unincorporated Los Angeles County. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 16 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. The City of Diamond Bar's General Plan has established a goal to "Preserve significant visual features which are within, or are visible from the City of Diamond Bar, with an emphasis on the preservation of remaining natural hillside areas." Highway 57 (the Orange Freeway) is a state designated eligible scenic highway, which passes through the western portion of Landscape Unit 16 and intersects the transmission corridor immediately south Diamond Bar.

KOP-South-11 – Orange Freeway (Highway 57), Diamond Bar (Segment 8A)

This KOP is located on the northbound Orange Freeway (Highway 57), just north of the Orange County/Los Angeles County line. In this location, Highway 57 is designated by the State as an eligible State Scenic Highway from State Highway 90 to State Highway 60 (CALTRANS, 2008). KOP-South-11 represents typical views of the TRTP transmission corridor for motorists traveling through Landscape Unit 16. At this location, TRTP would be very visually evident on the skyline straight ahead of northbound travelers (see Map & Figure Series Volume, Figure 3.14-46a). Foreground features include the freeway surface, automobiles, and shrubs and grasses along the freeway margins. Middleground (then foreground) views include rolling hills with native chaparral vegetation, with the high-voltage

transmission towers and conductors visible approximately 0.5 mile to the north-northeast. The San Jose Hills are visible in the middleground further to the north-northeast.

- **Viewer Exposure: moderate-to-high.** The proposed Project would be highly visible from the Orange Freeway, as there is no topographic or vegetative screening in front of these large, industrial structures. Viewing distances to the transmission line include the middleground, then foreground distances as vehicles approach the utility corridor. The skyline in Figure 3.14-46a is less than 0.5 mile away, making this a foreground view to the rolling hills with scattered clumps of various types of native vegetation, transmission lines and towers. The number of viewers is high and viewing time is brief, making this a moderate-to-high viewer exposure.
- **Viewer Concern: high.** Viewers from this perspective are motorists traveling north on Highway 57. Although the viewing duration is short for such viewers, viewer sensitivity is considered moderate-to-high given the natural character of the area and the freeway corridor's scenic designation. But because this is eligible as a State Scenic Highway, the level of visual sensitivity is considered high.
- **Visual Quality: high.** The overall visual quality for KOP-South-11 includes a level of vividness that is above average, with both the local and more distant hills providing attractive elements. The visual intactness of the surrounding landscape is high; although the transmission structures encroach upon the skyline and detract for visual quality. The freeway and transmission corridor represent major human-made features that strongly detracts from the natural-appearing quality of the view, although most people discount their own viewer platforms (the freeway itself). The unity and intactness of this view are both relatively high, but diminished by the transmission corridor that encroaches upon the view (and the freeway itself). This segment of the Orange Freeway is designated by the California Department of Transportation (CALTRANS) as an eligible Scenic Highway, and therefore, the overall existing visual quality of the view from this KOP is rated high.
- **Overall Visual Sensitivity: high.** For people traveling northbound on Highway 57 in general and KOP-South-11 specifically, the moderate-to-high viewer exposure, high viewer concern, and high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-12 – Crooked Creek Drive, Diamond Bar (Segment 8A)

KOP-South-12 was established within a residential neighborhood in the western portion of the landscape unit on Crooked Creek Drive, less than 0.75 mile northeast of KOP-South-11, looking south-southeast at the existing transmission line corridor. Foreground features include the street, sidewalk, parked automobiles, houses, planted grass lawns, shrubs, and trees, with native evergreen chaparral vegetation on the hillside immediately behind the houses. The transmission towers and conductors are present on top of the hill approximately 900 feet to the south-southeast (see Map & Figure Series Volume, Figure 3.14-47a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible from this residential neighborhood, as there is no topographic or vegetative screening in front of these large, industrial structures. Viewing distance to the transmission line is foreground and immediate foreground from this residential street. The number of viewers is moderate and viewing time is extended from these streets, houses, sidewalks, and yards, leading to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in these single-family homes and on neighborhood streets. Given the residential nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: moderate-to-high.** The overall visual quality for KOP-South-12 is moderate-to-high. The level of vividness in this view is above average; the hillside immediately behind the houses adds visual interest, and the well-kept neighborhood and planted vegetation provides an interesting contrast to the native vegetation. The visual intactness is high, except that the existing transmission structures encroach upon the view and add an incongruent industrial character to this otherwise residential landscape. The visual unity is high given the coherent nature of the suburban neighborhood, but lowered by the presence of the LSTs and conductors that disrupt the otherwise-natural skyline view.

- **Overall Visual Sensitivity: high.** For residents of Crooked Creek Drive in general and KOP-South-12 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 17: Chino Hills

Landscape Unit 17 is bounded on the west by unincorporated Los Angeles County, on the east by Highway 71, and extends approximately one mile north of the transmission corridor and south to the Butterfield Ranch Road interchange of Highway 71. Landscape Unit 17 contains the central portion of the City of Chino Hills and a small portion of the City of Chino that lies west of Highway 71 (refer to Figure B-10 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 17).

The terrain within this landscape unit consists of rolling hills and valleys in the west that generally grade to lower-lying, flatter terrain in the east. The density and extent of development generally increases from west to east across this landscape unit. Improved areas consist primarily of single-family residential neighborhoods, with commercial development occurring along some portions of the area's major arterials. The existing transmission corridor that would contain the proposed Project passes through several residential neighborhoods, including at least one gated community that could not be accessed during field investigations for of this study.

Vegetation in Landscape Unit 17 consists of native grasses, shrubs, and trees in undeveloped areas, and a variety of planted deciduous trees, evergreens, palm trees, various shrubs, and grass lawns in developed areas. Decorative landscaping is also present at some locations within the ROW itself.

The most visually dominant features in this landscape unit are the rolling hills (both developed and undeveloped) and the existing transmission towers and conductors from some viewing perspectives. The transmission towers are lattice steel and carry 220-kV single-circuit conductors.

Existing ROW cross-sections for Segment 8 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW associated with Segment 8 is 150 to 250 feet wide. Existing transmission structures in Segment 8 include one set of single-circuit LSTs carrying 220-kV conductors (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 17.

Viewers of the transmission corridor within Landscape Unit 17 include residents within their homes and yards; pedestrians, bicyclists, and motorists traveling on residential streets; and motorists passing through the landscape unit on major arterials.

The study corridor in Landscape Unit 17 traverses through the cities of Chino Hills and Chino. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 17 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*.

The City of Chino Hills has several policies related to the preservation of natural ridgelines. Although California municipalities do not regulate the construction of high-voltage transmission lines, the City's concern with respect to protection of ridgeline views should be noted. Euclid Avenue has been designated by San Bernardino County as a scenic highway. The City of Chino Hills has also identified Carbon Canyon Road as a scenic corridor.

KOP-South-13 – Intersection of Avenida Anita/Avenida Compadres, Chino Hills (Segment 8A)

This KOP is located within a residential neighborhood adjacent to undeveloped land in the western portion of the Landscape Unit 17. Foreground features include the street, sidewalks, houses, parked automobiles,

street-lights, planted lawns, shrubs, and trees, with native grasses and shrubs on the skyline hill behind the houses. The existing 220-kV transmission tower and conductors are visible on a low skyline ridge approximately 800 feet to the southwest (see Map & Figure Series Volume, Figure 3.14-48a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible from this residential neighborhood, as there is no topographic or vegetative screening in front of these large, industrial structures. Viewing distance to the transmission line is foreground and immediate foreground from houses and streets in this neighborhood. The number of viewers is moderate and viewing time is extended from these streets, houses, sidewalks, and yards, leading to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in these single-family homes and on neighborhood streets. Given the residential nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: moderate-to-high.** The level of vividness in this view is average; the undeveloped hill behind the neighborhood adds some visual interest, and the neighborhood is well kept, except that the existing transmission structures encroach upon the view, add an incongruent industrial character to this otherwise residential landscape, and create a degree of contrast with the scale and character of the neighborhood. The visual unity is average given the generally coherent nature of this suburban neighborhood, except for the transmission lines. Therefore, the overall visual quality for KOP-South-13 is moderate-to-high.
- **Overall Visual Sensitivity: high.** For residents of Avenida Anita/Avenida Compadres in general and KOP-South-13 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-14 – Coral Ridge Park, Chino Hills (Segment 8A)

This KOP was established within Coral Ridge Park, a residential "pocket" park on Eucalyptus Avenue in Chino Hills, looking northeast. The existing view from KOP-South-14 includes native brush, planted grass, landscaped evergreen and deciduous trees, a street (Avenida Cabrillo), and some parked automobiles. Framed by green grass, a tan gravel equestrian trail is located in the immediate foreground and continues east of Avenida Cabrillo along the transmission corridor (see Map & Figure Series Volume, Figure 3.14-49a). The nearest existing 220-kV transmission tower is approximately 250 feet east of this viewpoint, and a second tower is roughly 1,000 feet further to the east. The tan wall of the park comfort station is visible through trees on the left, and some rooftops of a residential neighborhood can be seen through the trees on the right.

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible from this pocket park and residential neighborhood, as there is no topographic or vegetative screening in front of these large, industrial structures. Viewing distance to the transmission line is foreground and immediate foreground from this equestrian trail and other facilities in the park. Middleground features include a third transmission tower that is barely visible behind the second tower. Further in the distance, the urbanized valley contains eastern Chino Hills, Chino, and Ontario. The San Bernardino Mountains are visible above the valley in the background. The number of viewers is moderate and viewing time is extended, leading to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents visiting this park to enjoy the open space and play on park facilities or equestrians on the trail. Given the residential nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: moderate-to-high.** The level of vividness in this view is above average given the park setting and the distant view of San Bernardino Mountains. The visual unity is average, given a generally coherent neighborhood park setting, but this is somewhat disturbed by the transmission corridor. The visual intactness is moderately low due to encroachment of the transmission structures. The overall visual quality for this KOP is moderate-to-high.
- **Overall Visual Sensitivity: high.** For visitors to Coral Ridge Park in general and KOP-South-14 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-15 – Cork Drive, Chino Hills (Segment 8A)

KOP-South-15 was established on Cork Drive, looking west. Cork Street is a north-south street that connects Tupelo Street on the south and Garden Court on the north, all of which is in a residential subdivision north of Chino Hills Parkway. TRTP Segment 8 would occupy the existing transmission corridor through this neighborhood. Existing chain link fences and gates prohibit public use of the utility corridor ROW in this vicinity and therefore, north of Garden Court (and out of view of Figure 3.14-50a from the Map & Figure Series Volume) the equestrian trail that was visible from KOP-South-14 continues along a floodway channel. SCE does not own the land for the utility corridor in this location, and private land owners have extended landscaping into the ROW under existing (un-electrified) conductors (see Map & Figure Series Volume, Figure 3.14-50a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible from this residential neighborhood, as there is no topographic or vegetative screening in front of these large, industrial structures. Viewing distance to the transmission line is foreground and immediate foreground from houses and streets in this neighborhood. The number of viewers is moderate-to-high and viewing time is extended from these streets, houses, and yards, leading to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in these single-family homes and on neighborhood streets. Given the residential nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: moderate-to-high.** The level of vividness in this view is average; the undeveloped hill behind the neighborhood adds some visual interest, and the neighborhood is well kept, except that the existing chain link fences and transmission structures encroach upon the view, add an incongruent industrial character to this otherwise residential landscape, and create a degree of contrast with the scale and character of the neighborhood. The visual unity is average given the generally coherent nature of this suburban neighborhood, except for the transmission lines. Therefore, the overall visual quality for KOP-South-15 is moderate-to-high.
- **Overall Visual Sensitivity: high.** For residents of Cork Drive in general and KOP-South-15 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-16 – Yellowstone Circle, Chino (Segment 8A)

This KOP is located within a residential neighborhood in the eastern portion of Landscape Unit 17. Although within the City of Chino, this location is west of Highway 71 and is thus part of Landscape Unit 17. Foreground features include the street, sidewalk, houses, parked automobiles, streetlights, planted lawns, landscaped shrubs, and trees, with the transmission tower and conductors approximately 400 feet away, to the east-southeast (see Map & Figure Series Volume, Figure 3.14-51a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible from this residential neighborhood, as there is no topographic or vegetative screening in front of the proposed large TSP structures. Viewing distance to the transmission line is immediate foreground from houses and streets in this neighborhood. The number of viewers is moderate-to-high and viewing time is extended from these streets, houses, and yards, leading to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in single-family homes and on neighborhood streets. The level of viewer sensitivity is considered high.
- **Visual Quality: moderate.** The level of vividness in this view is moderate-to-low given the flat terrain and the lack of memorable elements in this typical residential neighborhood. The visual intactness is moderate, but has been reduced due to visual encroachment by the transmission structures above the otherwise intact neighborhood. The visual unity is average for this coherent neighborhood that is somewhat disturbed by the nearby transmission structures. The overall visual quality for KOP-South-16 would be moderate-to-high, except the presence of the transmission lines decrease it to moderate.

- **Overall Visual Sensitivity: moderate-to-high.** For residents of Yellowstone Circle in general and KOP-South-16 specifically, the high viewer exposure, high viewer concern, and moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 18: Chino

Landscape Unit 18 is bounded on the west by the Corona Freeway (Highway 71), on the east by Euclid Avenue (Highway 83), and extends approximately one mile north and south of the transmission corridor. Transmission Segment 8A enters Landscape Unit 18 from the west and travels east, north, and then east to the Chino Substation in the approximate center of the landscape unit. At the Chino Substation, Segments 8B and 8C begin and travel east along with Segment 8A to Euclid Avenue where they pass into Landscape Unit 19 (refer to Figure B-10 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 18).

Landscape Unit 18 contains the central portion of the City of Chino. The terrain within Landscape Unit 18 is generally flat. From Highway 71 to Central Avenue, development is dominated by large commercial warehouses and then from Central Avenue to Euclid Avenue, a mix of agricultural, single-family residential, and commercial land uses. As is typical for many of SCE's transmission corridors, several nurseries are present within the ROW itself.

Vegetation in Landscape Unit 18 consists primarily of planted lawns, trees, and shrubs in residential areas, and various agricultural crops both within and near the transmission corridor. The most visually dominant features in this landscape unit are the large warehouses in the west, the agricultural fields, and existing transmission towers and conductors as seen from some viewing perspectives.

Existing ROW cross-sections for Segment 8 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 8varies between 150 and 600 feet wide. Existing transmission structures in Segment 8 are a mix of single-circuit and double-circuit LSTs carrying 220-kV conductors and contemporary 220-kV double-circuit structures (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 18.

Viewers of the transmission corridor within Landscape Unit 18 include residents within their homes; pedestrians, bicyclists, and motorists traveling on residential streets; and motorists passing through the landscape unit on major arterial streets.

Proposed Segments 8A, 8B, and 8C in Landscape Unit 18 would traverse through the jurisdictions of the City of Chino and San Bernardino County. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 18 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*.

The City of Chino's Eucalyptus Business Park Specific Plan identifies the SCE transmission corridor as the dominant view element. According to this Plan, "Where it is not possible to underground utility lines, appropriate landscape buffers shall be provided." Euclid, Schaefer, and Fern Avenues (each of which intersect the transmission corridor) have been designated by the City of Chino as "Special Boulevards/View Corridors" requiring special and unique design guidelines and standards. Euclid Avenue has been designated by San Bernardino County as a scenic highway.

KOP-South-17 – Edison Avenue at Reuben S. Ayala Community Park, Chino (Segment 8A, 8B, 8C)

This KOP is located in the central portion of Landscape Unit 18 along Edison Avenue, a four-lane arterial that parallels the existing transmission corridor. Figure 3.14-52a from the Map & Figure Series Volume was taken from the exit to the San Bernardino Fairgrounds parking lot, looking east. The existing view

from this KOP includes the street, sidewalk, automobiles, grass lawns and landscape trees within an adjacent park, trees lining the road, a traffic light at the cross-street, a multitude of overhead electric distribution lines, and two sets of high-voltage transmission lines with LSTs. The nearest high-voltage transmission tower is visible approximately 300 feet to the east-southeast (see Map & Figure Series Volume, Figure 3.14-52a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible from the fairground parking lot exit, from Edison Avenue, and from the Park, as there is no topographic or vegetative screening in front of the existing transmission and distribution lines, or the proposed large TSP structures. Viewing distance to the transmission line is immediate foreground and foreground from this vantage point. The number of viewers is high and viewing time is moderate-to-extended from the fairgrounds and park, but brief from the street, leading to a high viewer exposure, considering the extended views.
- **Viewer Concern: moderate-to-high.** Viewers in this area consist primarily of motorists traveling along Edison Avenue, or recreationists at the fairgrounds and nearby Reuben S. Ayala Community Park. Given the short viewing duration for motorists, but the moderate to extended viewing duration for recreationists, the level of viewer sensitivity is considered moderate-to-high.
- **Visual Quality: low-to-moderate.** The level of vividness in this view is moderate-to-low; the flat terrain is fairly expansive, with views of grass fields and street trees, but the numerous overhead transmission ones are utilitarian in form. The visual intactness is moderately low with many industrial-character structures encroaching upon the view. The visual unity is somewhat below average; the view is generally coherent for an arterial street, and the many conductors provide some degree linear uniformity, but the numerous utility towers and poles diminish the coherence of the view. The overall visual quality for KOP-South-17 is low-to-moderate.
- **Overall Visual Sensitivity: moderate-to-high.** For visitors to the Reuben S. Ayala Community Park in general and KOP-South-17 specifically, the high viewer exposure, moderate-to-high viewer concern, and low-to-moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-18 – Chipola Court, Chino (Segments 8A, 8B, 8C)

This KOP is located within a residential neighborhood in the eastern portion of the Landscape Unit 18. Foreground features include the street, sidewalk, houses, parked automobiles, street lights, decorative mailboxes, planted grass lawns, shrubs, and trees, with the nearest transmission towers approximately 600 feet to the east. The transmission corridor continues to the east-northeast to the edge of the foreground in this view, and the San Bernardino Mountains are very faintly visible in the background (see Map & Figure Series Volume, Figure 3.14-53a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible in the foreground and immediate foreground from this neighborhood, as there is no topographic or vegetative screening in front of the proposed large double-circuit TSP structures and double-circuit LSTs. Viewing distance to the transmission line is immediate foreground and foreground from this vantage point. The number of viewers is moderate and viewing time is extended from these streets and houses. This leads to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in single-family homes and on neighborhood streets and sidewalks. The level of viewer sensitivity is considered high.
- **Visual Quality: moderate.** The level of vividness in this view is moderate-to-low given the flat terrain and the lack of memorable elements in this typical residential neighborhood. The visual intactness is moderate, but has been reduced due to visual encroachment by the transmission structures above the otherwise intact neighborhood. The visual unity is average for this coherent neighborhood that is somewhat disturbed by the nearby transmission structures. The overall visual quality for KOP-South-18 would be moderate-to-high, except the presence of the transmission lines decrease it to moderate.
- **Overall Visual Sensitivity: moderate-to-high.** For residents of Chipola Court in general and KOP-South-18 specifically, the high viewer exposure, high viewer concern, and moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 19: Ontario

Landscape Unit 19 is bounded on the west by Euclid Avenue (Highway 83) and on the east by the Ontario Freeway (Interstate 15 or I-15). The Ontario Freeway runs north-south approximately 0.5 mile east of the boundary between San Bernardino and Riverside Counties. A small portion of Riverside County is thus included in Landscape Unit 19, although no portion of the proposed Project actually enters Riverside County. The majority of Landscape Unit 19 is in the southern portion of the City of Ontario. The northern boundary of this landscape unit extends approximately one mile north of Segment 8B; the southern boundary extends approximately one mile south of Segments 8A and 8C (refer to Figure B-10 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 19).

The terrain within Landscape Unit 19 is generally flat, with the San Bernardino Mountains visible to the north and east. Development is dominated by dairy farms and other agricultural uses, with residential subdivisions to the north and in the east-central portion of the landscape unit (see KOP-South-19 and KOP-South-20 below). Vegetation in Landscape Unit 19 consists primarily of grass fields, agricultural crops, and planted grass lawns, trees, and shrubs in residential areas.

The most visually dominant features in this landscape unit are the dairy farms, the residential subdivisions, and the transmission towers and conductors from some viewing perspectives.

Existing ROW cross-sections for Segment 8 are shown in Section 2.2 (Alternative 2: SCE's Proposed Project). The existing ROW width associated with Segment 8 varies between 150 and 330 feet wide. Existing transmission structures in Segment 8 are a mix of single- and double-circuit LSTs carrying either 220-kV or 500-kV conductors and contemporary 220-kV double-circuit structures (SCE, 2007a). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 19.

Viewers of the transmission corridor within Landscape Unit 19 include: residents within their homes and yards; pedestrians, bicyclists, and motorists traveling on residential streets; and motorists passing through the landscape unit on major arterials.

Jurisdictions through which proposed Segment 8 would traverse through Landscape Unit 19 include the City of Ontario and San Bernardino County. Segment 8 does not enter Riverside County, but the study corridor associated with Segment 8 extends across the Riverside County line. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 19 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. San Bernardino County has designated Euclid Avenue as a scenic highway, and the East Chino Specific Plan identifies Euclid Avenue as a "Special Boulevard." The City of Ontario has identified Euclid Avenue, Grove Avenue, Vineyard Avenue, Archibald Avenue, Milliken Avenue, and Edison Avenue for creation of scenic roadways and view corridors.

KOP-South-19 – Tumbleweed Street, Ontario (Segments 8A, 8B, 8C)

This KOP is located within a residential neighborhood in east-central portion of Landscape Unit 19. The foreground features include the street, sidewalks, houses, parked automobiles, street lights, mailboxes, planted grass lawns, shrubs, and trees, with the nearest Dreyfus double-circuit transmission tower situated approximately 700-feet away, to the east-southeast. The transmission corridor that would be occupied by proposed Segment 8 continues to the east with two additional Dreyfus towers. The transmission line would then transition to LSTs at the far edge of the foreground. From this view, the San Bernardino Mountains are very faintly visible in the background (see Map & Figure Series Volume, Figure 3.14-54a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible in the foreground and immediate foreground from this neighborhood, as there is no topographic or vegetative screening in front of the proposed large double-circuit TSP structures and double-circuit LSTs. Viewing distance to the transmission line is immediate foreground and foreground from this vantage point. The number of viewers is moderate and viewing time is extended from these streets and houses. This leads to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in single-family homes and on neighborhood streets and sidewalks. The level of viewer sensitivity is considered high.
- **Visual Quality: moderate.** The level of vividness in this view is moderate-to-low given the flat terrain and the lack of memorable elements in this typical residential neighborhood, other than perhaps the Dreyfus towers. The visual intactness is moderate, but has been reduced due to visual encroachment by the transmission structures above the otherwise intact neighborhood. The visual unity is average for this coherent neighborhood that is somewhat disturbed by the nearby transmission structures. The overall visual quality for KOP-South-19 would be moderate-to-high, except the presence of the transmission lines decrease it to moderate.
- **Overall Visual Sensitivity: moderate-to-high.** For residents of Tumbleweed Street in general and KOP-South-19 specifically, the high viewer exposure, high viewer concern, and moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-20 – Chaparral Street and Clover Way, Ontario (Segments 8A & 8B)

This KOP is located within a residential neighborhood in east-central portion of Landscape Unit. The existing view includes the street, sidewalks, houses, parked automobiles, street lights, planted grass lawns, shrubs, and trees, with four lattice-steel transmission towers in the foreground view. The nearest of these is 700 feet to the north-northeast, and it is a dead-end LST with greater visual bulk because of the extra strength needed to change directions of the transmission line (see Map & Figure Series Volume, Figure 3.14-55a).

- **Viewer Exposure: high.** The proposed Project Segment 8 would be highly visible in the foreground and immediate foreground from this neighborhood, as there is no topographic or vegetative screening in front of the proposed large LSTs. Viewing distance to the transmission line is immediate foreground and foreground from this vantage point. The number of viewers is moderate and viewing time is extended from these streets and houses. This leads to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in single-family homes and on neighborhood streets and sidewalks. The level of viewer sensitivity is considered high.
- **Visual Quality: moderate.** The level of vividness in this view is moderate-to-low given the flat terrain and the lack of memorable elements in this typical residential neighborhood. The visual intactness is moderate, but has been reduced due to visual encroachment by the transmission structures above the otherwise intact neighborhood. The visual unity is average for this coherent neighborhood that is somewhat disturbed by the nearby transmission structures. The overall visual quality for KOP-South-20 would be moderate-to-high, except the presence of the transmission lines decrease it to moderate.
- **Overall Visual Sensitivity: moderate-to-high.** For residents of Chaparral Street and Clover Way in general and KOP-South-20 specifically, the high viewer exposure, high viewer concern, and moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

3.14.2.4 Alternative 3: West Lancaster Alternative

Provinces, Landscape Units, and KOPs

The West Lancaster Alternative (Alternative 3) would be identical to SCE's proposed Project, except that it would re-route the new 500-kV transmission line in Segment 4 along 115th Street West rather than 110th Street West. The West Lancaster Alternative would deviate from the proposed route at approximately S4 MP 14.9, where the new 500-kV transmission line would turn south down 115th Street West for approximately 2.9 miles and then turn east for approximately 0.5 mile, rejoining the proposed

route at S4 MP 17.9. This re-route would increase the overall distance of Segment 4 by approximately 0.4 mile.

The affected environment and landscape character for the distinctive portion of Alternative 3 is the same as the Affected Environment description of the "North Area: Antelope Valley Landscape Region" and Landscape Unit 1 in Section 3.14.2.3 (see Map & Figure Series Volume, Figure 3.14-56a, KOP-North-5).

West 110th Street is a straight north-south road that gradually descends in elevation from Portola Ridge into the flat Antelope Valley. Under the proposed Project, new 500-kV LSTs and transmission lines would be very visually evident in the immediate foreground of West 110th Street for more than two miles. Under Alternative 3, the proposed structures would be located ½ mile west of West 110th Street along West 115th Street, an undeveloped dirt road.

- **Viewer Exposure: moderate.** The West Lancaster Alternative would not be highly visible in the foreground or immediate foreground of West 110th Street, because it would be located 0.5 mile west and parallel to West 110th Street, following along undeveloped West 115th Street. There is no topographic or vegetative screening in front of the proposed large LSTs, but the viewing distance and angle of view is directed to the north, following the road. Viewing distance to the transmission line is foreground and middleground from West 110th Street. There are no sensitive receptors located along West 115th Street. There are no residences along West 115th Street and the number of potential viewers is low, except in spring when the poppies bloom and the number of viewers is high. Therefore, the overall viewer exposure is moderate.
- **Viewer Concern: moderate.** Visitors and residents enjoy the predominantly natural setting with distant, panoramic sightlines to the Antelope Valley and Tehachapi Mountains. The widely scattered ranches have predominantly horizontal structures (one story buildings) and predominantly horizontal windbreaks of low-growing trees and evergreen shrubs. The view northbound on West 110th Street is characterized by the panoramic open-space, natural-appearing landscape.
- **Visual Quality: moderate.** The predominant visual elements are the horizontal lines of the valley plains and the nearly horizontal line created by the background mountain ranges. Along West 115th Street, vegetation is generally low, dry grass and scrub or agricultural fields. Colors in the landscape include bright orange poppies in spring, green sage and grasses in winter, spring and early summer, and tan grasses in summer and autumn. Existing 220-kV and 500-kV electric transmission lines diminish the scenic integrity of this landscape, reducing what would otherwise be a high level of visual quality, especially when viewed in springtime with poppies in bloom.
- **Overall Visual Sensitivity: moderate.** For visitors to Antelope Valley in general and looking northbound on West 110th Street specifically, the moderate viewer exposure, moderate viewer concern, and moderate visual quality, lead to a moderate overall visual sensitivity of the visual setting and viewing characteristics.

3.14.2.5 Alternative 4: Chino Hills Route Alternatives

Provinces, Landscape Units, and KOPs

Under Alternative 4, the proposed transmission line would follow the same route as the proposed Project (Alternative 2) through the North and Center Areas. In the South Area, Alternative 4 would be the same for Segments 7, 11, and the western portion of Segment 8A. Segment 8A would diverge from the proposed Project route at S8A MP 19.2 and turn to the southeast, crossing through portions of the City of Brea and Orange County before entering San Bernardino County, the City of Chino Hills, and ~~Chino Hills State Park (~~CHSP~~)~~. Under Alternative 4 (Routes A, B, C, C Modified, and D) upgrades in Segment 8A would not occur from S8A MP 19.2 to S8A 35.2, as well as in Segment 8C; however, Segment 8B between Chino and Mira Loma Substations would still be upgraded, same as Alternative 2. ~~Additionally, Segment 8B (6.8 miles) would not occur near the Mira Loma Substation in Ontario.~~

North and Center Areas

The Affected Environment for the North Area and Center Area of Alternative 4 would be exactly the same as for the proposed Project (Alternative 2), as described in Section 3.14.2.3.

South Area

As described above, the Affected Environment of Alternative 4 west of MP 19.2 of proposed Segment 8A is identical to the proposed Project. Under Alternative 4, the Affected Environment associated with Segment 8A would be different than that of the proposed Project from S8A MP 19.2 through 35.2, as this portion of the alignment would not be built under the Alternative 4 routes. However, upgrades along Segment 8B between Chino and Mira Loma Substations would still occur, same Alternative 2. This portion of Alternative 4 would cross through Landscape Units 18 and 19, which were first introduced in Section 2.3. ~~In addition, the upgrades associated with Segments 8B and 8C would not occur; therefore, along these portions of the proposed Project, no visual changes or visual impacts would occur.~~

There are five~~four~~ re-routes for Alternative 4; each re-route would cross through landscapes that would not be crossed by the proposed Project (Alternative 2). Routes A, B, and D for Alternative 4 would cross through portions of ~~Chino Hills State Park (~~CHSP~~)~~, and Route C and C Modified would be aligned just outside the north boundary of the park. CHSP is managed by the California Department of Parks and Recreation, with assistance from the ~~Chino Hills State Park~~CHSP Interpretive Association (CHSPIA), a non-profit volunteer organization (CHSPIA, 2007). The visual implications of the ~~four~~five different routes (Routes A through D, including C Modified) that are included under Alternative 4 are discussed in further detail below.

The five~~four~~ routes (~~A, B, C, and D~~A, B, C, C Modified, and D) are identical from their point of departure from Segment 8A (S8 MP 19.2) to the north boundary of ~~Chino Hills State Park~~CHSP, a distance of approximately 3.9 miles. The north park boundary for Alternative 4 is designated as "Chino Hills Alternative Milepost 23.1" (Alt 4 ~~A/B/C/D~~A/B/C/C Modified/D MP 23.1). At this location, Routes C and D turn east, diverging from Routes A and B which continue southeast, parallel to and south of the existing Walnut/Olinda-Mira Loma 220-kV double-circuit transmission line. This portion of Alternative 4 would cross through Landscape Units 16 and 17, which were~~was~~ first introduced in Section 3.14.2.3.

Landscape Unit 16: Diamond Bar

Landscape Unit 16 is bounded on the west by the Puente Hills, on the east by the City of Chino Hills, and extends to the northwest and southeast of the proposed Project (Alternative 2) and follows Alternative 4 to the southeast. Landscape Unit 16 contains the southwest portion of Diamond Bar, portions of the City of Brea, portions of CHSP, and unincorporated portions of Los Angeles and Orange Counties (refer to Figures B-10 and B-11 in Appendix B of the *Visual Resources Specialist Report* for a map showing Alternative 4 in Landscape Unit 16).

Alternative 4 crosses forested and brush-covered hills and valleys within Landscape Unit 16 that are undeveloped and natural-appearing. At the west end of Tonner Canyon Road, the entrance gate to the Firestone Boy Scout Camp is gated and locked, and could not be accessed during the field investigation portion of this study. State Highway 142, the Carbon Canyon Road, connects the cities of Brea and Chino Hills. The terrain within this landscape unit consists of rolling hills with some intervening valleys and a new planned development called Vellano, adjacent to the Aero Jet property.

Vegetation in Landscape Unit 16 consists of native chaparral on the undeveloped hills, and native oak woodlands in natural-appearing groves. The most visually dominant features in this landscape unit are the rolling hills, both developed and undeveloped, and the transmission lines on skylines from some viewing perspectives.

Existing ROW cross-sections for Segment Alt 4 ~~A/B/C/D~~A/B/C/C Modified/D are shown in Section 2.4 (Alternative 4: Chino Hills Route Alternatives). The existing ROW associated with Alternative 4 is 150 to 250 feet wide. Existing transmission structures in this portion of Alternative 4 include one set of double-circuit LSTs carrying 220-kV conductors (SCE, 2008). Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 16.

Viewers of Alternative 4 within Landscape Unit 16 include recreationists at the Boy Scout Camp, residents within their homes, pedestrians, bicyclists, and motorists traveling on surface roads, recreationists at Carbon Canyon Regional Park, ~~Chino Hills State Park~~CHSP, and motorists passing through the landscape unit on Tonner Canyon Road and Carbon Canyon Road (see KOP-South-21 below). For some portions of Alternative 4, likely viewers would be those traveling on unpaved roads, fire roads, plus bicyclists, equestrians, and hikers in the undeveloped hills.

The study corridor for Alternative 4 in Landscape Unit 16 traverses through the jurisdictions of the Cities of Diamond Bar, Brea, and unincorporated Los Angeles and Orange Counties. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 16 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. The City of Diamond Bar's General Plan has established a goal to "Preserve significant visual features which are within, or are visible from the City of Diamond Bar, with an emphasis on the preservation of remaining natural hillside areas." Highway 57 (the Orange Freeway) is a state designated eligible scenic highway, which passes through the western portion of Landscape Unit 16 and intersects the proposed Project (Alternative 2) transmission corridor immediately south Diamond Bar. Alternative 4 is not visible from Highway 57.

Two KOPs were selected to represent views of the Alternative 4 transmission corridor within this landscape unit. KOP-South-21 represents views for motorists traveling northbound on Carbon Canyon Road. KOP-South-22 represents views from residential neighborhoods of the Vellano Planned Development, where the Alternative 4 transmission corridor is visible to the south and southeast on nearby hills.

Route A. This alternative would deviate from the proposed Project route at Segment 8A MP 19.2 and run parallel to the existing Walnut/Olinda-Mira Loma 220-kV transmission line for 6.2 miles, 2.3 miles of which would be within the CHSP. Route A would be situated within an existing utility corridor, but would require that the corridor be widened by 150 feet for the length of Route A. In addition, Route A would require the installation of a new switching station within the CHSP. The size of new switching station would be a minimum of 4-to-5 acres in size (using gas-insulated technology). Route A would travel through CHSP for approximately 2.3 miles.

As described in the Section 3.15 (Wilderness and Recreation), the route for Alternative 4 Route A would make direct crossings of six different trails and fire roads within the CHSP, and therefore, park visitors would have immediate foreground and foreground views of the Alternative 4-A transmission line. No campgrounds or picnic areas would be directly traversed by the route of Route A.

The new switching station that would provide the terminus for Route A would be situated along an existing fire road between Raptor Ridge (to the north) and Telegraph Canyon (to the south). As described above, the switching station would be a minimum of 4-to-5 acres in size (using gas-insulated technology).

Route B. Route B would follow the same path as Route A into CHSP, but instead of terminating at the new switching station described above, Route B would continue to just beyond the eastern Park boundary, eventually terminating at a new switching station between the CHSP and Butterfield Ranch Road. The transmission line for Route B would make direct crossings of ten different trails and fire roads that are used by recreationists within CHSP and, therefore, park visitors would have immediate foreground and foreground views of the transmission line. No campgrounds or picnic areas would be directly traversed by the route of Route B.

Under the Route B alternative, the new switching station of 4-to-5 acres in size would be installed outside the eastern boundary of the CHSP, whereas the switching station under Route A would be installed within the Park. Route B would travel through CHSP for approximately 4.9 miles.

Route C. Route C would involve the construction of a new transmission line just north of the CHSP, the re-routing of two existing lines within the CHSP, and the removal of existing transmission lines from within the CHSP.

Although the new transmission line associated with Route C would not make any direct crossings of recreational resources, the transmission line re-routing and removal activities associated with Route C would traverse several trails within the CHSP, including the following: North Ridge Trail; McDermont Trail; Raptor Ridge Hiking Trail; Raptor Ridge Fire Road Trail; Hills For Everyone Trail; Telegraph Canyon Trail; and, South Ridge Trail. Therefore, park visitors would experience immediate foreground and foreground views of construction/removal activities and landscape restoration within the park. Additionally, residents in neighborhoods surrounding and adjoining CHSP would experience immediate foreground and foreground views of construction activities and would see new transmission lines, towers, and conductors.

Route C Modified. The proposed Route C Modified is very similar to the original Route C, described above, with the exception that the switching station would be located on Aerojet property approximately 2,500 feet northwest of the location analyzed under the original Route C. As such, transmission line configurations and access roads to the new switching station for Route C Modified would be altered to account for relocation of the switching station. Re-routing of the same transmission lines described under Route C would occur under Route C Modified; however, the 500-kV reroute would occur utilizing one set of double-circuit 500-kV towers rather than two sets (in parallel) of single-circuit 500-kV towers.

Route D. Route D would follow the same path as Route C, but instead of terminating at a switching station at approximately Segment 8A MP 26.8, Route D would follow the northern boundary of CHSP for approximately 3.7 miles, before crossing through part of the Park in a southeasterly direction and terminating at a new switching station just outside the eastern Park boundary. The switching station for Route D would be in the same location as that proposed for the Route B alternative.

The path for the Route D alternative would make direct crossings of four different Fire Trails, roads, and/or trails, and therefore, park visitors would have immediate foreground and foreground views of construction activities and would see new transmission lines, towers, and conductors.

KOP-South-21 – Carbon Canyon Road, Orange County (Alternative 4-A/B/C/C Modified/D, Segment 8A)

This KOP is located on Carbon Canyon Road (State Highway 142) in Orange County, looking north from the northbound lane. Carbon Canyon Road runs northeast from Lambert Road in Brea (Orange County) to State Route 71 in Chino Hills (San Bernardino County). This portion of Landscape Unit 16 is typified by the deeply incised canyon walls and rolling hills covered with scattered brush, with the curving, narrow, two-lane road following the contours upstream. This portion of Highway 142 is eligible for inclusion in the State Scenic Highway System (CALTRANS, 2008). The existing view includes the road, grass- and brush-covered hillsides, and one existing LST in the middleground on the skyline (see Map & Figure Series Volume, Figure 3.14-57a).

- **Viewer Exposure: moderate-to-high.** All five~~four~~ routes of Alternative 4 (A/B/C/C Modified/D) would be identical in this area, and would be visible from the Carbon Canyon Road. There is no topographic or vegetative screening in front of the existing or future large, industrial structures. Viewing distances to the transmission line include the middleground, and then foreground distances as vehicles approach the existing utility corridor. The skyline in Figure 3.14-57a is less than 0.5 mile away, making this a foreground view to the rolling hills with scattered clumps of various types of native vegetation and the lone visible transmission towers. The number of viewers is high but viewing time is very brief because of the twisting road, making this a moderate-to-high viewer exposure.
- **Viewer Concern: high.** Viewers from this perspective are motorists traveling north on Carbon Canyon Road. Although the viewing duration is short for such viewers, viewer sensitivity is considered moderate-to-high given the natural character of the area and the road's scenic highway eligibility. Because of this eligibility as a State Scenic Highway, the level of visual sensitivity is considered high.
- **Visual Quality: high.** The overall visual quality for KOP-South-21 includes a level of vividness that is above average, with both the local and more distant hills providing attractive elements. The visual intactness of the surrounding landscape is high; although this and other visible transmission structures encroach upon the skyline and detract for visual quality. The roadway and transmission line represent human-made features that detract from the natural-appearing quality of the view, although most people discount their own viewer platforms (the roadway itself). The unity and intactness of this view are both relatively high, but diminished by the transmission line that interrupts the skyline (and the roadway itself). This segment of Carbon Canyon Road is designated by the California Department of Transportation (CALTRANS) as an eligible Scenic Highway, and therefore, the overall existing visual quality of the view from this KOP is rated high.
- **Overall Visual Sensitivity: high.** For people traveling northbound on Carbon Canyon Road in general and KOP-South-21 specifically, the moderate-to-high viewer exposure, high viewer concern, and high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-22 – Vellano Planned Development, Chino Hills (Alternative 4~~-A/B/C/D~~A/B/C/C Modified/D, Segment 8A)

This panoramic view is located in the Vellano Planned Development on Vellano Club Road, just uphill from Catena Drive, looking southeast toward ~~Chino Hills State Park~~CHSP and surrounding undeveloped lands north of the Park. This portion of Landscape Unit 16 continues the typical forested and brush-covered rolling hills that are largely undeveloped. KOP-South-22 uses a single frame of this panoramic view (see Map & Figure Series Volume, Figure 3.14-58a).

- **Viewer Exposure: moderate-to-high.** All five~~four~~ routes of Alternative 4 (~~A/B/C/D~~A/B/C/C Modified/D) would be highly visible from this residential neighborhood, as there is no topographic or vegetative screening in front of these large, industrial structures that would occupy the skyline. Viewing distance to the transmission line is middleground from this residential street. The number of viewers is moderate and viewing time is extended from these streets, houses, sidewalks, and yards, leading to a moderate-to-high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in these single-family homes and on neighborhood streets. Given the residential nature of this area, the level of visual sensitivity is considered high.

- **Visual Quality: high.** The overall visual quality for KOP-South-22 is high. The level of vividness in this view is above average; the undeveloped hillsides and new houses add visual interest. The planned neighborhood and planted vegetation provides an interesting contrast to the natural-appearing hillside vegetation. The visual intactness is high, except that the existing transmission structures on the middleground skyline encroach upon the view and add an incongruent industrial character to this otherwise residential and natural-appearing landscape. The visual unity is high given the coherent nature of the suburban neighborhood.
- **Overall Visual Sensitivity: high.** For residents of Vellano Club Road in general and KOP-South-22 specifically, the moderate-to-high viewer exposure, high viewer concern, and high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 17: Chino Hills

Landscape Unit 17 is bounded on the west by unincorporated Los Angeles County, on the east by Highway 71, and extends approximately one mile north of the proposed Project (Alternative 2) transmission corridor and south to the Butterfield Ranch Road interchange of Highway 71. Landscape Unit 17 follows Alternative 4 to the east through and around ~~Chino Hills State Park~~CHSP. Landscape Unit 17 contains the central portion of the City of Chino Hills and also a small portion of the City of Chino that lies west of Highway 71 (refer to Figures B-10 and B-11 in Appendix B of the *Visual Resources Specialist Report* for maps showing Landscape Unit 17).

The terrain within this landscape unit consists of rolling hills and valleys in the west and south that generally grade to lower-lying, flatter terrain in the east and north. Hillsides are covered with green grasses and yellow mustard in spring. The density and extent of development generally increases from west to east across this landscape unit. Improved areas consist primarily of single-family residential neighborhoods, with commercial development occurring along some portions of the area's major arterials. The northern entrance to ~~Chino Hills State Park~~CHSP is from Soquel Canyon Road and Elinvar Drive.

Vegetation in ~~Chino Hills State Park~~CHSP in Landscape Unit 17 consists of native grasses, non-native mustard, widely scattered shrubs, and native trees along riparian areas. The historic Rolling M Ranch is located near the heart of CHSP, and serves as a focus of pedestrian activities. A scenic overlook, equestrian area, campground, and paved trailhead parking area are located near the Ranch headquarters.

Residential neighbors are adjacent to CHSP to the north and east, and these landscapes have a variety of planted deciduous trees, evergreens, palm trees, various shrubs, and grass lawns. Transmission lines are visible on the skyline from these residential areas and from a corner commercial area on Butterfield Ranch Road and Pine Avenue. The most visually prominent features in the Park landscape and surrounding neighborhoods are the rolling hills (both developed and undeveloped) and the existing transmission lines that protrude above the skyline as seen from various perspectives. Existing transmission lines are LSTs, both double circuit and single circuit. Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 17.

Viewers of the transmission corridor within Landscape Unit 17 include residents within their homes and yards; pedestrians, bicyclists, and motorists traveling on residential streets; and motorists passing through the landscape unit on major arterials, plus campers, hikers, equestrians in CHSP.

The study corridor in Landscape Unit 17 traverses through the cities of Chino Hills and Chino. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 17 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*.

The City of Chino Hills has several policies related to the preservation of natural ridgelines. Although California municipalities do not regulate the construction of high-voltage transmission lines, the City's concern with respect to protection of ridgeline views should be noted. Euclid Avenue has been designated by San Bernardino County as a scenic highway, and from this highway, the switching stations for Alternative 4, Routes B and D (same location) would be visible. The City of Chino Hills has also identified Carbon Canyon Road as a scenic corridor.

Three KOPs were selected to represent views of the Alternative 4 transmission corridor within this landscape unit. KOP-South-23 represents views for hikers, equestrians, and bicyclists in CHSP in the landscape unit where the transmission corridor generally passes through undeveloped areas and directly overhead of several trails. Alternative 4 Routes A and B would be seen from this KOP. KOP-South-24 represents views from the equestrian center in CHSP, and Routes A, B, and D would be visible from the Horse Camp. KOP-South-25 represents views for residents living in the eastern, more-developed portion of the landscape unit as seen from Butterfield Ranch Road, looking at the eastern transition station of Routes B and D.

KOP-South-23 – Chino Hills State Park Trail, CHSP (Alternative 4-A/B, Segment 8A)

This KOP is located within ~~Chino Hills State Park~~CHSP on a hiking/equestrian trail and fire road that connects Telegraph Canyon Trail to Raptor Ridge Trail in the southern portion of Landscape Unit 17. Foreground and middleground features include rolling, undeveloped hills covered with native grasses and non-native mustard, which, when in bloom, is very scenic. Existing 220-kV double-circuit and 500-kV single-circuit transmission lines are very visible on the skyline ridge, and the trail crosses directly under these lines (see Map & Figure Series Volume, Figure 3.14-59a).

- **Viewer Exposure: high.** Alternative 4 Routes A & B would be highly visible from this recreational trail in CHSP, as there is no topographic or vegetative screening in front of these new large, industrial structures that would occupy the skyline or the transition station of Route A that would be in the center of Figure 3.14-59a. Viewing distance to the transmission line is immediate foreground, foreground, and middleground from this and other trails in the vicinity. The number of viewers is moderate-to-high and viewing time is extended based on speed of travel on these trails, leading to a high viewer exposure.
- **Viewer Concern: high.** People come to CHSP to experience a natural environment and to enjoy the scenic outdoors of this State Park. Given the recreational nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: high.** The overall visual quality for KOP-South-23 is high. The level of vividness in this view is above average; the undeveloped hillsides and expansive views to a natural-appearing landscape add visual interest. The visual intactness is high, except that the existing transmission lines encroach upon the view and add an incongruent industrial character to this otherwise natural-appearing landscape. The visual unity is high given the coherent nature of this State Park, and overall visual quality is high.
- **Overall Visual Sensitivity: high.** For visitors to ~~Chino Hills State Park~~CHSP in general and KOP-South-23 specifically, the high viewer exposure, high viewer concern, and high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-24 – Horse Camp in Chino Hills State park, CHSP (Segment 8)

This KOP is located at the equestrian center within ~~Chino Hills State Park~~CHSP. The Horse Camp is located on a hilltop at the southern end of Bane Canyon Road in the southern portion of Landscape Unit 17. Foreground and middleground features include rolling, undeveloped hills covered with native grasses and non-native mustard, which, when in bloom, is very scenic. Small clumps of dark green brush and trees are scattered across the hillsides. Existing 220-kV double-circuit and 500-kV single-circuit transmission lines are very visible on the skyline ridges. Corrals draw attention to the immediate

foreground features. Paved roads and the restroom of the camping area are visible in the middleground (see Map & Figure Series Volume, Figure 3.14-60a).

- **Viewer Exposure: high.** All five~~four~~ routes of Alternative 4 would be visible from this developed recreation area in CHSP, as there is no topographic or vegetative screening in front of these new large, industrial structures that would occupy the skyline. The transition station of Route A would be partially screened by topography, and it would be located in the center of Figure 3.14-60a. Viewing distance to the new transmission line alignments would be middleground from Horse Camp, but would be foreground and middleground from equestrian trails in the Park. The number of viewers is moderate-to-high and viewing time is extended at Horse Camp and on trails, based on speed of travel, leading to a high viewer exposure.
- **Viewer Concern: high.** People come to CHSP to experience a natural environment and to enjoy the scenic outdoors of this State Park. Given the recreational nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: high.** The overall visual quality for KOP-South-24 is high. The level of vividness in this view is above average; the undeveloped hillsides and expansive views to a natural-appearing landscape add visual interest. The visual intactness is high, except that the existing transmission lines encroach upon the view and add an incongruent industrial character to this otherwise natural-appearing and rural landscape. The visual unity is high given the coherent nature of this State Park, and overall visual quality is high.
- **Overall Visual Sensitivity: high.** For visitors to ~~Chino Hills State Park~~CHSP in general and KOP-South-24 specifically, the high viewer exposure, high viewer concern, and high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-25 – Butterfield Ranch Road, Chino Hills (Alternative 4- B/D, Segment 8A)

This KOP is located on Butterfield Ranch Road, just east of ~~Chino Hills State Park~~CHSP, looking west across undeveloped lands toward the eastern boundary of CHSP. This portion of Landscape Unit 17 is typical of the interface of developed and undeveloped landscapes, with grass covered rolling hills that are currently undeveloped, except for two parallel lines of double circuit transmission lines (see Map & Figure Series Volume, Figure 3.14-61a).

- **Viewer Exposure: moderate-to-high.** Routes B & D of Alternative 4 Segment 8A would terminate at a new switching station at the same location in these rolling hills. The transmission lines leading into the switching station and the station itself would be highly visible from this collector street, as there is no topographic or vegetative screening available in front of these large, industrial structures that would occupy the skyline. Viewing distance to the transmission line and switching station is foreground from this street. The number of viewers is high and viewing time is brief from this street because of travel speed, leading to a moderate-to-high viewer exposure. Because there are two possible technologies for the switching station, gas insulated or air insulated, two different simulations will be provided from this KOP, so that the visual implications of each technology can be evaluated.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in single-family homes and on neighborhood streets. Given the residential nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: high.** The overall visual quality for KOP-South-25 is high. The level of vividness in this view is above average; the undeveloped hillsides and flowering landscape along the street add visual interest. This planted vegetation provides an interesting contrast to the natural-appearing hillside vegetation. The visual intactness is high, except that the existing transmission structures on the foreground skyline encroach upon the view and add an incongruent industrial character to this otherwise natural-appearing landscape. The visual unity is high given the coherent nature of the scene.
- **Overall Visual Sensitivity: high.** For travelers on Butterfield Ranch Road in general and KOP-South-25 specifically, the moderate-to-high viewer exposure, high viewer concern, and high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 18: Chino

Landscape Unit 18 is bounded on the west by the Corona Freeway (Highway 71), on the east by Euclid Avenue (Highway 83), and extends approximately one mile north and south of the transmission corridor. Transmission Segment 8A enters Landscape Unit 18 from the west and travels east, north, and then east to the Chino Substation in the approximate center of the landscape unit. At the Chino Substation, Segments 8B and 8C begin and travel east along with Segment 8A to Euclid Avenue where they pass into Landscape Unit 19 (see Figure B-10 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 18).

Landscape Unit 18 contains the central portion of the City of Chino. The terrain within Landscape Unit 18 is generally flat. From Highway 71 to Central Avenue, development is dominated by large commercial warehouses and then from Central Avenue to Euclid Avenue, a mix of agricultural, single-family residential, and commercial land uses. As is typical for many of SCE's transmission corridors, several nurseries are present within the ROW itself. Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 18.

Vegetation in Landscape Unit 18 consists primarily of planted lawns, trees, and shrubs in residential areas, and various agricultural crops both within and near the transmission corridor (character photo P-18.3). The most visually dominant features in this landscape unit are the large warehouses in the west, the agricultural fields, and existing transmission towers and conductors as seen from some viewing perspectives.

Existing ROW cross-sections for Segment 8 are shown in Chapter 2 (Description of Alternatives). The existing ROW width associated with Segment 8 varies between 150 and 600 feet wide. Existing transmission structures in Segment 8 are a mix of single-circuit and double-circuit lattice steel towers carrying 220 kV conductors and contemporary 220 kV double-circuit structures.

Viewers of the transmission corridor within Landscape Unit 18 include residents within their homes; pedestrians, bicyclists, and motorists traveling on residential streets; and motorists passing through the landscape unit on major arterial streets.

Proposed Segments 8B in Landscape Unit 18 would traverse through the jurisdictions of the City of Chino and San Bernardino County. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 18 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*.

Two KOPs were selected to represent views of the proposed transmission corridor within this landscape unit. KOP-South-17 represents views for motorists, bicyclists, and pedestrians traveling along or near an arterial street adjacent to the transmission corridor. KOP-South-18 represents views of the transmission corridor from a residential neighborhood. Under Alternative 4, the simulations of existing conditions would apply for KOP-South 17, as no upgrades to Segments 8A and 8C would occur. However, existing conditions for KOP-South-18 would change as a result of Alternative 4 due to the upgrades in Segment 8B, as shown in Figure 3.14-53c.

KOP-South-18 – Chipola Court, Chino. (Segments 8A, 8B, 8C)

This KOP is located within a residential neighborhood in the eastern portion of the Landscape Unit 18. Foreground features include the street, sidewalk, houses, parked automobiles, street lights, decorative mailboxes, planted grass lawns, shrubs, and trees, with the nearest transmission towers approximately 600 feet to the east. The transmission corridor continues to the east-northeast to the edge of the foreground in

this view, and the San Bernardino Mountains are very faintly visible in the background (see Figure 3.14-53a – Existing Conditions for KOP-South-18 – Chipola Court, Chino).

- **Viewer Exposure: high.** The proposed Project Segment 8B would be highly visible in the foreground and immediate foreground from this neighborhood, as there is no topographic or vegetative screening in front of the proposed large double-circuit 220-kV lattice steel towers. Viewing distance to the transmission line is immediate foreground and foreground from this vantage point. The number of viewers is moderate and viewing time is extended from these streets and houses. This leads to a high viewer exposure.

- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in single-family homes and on neighborhood streets and sidewalks. The level of viewer sensitivity is considered high.
- **Visual Quality: moderate.** The level of vividness in this view is moderate-to-low given the flat terrain and the lack of memorable elements in this typical residential neighborhood. The visual intactness is moderate, but has been reduced due to visual encroachment by the transmission structures above the otherwise intact neighborhood. The visual unity is average for this coherent neighborhood that is somewhat disturbed by the nearby transmission structures. The overall visual quality for KOP-South-18 would be moderate-to-high, except the presence of the transmission lines decrease it to moderate.
- **Overall Visual Sensitivity: moderate-to-high.** For residents of Chipola Court in general and KOP-South-18 specifically, the high viewer exposure, high viewer concern, and moderate visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

Landscape Unit 19: Ontario

Landscape Unit 19 is bounded on the west by Euclid Avenue (Highway 83) and on the east by the Ontario Freeway (Interstate 15 or I-15). The Ontario Freeway runs north-south approximately 0.5 mile east of the boundary between San Bernardino and Riverside Counties. A small portion of Riverside County is thus included in Landscape Unit 19, although no portion of the proposed Project actually enters Riverside County. The majority of Landscape Unit 19 is in the southern portion of the City of Ontario. The northern boundary of this landscape unit extends approximately one mile north of Segment 8B; the southern boundary extends approximately one mile south of Segments 8A and 8C (not part of Alternative 4) (see Figure B-10 in Appendix B of the *Visual Resources Specialist Report* for a map showing Landscape Unit 19).

The terrain within Landscape Unit 19 is generally flat, with the San Bernardino Mountains visible to the north and east. Development is dominated by dairy farms and other agricultural uses, with residential subdivisions to the north and in the east-central portion of the landscape unit (see KOP-South-19 and KOP-South-20 below). Vegetation in Landscape Unit 19 consists primarily of grass fields, agricultural crops, and planted grass lawns, trees, and shrubs in residential areas. Please refer to Appendix D of the *Visual Resources Specialist Report* for photos of Landscape Unit 19.

The most visually dominant features in this landscape unit are the dairy farms, the residential subdivisions, and the transmission towers and conductors from some viewing perspectives.

Existing ROW cross-sections for Segment 8B are shown in Chapter 2 (Description of Alternatives). The existing ROW width associated with Segment 8B varies between 125 and 300 feet wide. Existing transmission structures in Segment 8B are a mix of single- and double-circuit 220-kV lattice steel towers.

Viewers of the transmission corridor within Landscape Unit 19 include: residents within their homes and yards; pedestrians, bicyclists, and motorists traveling on residential streets; and motorists passing through the landscape unit on major arterials.

Jurisdictions through which proposed Segment 8B would traverse through Landscape Unit 19 include the City of Ontario and San Bernardino County. Segment 8B does not enter Riverside County, but the study corridor associated with Segment 8 extends across the Riverside County line. Applicable laws, regulations, and standards relative to scenic quality for Landscape Unit 19 are included as part of a comprehensive table included in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*. San Bernardino County has designated Euclid Avenue as a scenic highway, and the East Chino Specific Plan identifies Euclid Avenue as a "Special Boulevard." The City of Ontario has identified Euclid Avenue, Grove Avenue, Vineyard Avenue, Archibald Avenue, Milliken Avenue, and Edison Avenue for creation of scenic roadways and view corridors.

Two KOPs were selected to represent views of the transmission corridor in Landscape Unit 19 from two residential neighborhoods in the east-central portion of the landscape unit. These include KOP-South-19 and KOP-South-20. Under Alternative 4, existing conditions would continue into the future, as no upgrades to Segment 8A and 8C would occur.

3.14.2.6 Alternative 5: Partial Underground Alternative

Provinces, Landscape Units, and KOPs

The proposed route for Alternative 5 (Partial Underground Alternative) would not diverge from the proposed Project (Alternative 2) route and therefore, the Affected Environment for Alternative 5 would be identical to the Affected Environment for the proposed Project, as described in Section 3.14.2.3.

KOP-South-26 – Intersection of Gold Shadow Lane /Avenida Compadres, Chino Hills (Alternative 5, Segment 8A)

This KOP is located within a residential neighborhood adjacent to undeveloped land in the western portion of the Landscape Unit 17, and is located just a few blocks west of KOP-South-13. Foreground features include the street, sidewalks, houses, parked automobiles, street-lights, planted lawns, shrubs, and trees, with native grasses and shrubs on the skyline hill behind the houses. The existing 220-kV transmission tower and conductors are visible on a low skyline ridge approximately 1000 feet to the southeast (see Map & Figure Series Volume, Figure 3.14-62a).

- **Viewer Exposure: high.** The proposed West Transition Station of Alternative 5 Segment 8A would be highly visible from this residential neighborhood, as there is no topographic or vegetative screening in front of the large, industrial character, double-circuit structures leading into the underground facility. Viewing distance to the transmission line and transition station is foreground and immediate foreground from houses and streets in this neighborhood. The number of viewers is moderate and viewing time is extended from these streets, houses, sidewalks, and yards, leading to a high viewer exposure.
- **Viewer Concern: high.** Viewers in this area consist primarily of neighborhood residents in these single-family homes and on neighborhood streets. Given the residential nature of this area, the level of visual sensitivity is considered high.
- **Visual Quality: moderate-to-high.** The level of vividness in this view is average; the undeveloped hill behind the neighborhood adds some visual interest, and the neighborhood is well kept, except that the existing transmission structures encroach upon the view, add an incongruent industrial character to this otherwise residential landscape, and create a degree of contrast with the scale and character of the neighborhood. The visual unity is average given the generally coherent nature of this suburban neighborhood, except for the transmission lines. Therefore, the overall visual quality for KOP-South-13 is moderate-to-high.
- **Overall Visual Sensitivity: high.** For residents of Gold Shadow Lane/Avenida Compadres in general and KOP-South-26 specifically, the high viewer exposure, high viewer concern, and moderate-to-high visual quality lead to a high overall visual sensitivity of the visual setting and viewing characteristics.

KOP-South-27 – Pipeline Avenue, Chino Hills (Alternative 5, Segment 8A)

KOP-South-27 was established on Pipeline Avenue in Chino, just west of Highway 71, looking west at the existing transmission line in Segment 8A. This KOP was selected to represent views for local residents traveling north-south on Pipeline Avenue and for customers of the neighborhood commercial area featuring Bravo Burger, Chino Hills Car Wash and neighborhood convenience stores. This is a typical streetscape view of a four-lane collector street in Chino Hills with an entrance to this convenience commercial development and overhead transmission lines (see Map & Figure Series Volume, Figure 3.14-63a).

- **Viewer Exposure: high.** The proposed East Transition Station of Alternative 5 Segment 8A and new double-circuit overhead transmission structures would be highly visible from this vantage point. The foreground view from Pipeline Avenue exhibits adjacent commercial development, and existing palm and orange trees partially screen the existing transmission line in this foreground view, Pipeline Avenue leads to commercial/light-industrial areas to the south and residential areas to the north. All of this view is in the immediate foreground and foreground distance zones. The number of viewers is high, and because of the commercial uses, view duration is extended from this KOP, leading to a high viewer exposure.
- **Viewer Concern: moderate-to-high.** Viewers would be motorists and pedestrians in this commercial area. People driving on Pipeline Avenue and in the parking areas of this commercial center have direct views of this landscape with relatively brief to relatively extended viewing durations. The level of visual sensitivity is considered moderate-to-high.
- **Visual Quality: moderate-to-high.** KOP-South-27 has visually pleasing architecture and landscaping, with the foreground exhibiting pleasant suburban views. There is a mix of vegetation in the view, from the palm and orange trees planted along the entrance drive, to the low grasses on the undeveloped hillside visible at the end of the entrance road. Red-tile roofs and southern California architectural development is the focus of the foreground view, and the transmission structures and conductors and overhead lines are partially screened from view. The view generally exhibits intactness and unity of view. The overall existing visual quality of the view from this KOP is moderate-to-high.
- **Overall Visual Sensitivity: moderate-to-high.** For people driving on Pipeline Avenue in general and KOP-South-27 specifically, the high viewer exposure, moderate-to-high viewer concern, and moderate-to-high visual quality lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

3.14.2.7 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Provinces, Landscape Units, and KOPs

The affected environment for Alternative 6 (Maximum Helicopter Construction in the ANF Alternative) would be the same as described for Alternative 2 (SCE's Proposed Project). Therefore, the Affected Environment for Alternative 6 would be identical to the Affected Environment for the proposed Project, as described in Section 3.14.2.3 (Alternative 2: Proposed Project). For an analysis of the Affected Environment of Alternative 6, please refer to the descriptions of Center Area landscape places, landscape character, scenic integrity objectives, and existing scenic integrity for the Center Area KOPs in Section 3.14.2.3.

3.14.2.8 Alternative 7: 66-kV Subtransmission Alternative

Provinces, Landscape Units, and KOPs

The Alternative 7 route would be the same as the proposed Project, except that it would involve four 66-kV subtransmission line elements, including the following: (1) Undergrounding the existing 66-kV subtransmission line in Segment 7 through the Woodland Duck Farm / River Commons at the Duck Farm

Project (Duck Farm Project) between Valley Boulevard (S7 MP 8.9) and S7 MP 9.9 as requested by the Board of Supervisors County of Los Angeles to minimize the Project's effects to passive recreation opportunities in the planned Duck Farm Project area; (2) Re-routing and undergrounding the existing 66-kV subtransmission line around the Whittier Narrows Recreation area in Segment 7 (S7 MP 11.4 to 12.025) to provide habitat enhancement for least Bell's vireos, as identified by SCE; (3) Re-routing the existing 66-kV subtransmission line through the Whittier Narrows Recreation Area in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing 220-kV ROW to reduce the number of structures required (20-foot expanded ROW required); and (4) Re-routing the existing 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8 (2 routing options are provided in this area) to provide habitat enhancement for least Bell's vireos, as identified by SCE. ~~the following 66-kV subtransmission components in Segment 7 and Segment 8A: undergrounding the proposed 66-kV line through the Duck Farm Project from S7 MP 8.9 to S7 MP 9.9; re-routing and undergrounding the 66-kV subtransmission line around the Whittier Narrows Recreation Area from S7 MP 11.4 to S7 MP 12.025; and re-routing the Segment 8A 66-kV subtransmission line around the Whittier Narrows Recreation Area from S8A MP 2.2 to S8A MP 3.8.~~ Specific routing details for Alternative 7 can be found at Section 2.2.81 of this EIR/EIS. The remaining portions of Segments 7 and 8A, as well as Segments 4 through 11, would be identical to the proposed Project. Consequently, the Affected Environment for Alternative 7 would be the same as the Affected Environment for Alternative 2 (the proposed Project), as described in Section 3.14.2.3.

3.14.3 Applicable Laws, Regulations, and Standards

The laws, regulations, and standards applicable to the proposed Project and its alternatives for visual resources have been identified, and are provided in Appendix C of the *Visual Resources Specialist Report*. The applicable laws, regulations, and standards for visual resource analysis that have been identified was completed using the following two methodologies for lands with different jurisdictions: (1) for non-NFS lands, the visual sensitivity/visual change (VS/VC) methodology was used; and, (2) for NFS lands, the Forest Service Scenery Management System (SMS) methodology, including desired condition and scenic integrity objectives (establishing minimum standards for scenic integrity) was used.

3.14.3.1 Federal

Appendix C of the *Visual Resources Specialist Report* provides the federal laws, regulations, and standards for visual resources. Table C-1 in Appendix C includes the Council on Environmental Quality Regulations for implementing NEPA, and Forest Service Land Management Plan (Forest Plan) standards.

3.14.3.2 State

Table C-2 of the *Visual Resources Specialist Report*, Appendix C, provides the State laws, regulations, and standards for visual resources. Table C-2 includes the California Environmental Quality Act guidelines, California Streets and Highway Code for Scenic Highways, and ~~Chino Hills State Park~~CHSP General Plan guidelines (CHSP General Plan, 2009).

3.14.3.3 Local

Table C-3 of the *Visual Resources Specialist Report*, Appendix C displays local laws, regulations, and standards for visual resources. Table C-3 includes County General Plans and policies for Kern, Los Angeles, and Orange Counties. It also includes Specific Plans and City Plans for the various jurisdictions that would be crossed by the proposed Project and its alternatives. Because the closest unincorporated

areas of San Bernardino County are approximately 1.5 miles away from (north of) the proposed Project ROW, and the proposed Project would not be visible from these areas, no General Plan requirements for San Bernardino County would apply.

3.14.4 Impact Analysis Approach

3.14.4.1 Criteria for Determining Impact Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that would result from the proposed Project and alternatives. Appropriate criteria have been identified and utilized to make these significance conclusions. The following significance criteria for Visual Resources were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). Impacts of the proposed Project or alternatives would be considered significant and would require mitigation if:

- Criterion VIS1: Have a substantial adverse effect on the existing landscape character and visual quality of the site and its surroundings.
- Criterion VIS2: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.
- Criterion VIS3: Substantially damage scenic resources within a scenic highway viewshed or a national scenic trail viewshed (including, but not limited to, trees, rock outcroppings, and historic buildings).
- Criterion VIS4 Conflict with applicable adopted city, county, State, or federal plans, policies, regulations, or standards applicable to the protection and management of visual quality in the landscape.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.14.4.2 Applicant-Proposed Measures (APMs)

APMs were identified by SCE in the PEA. Table 3.14-6 presents the APMs that are relevant to the issue area of Visual Resources. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. Therefore, the following discussions of impact analysis assume that all APMs will be implemented as defined in the table. Additional mitigation measures are recommended in this section if it is determined that APMs do not fully mitigate ~~the~~ impacts or lack the necessary specificity to ensure that impacts would be reduced or avoided to the degree feasible. ~~for which they are presented.~~

Table 3.14-6. Applicant-Proposed Measures – Visual Resources

APM AES-1	Transmission Lines - Reduce Light Reflection off Towers/Poles. Lattice steel towers (LSTs) and tubular steel poles (TSPs) will be constructed of steel that is galvanized and treated at the factory to create a dulled finish that will reduce reflection of light off of the tower members. As appropriate to the context, the galvanized coating will also be darkened to allow the towers to blend into the backdrops.
APM AES-2	Transmission Lines - TSPs Near Existing Residential Development. In areas that are in close proximity to existing residential development, TSPs will be specified to provide tower structures that relate visually to the other elements in these settings. The exceptions to this principle are: 1) LSTs are specified at turning tower locations and at long spans because, structurally, TSPs do not have the strength to withstand the forces exerted by the conductors at these locations; and 2) LSTs may be used to match existing structure types adjacent to the Project in the transmission corridor.
APM AES-3	Transmission Lines - Nonreflective/Nonrefractive Insulators. The insulators specified for this proposed Project will be made of materials that do not reflect or refract light.

Table 3.14-6. Applicant-Proposed Measures – Visual Resources	
APM AES-4	Transmission Lines - Nonreflective/Nonrefractive Conductors. The conductors specified for the Project will be nonspecular, that is, they will be treated at the factory to dull their surfaces to reduce their potential to reflect light.
APM AES-5	Transmission Lines - New Structures Aligned with Existing Structures. To the extent feasible, new transmission structures that will be located in corridors containing existing transmission lines will be located to line up with the other transmission structures to create a higher level of visual unity.
APM AES-6	Transmission Lines - Transmission Structures Set Back from Major Roadways. Where conditions permit, transmission structures will be set back from the crossings of major roadways.
APM AES-7	Transmission Lines - Avoid Structures in Middle of Lines of Sight. To the extent feasible, the final locations of transmission structures will be adjusted to avoid locations that place the structures in the middle of the line of sight from streets and other important views.
APM AES-8	Transmission Lines - Regrade/Revegetate Construction Sites. Any areas around new or rebuilt transmission structures that must be cleared during the construction process will be regraded and revegetated to restore the area to an appearance that will blend back into the overall landscape context.
APM AES-9	Access Roads - Use Existing Access Roads. To the extent feasible, existing access roads will be used.
APM AES-10	Access Roads - Helicopter Construction. In mountainous areas, particularly in the ANF, helicopters will be used for construction of towers in areas where extensive new road development would be required.
APM AES-11	Access Roads - Minimize Road Modifications. Widening and grading of roads will be kept to the minimum required for access by proposed Project construction equipment.
APM AES-12	Access Roads - Dust Suppression. During the construction period, dust suppression measures will be used to minimize the creation of dust clouds potentially associated with the use of the access roads.
APM AES-13	Access Roads - Cut and Fill Slope Revegetation. Any areas of exposed cut and fill slope created in the process of widening existing access roads or creating new access roads will be revegetated, as practicable, to blend back into the surrounding landscape.
APM AES-14	Marshalling Yards and Laydown Areas - Reuse Previously Disturbed/Low Visibility, Low Sensitivity Areas for Marshalling Yards. To the extent feasible, the sites selected for use as marshalling yards and laydown areas will be areas that are already disturbed, in locations of low visual sensitivity.
APM AES-15	Marshalling Yards and Laydown Areas - Cover Chain-Link Fencing with Fabric. During the construction period, the temporary chain-link fences surrounding the marshalling yards and laydown areas will be covered with fabric to limit views into these sites and to create a unified, tidy appearance.
APM AES-16	Marshalling Yards and Laydown Areas - Reduce Glare and Light Spill. The lighting specified for the marshalling yards and laydown areas will be the minimum required to meet safety and security standards. All light fixtures will be hooded to eliminate any potential for glare effects and to prevent light from spilling off the site or up into the sky. In addition, the fixtures will have sensors and switches to permit the lighting to be turned off at times when it is not required.
APM AES-17	Marshalling Yards and Laydown Areas - Construction Site Cleanup. When the construction period is over, the fencing around the marshalling yards and laydown areas will be removed, the sites will be cleaned up, and their surfaces will be restored.
APM AES-18	Substations - Reflectivity Finish. ~~All s~~Substation equipment will be specified with a low reflectivity, neutral finish. SCE will request dull finishes. Some equipment may not be available with a dull finish.
APM AES-19	Substations - Nonreflective/Nonrefractive Insulators. All insulators at the substations and on the takeoff equipment will be nonreflective and nonrefractive.
APM AES-20	Substations - Low Reflectivity Finish on Structures. The surfaces of all structures will be given low reflectivity finishes with neutral colors to minimize the contrast of the structures with their backdrops.
APM AES-21	Substations - Reduce Glare and Light Spill. The lighting specified for the new and expanded substations will be the minimum required to meet safety and security standards. All light fixtures will be hooded to eliminate any potential for glare effects and to prevent light from spilling off the site or up into the sky. In addition, the fixtures will have sensors and switches to permit the lighting to be turned off at times when it is not required.
APM AES-22	Substations - Chain-Link Dulled Finish. The chain-link fences surrounding the substations will have a dulled, darkened finish to reduce contrast with its surroundings.
APM AES-23	Substations - Landscape Plan. An appropriate landscape plan will be prepared for the area on the west side of the Vincent Substation expansion to screen the equipment from view and blend the substation into the surroundings.

3.14.4.3 Impact Assessment Methodology

Analysis of the Proponent's Environmental Analysis (PEA), Project Description, and PEA visual analysis report was followed by an on-site tour provided by SCE to specific critical areas. The visual analysts then

performed independent site investigations of existing visual conditions throughout the proposed transmission line routes. The visual analysts determined that several of the KOP locations selected by SCE for the PEA adequately characterized representative views of the Project area and viewsheds. Several of the visual simulations provided in the PEA adequately represented anticipated visual impacts and, therefore, have been used in the EIR/EIS. The source of existing condition photos and simulations are noted in the title blocks of the Map and Figure Series Volume. SCE-provided photos and simulations include Figures for KOPs North-4, North-6, Center-19, South-1, South-2, South-3, South-4, South-5, South-7, South-8, South-10, South-11, South-12, South-13, South-14, South-16, South-17, South-18, South-19, and South-20.

From thousands of potential viewpoints, and in consultation with CPUC and Forest Service personnel, 53 locations were selected as KOPs for detailed analysis of the proposed Project, and seven additional KOPs were selected for detailed analysis of the Alternatives 3 through 7. KOPs were established at important viewpoints, regardless of whether they were located on private or public lands. At each KOP, photographs were taken with a digital camera equipped with a "normal" focal length lens, thereby eliminating distortion. For comparison to this "normal lens," a wide-angle lens makes background features appear unrealistically small and further away, while a telephoto lens makes background features unrealistically larger and closer in the photograph. The normal lens makes all landscape features appear in their proper perspective and size relative to each other. For each KOP analyzed in the EIR/EIS, a photograph and simulation has been printed on 11" by 17" paper and displayed in the Map and Figure Series Volume. If the reader stands at the exact location of the KOP looking in the direction the photo was taken, each photograph (and simulation) will appear "life-size" when held approximately 18 inches away from the viewer's eyes. From among all photographs taken, the best compositions and exposures taken by the visual analysts were selected to represent the existing view from each KOP and for subsequent computerized visual simulations to depict the visual effects of the proposed Project and its alternatives. In the impact analysis for Visual Resources, future visual effects of the proposed Project and its physical alternatives were predicted for each KOP by using these computerized visual simulations. In Sections 3.14.6 through 3.14.11, the reader will find written descriptions of these visual effects. In the Map & Figure Series Volume, the reader will find "life-size" pairs of before and after photographs and simulations. No simulations were completed for the No Project/Action Alternative (Alternative 1).

For the North and South Areas (non-NFS lands), an assessment was made at each KOP of existing visual conditions, visual contrast, and Project dominance, using the Visual Sensitivity/Visual Change methodology. Subsequently, a conclusion was reached regarding the extent of overall visual change. Taken together with the existing landscape's visual sensitivity, the level of probable visual impact significance was determined.

For the Center Area (NFS lands), the key factors considered in determining the degree of visual impact were compliance and consistency with the adopted Desired Condition and Scenic Integrity Objectives. In like manner as in the North and South Areas, ~~in the Center Area~~ a computerized visual simulation was prepared for each KOP in the Center Area, with which to further evaluate the preliminary impact determination. A conclusion on initial impact significance was then reached, using the standard limits of deviations determined by SIO definitions. At each of these KOPs, field analysis included assessment of existing scenic integrity and Scenic Integrity Objectives using the Scenery Management System methodology.

3.14.5 Alternative 1: No Project/Action

Selection of the No Project/Action Alternative would mean that the Tehachapi Renewable Transmission Project, as proposed, would not be implemented. As such, none of its associated construction or operational activities would occur, and the environmental impacts associated specifically with the proposed Project would not occur. For example, SCE's existing Antelope-Vincent 220-kV line would remain in place in Landscape Unit 3, and the existing Antelope-Mesa 220-kV line would remain in place in Landscape Units 5 through 12, as removal of these lines is specifically linked to construction of the proposed Project. As such, the environmental impacts associated with the proposed Project, as described in Section 3.14.6, below, would not occur.

In the short term, existing environmental conditions for visual resources would continue into the future, and existing landscapes would continue to appear as they are represented in Section 3.14.2.3. However, environmental conditions in the Study Area would continue to naturally evolve and/or change over time; therefore, under the No Project/Action Alternative, the regional setting and baseline conditions of the Study Area, which are discussed in Section 3.14.2.2, would not remain static. The following section describes how visual resources in the Study Area would be expected to change from current conditions under the No Project/Action Alternative.

North Area

Under the No Project/Action Alternative, visual impacts in the North Area would be avoided that otherwise would be created by new transmission lines in new corridors, new, taller transmission line structures, and substation upgrades. Because construction of new wind farms in the Tehachapi Wind Resource Area (TWRA) are dependent upon construction and operation of the proposed Project, these new wind farms would not be built, or would only be built at a date further in the future, after other transmission capacity is realized. This would delay projects such as the PdV/Manzana Wind Energy Project, Alta Wind Energy Center, and/or Pine Tree Wind Development Project, and visual impacts associated with these wind projects would not occur in the landscapes of TWRA.

As described in Section 3.14.2.2, the PCT crosses through the North Area and would be traversed by the proposed Project (Alternative 2). Under the No Project/Action Alternative, this crossing of the PCT by new transmission lines would be avoided. The Pacific Crest Trail Association (PCTA), which works jointly with State and Federal agencies to protect the PCTA (as described in Section 3.14.2.2), is currently working to re-route a portion of the PCT within the North Area through Tejon Ranch, in order to maintain the length of the PCT along ridgelines. It is expected that this re-route would succeed under any of the Project alternatives, including the No Project/Action Alternative. It is further expected that the PCT would continue to be managed and maintained in the future to protect scenic and visual resources.

Also as described in Section 3.14.2.2, there are currently planned residential developments in the North Area which include proposals for intensive housing developments that would modify the existing landscape, including major residential developments of Anaverde, Ritter Ridge, and Quail Valley. It is reasonably foreseeable that these developments would be constructed and that in the future, further development surrounding and expanding the boundaries of the Cities of Lancaster and Palmdale also would modify existing landscape conditions. Such developments would be similar to the developed residential areas found in Palmdale and Lancaster, and in the South Area, which is highly urbanized.

In general, the extent and variety of urban/suburban development in the North Area are expected to increase in the future. However, this increase is not dependant upon selection of the No Project/Action

Alternative and likely would occur independently of the proposed Project or an alternative to the proposed Project.

Center Area

Under the No Project/Action Alternative, visual impacts in the Center Area that would be created by new transmission line structures and upgrades to existing access and spur roads of TRTP would be avoided.

National Forest System lands would continue to be managed by the Forest Service in the future, regardless of the potential implementation of the proposed Project or an alternative to the proposed Project, including the No Project/Action Alternative. As such, existing landscape character and scenic integrity conditions would remain protected in the short term. However, it can be presumed that with increased population in the North and South Areas, it is reasonably foreseeable that additional new transmission lines will be needed in the future. Unless a route(s) is developed to extend outside of the Forest boundary, existing 220-kV single-circuit transmission lines can be expected to be reconstructed to 500-kV single- or double-circuit capacities in the future. Construction of additional transmission lines by SCE and/or LADWP is reasonably foreseeable in the Center Area. With either scenario, visual resources within the Center Area would continue to exist under the management of the Forest Service for the purpose of multiple use, public recreation and enjoyment of scenic quality.

ANF projects currently underway or in the planning stages (fuel treatments, road maintenance, OHV usage, recreation site maintenance, interpretive services, etc.) would continue into the future. Some of these Forest Service activities have the potential to impact visual resources (fuel treatments, road maintenance, or OHV usage) but they are independent of the proposed Project or an alternative to the proposed Project.

South Area

Under the No Project/Action Alternative, visual impacts associated with the proposed Project would be avoided in the South Area because new, taller transmission line structures, new 500-kV conductors, and substation upgrades would not occur. With increased population in the North and South Areas, it is reasonably foreseeable that additional new transmission lines will be needed in the future, with similar pressure to increase electric transmission for increased population. Existing 220-kV single-circuit transmission lines can be expected to be reconstructed to 500-kV single- or double-circuit capacities in the South Area in the future. Construction of additional transmission lines by SCE and/or LADWP is a reasonably foreseeable action.

As previously described, the South Area is highly urbanized and includes a wide variety of developed urban and suburban landscapes with many different visual attributes. In the viewshed of the proposed Project, much of the landscape has already been developed for urban and suburban uses (unlike the North Area where rapid development of new subdivisions and planned developments is occurring). Therefore, only a few undeveloped parcels of land remain near the proposed Project ROW, and only a few of these are currently undergoing development, causing visual changes to the landscape. These new developments are described in Section 2.9 (Cumulative Projects).

3.14.6 Alternative 2: SCE's Proposed Project

3.14.6.1 Direct and Indirect Effects Analysis

Have a substantial adverse effect on the existing landscape character and visual quality of the site and its surroundings (Criterion VIS1)

Impact V-1: Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views.

There are no Applicant-Proposed Measures for Aesthetics (APM-AES) that addresses the temporary visibility of construction equipment or personnel at staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and/or structure locations. The following discussion addresses temporary visibility of construction activities and equipment, and is subdivided into North, Center, and South Areas.

North Area

Potential visual impacts resulting from the proposed Project's construction in the North Area would primarily be experienced from county roads and nearby residences.

Construction impacts on visual resources would result from the presence of equipment, materials, and work force at the substation sites, staging areas, pulling locations, tensioner locations, splicing locations, and along the access/spur roads and overhead transmission line route. Construction impacts on visual resources would also result from the temporary alteration of landforms and vegetation along the utility corridor. Vehicles, heavy equipment, helicopters, materials, and workers would be visible during site clearing, grading, substation expansion and construction, structure erection, conductor stringing, cable placement, and site/ROW clean-up and restoration. Construction equipment and activities would be seen by various viewers in close proximity to the sites and utility corridor including adjacent and nearby residents and recreationists on roads and trails (including the PCT). View durations would vary from brief to extended periods.

Construction of the transmission line, construction of the new Whirlwind Substation, expansion of existing Antelope and Vincent Substations, and use of construction staging areas would result in the visual intrusion of construction vehicles, helicopters, equipment, storage materials, and workers. However, Project construction is a relatively short-duration visual impact, as compared to the permanent structures that would be introduced into the landscape by the proposed Project~~, which would have a life-span of perhaps 50 years~~.

Center Area

Potential visual impacts resulting from the proposed Project construction activities in the Center Area would primarily affect the visual experience ~~be visible and experienced~~ from county roads, State highways (including multiple crossings over the Angeles Crest Scenic Byway (~~State Scenic Highway~~ SR 2), Forest Service roads, OHV trails, hiking trails (including multiple crossings of the Pacific Crest National Scenic Trail and Silver Moccasin National Recreation Trail), and many nearby recreation sites (including Mill Creek Summit Picnic Area, PCT trailheads, Silver Moccasin Trailhead, Vetter Mountain Lookout, Cobb Estate, Mount Wilson, Mount Lowe, Mount Disappointment, Strawberry Peak, Rincon-Red Box OHV Trail, Upper Winter Creek Trail, Mount Zion, Cogswell Reservoir, and West Fork National Scenic

Bikeway). For a complete list of recreational sites affected in the Center Area, please see Section 3.15 (Wilderness and Recreation).

Construction impacts on visual resources would result from the presence of equipment, materials, and work force along Segments 6 and 11, and would be as described above in the North Area. The only residences in the Center Area are located on small, scattered tracts of non-NFS lands within the ANF boundary, and the number of these residences is low, such as along Aliso Canyon Road. Therefore, except for residents in these scattered tracts, the duration of view of construction activities would be brief for recreationists in the ANF, estimated by SCE ~~engineers~~ to be perhaps a maximum of two weeks' duration. However, based on experience from the ongoing construction ~~that is being gained during construction~~ of the Antelope-Pardee Transmission Project, because of fire regulations and weather conditions, there have been constant work stoppages. Therefore, some construction durations may be longer.

Conventional construction techniques would generally be used for new footing installation. In certain cases, equipment and material would be deposited at structure sites using helicopters or by workers on foot, such as at the 33 towers identified for helicopter construction under SCE's proposed Project, and crews may prepare the footings using hand labor assisted by hydraulic or pneumatic equipment, or other methods. Alternatively, a tracked excavator may be required to dig the foundation holes in conjunction with the proposed helicopter construction. As such, the tracked excavator would need to access the structure site via a temporary trail or overland 'drive and crush', neither of which would require any grading; although, some minor brush clearing may be required if the vegetation is too dense to drive across. For these activities, and for the proposed large and medium sized helicopter staging areas, considering the large acreages being described for the implementation of these primary and secondary yards, a visual resource review would have to be done, especially if any would be proposed on NFS land.

LSTs would be assembled in laydown areas at each site, and then erected and bolted to the foundations. Tower assembly would begin with the hauling and stacking bundles of steel at tower location per engineering drawing requirements. This activity requires the use of several tractors with 40-foot floats and an onsite loader. After steel is delivered and stacked, crews would proceed with assembly of leg extensions, body panels, boxed sections and the bridges. The steel work would be completed by a combined erection and torquing crew with a lattice boom or hydraulic crane. The construction crew may opt to install insulators and wire rollers (travelers) at this time. Figure 2.2-85 in Chapter 2 (Description of Alternatives, including the Proposed Project) provides a representation of this construction process. Ground disturbance would generally be limited to the laydown areas, which would typically occupy an area of 200 feet by 200 feet (0.92 acre). Vegetation clearing in these laydown areas was considered in the visual analysis; however, this vegetation clearing was not simulated in any of the SCE-provided simulations or in the simulations prepared by Lee Anderson and 3DScape.

Where road access is available to tower sites, assembled tower sections would be lifted into place with a minimum of 80-ton, all-terrain or rough terrain crane that would move along the ROW (i.e., along access and spur roads) for structure erection purposes. Erection of new LSTs may also require establishment of a crane pad to allow an erection crane to set up 60 feet from the centerline of each LST. The crane pad would be located transversely from each applicable LST location. In most cases, this crane pad would be located within the laydown area used for LST assembly. If a separate pad is required, it would occupy an area of approximately 50 feet by 50 feet, approximately 0.06 acre. The pad would be cleared of vegetation and also graded as necessary to provide a level surface for crane operation.

Construction of the transmission line, improvements and realignments at the existing Gould Substation, and use of construction staging areas would result in the visual intrusion of construction vehicles, helicopters equipment storage materials, and workers. However, impacts related to construction would be relatively short in duration, as compared to the permanent structures that would be introduced into the landscape by the proposed Project~~, which would have a life-span of perhaps 50 years, if not more~~.

South Area

Potential visual impacts resulting from the proposed Project construction activities in the South Area would be experienced from a multitude of vantage points, including Interstate Highways (210, 605, 10) State Highways (60, 57, 39, 2), county roads, state parks, county parks, city parks, memorial parks, and thousands of nearby residences.

Construction impacts on visual resources would result from the presence of equipment, materials, and work forces as described above for the North Area. Construction of the transmission line, upgrades to the existing Mesa and Mira Loma Substations, and use of construction staging areas would result in the visual intrusion of construction vehicles, helicopters, equipment, storage materials, and workers. However, impacts related to construction would be relatively short-duration, as compared to the permanent structures that would be introduced into the landscape by the proposed Project~~, which would have a life-span of perhaps 50 years~~.

Indirect Effects

No indirect visual effects would occur because of construction activities in the North, Center, or South Areas would occur under Alternative 2.

Mitigation Measure for Impact V-1

V-1 **Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis.** SCE shall keep construction-related operations areas clean and tidy by storing building materials and equipment within the proposed construction staging areas and/or generally away from public view when feasible. SCE shall remove construction debris promptly at regular intervals.

For areas of non-NFS lands where cleared vegetation would be visible from sensitive viewing locations, SCE shall dispose of cleared vegetation and woody material in a manner that is not visually evident and does not create visual contrasts. For NFS lands, in areas where cleared vegetation would be visible from sensitive viewing locations, SCE shall dispose of cleared vegetation and woody material off-site (not necessarily off-NFS lands), or the cleared vegetation shall be chipped and stored for restoration work, as approved by the FS, and in a manner that is not visually evident and does not create visual contrasts. ~~On both NFS lands and non-NFS lands, cleared vegetation or chipped and stored vegetation shall not be stockpiled for longer than 14 days after it is cleared from the site, so that native vegetation is maintained in a healthy condition.~~

CEQA Significance Conclusion

Due to construction of the proposed Project, short-term visual impacts on landscape character and visual quality of landscape views as seen from various vantage points would be significant and unavoidable (Class I). There are no mitigation measures available to make vehicles, heavy equipment, helicopters, and other related components less than visible during construction. To reduce the consequence of these potential visual impacts, the following mitigation measure has been identified: Mitigation Measure V-1

(Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis).

Mitigation Measure V-1 would help to minimize the adverse visual effects of construction activities and equipment as seen from sensitive receptor locations by minimizing and containing the visual clutter associated with construction. Mitigation Measure V-1 is similar to APM AES-15 and APM AES-17, and would augment these APMs by requiring specific procedures such as establishing a regular periodic interval for cleanup, not to exceed one week in duration. Mitigation Measure V-1 would create natural appearing vegetation clearing shapes and patterns, instead of un-natural square or rectangular openings in vegetation. Implementation of Mitigation Measure V-1, as described above, would reduce Impact V-1 somewhat, but temporary visibility of construction activities and equipment would remain a significant and unavoidable adverse visual impact.

Impact V-2: For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality.

Landscape character is determined by its unique combination of physical, biological, and cultural attributes. Landscape character is an overall visual impression of landscape attributes; it is the physical appearance of a landscape that gives it an identity and sense of place. When land owners and society in general have accepted the existing landscape character (often a rural, pastoral, or residential landscape character) as their sense of place, it is often difficult to reconcile the introduction of a transmission line that makes a permanent change to an industrial landscape character. The rub with transmission lines comes from the disruption of a sense of place and the introduction of industrial character structures into the landscape that do not relate to the human scale.

Visual quality of a landscape is a measure of the degree to which a landscape is visually perceived to be complete. The highest visual quality ratings are given to those landscapes that have little or no deviation from the landscape character valued by constituents for its aesthetic quality. When all visual elements of a landscape are in harmony, that place is deemed to have high visual quality. Introduction of incongruent visual elements into such a landscape would ~~be deemed to~~ detract from visual quality.

There are no Aesthetic APMs that specifically address the introduction of a new transmission line into a landscape that currently has no transmission lines. Aesthetic APMs could apply to this situation, except those that specifically relate to existing structures, existing ROWs, existing roads, or existing substations (i.e., APM AES-5, APM AES-9, APM AES-11, and APM AES-13 through APM AES-23). The following discussion addresses the introduction of a new transmission line and a new ROW into a landscape that currently has no transmission lines. The discussion is subdivided into North, Center, and South Areas.

Structure Colors Used In Visual Simulations for Alternative 2

The Alternative 2 simulations show SCE's standard finish on LSTs, which is "dulled galvanized steel." The new LSTs and TSPs are simulated with a light-gray appearance, consistent with new materials and dulled galvanized steel.

North Area

All of Segment 10 and a portion of Segment 4 (S4 MP 15.8 and S4 17.9) would be constructed in a new ROW where there is no existing transmission line; therefore, the existing natural-appearing landscape

character would be modified to an industrial character by the presence of the Project. High-voltage transmission line structures are the tallest structures in the desert landscape of the Antelope Valley, except for some of the wind turbine generators in the TWRA. In the North Area, typical 500-kV single-circuit LSTs would be 94 to 220 feet tall and have four legs that would occupy an area of approximately 38 to 42 feet square at the base, tapering to a waist of approximately 19 feet, with 96 foot-wide arms holding up the long strings of large, round conductors. These new 500-kV LSTs would be constructed in natural-appearing landscapes that have no existing transmission lines in the following North Area locations: all of Segment 10; and Segment 4 from S4 MP 15.8, at which point the line would turn south paralleling the east side of 110th Street West (a County Priority 2 Scenic Highway) for approximately 2.1 miles, to S4 MP 17.9, thereby degrading the natural appearance of this landscape.

For Segment 10 near the TWRA, introduction of new, industrial character 500-kV LSTs and conductors across the uniform brushfields with uniform vegetative textures and relatively flat desert plains of the Mojave Desert would adversely affect the existing natural-appearing and rural landscape character. Visual quality would be detracted by the geometric forms and angular lines of new LSTs against the rounded lines of rolling foothills and Tehachapi Mountain backdrops. Gray or dark gray colors of factory-treated galvanized steel, as proposed in APM-AES-1, would aid somewhat for LSTs to blend in with the gray-green creosote bush scrub and widely scattered Joshua trees, as seen against the backdrop of the foothills and Tehachapi Mountains.

In the TWRA, new technology systems for wind farms use monopoles exclusively, instead of LSTs, for supporting the wind turbine generators. There are many reasons that lattice towers are not used now, including visual impact reduction and bird-mortality reduction (by reducing perching opportunities on LSTs). Even though some existing, older wind turbine generators in the TWRA have LSTs, all new wind turbine generators in the TWRA currently are using the new, sleek-looking monopoles and larger rotors with slower revolutions per minute, all of which reduces visual impacts and also reduces bird-kills. Therefore, the use of TSPs may be more visually compatible with wind turbines in the TWRA, including portions of Segment 10. ~~LSTs for the new 500 kV transmission line of Segment 10 is not recommended for both visual resource and wildlife reasons, and TSPs are preferred for TRTP Segment 10.~~ Even in areas where TSP are preferred, it may be necessary to use LSTs in certain locations, such as turning points and dead-end structures, or in locations with heavy ice loading, which generally includes areas over 3,000 feet in elevation. Locations where it is not feasible to use TSPs would be determined during final engineering design.

Indirect Effects

In the North Area an indirect visual effect of Alternative 2 in existing natural-appearing landscapes would be potential new visual impacts of OHV use in undeveloped landscapes, especially those new OHV trails that would emanate from new access and spur roads along Segment 10 and Segment 4 from MP 14.9 to S4 MP 17.9. Other indirect visual effects in natural-appearing landscapes of the North Area would be the further development of wind farms and wind turbine generators in the TWRA. Without the proposed Project, ~~it has been stated that future wind farms~~the amount of new wind energy development in the TWRA would be limited by transmission constraints~~ would not be able to transport the electricity that would be generated by future wind turbine generators~~. Therefore, by allowing the proposed Project to proceed, the natural-appearing landscape in the TWRA would be further modified by construction, operation, and maintenance of new large wind turbine generators and development of new wind farms.

Center Area

Although the Center Area is predominantly all natural-appearing landscapes, under Alternative 2 there are no occurrences within the Center Area where new transmission line structures would be built in a completely new alignment or new ROW. (There is a ~~three~~16-mile portion of Segment 11 directly north of the Gould Substation where Segment 11 is currently constructed and operated in an existing designated utility corridor where the existing ROW would be widened. Normal ROW width on NFS lands is 160-feet. Replacement of current 220-kV towers with 500-kV structures would require additional width. There are two parallel existing transmission lines in this vicinity, with Segment 11 being one of them. The FS has clarified that each transmission line is within its own ROW). Therefore, with only replacement of existing industrial landscape character structures with new, taller, wider industrial landscape character structures, there are no situations where there would be V-2 impacts in the Center Area.

Indirect Effects

Because the proposed Project would be developed in existing transmission line ROWs in the Center Area, no indirect V-2 effects would occur in undeveloped, natural-appearing landscapes of the Center Area under Alternative 2.

South Area

The following portions of Segment 8 would be constructed in new ROWs and, therefore, the existing natural-appearing landscape character would be modified to an industrial character by the presence of the proposed Project (Alternative 2). New 500-kV LSTs would be constructed in natural-appearing landscapes that have no existing transmission lines, as follows:

- Rose Hills Memorial Park ROW relocation onto a skyline ridge (existing: 1.1-mile, 200-foot-wide; future: 1.4-mile, 240-foot-wide) (Discussed below, under Impact V-2.)
- Hacienda Heights ROW expansion (existing: 2.15-mile, 150- to 230-foot-wide; future: 250- to 330-foot-wide) (Discussed under Impact V-3 because there are existing transmission lines adjacent to the expanded ROW.)
- Fullerton Road new ROW (existing: none; future: 0.4-mile, 100-foot-wide) (Discussed under Impact V-3 because there are existing transmission lines adjacent to the expanded ROW.)
- Ontario (near Mira Loma Substation) ROW expansion (existing: 0.45-mile, 100-foot-wide; future: 250-foot-wide) (Discussed under Impact V-3 because there are existing transmission lines adjacent to the expanded ROW.)

Under Alternative 2, typical transmission line towers within the South Area would have the following range of heights:

- 500-kV single-circuit LST: 128 to 149 feet tall
- 500-kV double-circuit LST: 147 to 255 feet tall
- 500-kV single-circuit TSP: 120 to 170 feet tall
- 500-kV double-circuit TSP: 150 to 195 feet tall
- 220-kV single-circuit LST: 65 to 75 feet tall
- 220-kV double-circuit LST: 113 to 180 feet tall

Consequently, for these portions of Segment 8 in the South Area which include new ROW, Alternative 2 would alter existing natural-appearing landscape character and modify these to industrial character landscapes.

Indirect Effects

~~Based on the analysis of the North, Center, and South Areas where new transmission lines would be introduced into a landscape that currently has no transmission lines, recommendations have been made where TSPs and/or colored galvanizing treatments should be used to reduce visual resource, recreation, and wildlife impacts, as provided in the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report*.~~

In the South Area, except for the four occurrences noted above, no significant adverse indirect visual effects of Alternative 2 would be anticipated to occur in existing natural-appearing landscapes.

Mitigation Measures for Impact V-2

V-2a **Use tubular steel poles instead of lattice steel towers in designated areas.** When feasible, SCE shall use tubular steel poles, rather than lattice steel towers, in locations designated by the CPUC~~ and the FS (for NFS lands)~~ to reduce visual impacts as seen from sensitive receptor locations and/or to match existing and/or future wind turbine generator monopoles and/or to accomplish community desires. SCE shall submit a Structure Type and Treatment Plan to the CPUC as soon as possible ~~and FS, as appropriate, 45 days~~ after Project approval, demonstrating compliance with this~~ measure and Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes)~~.

V-2b **Treat surfaces with appropriate colors, textures, and finishes.** For all structures that are visible from sensitive viewing locations outside NFS lands, and for all NFS lands, SCE shall treat surfaces with appropriate galvanizing treatments, per APM AES-1, to most effectively blend the structures with the visible backdrop landscape, as determined by the CPUC (for non-NFS lands) and the FS (for NFS lands). For structures that are visible from more than one sensitive viewing location, if backdrops are substantially different when viewed from different vantage points, the darker color shall be selected, because dark colors tend to blend into landscape backdrops more effectively than lighter colors, which may contrast and reflect light, producing glare. At locations where a lattice steel tower or a tubular steel pole would be silhouetted against the skyline, non-reflective, light ~~beige~~ gray colors shall be selected to blend with the sky. The transmission line conductors shall be non-specular and non-reflective, per APM AES-4, and the insulators shall be non-reflective and non-refractive, per APM AES-3. SCE shall consult with the CPUC and the FS~~ (for NFS lands)~~ to ensure that the objectives of this measure are achieved. SCE shall submit a Structure Type and Treatment Plan for the lattice steel towers, tubular steel poles, conductors, insulators, substation structures, fences/walls, retaining walls, and any other visible structures, to the CPUC and FS, as appropriate, after Project approval, demonstrating compliance with this measure~~ and Mitigation Measure V-2a (Use tubular steel poles instead of lattice steel towers in designated areas)~~.

V-2c **Establish permanent screen.** At Antelope and Vincent Substations, SCE shall establish a permanent screen of sufficient height for immediate visual screening around the new expansion areas ~~and existing~~of the Antelope and Vincent Substations. Plant materials selected for screening shall be locally appropriate, wind-resistant, non-invasive, and acclimated to the particular environment and micro-climate. Other screening materials shall blend in with the local landscape. SCE shall consult with the CPUC to ensure that the objectives of this measure are achieved. SCE shall submit landscaping plans for Antelope and Vincent Substations that demonstrate compliance with this measure to the CPUC for review and approval at least 60 days prior to the start of construction at these substations.

CEQA Significance Conclusion

The goal of Mitigation Measures V-2a through V-2c is to select appropriate structure types and colors (see Figure 3.14-84 located at the end of this section), ~~and heights, exact structure placement,~~ and add vegetative screening through thoughtful planning and design, such that the new structures (substations, LSTs, or TSPs) would blend into the landscape to the greatest extent possible, with the least impact to landscape character and visual quality.

Starting with Segment 10 at the northern end of the North Area, implementation of Mitigation Measure V-2a (Use tubular steel poles instead of lattice steel towers in designated areas) ~~throughout the existing and planned TWRA~~ would allow the new structures to set an architectural tone for the existing and soon-to-be enlarged wind resource area. The Alta-Oak Creek Wind Energy Project (Alta) is currently undergoing CEQA analysis and review by Kern County. The Alta project description states that WTGs would be constructed with monopole towers, rather than lattice tower designs. The Alta Applicant pointed out several advantages to the monopole design, including: "it is stronger; more aesthetically pleasing; discourages bird perching; protects against vandalism; protects the equipment and workers from adverse environmental conditions; and, can be manufactured to meet the newest seismic building codes" (Alta Windpower Development, LLC, 2009). In the future, development of new wind turbine generators with sleek monopoles ~~would~~ are expected to add to the architectural tone of the area and would help make the 500-kV monopole structures seem to be a congruent visual part of the enlarged TWRA; and conversely, use of lattice structures for TRTP would appear incongruent.

The introduction of new transmission lines (Segment 10) and the new Whirlwind Substation into existing natural-appearing landscapes with no existing transmission lines (Segment 10) or substations (Segment 9), as proposed under Alternative 2, would create adverse but not significant visual impacts in the North Area. There is no mitigation available to make new transmission lines or a new substation disappear or become inconspicuous. Implementation of Mitigation Measures V-2a ~~through~~ and V-2c would help to minimize the adverse visual effects of new transmission line alignments and structures as seen from sensitive receptor locations by minimizing visual impacts through careful planning and design.

Implementation of Mitigation Measure V-2c (Establish permanent screen) around the existing and proposed expanded Antelope and Vincent Substations would lead to an overall improved visual environment at both Substation sites. SCE has proposed APM AES-23 (Landscape Plan), but it specifically mentions only the expansion area at Vincent Substation; therefore, Mitigation Measure V-2c is required to deal with visual impacts at both the Antelope and Vincent Substations. Measure V-2c would augment APMs AES-18 through AES-22 at Antelope and Vincent Substations, and visual impacts in the areas of the proposed expansions would remain adverse but not significant.

As currently planned and designed, Segment 4 (S4 MP 15.8 to S4 17.9) would result in significant adverse visual impacts to 110th Street West, a Priority 2 Los Angeles County Scenic Highway under the current County General Plan, leading to significant and unavoidable adverse impacts. However, for Segment 4 (S4 MP 15.8 to S4 17.9), implementation of Mitigation Measures V-2a (Use tubular steel poles instead of lattice steel towers in designated areas) and V-2b (Treat surfaces with appropriate colors, textures, and finishes) would substantially reduce visual impacts. Implementation of these measures, as described above, would reduce Impact V-2 somewhat, but the presence of new transmission line structures and conductors in new ROWs, visible from Oak Creek Canyon Road, Tehachapi-Willow Springs Road, and 110th Street West in a landscape that currently has no transmission line facilities, would remain a significant and unavoidable adverse visual impact (Class I).

In the Rose Hills Memorial Park, Segment 8A would relocate the transmission line from an existing ROW that is midslope onto a skyline ridge. The existing LSTs have a landform backdrop as seen from many vantage points in Rose Hills Memorial Park. The new ROW is located on a ridgetop and new 500-kV LSTs would be skylined and very visible from sensitive receptor locations to the south (inside Rose Hills) and to the north (various residential areas and the Pomona Freeway [Highway 60]). Implementation of Mitigation Measures V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis), V-2a (Use tubular steel poles instead of lattice steel towers in designated areas), and V-2b (Treat surfaces with appropriate colors, textures, and finishes) would reduce Impact V-2 in the Rose Hills Memorial Park. Implementation of Mitigation Measures V-2a and V-2b, as described above, would reduce Impact V-2 in the Rose Hills area and use of TSPs instead of LSTs on a skyline ridge would result in a significant adverse visual impact that can be reduced to less than significant through application of feasible mitigation measures (Class II) (see Figures 3.14-42a/b in the Map & Figure Series Volume).

While the use of TSPs may reduce certain adverse impacts in Segments 4, 8, and 10 as indicated by Mitigation V-2a, installation of TSPs would not be feasible in all locations. There are various technical constraints that limit the ability to utilize TSPs in some locations, including the additional ice loading that can occur at elevations above 3,000 feet in elevation. Most of Segment 10 and portions of Segment 4 are above 3,000 feet in elevation. Also, structural design standards dictate the LSTs, rather than TSPs, would need to be used for 500-kV angle structures and dead-end structures. In addition, TSPs are comprised of much larger individual components than LSTs, which introduces many more constraints related to their construction. Therefore, the feasibility of constructing TSPs must be determined on a site-by-site basis based on detailed engineering design as well as construction planning. In order to implement Mitigation Measure V-2a, the Lead Agencies will need to determine appropriate and feasible locations for the use of TSPs instead of LSTs. While no final determinations have been made regarding the use of TSPs as visual mitigation, Appendix J describes candidate locations for the installation of TSPs on non-NFS lands (no additional TSPs are recommended for NFS lands). These candidate locations were identified based on consideration of the recommendations made in the *Visual Resources Specialist Report* and various engineering limitations and construction constraints that must be considered to determine the feasibility of installing TSPs at specific locations and under specific circumstances (e.g., angle structures, dead-end structures, ice loading). The CPUC, which has approval authority over the Project on non-federal lands, has developed a set of draft guidelines intended to help identify appropriate and feasible locations for the use of TSPs as visual mitigation. These draft guidelines are also provided in Appendix J. Unless the CPUC approves specific locations for the use of TSPs as mitigation, no additional TSPs would be installed as part of the proposed Project.

Similar to Mitigation Measure V-2a, implementation of Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes) would require the Lead Agencies to identify appropriate locations for the use of colored galvanizing treatments, ranging from light to dark, on transmission structures (LSTs and TSPs). In order to reduce the visibility of transmission structures in the landscape, colored galvanizing treatments would need to be selected that enable the transmission structures to blend with backgrounds (typically landforms and sky) as seen from sensitive viewing locations. Unless the Lead Agencies approve colored galvanizing treatments for individual structures or specific groups of structures, SCE's standard galvanizing treatment, which is light gray is color, would be used by default. Appropriate colored galvanizing treatments will be determined through the development and review of the Structure

Type and Treatment Plan called for in Mitigation Measure V-2b. The *Visual Resources Specialist Report* primarily recommends the use of colored galvanizing treatments on NFS lands.

In addition to the measures described above, implementation of the following mitigation measure is recommended for the entire route of the proposed Project to minimize the effects of Impact V-2 along the Project route: V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis).

While the mitigation measures described above would reduce the effects of Impact V-2 along 110th Street West, the impact to this Priority 2 Los Angeles County Scenic Highway would remain significant and unavoidable (Class I). Please see Section 3.14.7 for a discussion, implementation of Alternative 3, which would avoid placing the transmission line in the immediate foreground of this road for a distance of 2.1 miles, but would result in a direct crossing of this road.

Impact V-3: For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects.

For a landscape with one or more existing transmission lines, removal of smaller existing transmission line structures (e.g., 220 kV) and replacement with structures of increased size (e.g., 500 kV) made of new materials would result in adverse visual effects. Increased visual contrasts could be created by increased structure prominence, new or additional structure skylining, new or additional ridgeline obstruction, new or additional skyline intrusion, and/or view blockage to desirable landscape features. New, taller transmission line structures could also increase the predominance of industrial landscape character by introduction of larger structures with more pronounced geometric forms, unnatural straight lines, increased visual complexity, and increased visual clutter. New metal surfaces tend to stand out more than older, more weathered surfaces, thereby making the new, taller structures even more visually prominent.

Certain Aesthetic APMs specifically address the visual effects of introducing new structures with increased sizes and new materials into a landscape with an existing transmission line. Aesthetic APMs 1 through 8 specifically apply to this situation and were considered in the analysis of the proposed Project. However, the Aesthetic APMs are general in nature and, except for the substation APMs, are not location-specific. The following discussion addresses the introduction of a new, larger transmission line in an existing ROW, and is subdivided into discussion of the North, Center, and South Areas.

North Area

Most of the North Area has an existing rural landscape character with scattered rural residential/ranch developments, agricultural fields, and a one-mile grid of roads. Only near the western outskirts of Palmdale and Lancaster are there any areas of medium-to-high density residential uses, and these residential neighborhoods are continuing to be built closer to the Segment 5 ROW. Crossing these rural and residential landscape characters, there are several major transmission line corridors, including the corridors where most of Segment 4 (except S4 MP 15.8 to MP 17.9) and all of Segment 5 would be built.

The visual appearance of different types of high-voltage transmission line structures depends on several variables, including: viewing distance (foreground, middleground, or background); angle of view (viewer below a structure, viewer above a structure, or viewer level with a structure); structure placement in the landscape (situated on a skyline ridge, midslope on a mountainside, at the bottom of a hillside or mountainside, or in the middle of a flat desert plain), as explained above under Impact V-2.

For the northern portion of Segment 4, the construction of two new parallel, 4-mile long, single-circuit 220-kV transmission lines (Cottonwind – Whirlwind 220-kV No. 1 & No. 2) would not create an adverse visual impact, as seen from nearby roads, because they would be immediately adjacent to existing 220-kV and 500-kV transmission lines. These two new lines would cross directly over the PCT at S4 MP 2.7, but this part of the PCT is located on an existing access road, not a narrow trail-bed, and visual impacts would be minimal. Because this four-mile subsegment of Segment 4 is within the TWRA, it is likely that future wind farms will be constructed in the immediate vicinity of these two transmission lines. As was discussed for Segment 10, above, use of ~~LSTs~~ TSPs for the two new parallel 220-kV transmission lines in the northern portion of Segment 4 may be more visually compatible with wind turbines in the TWRA.~~of Segment 4 is not recommended for both visual resource and wildlife reasons, but rather, newly designed monopoles for transmission lines would be appropriate in the TWRA. Such a newly designed monopole was developed for the Segment 3 220-kV transmission line in the TWRA (Segment 3 of TRTP).~~ Although the use of TSPs is preferred, it may be necessary to use LSTs in certain locations, such as turning points and dead-end structures, or in locations with heavy ice loading, which generally includes areas over 3,000 feet in elevation. Locations where it is not feasible to use TSPs would be determined during final engineering design.

For the middle portion of Segment 4 S4 MP 4.1 to 15.8 (the single-circuit Whirlwind – Antelope 500-kV line), there would be new 500-kV LSTs and conductors constructed in an expanded ROW southwest of and adjacent to an existing utility corridor with high-voltage transmission lines. Because this portion of Segment 4 would be constructed next to this existing corridor; consequently, overall changes to existing landscape character and existing visual quality would be adverse but less than significant, as displayed in Figures 3.14-6a/b (see Map & Figure Series Volume). However, the southern portion of Segment 4 (S4 MP 14.9 to 17.9) would be in an entirely new 200-foot ROW immediately adjacent to 110th Street West, a County-designated Second Priority Scenic Highway in the current County General Plan, then turn east and connect to Antelope Substation. This new 500-kV transmission line would create adverse visual impacts to the existing rural landscape character and intact visual quality of West 110th Street, and is discussed above under Impact V-2.

Expansion of the existing Antelope Substation would be highly visible from Avenue J and nearby residences. It would create high visual contrast, high dominance, and high view blockage/impairment to the existing landscape and views to Portal Ridge. In 2007, SCE prepared a visual simulation of the Antelope Substation expansion, based on current plans, which included an eight-foot-high perimeter chain link fence, as shown in Figure 3.14-8b (see Map & Figure Series Volume). Subsequently, SCE has modified its plans and has eliminated the chain link fence and replaced it with an eight-foot-high perimeter pre-cast concrete wall (not simulated). In either case, the simulation shows that proposed substation equipment is much taller than eight feet. Establishment of a permanent evergreen vegetative screen (Mitigation Measure V-2c) would help to reduce visual impacts, as illustrated in Figures 3.14-8a/8b (see Map & Figure Series Volume) for KOP-North-6.

Segment 5 would remove the existing Antelope-Vincent 220-kV transmission line and the existing Antelope-Mesa 220-kV transmission line, and in the same 200-foot-wide ROW, would construct the new, approximately 17.8 mile long, single-circuit Antelope-Vincent No. 2 500-kV transmission line. The new single-circuit 500-kV LSTs would range from 113 to 188 feet tall, while existing 220-kV LSTs are approximately 20 to 25 percent shorter. The increased size of these new towers could result in several adverse visual effects. The additional structure height and width of the 500-kV structures, as compared to the existing shorter, smaller 220-kV structures that would be removed, would cause an increase in

structural prominence, and create a visible increase in industrial character. As a result, visual quality would be reduced by contrasting forms, lines, and that resulting contrast would be high. The existing Antelope-Vincent corridor visually dominates the existing rural landscape features adjacent to the utility corridor, and the addition of Segment 5 would continue this dominance. The new and increased structure height would create additional obstruction of the background landscape and would result in a high degree of view blockage of higher quality landscapes as seen from the KOPs.

Additional structure height also would cause additional structure skylining (towers and conductors extending above the horizon line), particularly for towers where, as seen from some vantage points, the existing shorter structures remain below the skyline or only slightly extend above the horizon line. Some new structures would protrude above the horizon and impair scenic views. Increased tower height would also raise the conductors such that more of the background landscapes in this portion of the North Area (Tehachapi Mountain Range, Antelope Valley, Mojave Desert, Portola Ridge, and Sierra Pelona Ridge) would be visually obstructed, depending on the direction of view. These visual changes are illustrated in Figures 3.14-9a through Figures 3.14-15b (see Map & Figure Series Volume). Because existing landscape conditions include TSPs, LSTs, and conductors of various transmission lines, visual changes of the Project from the Antelope Substation to the Vincent Substation would be noticeable but not uncommon.

Indirect Effects

In the North Area, an indirect visual effect of Alternative 2 would be the further development of wind farms and wind turbine generators in the TWRA. Without implementation of the proposed Project or one of its physical alternatives, the amount of new wind energy development in the TWRA would be limited by transmission constraints~~it has been stated that future wind farms would not be able to transport the electricity that would be generated by future wind turbine generators~~. Consequently, under Alternative 2 the landscape in TWRA could be further modified by construction, operation, and maintenance of new large wind turbine generators and development of new wind farms.

Center Area

Potential visual impacts resulting from the proposed Project's construction and operation in the Center Area would primarily be experienced by sensitive receptors from roads, trails, and recreation areas in the ANF. These travelways and use areas include State, county, and Forest Service roads, Forest Service trails (including National Scenic and National Recreation Trails), a Los Angeles Unified School District Outdoor Education Center, and nearby developed recreation sites and undeveloped recreation areas. See Section 3.15 (Wilderness and Recreation) for a complete list of these recreation sites. ~~Existing high-voltage transmission line LSTs in the Center Area are the tallest features in the ANF, dwarfing the native chaparral vegetation and scattered groves of pines and Douglas fir trees.~~ In the Center Area, new TRTP 500-kV single-circuit LSTs would be 85 to 220 feet tall and have four legs that occupy an area of approximately 38 to 42 feet square at the base, tapering to a waist of approximately 19 feet, with 96-foot-wide arms holding up the long strands ~~strings of large, round~~ of conductors. The Center Area in the vicinity of Segments 6 and 11 has a predominantly natural-appearing existing landscape character, except for landscape scars that have been created by pads for the existing high-voltage transmission lines, access roads, and spur roads. Additionally, the existing lattice steel structures are generally the tallest objects in the landscape, dwarfing the native chaparral vegetation and scattered groves of conifer trees, and have introduced geometric forms, angular lines, and an industrial landscape character in an otherwise natural-appearing landscape. Other existing landscape features that have impacted natural-appearing landscape character and decreased visual quality are existing highways with large cut-and-fill slopes.

In the Center Area, Segment 11 would replace existing shorter, smaller 220-kV LSTs and small conductors with new, taller, wider 500-kV LSTs and larger conductors for a distance of approximately 18.7 miles. Segment 11 would leave the Vincent Substation on 500-kV delta configuration LSTs, and structures 1 to 17 would be these delta towers rather than the more typical 500-kV LSTs. Structures 7-14 and 16-17 would be located on NFS lands inside the ANF boundary and would be delta towers, for a total of 10 delta towers on NFS lands. These delta towers are shown in cross-section Figures 2.2-56 through 2.2-58 (located at the end of Chapter 2), but do not appear in any of the visual simulations from selected KOPs.

In several locations, Segment 11 would be seen at foreground distances, including ~~the~~ Angeles Forest Highway, the PCT, ~~the~~ Mount Gleason Road, Mount Gleason CDF Camp 16, Big Tujunga Canyon Road, Clear Creek Outdoor Education Center, and Angeles Crest Scenic Byway (also known as the Angeles Crest State Scenic Highway). In these locations, existing 220-kV LSTs and conductors already detract from desired natural-appearing landscape character and lower the ~~existing~~ visual quality, The existing towers are grandfathered in and do not have to meet the SIOs because they were there before the SIOs were established, but new towers are subject to the SIOs.~~thereby not attaining the High Scenic Integrity Objective, where human developments should repeat natural form, line, color and texture to such an extent that they are not noticeable and not visually evident~~. New, taller, wider 500-kV LSTs and conductors would emphasize and augment the industrial landscape character and would further lower visual quality. Scenic integrity levels that would be achieved ~~met~~ by the proposed Project would be moderate, low, very low, and unacceptably low, as shown in Table 3.14-5.

From other vantage points such as the Angeles Forest Highway, Segment 11 would be visible at middleground and background viewing distances, and at certain times of day and with certain sun angles, the new transmission line's towers and conductors would reflect sunlight and be very visible. These adverse visual effects would not meet the Desired Condition of natural-appearing landscape character or the High SIO. Near the Clear Creek Outdoor Education Center, Segment 11 would be very noticeable from the nature trail and would detract from the natural-appearing landscape character, plus it would not meet the High SIO. Scenic integrity levels that would be met by the Project would be low.

Near the Millard Campground, Segment 11 would simply string new conductors on the vacant side of existing double-circuit 220-kV LSTs. When viewed from below, conductors appear dark in color. The scenic integrity level that is currently met near Millard Campground is unacceptably low, and with implementation of Alternative 2, it would continue to be unacceptably low.

Segment 6 from S6 MP 3.25 to 4.8 would replace two existing 220-kV transmission lines with two new 500-kV transmission lines composed of new, taller, wider LSTs that would be visible in the foreground of the Angeles Forest Highway. From S6 MP 4.8 to 26.9, Segment 6 would replace one existing 220-kV transmission line with one new 500-kV transmission line composed of new, taller, wider LSTs and larger conductors. Segment 6 would be visible in the foreground from the Angeles Forest Highway, PCT and Trailhead at Mill Creek Summit. With regard to the PCT, ANF Standard S1 requires that the scenic integrity of foreground views and designated viewpoints be protected and, where practicable, to avoid establishing nonconforming land uses within the viewshed of the trail. Currently, there is an existing Antelope-Mesa 220-kV tower (M34-T2) located immediately within the viewshed and foreground of the PCT, but because it was installed prior to the development of ANF Standard S1, it was not considered to be in violation of the Standard. This tower, however, would be replaced by a new larger 500-kV LST tower, which would have direct impacts on visual resources and recreational resources of the PCT because it would be visible in the immediate foreground and foreground of the PCT and trailhead at Mill

Creek Summit. Based on site investigations and preliminary engineering by SCE, it would not be practicable to locate the new tower anywhere else, other than in the immediate location of the existing 220-kV tower, but SCE has indicated that despite the ~~The~~ increased size ~~and spread of the legs~~ of the 500-kV lattice steel structure proposed for Segment 6 at the Mill Creek Summit, it would not ~~would probably~~ encroach directly ~~up~~on the PCT or the PCT feeder trail from the trailhead parking area, and would not require relocation of the PCT or feeder trail trailbeds. Because it would not be practicable to locate the new tower elsewhere, and a trail reroute should not be necessary, ANF Standard S1 is still upheld and a Project-specific Forest Plan amendment would not be required. However, in an effort to help protect the scenic integrity of the PCT as much as possible, SCE and the FS have agreed that at this particular tower site, the existing vegetation around this tower and along the PCT, for the most part, shall not be cleared and will be preserved to the greatest degree possible without violating GO-95 Rule 35. The only sections that should be cleared of vegetation for operation and maintenance at this specific tower site are the area directly underneath the base of the new tower and the immediate space adjacent to FS Road 3N17 and the new tower (STR 34 M7-T2).~~Use of a LST in this location would probably require relocation of the PCT trailbed, because the existing 220 kV LST is sandwiched between a paved road and the PCT. This new, larger LST will have direct impacts on visual resources and recreational resources of the PCT.~~

Segment 6 also would be visible in the foreground from the Upper Big Tujunga Canyon Road, Angeles Crest Scenic Byway (also known as the Angeles Crest State Scenic Highway), and the Rincon-Red Box OHV Trail. Segment 6 would be visible in middleground from Vetter Mountain Lookout, the San Gabriel River National Scenic Bikeway at Cogswell Reservoir, Silver Fish Trail, and Upper Creek Winter Trail~~, and numerous streets and highways in the South Area~~. ~~There~~ This would create~~be~~ adverse visual impacts ~~associated with Segment 6,~~ including reductions in visual quality and increased industrial landscape character under Alternative 2. Along the alignment of Segment 6, existing 220-kV and 500-kV LSTs and conductors already do not attain the Desired Condition of natural-appearing landscape character and have lowered the existing visual quality~~, thereby not attaining the High Scenic Integrity Objective~~. New, taller, wider 500-kV LSTs and larger conductors would emphasize and augment the industrial landscape character and would lower visual quality further. Scenic integrity levels that would be met by Alternative 2 Segment 6 would be moderate, low, very low, and unacceptably low.

The new single-circuit 500-kV LSTs would range from 85 to 220 feet tall in the Center Area, while existing 220-kV LSTs of Segments 6 and 11 are 20 to 25 percent shorter and narrower. The increased size of these new towers would result in several adverse visual effects. Additional structure height and width of 500-kV structures, as compared to existing 220-kV structures that would be removed, would cause an increase in structural prominence, and create a visible increase in industrial character. As a result, ~~future~~ visual quality would be further reduced by ~~contrasting,~~ unnatural geometric forms and straight lines, and the resulting visual contrast would be very high. The proposed Project would appear to dominate the existing natural-appearing landscape character in, as well as adjacent to, the utility corridor. The new and increased structure height would create additional intrusions ~~obstruction~~ of the foreground, middleground, and background landscapes and would result in a high degree of view interference ~~blockage~~ of high quality landscapes as seen from the KOPs.

Additional structure height also would cause additional structure skylining (towers and conductors extending above the horizon line), particularly for towers where, from some vantage points, the existing shorter structures remain below the skyline or only slightly extend above the horizon line. New taller, wider structures ~~that would protrude~~ protruding above the skyline or ridgeline would block more of the

natural-appearing horizon and impair scenic views in the ANF, as illustrated in Figures 3.14-16a/b through 3.14-35a/b (see Center Area photos/simulations in the Map & Figure Series Volume).

Footing work for each LST in the Center Area would generally be completed using standard "poured-in-place concrete" with augured excavation techniques. At the time of construction, footing elevations would be established; rebar cages set, stub angles and concrete placed, and survey positioning would be verified. Typically, on a regular terrain under ideal circumstances, a single footing crew could be expected to excavate, place steel cages and stub angles, and pour in place concrete for one complete LST every 2 days. A foundation set for each LST would include four footings. The single foundation for a TSP can typically be completed in 3 days.

Where appropriate, feasible, and/or cost-effective, foundations may also be installed utilizing micropiles. Installation of micropiles would require the drilling of several smaller diameter holes (approximately 7-10, 8-inch holes) for each footing, which ultimately would impact a relatively smaller area than conventional footing installations due to the much smaller volume of excavated material. After drilling all the holes, each hole would be flushed with water or air to remove drill cuttings and loose material. Micropiles would then be installed by placing a rebar in each hole with cement grout injected through grout tubes at the lowest point of each micropile, and the hole filled until viscous grout reaches the top of the casing. The micropiles would then be tied together, to act as a single unit foundation, in a reinforced concrete pile cap approximately 4 to 9 feet tall and 1.5 to 6 feet in diameter. Grout could be brought to each tower site dry and mixed at the site, requiring a much reduced amount of concrete required and associated transportation requirements and limitations. Because of the height of the micropiles above the ground surface, visual impacts could occur and would necessitate visual mitigation by use of colored concrete.

Indirect Effects

Under Alternative 2, no indirect effects of Impact V-3 would occur in the Center Area.

South Area

Potential visual impacts resulting from the proposed Project's construction and operation in the South Area would be experienced by thousands of people from a multitude of vantage points, including freeways, highways, collector streets, local streets, county roads, parks, trails, greenways, schools, hospitals, memorial parks, shopping centers, commercial areas, manufacturing areas, and numerous residential neighborhoods. Existing high-voltage transmission line structures are some of the tallest structures in the South Area, and ~~many times~~in some locations these structures are visible against the horizon, towering over rooftops and treetops, or situated along skyline ridges where they are even more visible.

In the South Area, several different tower structure types are proposed under Alternative 2, including single-circuit 500-kV LSTs, double-circuit 500-kV LSTs, double-circuit 500-kV TSPs, and double-circuit 220-kV LSTs. All of the proposed structures would be taller than existing structures that would be removed and replaced. In almost all occurrences, the new replacement structures would be 1 to 2.5 times taller than the existing structures that would be removed. Alternative 2 would lead to an increased industrial landscape character and a decrease in visual quality throughout the South Area.

Landscape character varies widely in the South Area, with the actual ROW of Segments 11, 7, and 8 having an existing industrial landscape character because of the existing transmission lines. However, adjacent landscape characters range widely and include (but are not limited to) undeveloped open space, plant nurseries, parklands, memorial parks, single-family residential areas, gravel quarries, oil fields,

commercial areas, and light industrial uses [see Section 3.9 (Land Use) and Map & Figure Series Volume, Figures 3.9-3a to 3.9-3i, which present existing land uses within one-half mile of the proposed Project].

Segment 11 in the South Area would add a new 220-kV circuit (three 220-kV conductors in a vertical array) onto the vacant side of existing 220-kV double-circuit LSTs from the Gould Substation to the Goodrich and Mesa Substations. It is expected that the largest adverse visual impact of this portion of Segment 11 in the South Area would be the presence of equipment and the labor necessary for the stringing and pulling of these new conductors onto existing LSTs (Impact V-1). Because no new lattice steel structures would be built for Segment 11 in the South Area, it is expected that the visual impacts of operation and maintenance of this portion of Segment 11 would remain unnoticed (see Map & Figure Series Volume, Figure 3.14-35a/b for KOP-Center-20).

Segment 7 would extend from the ANF boundary to the existing Mesa Substation and would remove existing, short, single-circuit 220-kV LSTs and replace them with taller, wider, double-circuit 500-kV LSTs and TSPs. Segment 7 would be seen from numerous residences and residential streets, golf courses, parklands, a shopping center, neighborhood streets, Interstates 10, 210, and 605, and Highway 60.

Segment 8 would extend from the existing Mesa Substation on the west to the existing Mira Loma Substation on the east, and is divided into three subsegments: Segments 8A, 8B, and 8C. Segment 8A would construct approximately 35.2 miles of new 500-kV transmission line on double-circuit LSTs and double-circuit TSPs. Segment 8B would construct approximately 6.8 miles of new double-circuit 220-kV transmission line (75 to 115 feet tall) replacing an existing 220-kV transmission line on single and double-circuit structures. All of Segment 8 would remove these existing short 220-kV LSTs and replace them with taller, wider, 500-kV double-circuit LSTs and TSPs, mostly in existing ROW. However, Segment 8 would require new ROW in the following locations, as discussed above under Impact V-2:

- Rose Hills Memorial Park ROW relocation (existing: 1.1-mile, 200-foot-wide; future: 1.4-mile, 240-foot-wide) (Discussed above, under Impact V-2.)
- Hacienda Heights ROW expansion (existing: 2.15-mile, 150 to 230-foot-wide; future: 250 to 330-foot-wide) (Discussed here under Impact V-3 because there are existing transmission lines adjacent to the expanded ROW.)
- Fullerton Road new ROW (existing: none; future: 0.4-mile, 100-foot-wide) (Discussed here under Impact V-3 because there are existing transmission lines adjacent to the expanded ROW.)
- Ontario (near Mira Loma Substation) ROW expansion (existing: 0.45-mile, 100-foot-wide; future: 250-foot-wide) (Discussed here under Impact V-3 because there are existing transmission lines adjacent to the expanded ROW.)

The Hacienda Heights ROW expansion ~~simply~~ widens an existing ROW for a length of 2.15 miles, from an existing width of 150 to 230 feet wide to a future width of 250 to 330 feet wide. Because there are existing transmission line facilities in this ROW, visual impacts will be discussed in subsequent sections of this analysis. In the Fullerton Road area, a new ROW would be required for 0.4 mile, and it would be 100 feet wide. Both of these areas are discussed in Section 3.14.2.3, under KOP-South-10, and are displayed in Figures 3.14-45a/b (see Map & Figure Series Volume). The Ontario ROW expansion near Mira Loma Substation would expand an existing ROW from 100 feet wide to 250 feet-wide near the Mira Loma Substation. Because there are existing transmission line facilities in this ROW, visual impacts will be discussed in subsequent sections of this analysis. See Section 3.14.2.3, under KOP-South-20, and Figures 3.14-55a/b (see Map & Figure Series Volume). Segment 8 would be visible from numerous residences and residential streets, parklands, a cemetery, the Orange Freeway (State Highway 57),

fairgrounds on Edison Avenue, light manufacturing and commercial areas, and rural and agricultural areas.

The new double-circuit 500-kV LSTs of Segments 7 and 8 would be 147 to 262 feet tall, and TSPs would be 195 to 200 feet tall in the South Area, while existing 220-kV LSTs associated with Segments 7 and 8 are much shorter and narrower, as shown in the photos and simulations in the Map & Figure Series Volume. The increased size of these new towers would result in several adverse visual effects. Additional structure height and width of 500-kV structures, as compared to existing 220-kV structures that would be removed, would cause an increase in structural prominence, and create a visible increase in industrial landscape character. As a result, visual quality would be reduced by contrasting geometric forms and straight lines; therefore the resulting visual contrast would be high. The proposed Project would appear to dominate the existing landscape character(s) adjacent to the utility corridor, and the new increased industrial character would visually extend further into neighboring lands. The new and increased structure height would create additional obstruction of the foreground landscapes, and in some cases views to middleground and background landscapes, and would result in a high degree of view blockage.

Additional structure height also would cause additional structure skylining (towers and conductors extending above the horizon line), particularly for towers where, from some vantage points, the existing 220-kV structures remain below the skyline or only slightly extend above the horizon line. New 500-kV structures that protrude above the skyline would block more of the horizon and impair scenic views. Increased tower height would also raise the conductors such that more of the background landscapes in the South Area (San Gabriel Mountain Range, Hacienda Hills, and Chino Hills) would be visually obstructed, depending on direction of view.

Structure Types and Colors

~~Based on the analysis of the North, Center, and South Areas where new, taller, wider transmission lines would replace existing transmission lines, recommendations have been made where TSPs and/or colored galvanizing treatments should be used to reduce visual resource, recreation, and social impacts, as provided in the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report*. Furthermore,~~ SCE's APM AES-2 (Transmission Lines - TSPs Near Existing Residential Development) indicates that TSPs would be used in close proximity to existing residential development to provide tower structures that relate visually to the other elements in these settings, with the exceptions of turning tower locations, at long spans, and where LSTs are better suited to match existing structure types adjacent to the transmission corridor.

Mitigation Measure V-3a (Match spans of existing transmission structures) is similar to and augments APM AES-5 (For Transmission Lines - New Structures Aligned with Existing Structures). Based on the analysis of the North, Center, and South Areas where new, taller, wider transmission lines would replace existing transmission lines, ~~it is~~ Mitigation Measure V-3a recommends~~ed~~ that new structures ~~should~~ match spans of existing 500-kV structures to the extent feasible and practicable to reduce visual resource impacts. ~~These locations are detailed in the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report*.~~

Indirect Effects

~~Based on the visual analysis for the entire TRTP route, recommendations have been made where TSPs should be used to reduce visual resource, aesthetic, recreation, and social impacts. These locations are detailed in the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report*. These~~

~~recommendations are similar to APM AES-2 (Transmission Lines – TSPs Near Existing Residential Development); however, specific areas of special concern, as expressed by public scoping comments and professional expertise, are listed.~~

In the South Area, no indirect visual effects would be anticipated to occur.

Mitigation Measures for Impact V-3:

Mitigation measures for Impact V-3 (For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects) include implementation of some Impact V-2 mitigation measures, as ~~follows~~indicated below:

V-2a **Use tubular steel poles instead of lattice steel towers in designated areas.**

V-2b **Treat surfaces with appropriate colors, textures, and finishes.**

V-3a **Match spans of existing transmission structures.** If the new Project components are adjacent to an existing transmission line, SCE shall, where feasible, match existing structure spacing and spans as closely as possible in order to reduce visual complexity as seen from sensitive receptor locations. All new structures should also match the heights of existing transmission line structures to the extent possible as dictated by variation in terrain and kV-capacity of lines.

V-3b **On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.** All reasonable efforts shall be made to meet the Scenic Integrity Objectives (SIOs) shown on the SIO Map in the ANF Land Management Plan. ~~Minor~~ SIO adjustments that exceed a drop of more than one SIO level would require a Project-specific amendment to Forest Plan (Part 3) Standards S9 and S10.~~are allowable, with the Forest Supervisor's approval, for necessary projects that meet a greater public need and cannot be reasonably accommodated on non-NFS land.~~ In order to compensate for the Project's long-term visual impacts to the landscape character and visual quality, including but not limited to impacts to landscape character and visual quality of scenic highway and scenic trail viewsheds, SCE and the Forest Supervisor shall reach a consensus on what is a commensurate amount of restoration, monetary compensation, or landscape character/visual quality improvement.

Environmental Effects of Mitigation Measure V-3b

While Mitigation Measure V-3b is recommended to meet the Scenic Integrity Objectives on NFS lands, this measure may adversely affect other issue areas. The restoration/improvement activities that may be associated with this measure could contribute to greater land disturbance, which may affect biological resources in the activity area. Cultural resources that may be located in the restoration or improvement area may be damaged by these activities. In addition, greater land disturbance could contribute to increased soil erosion, which could potentially affect water quality. Such potential impacts are similar to the effects of other Project activities, and would require the implementation of mitigation measures presented in Sections 3.4 (Biological Resources), 3.5 (Cultural Resources), and 3.8 (Hydrology and Water Quality).

CEQA Significance Conclusion

Implementation of Mitigation Measure V-2a (Use tubular steel poles instead of lattice steel towers in designated areas) ~~should be adopted for~~would help make the two new 220-kV lines leading from Cottonwind Substation into the new Whirlwind Substation more visually congruent with planned wind turbines in this area. This would set an architectural ~~tone~~ style for the future enlarged TWRA and would allow the new Segment 4 structures to blend in with monopoles of existing and future wind turbine

generators. Implementation of Mitigation Measures V-2a and V-3a (Match spans of existing transmission structures) in this area would reduce visual impacts and would improve the overall visual environment, and would result in visual effects in the area of the Cottonwind and Whirlwind Substations that are adverse but less than significant.

For Segment 4 from the Whirlwind Substation to S4 MP 15.8 and for all of Segment 5, use of LSTs and implementation of Mitigation Measures V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-3a (Match spans of existing transmission structures); V-4b (Slope-round and re-contour in areas as prescribed) [on Portal Ridge and Sierra Pelona Ridge]; and V-4d (Dispose of excavated materials as prescribed) would reduce visual impacts to an adverse but less-than-significant level. For Segment 4 from S4 MP 15.8 to the Antelope Substation, because the transmission line would be in the immediate foreground of 110th Street West, implementation of Mitigation Measure V-2a (Use tubular steel poles instead of lattice steel towers in designated areas) would reduce the visual bulk of the new structures, but visual impacts would remain adverse and significant because of the introduction of a new transmission line in the immediate foreground of this road.

For expansion of the Vincent Substation ~~in~~ as part of Segment 9, APM AES-23 would provide for an appropriate landscape plan for the area on the west side of the Vincent Substation expansion to screen the equipment from view and blend the substation into the surroundings. To augment this APM, implementation of Mitigation Measure V-2c (Establish permanent screen) around the Antelope and Vincent Substations would help to improve the overall visual environment of these substations and would reduce visual contrasts. Because of the size and scale of the existing Vincent Substation facilities, and its existing industrial character in this rural environment, the substation expansion and newer, taller LSTs leading into and out of the substation will largely go unnoticed, resulting in an adverse, but less-than-significant visual effect. Introduction of the Whirlwind Substation into the North Area would create adverse but not significant visual impacts.

In the Center Area, removal of older existing 220-kV LSTs and conductors, and construction of new, taller, wider 500-kV LSTs with new, ~~specially treated~~ dull galvanized steel, would be very noticeable. In general, the existing 220-kV and 500-kV LSTs and conductors create strong contrasts of form, line, color, texture, and scale, and do not meet the High scenic integrity objective or the natural-appearing desired condition that has been adopted in the new Forest Plan. Scenic integrity levels that would be met by under Alternative 2 would be moderate, low, very low, and unacceptably low SIOs, and future landscape character would be industrial instead of natural-appearing. This represents scenic integrity levels that are one, two, three, and four levels below the High SIO and desired conditions of the Forest Plan. ~~that would not be achieved.~~ Although Project-specific amendments for Forest Plan (Part 3) Standards 9 and 10 would still be required, it would not reduce the physical impacts to landscape character or visual quality; therefore, implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/ compensation for impacts to landscape character and visual quality) would still be required. ~~Implementation of Alternative 2 would require a Forest Plan amendment to lower most of the SIOs throughout the Project corridors and to modify the desired condition in the ROW of Segments 6 and 11, or disapproval of the proposed Project. Amendment of the Forest Plan is discussed in Section 3.9 (Land Use). Amendment of the Forest Plan to lower the SIOs and modify the desired condition does not reduce the physical impacts to landscape character or visual quality, and implementation of Mitigation~~

~~Measure V-3b (On NFS lands, provide restoration/ compensation for impacts to landscape character and visual quality) still would be required.~~

In the South Area, the proposed Project would appear to dominate the existing landscape character(s) adjacent to the utility corridor, and the new increased height of structures would cause the industrial character to visually extend further into neighboring lands. The new and increased structure skylining and additional obstruction of the foreground landscapes and, in some cases, views to middleground and background landscapes, would result in a high degree of visual contrast, view blockage, and/or skyline impairment. Additional structure height also would cause additional structure skylining (towers and conductors extending above the horizon line), particularly for towers where, from some vantage points, the existing 220-kV structures remain below the skyline or only slightly extend above the horizon line. New 500-kV structures that protrude above the skyline would block more of the horizon and impair scenic views. Increased tower height would also raise the conductors such that more of the background landscapes in the South Area (San Gabriel Mountain Range, Hacienda Hills, and Chino Hills) would be visually obstructed, depending on view direction.

The goals of Mitigation Measures V-2a and V-2b are to reduce visual impacts in the immediate foreground of 110th Street West in the North Area, select appropriate structure types and heights near residential and recreation areas, and identify exact structure placement in the North, Center, and South Areas through planning and design so that new structures (LSTs or TSPs) would blend into the landscape to the greatest extent possible and with the least impact to landscape character and visual quality. Implementation of all these mitigation measures would reduce Impact V-3 somewhat in the Study Area, but the presence of newer, taller, wider transmission line structures and conductors (in some cases, very tall double circuit structures) would remain a significant adverse visual impact.

As discussed under Impact V-2 above, installation of TSPs is not feasible in all locations. There are various technical constraints that limit the ability to utilize TSPs in some locations. Therefore, the feasibility of constructing TSPs must be determined on a site-by-site basis based on detailed engineering design as well as construction planning. In order to implement Mitigation Measure V-2a, the Lead Agencies will need to determine appropriate and feasible locations for the use of TSPs instead of LSTs. While no final determinations have been made regarding the use of TSPs as visual mitigation, Appendix J describes candidate locations for the installation of TSPs on non-NFS lands (no additional TSPs are recommended for NFS lands). These candidate locations were identified based on consideration of the recommendations made in the *Visual Resources Specialist Report* and various engineering limitations and construction constraints that must be considered to determine the feasibility of installing TSPs at specific locations and under specific circumstances (e.g., angle structures, dead-end structures, ice loading). The CPUC, which has approval authority over the Project on non-federal lands, has developed a set of draft guidelines intended to help identify appropriate and feasible locations for the use of TSPs as visual mitigation. These draft guidelines are also provided in Appendix J. Unless the CPUC approves specific locations for the use of TSPs as mitigation, no additional TSPs would be installed as part of the proposed Project.

As also discussed for Impact V-2 above, implementation of Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes) would require the Lead Agencies to identify appropriate locations for the use of colored galvanizing treatments, ranging from light to dark, on transmission structures (LSTs and TSPs). Colored galvanizing treatments would need to be selected that enable the transmission structures to blend with backgrounds (typically landforms and sky) as seen from sensitive viewing locations. Unless the Lead Agencies approve colored galvanizing treatments for individual

structures or specific groups of structures, SCE's standard galvanizing treatment, which is light gray ~~is~~in color, would be used by default. Appropriate colored galvanizing treatments will be determined through the development and review of the Structure Type and Treatment Plan called for in Mitigation Measure V-2b. The *Visual Resources Specialist Report* primarily recommends the use of colored galvanizing treatments on NFS lands.

While the mitigation measures described above would reduce the effects of Impact V-3 along portions of the Project route, visual impacts to 110th Street West, a Priority 2 Los Angeles County Scenic Highway and the Angeles Crest Scenic Byway (SR2 – a State scenic highway), as well as the impacts from increased tower heights in the South Area, would remain significant and unavoidable (Class I).

Impact V-4: Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality.

This impact deals with all vegetative clearing and all earthwork that might be expected to occur with implementation of the Project, including the following locations: access roads, spur roads, access trails, spur trails, pulling/splicing locations, marshalling yards, helicopter staging areas (large, medium, and small), LST and TSP structure locations, substations, and ancillary facilities. This impact also deals with vegetative clearing and/or vegetative management along the ROW.

Aesthetic APMs 8 through 14 address the visual effects of vegetative clearing and/or earthwork associated with road improvements, pulling/splicing locations, marshalling yards, and laydown areas. These Aesthetic APMs were considered in the analysis of the proposed Project. However, the Aesthetic APMs are general in nature and are not location-specific. The following discussion addresses vegetative clearing and/or earthwork associated with the proposed Project, and is subdivided into North, Center, and South Areas.

General Order-95 (GO-95 – Rules for Overhead Electric Line Construction) specifies requirements for all overhead electric transmission lines in California (CPUC, 2009). Rule 35 specifies minimum clearances between energized conductors and vegetation. In this EIR/EIS, Section 2.2.13, Operations and Maintenance, describes the typical vegetation management practices that SCE expects to implement. Vegetation management includes pruning and removal of trees, where only those trees that require trimming before the next planned trim cycle would be pruned. Pruning shall achieve clearance requirements plus one year's growth at time of trimming. Tree removal is the preferred method of vegetation management; however, consideration is given with respect to growth rates, species, environmental and regulatory constraints, property owner approval, and budgetary allowances. Vegetation clearances shall comply with regulations included in GO-95 Rule 35 and related appendices and the required clearances specified in the California Public Resources Code, Section 4292. Within the ANF it is assumed an approximately 20-foot radius from each tower footprint would be kept clear of vegetation. Herbicides nationally approved by the Forest Service would be used within the ANF for control of invasive species, subject to all applicable laws and regulations.

North Area

All of Segment 10 and a portion of Segment 4 would be constructed in a new ROW where there is no existing transmission line; therefore, new access and spur roads would be built to each structure location, splicing location, and pulling location. All of these activities would involve vegetative clearing and earthwork modification for the access and spur roads, as well as vegetative clearing and earthwork modification for structure placement and conductor splicing and stringing.

For Segment 10, vegetative clearing and earthwork to construct new access and spur roads and structure pads in the uniform brushfields of the Mojave Desert would adversely affect the existing natural-appearing and rural landscape character. New access and spur roads tend to follow the linear nature of the transmission line, not necessarily the natural contours of the landscape, and the combination of vegetative clearing, earthwork cuts and fills, and transmission line structures and conductors creates unnatural linear patterns in the landscape.

All of Segments 4 and 5 (except S4 MP 15.8 to S4 17.9) would be constructed in existing corridors or alongside existing transmission lines which have existing access and spur roads. Therefore, vegetative clearing and earthwork grading would be minimal for these two Segments of TRTP, and there would be no substantial changes in existing landscape character and visual quality.

Center Area

There are existing access and spur roads in the Center Area that follow most of Segments 6 and 11, and service existing transmission structures, and some existing structures are isolated and accessible only by helicopter or foot travel. Many of these existing access and spur roads have not been maintained for years, reportedly as much as 15 to 25 years, according to SCE employees (Susan J Nelson., 2007). Many of the access and spur roads, especially along portions of Segment 11, have cut-slope failures and fill-slope failures that have narrowed the access roads substantially and would make physically impossible to drive large trucks hauling structural members of new LSTs. Natural revegetation has occurred along many of these access and spur roads, beginning the process of landscape restoration and visual rehabilitation. Potential visual impacts resulting from vegetative clearing and earthwork modification to allow access for large equipment would be substantial in the Center Area. The existing corridors that contain Segments 6 and 11 in the Center Area have strong visual contrasts of unnatural forms, geometric lines, contrasting colors, and textures that stand out against the natural landscape, and do not meet the High SIO or the natural-appearing Desired Condition designated in the Forest Plan. New vegetative clearing and earthwork would reverse the natural revegetation that has already occurred, would increase road cut scars by creating soil color contrasts and vegetation/bare earth texture contrasts and thereby further decrease scenic integrity and visual quality. Re-opening access roads and spur roads, in general, would not achieve the Desired Condition of natural-appearing landscapes in the ANF and would not meet the High scenic integrity objectives described in the Forest Plan. Increased Off Highway Vehicle (OHV) use is likely to occur on re-opened/widened access roads and re-opened/re-constructed spur roads. Increased OHV use in the ANF would thereby increase the potential for increased illegal OHV use, soil erosion, wildlife harassment, and additional visual scars in the landscape.

Construction of Segment 6 at Mill Creek Summit would entail replacement of an existing 220-kV LST and replacement with a 500-kV LST in the same general location. The new structure would be located immediately within the viewshed and foreground of the PCT, PCT feeder trail, and PCT trailhead at Mill Creek Summit. Based on site investigations and preliminary engineering by SCE, it would not be practicable to locate the new tower anywhere else other than in the immediate location of the existing 220-kV tower, but SCE has indicated that despite the increased size of the 500-kV lattice steel structure proposed for Segment 6 at the Mill Creek Summit, it would not encroach directly on the PCT or the PCT feeder trail from the trailhead parking area, and would not require relocation of the PCT or feeder trail trailbeds. Because it would not be practicable to locate the new tower elsewhere, and a trail reroute should not be necessary, ANF Standard S1 is still upheld and a Project-specific Forest Plan amendment would not be required. However, in an effort to help protect the scenic integrity of the PCT as much as possible, SCE and the FS have agreed that at this particular tower site, the existing vegetation around this tower

and along the PCT, for the most part, shall not be cleared and will be preserved to the greatest degree possible without violating GO-95 Rule 35. The only sections that should be cleared of vegetation for operation and maintenance at this specific tower site is the area directly underneath the base of the new tower and the immediate space adjacent to FS Road 3N17 and the new tower (STR 34 M7-T2).

Under Alternative 2, SCE would use the West Fork National Scenic Bikeway from the San Gabriel Canyon Road (State Highway 39) toward Cogswell Dam, and then use FS Road 2N25.2 from Cogswell Dam uphill to the west in order to access Segment 6. Use of this road and construction of Segment 6 are simulated at KOP-Center-12 (see Figure 3.14-27a/b in the Map & Figure Series Volume).The use of the National Scenic Bikeway and FS Road 2N25.2 would alter the existing visual environment by the presence of multiple occurrences of heavy equipment and personnel driving on these roads. Because of the size and weight of these construction vehicles, it can be anticipated that some damage would occur to the pavement, and certain narrow areas of roadway along the creek may need to be widened for large construction vehicles, thereby further altering the visual environment.

Under Alternative 2, SCE would use the existing Mount Gleason Road, going west from Mill Creek Summit, to access Segment 11 in the vicinity of Camp 16, ~~and~~ SCE would be required to maintain the pavement in good condition~~, creating and maintaining a pleasing visual environment~~. Approximately 0.3-miles east of Camp 16, SCE would construct and operate a helicopter staging area in the immediate foreground of Mount Gleason Road, resulting in unacceptably low scenic integrity in the foreground viewshed of this recreation road. Visual impacts of this helicopter staging area are simulated at KOP-Center-15 (see Figure 3.14-30a/b in the Map & Figure Series Volume).

Under Alternative 2, SCE would reconstruct a washed-out bridge over Fall Creek and re-open FS Road 3N27 to access Segment 11 near MP 12.8. Reconstruction of this road and construction of Segment 11 are simulated at KOP-Center-17 (see Figure 3.14-32a/b in the Map & Figure Series Volume).

Recurring maintenance identified in the inspection process would include vegetation management, invasive plant survey and control, wood pole management, insulator washing, insulator replacement, repair of ground wires, tighten/repair of hardware, tighten/replacement of guy wires, and adjustments to switch mechanisms. Vegetation management includes pruning and removal of trees, where only those trees that require trimming before the next planned trim cycle would be pruned. Pruning shall achieve clearance requirements plus one year's growth at time of trimming. Tree removal is the preferred method of vegetation management; however, consideration is given with respect to growth rates, species, environmental and regulatory constraints, property owner approval, and budgetary allowances. Vegetation clearances shall comply with regulations included in GO-95 Rule 35 and related appendices and the required clearances specified in the California Public Resources Code, Section 4292. Within the ANF it is assumed an approximately 20-foot radius from each tower footprint would be kept clear of vegetation. Herbicides, nationally approved by the Forest Service, would be used within the ANF within and along areas of Project disturbance (access/spur roads, laydown and assembly areas, helicopter landing sites, etc.) for control of invasive species, subject to all applicable laws and regulations.

South Area

There are existing access roads and spur roads in the South Area that service Segments 7, 8, and 11, and provide access for maintenance of existing transmission structures. However, for the one occurrence of a new ROW in the South Area at Rose Hills Memorial Park, there are no existing SCE access or spur roads on the skyline ridge, rather existing ridgetop roads are in conjunction with the Puente Hills Landfill, administered by the Puente Hills Landfill Native Habitat Preservation Authority~~ (PHLNHPA)~~. In this

location, construction of new access and spur roads to the two relocated transmission lines might entail additional vegetative clearing and earthwork modifications. Because the landforms are relatively gentle in this location, and because vegetation is generally grasses and low growing shrubs, very little visual contrast would be created. Existing landscape character and visual quality would, however, be greatly affected by the presence of the new and relocated transmission lines on this skyline, with these new access and spur roads, creating an overall industrial character in the landscape, and because of the skyline location, transmission lines would affect two viewsheds, seen from both the north and south.

Indirect Effects

~~Based on the analysis of the North, Center, and South Areas, where vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality, recommendations for slope rounding and re-contouring have been made to reduce visual resource impacts, and perhaps for improved wildlife movement. Recommended locations are detailed in the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report*.~~

Under Alternative 2, there would be no indirect visual effects due to the construction, use, and maintenance of access and spur roads in the North, Center, or South Areas.

Mitigation Measures for Impact V-4

V-4a **Construct, operate, and maintain the Project using existing access and spur roads where feasible.** For non-NFS lands and in locations designated by the CPUC, to protect landscape character and promote visual quality, SCE shall remove existing transmission line towers and conductors using existing and already maintained access roads and spur roads, and shall construct the new transmission line using the existing and already maintained network of access roads and spur roads to the greatest practical extent. SCE shall submit plans for any new access roads and spur roads, and any maintenance plans for un-maintained access and spur roads, demonstrating compliance with this measure, to the CPUC for review and approval at least 60 days prior to the start of construction.

For NFS lands, to protect landscape character and promote visual quality, SCE shall use only those access roads and spur roads designated by the FS for that purpose.

For the new LST at Mill Creek Summit, SCE shall maintain vegetative screening as seen from the PCT, trailhead, and PCT feeder trail to the extent feasible and practical and as GO-95 allows. In an effort to protect the scenic integrity along the PCT, SCE and the FS have agreed that for the new LST at Mill Creek Summit, the existing vegetation around this tower and along the PCT, for the most part, shall not be cleared and will be preserved to the greatest degree possible without violating GO-95 Rule 35. The only sections that should be cleared of vegetation for operation and maintenance at this specific tower site is the area directly underneath the base of the new tower and the immediate space adjacent to FS Road 3N17 and the new tower (STR 34 M7-T2).

V-4b **Slope-round and re-contour in areas as prescribed.** For areas of non-NFS lands where natural terrain includes rounded landforms, where soil types are conducive, and where cuts-and-fills and excavated materials would be visible from sensitive viewing locations, SCE shall employ slope-rounding techniques to blend earthwork with natural contours where feasible. Greater land area would be disturbed by this measure, possibly increasing exposure to soil erosion and possibly causing more vegetation disturbance, but the goal of this measure is a permanent landform that is natural-appearing in the long-term and may be more conducive to ~~easier and better~~ wildlife movement. During and following re-contouring, applicable mitigation

measures of the other issue area sections shall be applied, including biological resources, cultural resources, geology and soils, hydrology and water resources, wilderness and recreation, land use, and possibly agricultural resources. SCE shall submit plans for proposed new, upgraded, or newly maintained access roads and spur roads or structure pads to the CPUC for approval at least 60 days prior to construction.

V-4c **Avoid locating new roads in bedrock on NFS lands.** Where feasible, re-opened and/or new access road and spur road locations on NFS lands shall be designed to avoid bedrock cuts, and ~~all road cuts~~ shall be located in soil material to protect landscape character, ensure revegetation opportunities, and promote visual quality. SCE shall submit road construction plans to the CPUC and FS for review and approval at least 60 days prior to the start of construction.

V-4d **Dispose of excavated materials as prescribed.** For non-NFS lands, SCE shall dispose of excavated materials (soil, rocks, and concrete, and reinforcing steel) in a manner that is not visually evident and does not create visual contrasts. For NFS lands, SCE shall dispose of excavated materials (excess soil and rocks) in disposal areas (either on-NFS lands or off-NFS lands) as designated by the FS. For NFS lands, the FS will designate whether any footings from existing transmission structures need to be removed. Any designated footings designated for removal (concrete, reinforcing steel, angle steel, anchor bolts, etc.) shall be disposed off-NFS lands in disposal areas that do not create visual contrasts. These sites shall be pre-approved by the CPUC and FS.

Environmental Effects of Mitigation Measures V-4b and V-4d

Mitigation Measures V-4b and V-4d are recommended to minimize the effects of excavated materials on the landscape character and visual quality of the Project area. However, the removal of tower footings (Mitigation Measure V-4d) and proposed slope-rounding techniques (Mitigation Measure V-4b) could contribute to greater land disturbance, which could create several additional impacts to other issue areas. Vegetation removal that would result from earthmoving activities could affect the flora and fauna in the area of disturbance. Greater land disturbance could also contribute to increased soil erosion, which could potentially affect water quality. Cultural resources that could be located in areas to be excavated or re-contoured may be damaged by such proposed activities. In addition, geology-related impacts may be associated with any earthmoving activities that are located in the presence of unstable slopes.

Such potential impacts are similar to the effects of other Project activities, and would require the implementation of mitigation measures presented in Sections 3.4 (Biological Resources), 3.5 (Cultural Resources), 3.8 (Hydrology and Water Quality), and 3.7 (Geology, Soils, and Paleontology).

CEQA Significance Conclusion

Because analysis of visual impacts associated with the proposed Project indicate that APMs presented in Table 3.14-6 would not fully mitigate visual impacts associated with construction and operation of the proposed Project, additional measures were developed to augment the APMs and more fully mitigate visual impacts. ~~Mitigation measures stated above augment the APMs.~~ Implementation of Mitigation Measures V-4a (Construct, operate, and maintain the Project with existing access and spur roads where feasible); V-4b (Slope-round and re-contour in areas as prescribed); V-4c (Avoid locating new roads in bedrock on NFS lands); and V-4d (Dispose of excavated materials as prescribed) would decrease the amount of visual disturbance and would improve the visual environment~~,~~ as compared to the Project without mitigation. The combination of all these measures would lessen the adverse visual impacts of Alternative 2 and would improve the visual attributes of the affected area. However, the visual impacts

associated with access and spur roads and splicing and pulling locations throughout proposed Segments 6, 10, and 11 would remain significant and adverse (Class I).

Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area (Criterion VIS2)

Impact V-5: New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions.

Aesthetic APMs 1, 3, 4, 15, 18, 19, and 22 address the visual effects of new metal surfaces and materials associated with new transmission infrastructure that could potentially reflect sunlight and produce glare in certain lighting conditions. Aesthetic APMs 16 and 21 address the visual effects of new lighting sources that could produce light spill or glare. These Aesthetic APMs were considered in the analysis of the proposed Project. The following discussion addresses visual light or glare associated with the proposed Project, and is subdivided into North, Center, and South Areas.

North Area

The new Whirlwind Substation would introduce lighting sources in a portion of this rural landscape where no nighttime lighting currently exists. Implementation of APM AES-21 (Substations - Reduce Glare and Light Spill) would reduce visual impacts of new light sources.

Conductors seen by sensitive receptors from below do not reflect sunlight or cause glare. In fact, conductors appear dark gray or black when seen from below.

New metals required for the proposed Project's LSTs, TSPs, light weight steel poles, and conductors would reflect more sunlight than old, rusted metals. However, with implementation of APM AES-1 (Transmission Lines - Reduce Light Reflection off Towers/Poles) and Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes), it is not anticipated that there would be any substantial daytime glare produced by the new structures.

Center Area

When viewed from higher vantage points, such as a mountain road, a high mountain highway, or a ridgeline or crest trail, sunlight reflecting off or glinting off conductors and towers would draw attention to the new high-voltage transmission lines and would create color and texture contrasts, thereby adversely affecting desired condition and scenic integrity of NFS lands. For examples of this visual phenomenon see the Map & Figure Series Volume for the existing condition photographs and simulations for the Center Area (Center-KOPs 3, 4, 10, 11, 13, 17, and 18). This reflectivity and sunlight glint or glare seems to be a visual phenomenon mostly occurring in the Center Area, where observers are located above looking down on the transmission lines. This phenomenon does not occur in the North or South Areas, where conductors appear mostly black against the sky when viewed from below or in a nearly horizontal fashion. The galvanizing treatments recommended in APM AES-1 and Mitigation Measure V-2b would help to reduce the glint and glare, although not completely. The treatment of the new structures and conductors may not be enough to completely eliminate 100% of the visual impacts of glint and glare.

South Area

Similar to the North Area, in the South Area new metals for the Alternative 2's LSTs, TSPs, light weight steel poles, and conductors would reflect more sunlight than old, rusted metals. However, with implementation of APM AES-1 (Transmission Lines - Reduce Light Reflection off Towers/Poles) and

Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes), it is not anticipated that there would be any substantial daytime glare produced by the new structures.

Indirect Effects

Under Alternative 2 there would be no indirect effects associated with Impact V-5 in the North, Center, or South Areas.

CEQA Significance Conclusion

While implementation of APMs AES-18 through AES-22 at the Whirlwind, Antelope, Vincent, Gould, Mesa, and Mira Loma Substation sites would lead to an improved visual environment, as compared to the Project without measures, the resulting nighttime environment would be adversely affected. However, visual impacts would be reduced to a level that is less than significant (Class II) with the following mitigation measure: V-2b (Treat surfaces with appropriate colors, textures, and finishes).

Substantially damage scenic resources within a scenic highway viewshed or a national scenic trail viewshed (including, but not limited to, trees, rock outcroppings, and historic buildings) (Criterion VIS3)

Impact V-6: The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed.

There are no Applicant-Proposed Measures for Aesthetics (APM-AES) that address the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed. The following discussion addresses potential long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed, and is subdivided into North, Center, and South Areas.

North Area

In the North Area, there are no scenic highways in Kern County from which Alternative 2 would be seen. In Los Angeles County, Priority 2 County Scenic Highways include 110th Street West and Elizabeth Lake Road. The proposed Project would be visible from both of these scenic highways. In the North Area, the proposed Project would cross directly over the PCT at Segment 4 MP 2.7.

Center Area

In the Center Area, the proposed Project would cross directly over the PCT at two locations: Segment 6 MP 7.3; and Segment 11 MP 7.6. The PCT trailhead at Mill Creek Summit is also located at S6 MP 7.3, and its visual environment would be affected by Alternative 2. The exact location ~~size~~ of the lattice steel structure proposed for Segment 6 at the Mill Creek Summit would have to be carefully designed so that it does not encroach directly upon the PCT feeder trail from the trailhead parking area or on the paved road at the trailhead. Field verification by SCE engineers indicates that the~~The~~ increased size of the footprint of the new LST would not require relocation of the feeder trail trailbed or the PCT trailbed. However, views to the new, taller, wider LST would be very visible in the foreground of the PCT. Because there is no other feasible or practicable location for the transmission line structure at Mill Creek Summit, the Project would not ~~in~~ conflict with Forest-specific Design Criteria Standard ANF S1. Therefore, the proposed Project would not require~~, and thus requiring~~ a Project-specific Forest ~~LM~~Plan amendment for Design Criteria Standard ANF S1.~~ and in accordance with Mitigation V-3b, restoration/compensation provided by SCE~~.

The proposed Project's Segment 6 and Segment 11 would cross over the ~~Angeles Crest Highway~~Angeles Crest Scenic Byway at four different locations (at approximately S11 MP 16.0, MP 17.7, and MP 18.4 for Segment 11 and at S6 MP 16.8 for Segment 6). Additionally, Segment 6 would result in a direct crossing of the Silver Moccasin National Recreation Trail (Trail 11W06) at S6 MP 17.2. The proposed Project would be visible from the National Scenic Bikeway Trail at Cogswell Reservoir, with Segment 6 being visible from approximately S6 MP 19 to MP 22. At these crossings of scenic highways, scenic byways, scenic and recreation trails, Segments 6 and 11 would not achieve SIOs of these scenic viewsheds.

Under Alternative 2, SCE would use the West Fork National Scenic Bikeway and FS Road 2N25.2 to access Segment 6 from the San Gabriel Canyon Road (State Highway 39). By using the Scenic Bikeway and FS Road 2N25.2 for construction of Segment 6, SCE equipment and personnel would alter the visual environment of the West Fork San Gabriel River during construction. It is very likely that this recreation trail (single lane paved road used for bicycling, hiking, and fishing access) would be degraded by heavy construction equipment, and it is likely that recreationists would be restricted or prohibited from using this area during construction of Segment 6 for safety reasons (see Recreation Report for further analysis of impacts to recreationists). Use of these roadways for construction would alter the availability of scenic resources for human enjoyment during construction, thereby degrading the visual environment.

South Area

In the South Area in Los Angeles County, the State has designated portions of the Orange Freeway (State Highway 57) as "Eligible" to become a State Scenic Highway where it traverses largely undeveloped hills between Brea and Diamond Bar; Alternative 2 would cross State Highway 57 in this vicinity and be very visible to travelers. Colima Road, Hacienda Road, and Harbor Boulevard are proposed as scenic corridors in the most recent update to the County of Los Angeles General Plan. Los Angeles County has designated several other roads as Priority Two Scenic Highways, also indicating a high sensitivity for scenic integrity of landscapes. Portions of I-210 and State Highways 39 and 57 are either designated as, or eligible for, State Scenic Highway status and portions of the proposed Project would be visible from these roadways.

Indirect Effects

Under Alternative 2 no indirect impacts associated with Impact V-6 would be anticipated to occur in the North, Center or South Area.

CEQA Significance Conclusion

The introduction of new 500-kV transmission lines crossing over scenic highways and trails, and visible within viewsheds of scenic highways and trails, as proposed under Alternative 2, would create a significant impact. Implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/ compensation for impacts to landscape character and visual quality) would help to minimize and compensate for the adverse visual effects of these new transmission lines and structures, resulting in adverse but less-than-significant visual impacts (Class II).

Conflict with applicable adopted city, county, State, or federal plans, policies, regulations, or standards applicable to the protection and management of visual quality in the landscape (Criterion VIS4)

Any Project-related construction or operational activity that would occur within the jurisdictional boundaries of an established Resource Management Plan or Conservation Plan, and that would not be in

compliance with such plans, would cause an impact under Criterion VIS-4. Of particular note is the Forest Service's Land Management Plan (Forest Plan) for the ANF which, for the purposes of this analysis, is confined to the Center Area. As described in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*, there are local laws, regulations, and standards for the protection and enhancement of visual resources. The majority of these laws, regulations, and standards are managed by city or county governments, and a few are managed by the State Department of Parks and Recreation, which operates in accordance with a General Plan~~ or a Land or Resource Management Plan,~~ or the State Department of Transportation for scenic highways.

Impact V-7: The Project would conflict with established visual resource management plans or landscape conservation plans.

There are no Applicant-Proposed Measures for Aesthetics (APM-AES) that address the potential conflict of the Project with established visual resource management plans or landscape conservation plans. The following discussion addresses the potential conflict with established visual resource management plans or landscape conservation plans, and is subdivided into North, Center, and South Areas.

North Area

There are no established Visual Resource Management Plans or Visual Resource Conservation Plans within the North Area that have been identified as being in conflict with the proposed Project. Table C-3 in Appendix C of the *Visual Resources Specialist Report* lists applicable local laws, regulations, and standards for visual resources in the North Area.

Center Area

In Appendix C of the *Visual Resources Specialist Report*, Tables C-1 and C-2 provide lists of applicable federal and State laws, regulations, and standards for visual resources in the Center Area which~~. The Center Area~~ contains all portions of the ANF over which the proposed Project would cross. The ANF is managed by the Forest Service's Land Management Plan (Forest Plan) for the ANF.

Within the ANF, Segments 6 and 11 of the proposed Project would replace existing transmission lines located in established utility corridors and require that the existing utility ROWs be widened in certain areas to accommodate the need for larger towers. As described in Table 2-4 ~~3.14-4~~ and Section 2.1, ~~3.14.2.3,~~ the majority of Segments 6 and 11 are situated within areas of natural-appearing landscapes with Forest Plan goals of Natural-Appearing Desired Condition and High Scenic Integrity Objective (SIO). SCE proposes to re-open and improve some existing access and spur roads to allow large construction vehicles and equipment to have access. However, because of lack of use and lack of maintenance, many of these existing access and spur roads, ~~because of lack of use,~~ have begun the process of landscape restoration and visual rehabilitation through natural revegetation. ~~, beginning the process of landscape restoration and visual rehabilitation, and therefore currently~~ While this process has begun and the visual condition has improved, the roads do not yet achieve the Natural-Appearing Desired Condition or High SIO. Re-opening/ reconstructing roads that are in the aforementioned conditions to higher road maintenance standards would adversely impact visual resources by removing the natural revegetation, would further degrade existing visual conditions, and would not meet the Natural-Appearing Desired Condition or the High Scenic Integrity Objective. In addition, increased road widths, re-opened access/spur roads, and new spur road construction would likely lead to increased OHV usage in the ANF.~~, and t~~Therefore,~~;~~ the proposed Project would increase the potential for increased illegal OHV use~~,~~ and the accompanying problems of soil erosion, wildlife harassment, and additional visual scars in the

landscape. Additionally, construction and operation of new, taller, wider single-circuit 500-kV transmission lines would adversely impact visual resources by creating strong contrasts of form, line, color, texture and scale, would further degrade existing conditions, and would not meet the Desired Condition (natural-appearing) or the Scenic Integrity Objective (High). Nonetheless, ~~A~~according to the Commodity and Commercial Uses (Non-Recreation Special-Uses) section of the existing Forest Plan, non-recreation special-uses (including energy projects) are authorized within the ANF when they cannot be reasonably accommodated on non-NFS lands (Forest Service, 2005a).

The Forest Plan provides standards specific for Aesthetic Management in both Parts 2 and 3 (Forest Service, 2005b and 2005c). These standards include scenic integrity objectives that have been designated for all areas of the National Forest. At a project level, all national forest activities are subject to review of the scenic integrity objectives.

The following Forest-specific Design Criteria and Place-specific Standards are applicable to the proposed Project:

- ANF S1 - Pacific Crest Trail - Protect scenic integrity of foreground views as well as from designated viewpoints. Where practicable, avoid establishing nonconforming land uses within the viewshed of the trail (Liebre-Sawmill, Santa Clara Canyons, Soledad Front Country and Angeles High Country). (p. 76)
- ~~ANF~~ S9: Design management activities to meet the Scenic Integrity Objectives (SIOs) shown on the Scenic Integrity Objectives Map.
- ~~ANF~~ S10: Scenic Integrity Objectives will be met with the following exceptions: Minor adjustments not-to-exceed a drop of one SIO level is allowable with the Forest Supervisor's approval.
- Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.

With regard to visual resources, it is expected that approval of the proposed Project would require Project-specific amendments to the Forest Plan. ~~One amendment would be required where the Project would adversely impact foreground views to the PCT at Mill Creek Summit, which would conflict with Forest Standard ANF S1;~~ Project-specific amendments would ~~also~~ be required for Forest Plan (Part 3) Standards 9 and 10. ~~Also, see Table 3.14-5 for a description of how the existing SIOs would need to be amended in the 2005 Forest Plan for the proposed Project.~~ With the implementation of these Project-specific ~~expected~~ Forest Plan amendments, the proposed Project would maintain consistency with the Forest Plan with regards to visual resources. No other established visual resource management plans or visual conservation plans have been identified as being in conflict with the proposed Project in the Center Area. Visual impacts would occur and compensatory measures would be required by Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality).

South Area

The South Area does not include any lands within the ANF or other areas that are within the jurisdiction of the Forest Service; therefore, the Forest Plan, Natural-Appearing Desired Condition, and High Scenic Integrity Objective are not applicable to the South Area.

However, as discussed in Section 3.14.2.3 and described in Section 3.14.3 and Appendix C of the *Visual Resources Specialist Report*, there are State and local laws, regulations, and standards for the protection and enhancement of visual resources. Tables C-2 and C-3 in Appendix C of the *Visual Resources Specialist Report* list applicable laws, regulations, and standards for visual resources. The majority of these laws, regulations, and standards are managed by city or county governments, and a few are

managed by the State Departments of Parks and Recreation, which operate in accordance with a General Plan~~ or a Land or Resource Management Plan~~. State Scenic Highways are managed by the State Department of Transportation. One Resource Management Plan (RMP) within the South Area is established by the Puente Hills Landfill Habitat Preservation Authority (PHLHPA), which is an established public agency that owns and manages lands within Puente Hills for the purposes of protecting biological diversity and providing opportunities for education and low-impact recreation (PHLHPA, 2007). The proposed Project would cross through lands managed by the PHLHPA along Segment 8A and would run along the northern border of Powder Canyon, which falls under the authority of the PHLHPA. Where it is situated along Powder Canyon, the proposed Project would require that the existing ROW be expanded by 100 feet to the south, towards the canyon. In requiring this ROW expansion within the jurisdiction of the PHLHPA, the proposed Project ~~would be subject to~~needs to conform to the management goals and objectives identified in the PHLHPA RMP to the degree feasible. The proposed Project would conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan. PHLNHPA Resource Management Plan Goal Visual-1 states: Protect and enhance views and distinctive landscape features that contribute to the setting, character and visitor experience of the Preserve. Objective Visual-1.2 states: Protect views from within the Preserve to outlying properties. Evaluate proposed projects surrounding the Preserve with a priority to retain the visual quality of the Preserve's undeveloped landscape (PHLNHPA, 2009).

Indirect Effects

No indirect effects associated with Impact V-7 would occur in the North, Center, or South Areas.

CEQA Significance Conclusion

As discussed above, the proposed Project would ~~be inconsistent with Forest Standard S1 of the Forest Plan, and would~~ require ~~an~~Project-specific amendments ~~to~~for Forest Plan (Part 3) Standards 9 and 10. ~~the SIOs within the 2005 Forest Plan.~~ The Project would also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan. As such, Impact V-7 would be significant and unavoidable (Class I), even after implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality).

3.14.6.2 Cumulative Effects Analysis

A cumulative impact is one that results from the incremental impact of the proposed Project when combined with other past, present, and reasonably foreseeable future actions that occur within the geographic extent of the cumulative visual effects analysis.

Geographic Extent

The geographic extent of the cumulative impacts analysis for visual resources is the same as the extent of the regional setting, as described in Section 3.14.2. That extent is defined as the viewsheds from which the proposed Project and its alternatives might be seen, including immediate foreground, foreground, middleground, and background viewing distances. This cumulative effects analysis is presented according to the three separate geographic areas (the North, Center and South Areas), as described in Section 3.14.2.

Existing Cumulative Conditions

North Area. In the North Area, there are many past projects and activities that have modified the landscape and changed the naturally evolving landscape character. Some of these past activities have adversely affected natural-appearing landscape character and visual quality, including a one-mile grid of roads, Highways 58 and 14, wind farms in the TWRA, scattered rural/agricultural developments, transmission lines, substations, the California Aqueduct, and the communities of Monolith, Rosamond, Leona Valley, Quartz Hill, Lancaster, and Palmdale~~, and Acton~~. The one mile grid of roads in the region provides numerous vantage points from which the landscape easily can be viewed. Agricultural developments include irrigated and dry-crop farming, and irrigated fields have introduced lush green landscapes into the otherwise dry, relatively barren desert environment that was previously covered by creosote bush scrub. Wind farms have introduced motion into an otherwise motionless landscape, and large rotors atop tall monopole and lattice structures attract attention to the wind turbine generators in the TWRA. The newest generation of turbines are much taller than older turbines, and have introduced a massive, sculptural character, albeit industrial in nature. Existing transmission lines cross the North Area in several different directions, including SCE's Antelope-Magunden corridor, Antelope-Vincent corridor, Midway-Vincent corridor, and LADWP's 1,000-kV direct current corridor. All of these corridors contain large, industrial character LSTs and high voltage conductors that have affected the naturally evolving and/or natural-appearing landscape character and visual quality. In addition, the Sagebrush Transmission Line carries wind power from the TWRA to the Vincent Substation on TSPs, some of which are dark brown corten steel and others near Palmdale are painted white, creating a different kind of visual impact. New residential subdivisions and residential planned developments are occurring in the vicinity of West Lancaster and West Palmdale, and they have dramatically altered existing landscape character and visual quality of the desert environment through the addition of numerous streets, street lights, houses, driveways, vehicles, non-native landscaping, and people. These past and existing projects include Specific Plans and Master Plans, consisting of Willow Springs Specific Plan, Ritter Ranch Master Planned Community, City Ranch Specific Plan (also known as Ana Verde), and Quail Valley Annexation and Development Plan.

Center Area. In the Center Area, there are many past projects and activities that have modified the landscape and changed the naturally evolving landscape character, although most of the Center Area remains natural-appearing in the ANF. Some of these past activities have adversely affected naturally evolving and/or natural-appearing landscape character and visual quality, including the construction of dams, reservoirs, highways, and roads. The Big Tujunga and Cogswell Dams have altered landscape character through the introduction of large water-bodies and large concrete structures into landscapes that generally have no natural lakes. New paved highways have created large cut-and-fill slopes with barren soils, creating adverse color and texture contrasts. Previous timber harvests have altered natural vegetative communities, but generally these past timber harvest activities are natural-appearing and have not created adverse visual impacts. Fire breaks, fuel breaks, and fire suppression activities have created visual scars in the landscape, and large-scale wildfires have changed vegetative communities and resulted in loss of mature forest landscape character and degradation of visual quality. Also within the Center Area, there are several existing high-voltage transmission lines including the Gould-Vincent, La Honda-Vincent, and Antelope-Pardee corridors operated by SCE. The City of Los Angeles Department of Water and Power (LADWP) 1000-kV direct current transmission line corridor is located in San Francisquito Canyon, in the Center Area. These existing high-voltage transmission lines in the Center Area have introduced industrial landscape character features into the naturally evolving and natural-appearing

landscapes of the Center Area, and have degraded landscape character and visual quality; additionally,~~. O~~ off highway vehicle (OHV) use in designated and undesignated areas has created unnatural appearing lines, soil erosion, and visual scars in the landscape.

South Area. In the South Area, naturally evolving landscapes are almost non-existent, having been replaced by hundreds of years of urban and suburban development in the Los Angeles Basin and Inland Empire. Freeways, highways, streets, commercial, industrial, and residential developments dominate this landscape. However, there are several large tracts of land along Segment 8 that remain relatively natural-appearing, including the Boy Scout Camp lands near Highway 57, Puente Hills Landfill Native Habitat Preserve, ~~Chino Hills State Park~~CHSP (CHSP), and surrounding lands around CHSP.

Reasonably Foreseeable Future Projects and Changes

As discussed above, ongoing development throughout the cumulative effects area for visual resources is dominated by residential developments, clustered in and around community developments on non-NFS lands, and also includes additional development of wind resources in the TWRA. As reasonably foreseeable future projects within the Study Area are expected to be characteristic of past and ongoing projects, this trend in wind development and residential development is representative of reasonably foreseeable future projects in the cumulative effects area, as supported by the aggressive population growth and demand for electricity forecasted throughout the Study Area. ~~This trend in wind development and residential development is also representative of reasonably foreseeable future projects in the cumulative effects area, as supported by the aggressive population growth and demand for electricity forecasted throughout the Study Area. Reasonably foreseeable future projects within the Study Area are expected to be characteristic of past and ongoing projects.~~ The types of cumulative projects that are expected to occur in each of the three Areas (North, Center, and South) are described below.

North Area. As previously discussed, the North Area is currently undergoing rapid population growth and development, particularly in and surrounding Lancaster and Palmdale. The Cumulative Scenario presents data regarding population growth in Kern and Los Angeles County; according to this information, the population in Kern County is expected to rise by 113 percent between the years 2000 and 2050. During the same time period, the population in Los Angeles County is expected to rise by varying degrees, depending on the city, with the Cities of Lancaster and Palmdale experiencing growth of 117.5 percent and 186.5 percent, respectively. As such, development and urbanization in the North Area is expected to continue and increase substantially to accommodate the increasing population. Furthermore, it is expected that existing open space areas in the North Area, which are currently either natural-appearing or used for agricultural operations, will be utilized for the construction of residential developments and other city infrastructure. With regards to visual resources, these changes will dramatically alter the current open space landscapes.

Center Area. As with the future non-NFS projects, the past and ongoing USDA Forest Service projects are representative of future Forest Service projects. It is expected that most of these projects are focused on repairs, re-establishment, or rehabilitation of ecosystems and existing facilities. As presented in the Cumulative Scenario, some of the Forest Service projects which are planned or underway in the ANF include the following: Big Tujunga Dam Operation and Maintenance Plan; Hi-Hill Outdoor School Permit Re-issuance; Millard and Big Tujunga Canyon Recreation Tract; Santa Anita Canyon Special Use Cabins; Drinkwater Flat and Rowher Flat OHV Site Improvements; Littlerock Reservoir Sediment Removal Project; Old Highway 99 Re-pavement Project; PCT Bridge Construction at Cooper Canyon; Teresita Pines Organization Camp Construction; and Uppershake Campground Improvements Project. In addition,

a variety of fuels reduction activities, which include fire prevention measures, are expected to occur throughout the Forest. These projects indicate a persistence of past and present Forest Service activities to preserve natural resources within the Forest while providing recreational opportunities for the public. Reasonably foreseeable changes to visual resources in the Forest may include improvements to and expansion of existing firebreaks and fuel treatment areas, continued fire suppression activities that impact visual resources, as well as establishment of additional recreational or administrative facilities. Also it is anticipated that there will be applications for new utilities and new infrastructure projects within the Forest, such as microwave sites, communications sites, pipelines, and transmission lines. It is expected that existing wilderness areas in the Forest will continue to be protected from development and expanded if possible (for instance, through the conversion of an Inventoried Roadless Area under consideration for wilderness designation to a designated Wilderness Area), thereby further protecting visual resources.

South Area. As described above, the South Area is characterized by predominately built-out urban and suburban settings. It is reasonably foreseeable that these settings will persist in the future and may continue as population growth continues. As presented in the Cumulative Scenario, expected population growth in the South Area ranges from about five percent or less (Cities of Industry, La Canada Flintridge, San Marino) to more than 90 percent (City of Ontario), between the years 2000 and 2030. Considering that the area is already highly urbanized, the lower growth projections could be an indication that those areas cannot accommodate further growth, while the higher projections indicate areas that are not yet fully built-out. As urban build-out continues in the South Area, it is reasonably foreseeable that remaining open space areas would either be occupied by development-related infrastructure, or specifically protected by conservation groups and resource agencies such as the Puente Hills Landfill Native Habitat Authority or ~~Chino Hills State Park~~CHSP. In addition, it is reasonably foreseeable that the existing undeveloped land within utility corridors (under the transmission lines) will be increasingly utilized for recreational opportunities, such as the River and Mountains Conservancy's development of the Duck Farm Project, as described in Section 3.14.2, or as improved landscaped areas, thereby improving visual quality and landscape character.

Cumulative Impact Analysis

It has been determined that visual resources impacts associated with the proposed Project, as identified in Section 3.14.6.1, would be cumulative in nature~~ly considerable~~ and, therefore, would contribute to cumulative impacts. These impacts include Impacts V-1 through V-7. The potential for ~~cumulatively considerable~~ visual resources impacts of the proposed Project to combine with similar impacts of other projects within the geographic scope of the cumulative analysis are described below.

- **Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views (Impact V-1).** Construction activities associated with the proposed Project would be visible and would attract attention temporarily, as described in Section 3.14.6.1 above. As stated above, ongoing development throughout the cumulative effects area for visual resources is dominated by residential developments, clustered in and around community developments on non-NFS lands, and also includes additional development of wind resources in the TWRA. All of these construction activities would be readily visible throughout the Project area, and would be cumulatively adverse and significant (Class I).
- **For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality (Impact V-2).** Construction and operation of new transmission lines and a new substation in areas that currently do not have such industrial facilities would adversely affect natural-appearing landscape character and visual quality, and added to existing and future wind developments in the TWRA, would be cumulatively adverse and significant. Future residential developments in West Lancaster and West Palmdale could encroach on undeveloped, natural-

appearing landscapes in the Project area, further reducing natural-appearing landscape character and visual quality, which would also create cumulatively adverse and significant visual impacts (Class I).

- **For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects (Impact V-3).** Construction and operation of new transmission lines with increased structure size and new materials would detract from existing landscape character and visual quality, as described in Section 3.14.6.1 above, and combined with existing transmission lines in the same vicinity, and future transmission lines that may be proposed in the same viewsheds, would lead to cumulatively adverse and significant visual impacts (Class I).
- **Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality (Impact V-4).** Construction, operation, and maintenance of existing and proposed Project transmission lines in the proposed Project corridors would create permanent visual scars that would be visible and would attract attention, as described in Section 3.14.6.1 above. Combined with future transmission lines that may be proposed in the same viewsheds, but in same or different ROWs, the proposed Project would lead to cumulatively adverse and significant visual impacts (Class I).
- **New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glare in certain lighting conditions (Impact V-5).** New materials used in construction of existing and future projects within the Project area viewshed have created and have the potential to produce, respectively, daytime glint and glare and new sources of nighttime light and glare. Combined with the proposed Project, these existing and future projects would lead to cumulatively adverse and significant visual impacts (Class I).
- **The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or scenic trail viewshed (Impact V-6).** As urban and suburban build-out continues in the North and South Areas, it is reasonably foreseeable that remaining open space areas would either be occupied by development-related infrastructure, including new residential developments, electric infrastructures, or commercial and industrial developments. This pressure may result in increased demands for specific protections of open space qualities by conservation groups and resource agencies such as the USDA Forest Service, State Scenic Highways, the Puente Hills Landfill Native Habitat Authority, ~~Chino Hills State Park~~CHSP, or other agencies. In the Center Area, ~~N~~no projects in the ANF threaten the viewsheds of the ~~Angeles Crest Scenic Highway~~Angeles Crest Scenic Byway, the PCT, Silver Moccasin National Recreation Trail, or West Fork National Scenic Bikeway, except for the proposed Project and/or any of the TRTP alternatives. Impact V-6 would be cumulatively adverse and significant (Class I).
- **The Project would conflict with established visual resource management plans or landscape conservation plans (Impact V-7).** Appendix C of the *Visual Resources Specialist Report* provides lists of applicable federal, State, and local laws, regulations, and standards for visual resources in the North, Center, and South Areas. In the North Area, there are no established Visual Resource Management Plans or Visual Resource Conservation Plans; therefore, existing and future projects would not add cumulative visual effects for Impact V-7. In the Center Area, the majority of Segments 6 and 11 are situated within areas of natural-appearing landscapes designated with a High Scenic Integrity Objective (SIO)~~, as dictated~~ by the Forest Plan. Existing access and spur roads currently do not meet the Natural-Appearing Desired Condition or High SIO, and re-opening or reconstructing them to higher road maintenance standards would adversely impact visual resources, ~~would~~ further degrade existing conditions, and continue to ~~would~~ not meet the Desired Condition or established~~the~~ High Scenic Integrity Objectives. Therefore, Project-specific ~~, thereby requiring an~~ amendments to the 2005 Forest Plan, as described in Sections 3.14.2 and 3.14.6.1, would be required. Future projects that would upgrade the size of transmission lines or maintain/improve access and spur roads would add to adverse cumulative visual effects. In the South Area, the proposed Project and future projects would cross lands administered by the Puente Hills Landfill Habitat Preservation Authority (PHLHPA). The proposed Project would conflict with Goal Visual-1 and Objective Visual-1.2 of the PHLHPA) Resource Management Plan. PHLNHPA Resource Management Plan Goal Visual-1 states: Protect and enhance views and distinctive landscape features that contribute to the setting, character and visitor experience of the Preserve. Objective Visual-1.2 states: Protect views from within the Preserve to outlying properties. Evaluate proposed projects surrounding the Preserve with a priority to retain the visual quality of the Preserve's undeveloped landscape. Impact V-7 would be cumulatively adverse and significant (Class I).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Implementation of the mitigation measures outlined in Section 3.14.6.1 would help to reduce the proposed Project's incremental contribution to cumulative visual impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for visual resources.

3.14.7 Alternative 3: West Lancaster Alternative

3.14.7.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to visual resources are introduced in Section 3.14.4.1. Impacts associated with this alternative are presented below under the applicable significance criterion.

Have a substantial adverse effect on the existing landscape character and visual quality of the site and its surroundings (Criterion VIS1)

Impacts associated with Criterion VIS1 for Alternative 3 would be the same as the impacts associated with the proposed Project, except for KOP-North-3 on 110th Street West, as described and simulated in Figure 3.14-56a/b (see Map & Figure Series Volume). Except for the 2.1 mile portion of Segment 4 that would be re-routed under this alternative, all other portions of Alternative 3 would be identical to the proposed Project (Alternative 2). The impacts and their associated mitigation measures that fall under Criterion VIS1 are summarized below. Please refer to Section 3.14.6.1 for a detailed description of these impacts, except for KOP-North-3.

Under Alternative 3 effects associated with Impact V-1 (Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views) would be the same as for the proposed Project. Construction impacts on visual resources would result from the presence of equipment, materials, and work force at the substation sites, staging areas, pulling locations, tensioner locations, splicing locations, and along the access/ spur roads and overhead transmission line route. Construction impacts on visual resources would also result from the temporary alteration of landforms and vegetation along the utility corridor. Vehicles, heavy equipment, helicopters, materials, and workers would be visible during site clearing, grading, substation expansion and construction, structure erection, conductor stringing, cable placement, and site/ROW clean-up and restoration. Construction equipment and activities would be seen by various viewers in close proximity to the sites and utility corridor including adjacent and nearby residents and recreationists on roads and trails (including the PCT). View durations would vary from brief to extended periods. Construction of the transmission line, construction of the new Whirlwind Substation, expansion and improvements at existing Antelope, Vincent, Gould, Mesa, and Mira Loma Substations, and use of construction staging areas would result in the visual intrusion of construction vehicles, helicopters, equipment, storage materials, and workers.

Impact V-1 for Alternative 3 would require implementation of the following mitigation measure, which is fully described in Section 3.14.6.1: V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis). With implementation of this mitigation measure, the effects of Impact V-1 under Alternative 3 would be reduced somewhat. However, temporary visibility of construction activities and equipment would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 3 effects associated with Impact V-2 (For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-2 would occur for all of Segment 10 and a portion of Segment 8A. Additionally, under Alternative 3, a portion of Segment 4 (S4 MP 14.9 to 19.6) would be constructed in a new ROW where there is no existing transmission line. Therefore, the existing natural-appearing landscape character would be modified to an industrial character by the presence of Alternative 3 (West Lancaster).

Implementation of APM AES-6 (Transmission Lines - Transmission Structures Set Back from Major Roadways) and APM AES-7 (Transmission Lines - Avoid Structures in Middle of Lines of Sight) would help reduce visual impacts at road crossings, if Alternative 3 is adopted, such as at any of the Alternative 4 routes crossing over roads in and/or near Chino Hills State Park and the crossings of Highway 57 and Carbon Canyon Road. These APMs indicate that where conditions permit transmission structures will be set back from the crossings of major roadways and, to the extent feasible, the final locations of transmission structures will be adjusted to avoid locations that place the structures in the middle of the line of sight from streets and other important views.

Mitigation Measures for Impact V-2

V-2a Use tubular steel poles instead of lattice steel towers in designated areas

V-2b Treat surfaces with appropriate colors, textures, and finishes

V-2c Establish permanent screen

V-2d At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible. To the extent practical, in locations designated by the CPUC and the FS (for NFS lands), SCE shall relocate new transmission line structures at road crossings and trail crossings so that conductors are approximately mid-span at the road or trail and structures are kept away from the roadway or trail as far as possible. V-2d is compatible and complementary to APM AES-6 (Transmission Structures Set Back from Major Roadways).

In order to minimize visual impacts from the location of new structures near road crossings, such as 110th Street West, Mitigation Measure V-2d (At road crossings, offset structures so that they are equidistant on each side of the road) is recommended. The following additional mitigation measures are proposed for Impact V-2 for Alternative 3 ~~would also require implementation of the following mitigation measures~~, which are fully described in Section 3.14.6.1: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas); V-2b (Treat surfaces with appropriate colors, textures, and finishes); and V-2c (Establish permanent screen). With implementation of the mitigation measures listed above, in addition to Mitigation Measure V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis), the effects of Impact V-2 of Alternative 3 would be somewhat reduced. However, the presence of new transmission line structures, conductors, access and spur roads, and new rights of way in landscapes that currently have no transmission line facilities would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 3 the effects of Impact V-3 (For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-3 would

occur throughout the entire Study Area because of increased structure heights and widths, as compared to existing structures and facilities.

The effects of Impact V-3 for Alternative 3 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-3a (Match spans of existing transmission structures); and V-3b (On NFS lands, provide restoration/ compensation for impacts to landscape and visual quality). In addition, the effects of Impact V-3 of Alternative 3 would be somewhat reduced with implementation of Mitigation Measures V-1, V-2c, and V-2d, V-4b, and V-4d. However, the presence of newer, taller, wider transmission line structures, new conductors, newly constructed or re-opened access and spur roads, and enlarged substations would remain a significant adverse visual impact (Class I).

Under Alternative 3 the effects of Impact V-4 (Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-4 would occur throughout the entire Study Area. Impact V-4 for Alternative 3 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-4a (Construct, operate, and maintain the Project with existing access and spur roads where feasible); V-4b (Slope-round and re-contour in areas as prescribed); and V-4c (Avoid locating new roads in bedrock on NFS lands); and V-4d (Dispose of excavated materials as prescribed). However, the visual impacts associated with Alternative 3 would remain significant and adverse (Class I).

Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area (Criterion VIS2)

Impacts associated with Criterion VIS2 for Alternative 3 would be the same as for the proposed Project. Although this alternative would introduce a re-route along Segment 4, the re-route would not alter the location or sources of light at the substations. Under Alternative 3 the effects associated with Impact V-5 (New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions) would be exactly the same for the proposed Project (Alternative 2), as described in Section 3.14.6.1. Alternative 3 would require implementation of the following mitigation measure, which is fully described in Section 3.14.6.1: V-2b (Treat surfaces with appropriate colors, textures, and finishes). Implementation of this measure would reduce adverse visual effects to a level of less than significant (Class II).

Substantially damage scenic resources within a scenic highway viewshed or a national scenic trail viewshed (including, but not limited to, trees, rock outcroppings, and historic buildings) (Criterion VIS3)

Under Alternative 3 the impacts associated with Criterion VIS3 would be the same as for the proposed Project. Although this alternative would introduce a re-route along Segment 4, the re-route would not encounter or impact any scenic highway or scenic trail viewsheds.

Under Alternative 3 the effects associated with Impact V-6 (The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed) would be exactly the same as the proposed Project. Alternative 3 would traverse the PCT in the following three locations: Segment 4 MP 2.7 (North Area); Segment 11 MP 7.6 (Center Area); and, Segment 6 MP 7.3 (Center Area). Alternative 3 would cross over the ~~Angeles Crest Scenic Highway~~Angeles Crest Scenic Byway (~~State~~

~~Highway~~ SR 2) in four different locations (at approximately S11 MP 16.0, 17.7, and 18.4 for Segment 11 and at S6 MP 16.8 for Segment 6). Alternative 3 would cross over the Silver Moccasin Trailhead at Shortcut Saddle at S6 MP 16.7. Portions of Segment 6 Alternative 3 would be visible from West Fork San Gabriel River National Scenic Bikeway. The State has designated portions of the Orange Freeway (State Highway 57) as "Eligible" to become a State Scenic Highway where it traverses largely undeveloped hills between Brea and Diamond Bar, and Alternative 3 would cross State Highway 57 in this vicinity. Colima Road, Hacienda Road, and Harbor Boulevard are proposed as scenic corridors in the most recent update to the County of Los Angeles General Plan and Alternative 3 would be visible from these highways. Los Angeles County has designated several other roads as Priority Two Scenic Highways, also indicating a high sensitivity for scenic integrity of landscapes. Portions of Interstate 210 (I-210) and State Highways 39 and 57 are either designated as, or eligible for, State Scenic Highway status and portions of Alternative 3 would also be visible from these roadways.

Impact V-6 for Alternative 3 would require implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality), which is fully described in Section 3.14.6.1. With implementation of this mitigation measure, the effects of Impact V-6 would be reduced to a level of less than significant (Class II).

Conflict with applicable adopted city, county, State, or federal plans, policies, regulations, or standards applicable to the protection and management of visual quality in the landscape (Criterion VIS4)

Impacts associated with Criterion VIS4 for Alternative 3 would be identical to the proposed Project. Although this alternative would introduce a re-route along Segment 4, the re-route would not encounter or affect any different adopted city, county, State, or federal management plans for visual or scenic resources. Therefore, the applicable federal and State laws, regulations, and standards presented in Tables C-1, C-2, and C-3 of the *Visual Resources Specialist Report*, Appendix C, would apply.

In the North Area, there are no established Visual Resource Management Plans or Visual Resource Conservation Plans. In the Center Area, the majority of Segments 6 and 11 are situated within areas of natural-appearing landscapes designated with High Scenic Integrity Objective (SIO) as dictated by the Forest Plan (see Table 3.14-4). Existing access and spur roads currently do not meet the Natural-Appearing Desired Condition or High SIO, and re-opening or reconstructing them to higher road maintenance standards would adversely impact visual resources and further degrade existing conditions; additionally the Forest Plan's Desired Condition and High Scenic Integrity Objective would not be met. Construction and operation of new, taller, wider single-circuit 500-kV transmission lines would also adversely impact visual resources and further degrade existing conditions, and would not meet the Desired Condition or the established High Scenic Integrity Objectives. Consequently Project-specific ~~an~~ amendments to the 2005 Forest Plan would be required for Forest Plan Standards S9 and S10. ~~for Alternative 3, which is described in Table 3.14-5.~~ Implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality) is also recommended to minimize impacts. In the South Area, Alternative 3 would cross lands administered by the Puente Hills Landfill Habitat Preservation Authority (PHLHPA). Alternative 3 would conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan (see Appendix C of the *Visual Resources Specialist Report*).

Alternative 3 would be inconsistent with Standards ~~Forest Standard S1~~ S9 and S10 of the Forest Plan, and thus would require ~~a~~Project-specific~~n~~ amendments ~~to the SIOs within the 2005 Forest Plan~~. Alternative 3

would also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan. As such, Impact V-7 would be significant and unavoidable (Class I).

3.14.7.2 Cumulative Effects Analysis

Geographic Extent

Alternative 3 only differs from the proposed Project for a very small portion of the proposed route along Segment 4; therefore, the geographic extent of the cumulative analysis for Alternative 3 is exactly the same as that for Alternative 2 and would include all of the North, Center, and South Areas.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 3 are exactly the same as for Alternative 2, as described in Section 3.14.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 3 would be exactly the same as Alternative 2, described in Section 3.14.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 3 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The minor re-route of the proposed Project transmission line associated with Alternative 3 would not affect the proposed Project's contribution to cumulative impacts. Therefore, cumulative impacts of Alternative 3 would be exactly the same as cumulative impacts for Alternative 2, as described in detail in Section 3.14.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 3 in Section 3.14.7.1 would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for visual resources. Cumulative impacts would be significant and unavoidable (Class I).

3.14.8 Alternative 4: Chino Hills Route Alternatives

3.14.8.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to visual resources are introduced in Section 3.14.4.1. Impacts associated with Alternative 4 Routes A, B, C, C Modified, and D are presented below under the applicable significance criterion. As previously described, Alternative 4 is identical to Alternative 2 in all respects except that Segment 8A would not occur from S8A MP 19.2 to 35.2 (16 miles) through Chino Hills, Chino, and Ontario, and Segment 8C would not occur. For all other locations, including Segment 8B between Chino and Mira Loma Substations, Alternative 4 is identical to Alternative 2.

Have a substantial adverse effect on the existing landscape character and visual quality of the site and its surroundings (Criterion VIS1)

Impacts associated with Criterion VIS1 for Alternative 4 would be the same as the impacts associated with the proposed Project, except that Segment 8A would not be constructed from S8A MP 19.2 to 35.2, a distance of 16 miles, as well as Segment 8C. ~~, and~~ However, Segment~~s~~ 8B ~~and 8C~~(6.8 miles) would ~~not~~ still be built under Alternative 4, same as the proposed Project (Alternative 2). No visual changes would occur ~~eastward~~ between MP 19.2 and 35.2 of Segment 8A; visual changes along Segment 8B, between Chino and Mira Loma Substations, would be the same as the proposed Project. ~~from S8A MP 19.2.~~ Visual changes would occur southeast of S8 MP 19.2, where the Alternative 4 routes divert from the proposed Project route, and would affect landscapes in the vicinity of Carbon Canyon Road, south of the Vellano Planned Development, in ~~Chino Hills State Park~~CHSP, and east of CHSP, and these adverse visual effects on existing landscape character and visual quality are described and simulated in Figures 3.14-57a through 3.14-61c for Routes A, B, C, C Modified, and D (see Map & Figure Series Volume). Alternative 4 Route C Modified is the shortest of the five 500-kV re-routes, at 4.7 miles, extending from S8A MP 19.2 to S8A MP 23.9; additionally, Route C Modified would reroute an existing 220-kV line for 2.5 miles and reroute two existing parallel single-circuit 500-kV lines as a double-circuit line for 3.7 miles (includes routing lines into and out of the new switching station). Comparatively, the original Alternative 4 Route C is the next shortest of the ~~four~~five 500-kV re-routes, at 5.7 miles, extending from S8A MP 19.2 to S8A MP 24.9; additionally, Route C would reroute an existing 220-kV line for 3.4 miles and reroute two ~~an~~ existing parallel single-circuit 500-kV lines as two parallel single-circuit 500-kV lines for 3.6 miles (includes routing lines into and out of the new switching station). Alternative 4 Route D is the longest of the ~~four~~five routes, at 9.8 miles, extending from S8 MP 19.2 to S8A MP 29.0. Route A would be 6.2 miles long and Route B would be 9.7 miles long.

Except for deletion of 16 miles along the eastern portion of Segment 8A and all of Segment 8C, and the inclusion of four new routes in Segment 8A through and around CHSP, all other portions of Alternative 4 would be identical to the proposed Project (Alternative 2). The impacts and their associated mitigation measures that fall under Criterion VIS1 are summarized below. Please refer to Section 3.14.6.1 for a detailed description of these impacts.

Under Alternative 4 effects associated with Impact V-1 (Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views) would be the same as for the proposed Project for the North and Center Areas, and the western portion of the South Area. In the eastern portion of the South Area, it would be different for Segment 8A from MP 19.2 to 35.2 where no construction activities would occur along the proposed Project 500-kV T/L. Additionally, construction activities would occur along the 6.8 length of Segment 8B between Chino and Mira Loma Substations and within and near Chino Hills State Park. Construction impacts on visual resources would result from the presence of equipment, materials, and work force at the substation sites, staging areas, pulling locations, tensioner locations, splicing locations, and along the access/spur roads and overhead transmission line route. Construction impacts on visual resources would also result from the temporary alteration of landforms and vegetation along the utility corridor. Vehicles, heavy equipment, helicopters, materials, and workers would be visible during site clearing, grading, substation expansion and construction, structure erection, conductor stringing, cable placement, and site/ROW clean-up and restoration. Construction equipment and activities would be seen by various viewers in close proximity to the sites and utility corridor including adjacent and nearby residents and recreationists on roads and trails (including the PCT). View durations would vary from brief to extended periods. Construction of the

transmission line, construction of the new Whirlwind Substation, expansion and improvements at the existing Antelope, Vincent, Gould, and Mesa Substations, construction of a new switching station in or near CHSP and an all-weather (e.g., paved) access road to the switching station, construction of new access/spur roads in or near CHSP, and use of construction staging areas would result in the visual intrusion of construction vehicles, helicopters, equipment, storage materials, and workers.

Impact V-1 for Alternative 4 would require implementation of the following mitigation measure, which is fully described in Section 3.14.6.1: Mitigation Measure V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis). However, temporary visibility of construction activities and equipment would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 4, effects associated with Impact V-2 (For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-2 would occur for all of Segment 10, a portion of Segment 4 (S4 MP 15.8 to 17.9) and a portion of Segment 8A in Rose Hills Memorial Park. Additionally, under Alternative 4 Route C, C Modified, and D, a portion of Segment 8A would be constructed in a new ROW north of CHSP where there is no existing transmission line. Any of the five routes of Alternative 4 would include the construction of a new switching station in or near CHSP and an all-weather (e.g., paved) road to the switching station sites, plus new access/spur roads to new transmission structures in or near CHSP. ~~Additionally, under Alternative 4 Routes C and D, a portion of Segment 8A would be constructed in a new ROW north of CHSP where there is no existing transmission line. Any of the four routes of Alternative 4 would include the construction of a new switching station in or near CHSP and an all-weather (e.g., paved) road to the switching station site, plus new access/spur roads to new LSTs in or near CHSP.~~ Therefore, the existing natural-appearing landscape character would be modified to an industrial character by the presence of Alternative 4 (Chino Hills Route Alternatives).

Impact V-2 for Alternative 4 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-2c (Establish permanent screen [at the switching station]). In addition, impacts would be further reduced with implementation of the following mitigation measures: V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regularly periodic basis) and V-2d (At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible).

However, the presence of new transmission line structures, conductors, access and spur roads, all-weather road to the switching station, and new rights-of-way in landscapes that currently have no transmission line facilities would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 4, the effects of Impact V-3 (For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-3 would occur throughout the entire Study Area because of increased structure heights and widths, as compared to existing structures and facilities, except that Impact V-3 would not occur in Segment 8A between MP 19.2 and MP 32.5, or along Segment 8C. ~~, 8B, or 8C eastward from S8A MP 19.2 to MP 35.2, a distance of 16 miles.~~

The effects of Impact V-3 for Alternative 4 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-2b (Treat surfaces with appropriate colors, textures, and finishes.); V-3a (Match spans of existing transmission structures); and V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality). In addition, the effects of Impact V-3 of Alternative 4 would be somewhat reduced with implementation of Mitigation Measures V-1, V-2a, V-2d, V-4b, and V-4d. However, the presence of newer, taller, wider transmission line structures, new conductors, newly constructed or re-opened access and spur roads, enlarged substations, an all-weather (e.g., paved) road to the a new switching station site, plus new access/spur roads to new LSTs in or near CHSP, and new transmission line structures in CHSP would remain a significant adverse visual impact (Class I).

Under Alternative 4, the effects of Impact V-4 (Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality) would be the same as for the proposed Project (please see Section 3.14.6.1), plus there would be additional adverse effects of an all-weather (e.g., paved) road to the new switching station site plus new access/spur roads to new LSTs in or near CHSP. As described in Section 3.14.6.1, Impact V-4 would occur throughout the entire Study Area, including new areas along Alternative 4 Segment 8A and Segment 8B, but ~~and~~ excluding areas of Segment 8A from S8A MP 19.2 to 35.2 and all of Segment~~s 8B and~~ 8C. Impact V-4 for Alternative 4 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-4a (Construct, operate, and maintain the Project with existing access and spur roads where feasible); V-4b (Slope-round and re-contour in areas as prescribed); V-4c (Avoid locating new roads in bedrock on NFS lands); and V-4d (Dispose of excavated materials as prescribed). However, the visual impacts associated with Alternative 4 would remain significant and adverse (Class I).

~~Locations where TSPs, colored galvanizing treatments, slope rounding and/or re-contouring would improve the visual, recreational, and social environments for Alternative 4, as required by the aforementioned mitigation measures, are detailed in the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report*.~~

Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. (Criterion VIS2)

Impacts associated with Criterion VIS2 for Alternative 4 would be the same as for the proposed Project. Although this alternative would introduce a re-route along Segment 8A, the re-route would not alter the location or sources of light at the existing substations. Alternative 4 would introduce new light sources at the Switching Station at the eastern end of Segment 8A, and the exact location of this light source would change, depending on which route (~~A/B/C/D~~A, B, C, C Modified, or D) was selected or discussed.

Under Alternative 4, the effects associated with Impact V-5 (New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions) would be exactly the same for the proposed Project (Alternative 2), as described in Section 3.14.6.1 except for Segment~~s~~ 8A ~~eastward of~~between ~~S8A~~ MP 19.2 and 35.2 and all of Segment 8C, which would not be constructed under Alternative 4~~all of Segments 8B, and 8C~~. Additionally, Alternative 4 would introduce new metal surfaces into landscapes of Segment 8A from its point of connection at MP 19.2 to each of ~~four~~five proposed switching station locations as described above. Alternative 4 would require implementation of the following mitigation measure, which is fully described in Section 3.14.6.1:

V-2b (Treat surfaces with appropriate colors, textures, and finishes). Implementation of this measure would reduce adverse visual effects to a level of less than significant (Class II).

Substantially damage scenic resources within a scenic highway viewshed or a national scenic trail viewshed (including, but not limited to, trees, rock outcroppings, and historic buildings). (Criterion VIS3)

Under Alternative 4, the impacts associated with Criterion VIS3 would be the same as for the proposed Project, and in addition, Alternative 4 would introduce a new crossing of an eligible scenic highway at Carbon Canyon Road, State Highway 142. No new designated scenic trail viewsheds would be impacted by Alternative 4.

Under Alternative 4, the effects associated with Impact V-6 (The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed) would be exactly the same as the proposed Project and, in addition, the viewshed of Carbon Canyon Road would be adversely affected. Alternative 4 would traverse the PCT in the following three locations: Segment 4 MP 2.7 (North Area), Segment 11 MP 7.6 (Center Area), and Segment 6 MP 7.3 (Center Area). Alternative 4 would cross over the ~~Angeles Crest Scenic Highway~~Angeles Crest Scenic Byway (~~State Highway~~ SR 2) in four different locations (at approximately S11 MP 16.0, 17.7, and 18.4 for Segment 11 and at S6 MP 16.8 for Segment 6). Alternative 4 would cross over the Silver Moccasin Trailhead at Shortcut Saddle at S6 MP 16.7. Portions of Segment 6 Alternative 4 would be visible from West Fork San Gabriel River National Scenic Bikeway. The State has designated portions of the Orange Freeway (State Highway 57) and Carbon Canyon Road (State Highway 142) as "Eligible" to become a State Scenic Highway where they traverse largely undeveloped hills between Brea and Diamond Bar and Brea and Chino Hills, respectively, and Alternative 4 would cross State Highways 57 and 142 in these vicinities. Colima Road, Hacienda Road, and Harbor Boulevard are proposed as scenic corridors in the most recent update to the County of Los Angeles General Plan and Alternative 4 would be visible from these highways. Los Angeles County has designated several other roads as Priority Two Scenic Highways, also indicating a high sensitivity for scenic integrity of landscapes. Portions of Interstate 210 (I-210) and State Highways 39 and 57 are either designated as, or eligible for, State Scenic Highway status and portions of Alternative 4 would also be visible from these roadways.

Impact V-6 for Alternative 4 would require implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality), which is fully described in Section 3.14.6.1. With implementation of this measure the effects of Impact V-6 would be reduced to a level of less than significant (Class II).

Conflict with applicable adopted city, county, State, or federal plans, policies, regulations, or standards applicable to the protection and management of visual quality in the landscape. (Criterion VIS4)

Impacts associated with Criterion VIS4 for Alternative 4 would be identical to the proposed Project and, in addition, Alternative 4 would not be in compliance with the ~~Chino Hills State Park~~CHSP Management Plan. Please see Appendix C of the *Visual Resources Specialist Report* for a list of applicable federal, State and local laws, regulations, and standards.

In the North Area, there are no established Visual Resource Management Plans or Visual Resource Conservation Plans. In the Center Area, as described in Section 3.14.2.3, the majority of Segments 6 and 11 are situated within areas of natural-appearing landscapes designated with High Scenic Integrity

Objective (SIO) as dictated by the Forest Plan (see Table 3.14-4). Existing access and spur roads currently do not meet the Natural-Appearing Desired Condition or High SIO, and re-opening or reconstructing them to higher road maintenance standards would adversely impact visual resources and further degrade existing conditions; additionally the Forest Plan's Desired Condition and High Scenic Integrity Objective would not be met. Construction and operation of new, taller, wider single-circuit 500-kV transmission lines would also adversely impact visual resources and further degrade existing conditions, and would not meet the Desired Condition or the High Scenic Integrity Objective. Consequently Project-specific ~~an~~ amendments to the 2005 Forest Plan for Standards S9 and S10 would be required for Alternative 4~~, which is described in Table 3.14-5~~. Implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality) is also recommended to minimize impacts. In the South Area, Alternative 4 would cross lands administered by the Puente Hills Landfill Habitat Preservation Authority (PHLHPA). Alternative 4 would conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan (see Appendix C of the *Visual Resources Specialist Report*). Alternative 4 would conflict with the ~~Management~~ General Plan of Chino Hills State Park, including Parkwide Management Goals and Guidelines for Aesthetic Resources.

Alternative 4 would be inconsistent with Standards~~Forest Standard S1~~ S9 and S10 of the Forest Plan, and would require ~~an~~ amendments ~~to the SIOs within the 2005 Forest Plan~~. Alternative 4 would also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan, and with the ~~Management~~ General Plan of ~~Chino Hills State Park~~CHSP, including Parkwide Management Goals and Guidelines for Aesthetic Resources. As such, Impact V-7 would be significant and unavoidable (Class I).

3.14.8.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent of the cumulative effects analysis for Alternative 4 is the same as the extent of the proposed Project (Alternative 2) as presented in Section 3.14.6.2, except for the following: Alternative 4 differs from the proposed Project only in the South Area from Segment 8A MP 19.2 to MP ~~2~~35.2, a distance of 16 miles, as well as in Segment 8C, where upgrades would not occur. Therefore, the geographic extent of the cumulative analysis for Alternative 4 is exactly the same as that for Alternative 2 in the North Area, Center Area, and western portions of the South Area. Additionally, Alternative 4 affects different lands east and south of the proposed Project, east of S8A MP 19.2, as described above.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 4 are exactly the same as for Alternative 2, as described in Section 3.14.6.2, and in addition, several projects listed in Table 2.9-4 (Summary of Cumulative Projects by Jurisdiction), from S8A MP 19.2 to MP 25.2 would not be cumulatively compounded by the Project, as this portion of the proposed Project would not be constructed or operated under Alternative 4.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 4 would be exactly the same as Alternative 2, described in Section 3.14.6.2, except for the portions of Segment 8A east of S8A MP 19.2, where no visual impacts would occur because of the Project. The additional

residential developments planned and reasonably foreseeable in the vicinity of Alternative 4 Routes B and D would be a reasonably foreseeable future visual condition. No cumulative projects ~~east of~~along Segment 8A between MP 19.2 and 35.2 or related to Segment~~s 8B or~~ 8C would need to be considered under Alternative 4.

Cumulative Impact Analysis

Impacts associated with Alternative 4 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The elimination of ~~Segments 8B and 8C, plus the elimination of~~ Segment 8A from MP 19.2 to ~~2~~35.2 (16 miles) and Segment 8C would reduce cumulative visual impacts in those areas. Cumulative visual impacts along Segment 8B would be the same as the proposed Project. However, new cumulative visual impacts would occur along the ~~four~~ five routes (A through D) of Alternative 4 in lands of CHSP and in undeveloped lands surrounding the Park. Therefore, cumulative impacts of Alternative 4 would be exactly the same as cumulative impacts for Alternative 2, as described in detail in Section 3.14.6.2 for the North Area (southern Kern County and northern Los Angeles County), Center Area (ANF and private in-holdings), and the western portion of the South Area (beginning at the southern border of the ANF and including lands within southern Los Angeles, Orange, and western San Bernardino Counties), as well as Segment 8B (6.8 miles), between Chino and Mira Loma Substations. Future planned residential developments in the vicinity of Alternative 4 would combine with Routes B and D to contribute to adverse cumulative visual impacts.

It has been determined that visual resource impacts associated with Alternative 4, as identified in Section 3.14.8.1, would be cumulative in nature~~ly considerable~~ and, therefore, would contribute to cumulative impacts. These impacts include Impacts V-1 through V-7. The potential for ~~cumulatively considerable~~ visual resource impacts of Alternative 4 to combine with similar impacts of other projects within the geographic scope of the cumulative analysis are described below, only as they differ from the proposed Project (Alternative 2).

- **Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views (Impact V-1).** Construction activities associated with Alternative 4 would be visible and would attract attention temporarily, as described in Section 3.14.6.1 above. As stated above, ongoing development throughout the cumulative effects area for visual resources is dominated by residential developments, including those along Butterfield Ranch Road and clean-up activities at the Aero Jet Property. All of these construction activities would be readily visible throughout the Project area, and would be cumulatively adverse and significant (Class I).
- **For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality (Impact V-2).** Construction and operation of new transmission lines, and a new switching station at one of ~~four~~ five route locations, in areas that currently do not have such industrial facilities would adversely affect natural-appearing landscape character and visual quality would be cumulatively adverse and significant. Future residential developments along Butterfield Ranch Road in Chino Hills could encroach on undeveloped, natural-appearing landscapes in the Alternative 4 Project area, further reducing natural-appearing landscape character and visual quality, which would also create cumulatively adverse and significant visual impacts (Class I).
- **For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects (Impact V-3).** Construction and operation of new transmission lines with increased structure size and new materials would detract from existing landscape character and visual quality, as described in Section 3.14.6.1 above, and combined with existing transmission lines in the same vicinity northwest of CHSP, inside CHSP, and east of CHSP would lead to cumulatively adverse and significant visual impacts (Class I).

- **Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality (Impact V-4).** Construction, operation, and maintenance of the Alternative 4 transmission lines and maintenance of existing transmission lines in the affected corridors would create permanent visual scars that would be visible and would attract attention, as described in Section 3.14.6.1 above. Additionally, vegetative clearing and earthwork necessary for construction of the new Switching Station at locations designated Route A, B, C, C Modified, or D, and construction of an all-weather (e.g., paved) road to the new switching station site plus new access/spur roads to new LSTs in or near CHSP would create permanent adverse visual impacts that would be visible and would attract attention. Combined with existing transmission lines and substations in the same viewsheds, but in the same or different ROWs, would lead to cumulatively adverse and significant visual impacts (Class I).
- **New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glare in certain lighting conditions (Impact V-5).** New materials used in construction of this and future projects within the Project area viewshed have created and have the potential to produce, respectively, daytime glint and glare and new sources of nighttime light and glare. New light sources at the Switching Station would be shielded as described in APM AES 18 through 22. Combined with Alternative 4, these existing and future projects would lead to cumulatively adverse and significant visual impacts (Class I).
- **The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or scenic trail viewshed (Impact V-6).** An additional scenic highway is impacted by Alternative 4: the Carbon Canyon Road, State Highway 142. As urban and suburban build-out continues in the North and South Areas, it is reasonably foreseeable that remaining open space areas would either be occupied by development-related infrastructure, including new residential developments, electric infrastructures, or commercial and industrial developments. This pressure may result in increased demands for specific protections of open space qualities by conservation groups and resource agencies such as the USDA Forest Service, State Scenic Highways, the Puente Hills Landfill Native Habitat Authority, ~~Chino Hills State Park~~CHSP, or other agencies. No projects in the ANF threaten the viewsheds of the ~~Angeles Crest Scenic Highway~~Angeles Crest Scenic Byway, except for Alternative 4. Impact V-6 would be cumulatively adverse and significant (Class I).
- **The Project would conflict with established visual resource management plans or landscape conservation plans (Impact V-7).** Appendix C of the *Visual Resources Specialist Report* provides lists of applicable federal, State, and local laws, regulations, and standards for visual resources in the North, Center, and South Areas. These adverse visual impacts would be the same as described in Section 3.14.6.2. Impact V-7 would be cumulatively adverse and significant (Class I).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 2 in Section 3.14.6.1 would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for visual resources. Cumulative impacts would be significant and unavoidable (Class I).

3.14.9 Alternative 5: Partial Underground Alternative

3.14.9.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to visual resources are introduced in Section 3.14.4.1. Impacts associated with this alternative are presented below under the applicable significance criterion.

Have a substantial adverse effect on the existing landscape character and visual quality of the site and its surroundings (Criterion VIS1)

Impacts associated with Criterion VIS1 for Alternative 5 would be the same as the impacts associated with the proposed Project, except for KOP-South-26 and KOP-South-27, as described and simulated in Figures 3.14-62a through 3.14-63b (see Map & Figure Series Volume). Additionally, the existing un-energized 220-kV transmission line along this 3.6 mile portion would remain in place, instead of being removed,

and existing visual conditions would remain in the future in this ROW. Except for this 3.6 mile portion of Segment 8A that would be placed underground, all other portions of Alternative 5 would be identical to the proposed Project (Alternative 2). The impacts and their associated mitigation measures that fall under Criterion VIS1 are summarized below. Please refer to Section 3.14.6.1 for a detailed description of these impacts, except for KOPs-South-3.

Under Alternative 5, visual effects associated with Impact V-1 (Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views) would be the same as for the proposed Project. Construction impacts on visual resources would result from the presence of equipment, materials, and work force at the two new transition station sites, substation sites, staging areas, pulling locations, tensioner locations, splicing locations, and along the access/ spur roads and overhead transmission line route. Construction impacts on visual resources would also result from the temporary alteration of landforms and vegetation along the utility corridor. Vehicles, heavy equipment, helicopters, materials, and workers would be visible during site clearing, grading, substation expansion and construction, structure erection, conductor stringing, cable placement, and site/ROW clean-up and restoration. Construction equipment and activities would be seen by various viewers in close proximity to the sites and utility corridor including adjacent and nearby residents and recreationists on roads and trails (including the PCT). View durations would vary from brief to extended periods. Construction of the transmission line, construction of the new Whirlwind Substation, expansion and improvements at existing Antelope, Vincent, Gould, Mesa, and Mira Loma Substations, and use of construction staging areas would result in the visual intrusion of construction vehicles, helicopters, equipment, storage materials, and workers.

As for the proposed Project, Impact V-1 for Alternative 5 would require implementation Mitigation Measure V-1, which is fully described in Section 3.14.6.1. With implementation of this mitigation measure listed in Section 3.14.6.1, the effects of Impact V-1 under Alternative 5 would be reduced somewhat. However, temporary visibility of construction activities and equipment would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 5, visual effects associated with Impact V-2 (For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality) would be the same as for the proposed Project (please see Section 3.14.6.1). Impact V-2 for Alternative 5 would require implementation of Mitigation Measures V-1, V-2a, and V-2b, which are fully described in Section 3.14.6.1. Additionally, implementation of Mitigation Measure V-2c (Establish permanent screen) around both new transition stations would substantially reduce visual impacts, but not to less-than-significant levels because of the height of the A-frames and double-circuit towers. With implementation of these mitigation measures, the effects of Impact V-2 of Alternative 5 would be reduced somewhat. However, the presence of new transmission line structures, conductors, access and spur roads, and new rights of way in landscapes that currently have no transmission line facilities would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 5, the effects of Impact V-3 (For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-3 would occur throughout the entire Study Area because of increased structure heights and widths, as compared to existing structures and facilities. The effects of Impact V-3 for Alternative 5 would require implementation of Mitigation Measures V-3a (Match spans of existing transmission structures) and V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality),

which are fully described in Section 3.14.6.1. In addition, the effects of Impact V-3 of Alternative 5 would be somewhat reduced with implementation of Mitigation Measures V-1, V-2a through V-2c, V-4b, and V-4d. However, the presence of newer, taller, wider transmission line structures, new conductors, newly constructed or re-opened access and spur roads, two new transition stations, and enlarged substations would remain a significant adverse visual impact (Class I).

Under Alternative 5, the effects of Impact V-4 (Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-4 would occur throughout the entire Study Area, and additionally would occur at both West and East Transition Stations in Chino Hills. Impact V-4 for Alternative 5 would require implementation of Mitigation Measures V-4a through V-4d, which are fully described in Section 3.14.6.1. The combination of all these mitigation measures would lessen the adverse visual impacts of Alternative 5 and would improve the visual attributes of the affected area. However, the visual impacts associated with Alternative 5 would remain significant and adverse (Class I).

Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area (Criterion VIS2)

Impacts associated with Criterion VIS2 for Alternative 5 would be the same as for the proposed Project (Alternative 2) plus there would be additional light sources at the West and East Transition Stations. Under Alternative 5, the effects associated with Impact V-5 (New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions) would be exactly the same for the proposed Project (Alternative 2), as described in Section 3.14.6.1. Alternative 5 would require implementation of Mitigation Measure V-2b, which is fully described in Section 3.14.6.1. Implementation of this measure would reduce adverse visual effects to a level of less than significant (Class II).

Substantially damage scenic resources within a scenic highway viewshed or a national scenic trail viewshed (including, but not limited to, trees, rock outcroppings, and historic buildings) (Criterion VIS3)

Under Alternative 5 the impacts associated with Criterion VIS3 would be the same as for the proposed Project. Alternative 5 would introduce a re-route along Segment 8A that would cross over State Highway 142, an eligible State scenic highway. Under Alternative 5, the visual effects associated with Impact V-6 (The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed) would be exactly the same as the proposed Project, plus new impacts to State Highway 142, the Carbon Canyon Road, and all other impacts of Alternative 5 would be identical to Alternative 2 for Criterion VIS3.

Impact V-6 for Alternative 5 would require implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality), which is fully described in Section 3.14.6.1. With implementation of this mitigation measure, the effects of Impact V-6 would be reduced to a level of less than significant (Class II).

Conflict with applicable adopted city, county, State, or federal plans, policies, regulations, or standards applicable to the protection and management of visual quality in the landscape (Criterion VIS4)

Impacts associated with Criterion VIS4 for Alternative 5 would be identical to the proposed Project. Although this alternative would introduce an underground re-routing along Segment 8A, the re-route would not encounter or impact any different adopted city, county, State, or federal management plans for visual or scenic resources. Therefore, the applicable federal and State laws, regulations, and standards presented in Tables C-1, C-2, and C-3 of the *Visual Resources Specialist Report*, Appendix C, would apply.

As discussed for the proposed Project, Alternative 5 would be inconsistent with Standards~~Forest Standard S1~~ S9 and S10 of the Forest Plan, and thus would require Project-specific ~~an~~ amendments to the ~~SIOs within the 2005~~ Forest Plan. Alternative 5 would also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan. As such, Impact V-7 would be significant and unavoidable (Class I).

3.14.9.2 Cumulative Effects Analysis

Geographic Extent

Alternative 5 is the exact same geographic location as the proposed Project (Alternative 2); therefore, the geographic extent of the cumulative analysis for Alternative 5 is exactly the same as that for Alternative 2 and would include all of the North, Center, and South Areas.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 5 are exactly the same as for Alternative 2, as described in Section 3.14.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 5 would be exactly the same as Alternative 2, described in Section 3.14.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 5 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The minor underground re-routing of the proposed Project transmission line associated with Alternative 5 would not affect the proposed Project's contribution to cumulative impacts. Therefore, cumulative impacts of Alternative 5 would be exactly the same as cumulative impacts for Alternative 2, as described in detail in Section 3.14.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 5 in Section 3.14.9.1 would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for visual resources. Cumulative impacts would be significant and unavoidable (Class I).

3.14.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

The following section describes visual resource impacts of Alternative 6 (Maximum Helicopter Construction in the ANF Alternative) as determined by the significance criteria listed in Section 4. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels, as possible. Alternative 6 would be identical to the proposed Project (Alternative 2) with respect to Segments 4, 5, 7, 8, 9, and 10 as discussed in Section 2.2 (Alternative 2: SCE's Proposed Project); only Segments 6 and 11 would change in the Center Area under Alternative 6. Because Alternative 6 affects only the Center Area, all 20 Center Area KOPs were re-analyzed and 20 new simulations were prepared to show differences between Alternatives 2 and 6.

Structure Colors Used In Visual Simulations for Alternative 6

The Alternative 2 simulations show SCE's standard finish on LSTs: dulled galvanized steel, which has a light-gray or silver appearance. Simulations of Alternative 6 show the implementation of surface treatment mitigation measures in the Center Area, and LSTs vary in color from light~~-gray (or silver)~~ to ~~light brown-gray~~medium to dark~~-brown-gray~~.

3.14.10.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to visual resources are introduced in Section 3.14.4.1 (Criteria for Determining Impact Significance). Impacts associated with Alternative 6 (Maximum Helicopter Construction in the ANF) are presented below under the applicable significance criterion.

Have a substantial adverse effect on the existing landscape character and visual quality of the site and its surroundings (Criterion VIS1)

Impacts associated with Criterion VIS1 for Alternative 6 would be exactly the same as the impacts associated with the proposed Project in the North and South Areas. This alternative would increase usage of helicopter construction techniques in the Angeles National Forest and would eliminate construction of spur roads to each (but not every) new 500-kV LST inside the boundary of the Forest. In the Center Area, because access and spur roads would not be built or re-constructed to each new 500-kV structure, the visual effects would be different, as displayed in simulations for KOPs Center-1 through Center-20. The use of helicopter construction would minimize land disturbances caused by re-opening and/or improving existing spur roads to each existing tower. Some of the existing spur roads have not been maintained for decades. However, according to SCE engineers, some of the access roads along Segments 6 and 11 would have to be widened to accommodate large equipment for pulling, splicing, and tensioning.

~~This alternative would increase usage of helicopter construction techniques in the Angeles National Forest and would eliminate construction of spur roads to each (but not every) new 500-kV LST inside the boundary of the Forest.~~ Helicopter staging areas would be constructed in various areas along and near Segments 6 and 11 in and near the ANF (some staging areas would be on private lands, others on NFS lands). Access roads along both segments would need to be improved in some areas in order to allow large equipment for splicing and pulling of conductors; however, road improvements would be less than for Alternatives 2, 3, 4, 5, or 7 because new 500-kV LSTs would be constructed at the staging areas and air-lifted in, rather than being transported by on-the-ground equipment. This means that existing access and spur roads could remain in current conditions or would need only slight widening and/or improvement.

Under Alternative 6 for Segment 6, from approximately S6 MP 3.0 to 4.7, SCE would not use existing access roads south of Kentucky Springs Canyon for construction, but instead ~~rather~~ would use helicopters. For Segment 6, SCE would not use Road 3N23 from Monte Cristo Campground to either Road 4N18.1 or 4N18.2 at approximately S6 MP 10.6.

Under Alternative 6, SCE would not use the Lynx Gulch Road (FS Road 4N18.2) from Upper Big Tujunga Canyon Road, northward for approximately 1.25 miles to approximately S6 MP 12.1 because of sensitive species habitat. This is different than Alternative 2, where the entire Lynx Gulch Road (FS Road 4N18.2) would be used for construction. Likewise, unlike under Alternative 2, FS Road 3N20 which parallels Big Tujunga Canyon Road would not be used under Alternative 6 from approximately S6 MP 13.6 to 16.4. Under Alternative 6, f~~, but this road would be used under Alternative 2. F~~or Segment 6, SCE would not use FS Road 2N23 along the border of the San Gabriel Wilderness from approximately S6 MP 18.3 to 19.7, nor ~~. Under Alternative 6, SCE would not~~ use the West Fork National Scenic Bikeway or FS Road 2N25.2 to access Segment 6 from the San Gabriel Canyon Road (State Highway 39). By not using the Scenic Bikeway or FS Road 2N25.2 for construction of Segment 6, the visual environment of the West Fork San Gabriel River would be maintained in its current condition for public use and enjoyment of scenic resources.

For Segment 11 under Alternative 6, SCE would not use FS Road 4N24 south of Aliso Canyon to construct Segment 11 from approximately S11 MP 4.0 to 6.1, but ~~rather~~ instead would use helicopter construction. Under Alternative 6, SCE would not reconstruct a washed-out bridge over Fall Creek and would not re-open the southern end of FS Road 3N27 to Segment 11 at approximately S11 MP 12.0 to 13.5. Rather, all road access would come in from the north along Mount Gleason Road and follow south on FS Road 3N27.

Under Alternative 6, SCE would use the existing Mount Gleason Road, west from Mill Creek Summit, to access Segment 11 in the vicinity of Camp 16, and SCE would be required to maintain that pavement in good condition, ~~creating and~~thereby maintaining a pleasing visual environment. From Camp 16 west to helicopter staging area #4, SCE would use the existing paved roadway but the FS would not require SCE to repair any damage to the pavement, thereby changing the existing visual environment to a more rugged, rustic driving experience suitable for OHVs and/or high clearance vehicles, which is desirable to meet FS road maintenance objectives.

In all areas outside the ANF (North Area and South Area), Alternative 6 would be identical to the proposed Project (Alternative 2) and visual impacts would be identical.

The different visual effects for the Center Area are described and simulated in Figures 3.14-64a/b through 3.14-83a/b of the Map & Figure Series Volume. Except for the differences in the Center Area in Segments 6 and 11, including differences in the number and location of helicopter staging areas as described in Chapter 2, all other portions of Alternative 6 in the North and South Areas would be identical to the proposed Project (Alternative 2). Please refer to Section 3.14.6.1 (Direct and Indirect Effects Analysis for Alternative 2) for a detailed description of these impacts, The Alternative 6 impacts and their associated mitigation measures that fall under Criterion VIS1 are summarized below.

Under Alternative 6, visual effects associated with Impact V-1 (Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views) would be identical to the proposed Project in the North and South Areas, but would be different in the Center Area. In the ANF, helicopter construction would increase temporary sights and sounds of helicopters and large equipment at the staging areas within the Project area and along Segments

6 and 11; however, some access and spur roads would not be built by ground-based machinery, thereby reducing temporary sights and sounds of large equipment in those areas. Impact V-1 for Alternative 6 would require implementation of the same mitigation measure as the proposed Project; V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis), which is fully described in Section 3.14.6.1. With implementation of the mitigation measure listed in Section 3.14.6.1, the effects of Impact V-1 under Alternative 6 would be reduced somewhat along the access and spur roads; however Impact V-1would be increased at helicopter staging areas and in the airspace above and near Segments 6 and 11. Therefore, temporary visibility of construction activities and equipment would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 6, visual effects associated with Impact V-2 (For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality) would be the same as for the proposed Project in the North and South Areas (please see Section 3.14.6.1). Because all helicopter construction under Alternative 6 would occur within existing landscapes that currently have transmission lines, there are no areas where Impact V-2 would occur in the Center Area (the ANF), as stated for the proposed Project (Alternative 2). Impact V-2 for Alternative 6 would require implementation of the following mitigation measures in the North and South Areas, which are fully described in Section 3.14.6.1: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas); V-2b (Treat surfaces with appropriate colors, textures, and finishes); and V-2c (Establish permanent screen). In addition, impacts would be further reduced with implementation of the following mitigation measure: V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis). With implementation of these mitigation measures, the effects of Impact V-2 of Alternative 6 would be reduced somewhat; however, in the North and South Areas ~~in~~ (areas outside the Forest), the presence of new transmission line structures, conductors, access and spur roads, and new rights-of-way in landscapes that currently have no transmission line facilities would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 6, the effects of Impact V-3 (For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects) would be identical to the proposed Project in the North and South Areas because the proposed single-circuit 500-kV ~~lattice steel structure~~LSTs are identical in Alternative 6 and the proposed Project (Alternative 2) in the North and South Areas. However, in the Center Area, the ANF, new 500-kV LSTs would be colored with different galvanizing treatments to make them blend in better with the landscape. As described in Section 3.14.6.1, Impact V-3 would occur throughout the entire Study Area because of increased structure heights and widths, as compared to existing structures~~ and facilities~~. The effects of Impact V-3 for Alternative 6 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas [in the North and South Areas]); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-3a (Match spans of existing transmission structures); and V-3b (On NFS lands, provide restoration/compensation for impacts to landscape and visual quality). In addition, compared to the proposed Project, the effects of Impact V-3 of Alternative 6 would be somewhat reduced with implementation of Mitigation Measures V-1, V-2b, V-2c, V-4b, and V-4d. –With implementation of these mitigation measures, the effects of Impact V-3 of Alternative 6 would be reduced somewhat; however, the presence of newer, wider 500-kV single-circuit transmission line structures would create strong adverse visual impacts. Additionally, in the North and

South Areas, construction of access and spur roads and enlarged substations of Alternative 6, and increased structure size of Alternative 6 throughout the North, Center, and South Areas would create significant adverse visual impacts, as described fully for Alternative 2 (Class I).

Based on the visual analysis in the ANF where new, taller, wider 500-kV transmission lines would replace existing 220-kV transmission lines, ~~it is~~ the implementation of mitigation measures is recommended to provide ~~that a TSP be used at the PCT at Mill Creek Summit and that~~ colored galvanizing treatments ~~be used~~ on LSTs in various locations in the ANF ~~as detailed in the *Tehachapi Renewable Transmission Project Visual Resources Specialist Report*,~~ to reduce visual resource~~, recreation, and social~~ impacts.

Under Alternative 6, the effects of Impact V-4 (Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality) would be the same as for the proposed Project for the North and South Areas (please see Section 3.14.6.1). However, visual effects of Impact V-4 would be different in the Center Area where fewer access and spur roads would be constructed for structure placement because helicopter construction would be implemented. A total of ~~143~~ 148 new 500-kV towers would be constructed by helicopter under Alternative 6, Maximum Helicopter Construction in ANF: 92 ~~, 87~~ within Segment 6 and 56 within Segment 11. As a result of helicopter construction, approximately 42 miles (±15% range of ~~49 to~~ 36 to 49 miles) of new and/or upgraded access and spur roads (includes new, reconstruction, and maintenance road types), which would be required as part of SCE's proposed Project (Alternative 2), would not be created and/or upgraded for ground access to the helicopter constructed towers under Alternative 6.

In addition, possibly as many as ~~11~~ 13 large- to medium-sized helicopter staging areas and numerous small helicopter staging areas would be constructed under Alternative 6. These large- to medium-sized helicopter staging areas are shown in Figure 2.6-1 (Candidate Helicopter Staging Areas in ANF Alternative 6). Landform and vegetation disturbance at these helicopter staging areas would be temporary, and visual effects of land disturbance at helicopter staging areas would be rehabilitated to near-natural or pre-construction conditions after construction of the Project (see Biological Section for details of revegetation).

Because there would be a need to provide access roads to pulling, splicing, and tensioning locations, not all access road improvements along Segments 6 and 11 would be eliminated, as was described in detail above, but a majority of spur roads to individual structures would be eliminated by Alternative 6. As described in Section 3.14.6.1, Impact V-4 would occur throughout the entire Study Area. Impact V-4 for Alternative 6 would require implementation of Mitigation Measures V-4a through V-4d, which are fully described in Section 3.14.6.1. The combination of all these mitigation measures would lessen the adverse visual impacts of Alternative 6 and would improve the visual attributes of the affected area; however, the visual impacts associated with Alternative 6 would remain significant and adverse (Class I).

Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area (Criterion VIS2)

Impacts associated with Criterion VIS2 for Alternative 6 would be the same as for the proposed Project (Alternative 2). Please see Section 3.14.6.1 (Direct and Indirect Effects Analysis) for a complete description.

Under Alternative 6, the effects associated with Impact V-5 (New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting

conditions) would be similar to the proposed Project (Alternative 2), as described in Section 3.14.6.1. Alternative 6 would require implementation of Mitigation Measure V-2b, which is fully described in Section 3.14.6.1. Implementation of this measure would reduce adverse visual effects to a level of less than significant (Class II).

Substantially damage scenic resources within a scenic highway viewshed or a national scenic trail viewshed (including, but not limited to, trees, rock outcroppings, and historic buildings) (Criterion VIS3)

Under Alternative 6, the impacts associated with Criterion VIS3 would be the same as for the proposed Project, except for the decreased amount of access and spur road improvements necessary for structure placement and the increased temporary land disturbance at helicopter staging areas. The helicopter staging areas would be restored to pre-construction conditions after construction, therefore, long term visual effects would be minimized at the staging areas. Under Alternative 6, the visual effects associated with Impact V-6 (The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed) would be similar to, but less than, the proposed Project (Alternative 2) for Criterion VIS3 because fewer access and spur roads would be visible from the ~~Angeles Crest Scenic Highway~~Angeles Crest Scenic Byway and some towers would be given medium or dark galvanizing treatments so that they blend in better with backdrop landscapes. Impact V-6 for Alternative 6 would require implementation of the same mitigation measure, which is fully described in Section 3.14.6.1: V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality). With implementation of this mitigation measure the effects of Impact V-6 would be reduced to a level of less than significant (Class II).

Conflict with applicable adopted city, county, State, or federal plans, policies, regulations, or standards applicable to the protection and management of visual quality in the landscape (Criterion VIS4)

Although Alternative 6 would construct the Project within the ANF using helicopters to the maximum extent, this alternative would not encounter or impact any different adopted city, county, State, or federal management plans for visual or scenic resources. Therefore, the federal, State and local laws, regulations and standards presented in Tables C-1, C-2, and C-3 of the *Visual Resources Specialist Report*, Appendix C, would apply. Similar to the proposed Project, ~~an~~ amendments to the 2005 Forest Plan would be required for Alternative 6 for Forest Plan Standards S9 and S10~~, which is described in Table 3.14-5~~. Implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality) is also recommended to minimize impacts.

Comparing Alternative 6 to Alternative 2, visual impacts of construction would be different in the ANF, and permanent landform alterations associated with access and spur roads would not occur in certain locations. The exact location of the helicopter staging areas, the extent of access road system that would be needed for pulling and splicing locations, and the exact structure locations that would still require ground-based construction techniques would be determined during final engineering, in consultation with SCE and its construction contractor(s). It should be noted that skyline interference and creation of greater industrial character intrusion would be identical for Alternative 6 and the proposed Project (Alternative 2) because the structure type and locations would remain the same, and only the galvanizing colors of the 500-kV LSTs would change between Alternatives 2 and 6~~It can be noted that skyline interference and creation of greater industrial character intrusion would be identical for Alternative 6 and the proposed Project (Alternative 2) because the structure type and locations would be exactly the same~~.

Alternative 6 would be inconsistent with Standards~~ANFForest Standard S1,~~ S9 and S10 ~~-~~of the Forest Plan, and thus Project-specific ~~would require an~~ amendments to the ~~SIOs within the~~ 2005 Forest Plan would be required. Alternative ~~3~~ 6 would also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan. As such, Impact V-7 would be significant and unavoidable (Class I).

3.14.10.2 Cumulative Effects Analysis

Geographic Extent

Alternative 6 is the exact same geographic location as the proposed Project (Alternative 2); therefore, the geographic extent of the cumulative analysis for Alternative 6 is exactly the same as that for Alternative 2 and would include all of the North, Center, and South Areas.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 6 are exactly the same as for Alternative 2, as described in Section 3.14.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 6 would be exactly the same as Alternative 2, described in Section 3.14.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 6 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The removal of two existing single-circuit 220-kV transmission lines (one each in Segments 6 and 11) and the construction and operation of two new single-circuit 500-kV transmission lines (one each in Segments 6 and 11) would not affect the Project's contribution to cumulative impacts. ~~The removal of one existing single-circuit 220-kV transmission line in each of Segments 6 and 11, and the construction and operation of a new single-circuit 500-kV transmission line in each segment would not affect the Project's contribution to cumulative impacts.~~ Therefore, cumulative impacts of Alternative 6 would be exactly the same as cumulative impacts for Alternative 2, as described in detail in Section 3.14.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 6 in Section 3.14.10.1 would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for visual resources.

3.14.11 Alternative 7: 66-kV Subtransmission Alternative

3.14.11.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to visual resources are introduced in Section 3.14.4.1. Impacts associated with Alternative 7 are presented below under the applicable significance criterion.

Have a substantial adverse effect on the existing landscape character and visual quality of the site and its surroundings (Criterion VIS1)

Impacts associated with Criterion VIS1 for Alternative 7 would be the same as the impacts associated with the proposed Project. Except for the three 66-kV subtransmission line elements of Segments 7 and 8A that would be either placed underground or re-routed overhead, all other portions of Alternative 7 would be identical to the proposed Project (Alternative 2). The impacts and their associated mitigation measures that fall under Criterion VIS1 are summarized below. Please refer to Section 3.14.6.1 for a detailed description of these impacts.

Under Alternative 7, effects associated with Impact V-1 (Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views) would be the same as for the proposed Project. Construction impacts on visual resources would result from the presence of equipment, materials, and work force at the substation sites, staging areas, pulling locations, tensioner locations, splicing locations, and along the access/ spur roads and overhead transmission line route. Construction impacts on visual resources would also result from the temporary alteration of landforms and vegetation along the utility corridor. Vehicles, heavy equipment, helicopters, materials, and workers would be visible during site clearing, grading, substation expansion and construction, structure erection, conductor stringing, cable placement, and site/ROW clean-up and restoration. Construction equipment and activities would be seen by various viewers in close proximity to the sites and utility corridor including adjacent and nearby residents and recreationists on roads and trails (including the PCT). View durations would vary from brief to extended periods. Construction of the transmission line, construction of the new Whirlwind Substation, expansion and improvements at existing Antelope, Vincent, Gould, Mesa, and Mira Loma Substations, and use of construction staging areas would result in the visual intrusion of construction vehicles, helicopters, equipment, storage materials, and workers.

Impact V-1 for Alternative 7 would require implementation of the following mitigation measure, which is fully described in Section 3.14.6.1: V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis). With implementation of this mitigation measure, the effects of Impact V-1 under Alternative 7 would be reduced somewhat. However, temporary visibility of construction activities and equipment would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 7, effects associated with Impact V-2 (For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-2 would occur for all of Segment 10 and a portion of Segment 8A. Additionally, under Alternative 7, a portion of Segment 8A (S8A MP 2.2 to 3.8) would be constructed in a new ROW where there is no existing transmission line, along San Gabriel Boulevard and Durfee Avenue. Therefore, the existing natural-appearing landscape character would be slightly modified by the introduction of light weight steel poles by the presence of Alternative 7.

Impact V-2 for Alternative 7 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-2c (Establish permanent screen). In addition, impacts would be further reduced with implementation of the following mitigation measures: V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging

areas, access and spur roads, and structure locations on a regularly periodic basis) and V-2d (At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible). With implementation of the mitigation measures listed above, the effects of Impact V-2 of Alternative 7 would be somewhat reduced. However, the presence of new transmission line structures, conductors, access and spur roads, and new rights of way in landscapes that currently have no transmission line facilities would remain a significant and unavoidable adverse visual impact (Class I).

Under Alternative 7, the effects of Impact V-3 (For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-3 would occur throughout the entire Study Area because of increased structure heights and widths, as compared to existing structures and facilities. Additionally, removal of existing overhead subtransmission lines in Alternative 7 would improve the visual environment and viewsheds of the Duck Farm and Whittier Narrows and would create a beneficial effect.

The overall effects of Impact V-3 for Alternative 7 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-3a (Match spans of existing transmission structures); and V-3b (On NFS lands, provide restoration/ compensation for impacts to landscape and visual quality). In addition, the effects of Impact V-3 of Alternative 7 would be somewhat reduced with implementation of Mitigation Measures V-1, V-2c, and V-2d, V-4b, and V-4d. However, the presence of newer, taller, wider transmission line structures, new conductors, newly constructed or re-opened access and spur roads, and enlarged substations would remain a significant adverse visual impact (Class I).

Under Alternative 7, the effects of Impact V-4 (Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality) would be the same as for the proposed Project (please see Section 3.14.6.1). As described in Section 3.14.6.1, Impact V-4 would occur throughout the entire Study Area. Impact V-4 for Alternative 7 would require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-4a (Construct, operate, and maintain the Project with existing access and spur roads where feasible); V-4b (Slope-round and re-contour in areas as prescribed); V-4c (Avoid locating new roads in bedrock on NFS lands); and V-4d (Dispose of excavated materials as prescribed). However, the visual impacts associated with Alternative 7 would remain significant and adverse (Class I).

Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area (Criterion VIS2)

Impacts associated with Criterion VIS2 for Alternative 7 would be the same as for the proposed Project. Although this alternative would introduce a new overhead subtransmission line crossing Rosemead Boulevard and would underground other lines, this would not alter the location or sources of light at the substations. Under Alternative 7, the effects associated with Impact V-5 (New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions) would be exactly the same for the proposed Project (Alternative 2), as described in Section 3.14.6.1. Alternative 7 would require implementation of the following mitigation measure, which is fully described in Section 3.14.6.1: V-2b (Treat surfaces with appropriate colors, textures, and finishes). Implementation of this measure would reduce adverse visual effects to a level of less than significant (Class II).

Substantially damage scenic resources within a scenic highway viewshed or a national scenic trail viewshed (including, but not limited to, trees, rock outcroppings, and historic buildings) (Criterion VIS3)

Under Alternative 7, the impacts associated with Criterion VIS3 would be the same as for the proposed Project. Although this alternative would introduce a new overhead subtransmission line crossing Rosemead Boulevard, the re-route would not encounter or impact any scenic highway or scenic trail viewsheds.

Under Alternative 7, the effects associated with Impact V-6 (The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed) would be exactly the same as the proposed Project. Alternative 7 would traverse the PCT in the following three locations: Segment 4 MP 2.7 (North Area); Segment 11 MP 7.6 (Center Area); and, Segment 6 MP 7.3 (Center Area). Alternative 7 would cross over the ~~Angeles Crest Scenic Highway~~Angeles Crest Scenic Byway (~~State Highway~~ SR 2) in four different locations (at approximately S11 MP 16.0, 17.7, and 18.4 for Segment 11 and at S6 MP 16.8 for Segment 6). Alternative 7 would cross over the Silver Moccasin Trailhead at Shortcut Saddle at S6 MP 16.7. Portions of Segment 6 Alternative 7 would be visible from West Fork San Gabriel River National Scenic Bikeway. The State has designated portions of the Orange Freeway (State Highway 57) as "Eligible" to become a State Scenic Highway where it traverses largely undeveloped hills between Brea and Diamond Bar, and Alternative 7 would cross State Highway 57 in this vicinity. Colima Road, Hacienda Road, and Harbor Boulevard are proposed as scenic corridors in the most recent update to the County of Los Angeles General Plan and Alternative 7 would be visible from these highways. Los Angeles County has designated several other roads as Priority Two Scenic Highways, also indicating a high sensitivity for scenic integrity of landscapes. Portions of Interstate 210 (I-210) and State Highways 39 and 57 are either designated as, or eligible for, State Scenic Highway status and portions of Alternative 7 would also be visible from these roadways.

Impact V-6 for Alternative 7 would require implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality), which is fully described in Section 3.14.6.1. With implementation of this mitigation measure, the effects of Impact V-6 for Alternative 7 would be reduced to a level of less than significant (Class II).

Conflict with applicable adopted city, county, State, or federal plans, policies, regulations, or standards applicable to the protection and management of visual quality in the landscape (Criterion VIS4)

Impacts associated with Criterion VIS4 for Alternative 7 would be identical to the proposed Project. Although this alternative would introduce an overhead re-route of a subtransmission line along Segment 8A, the re-route would not encounter or impact any different adopted city, county, State, or federal management plans for visual or scenic resources. Therefore, the applicable federal and State laws, regulations, and standards presented in Tables C-1, C-2, and C-3 of the *Visual Resources Specialist Report*, Appendix C, would apply.

In the North Area, there are no established Visual Resource Management Plans or Visual Resource Conservation Plans.

In the Center Area, the majority of Segments 6 and 11 are situated within areas of natural-appearing landscapes designated with High Scenic Integrity Objective (SIO) as dictated by the Forest Plan (see Table 3.14-4). Existing access and spur roads currently do not meet the Natural-Appearing Desired Condition or

High SIO, and re-opening or reconstructing them to higher road maintenance standards would adversely impact visual resources and further degrade existing conditions; additionally the Forest Plan's Desired Condition and High Scenic Integrity Objective would not be met. Construction and operation of new, taller, wider single-circuit 500-kV transmission lines would also adversely impact visual resources and further degrade existing conditions, and would not meet the Desired Condition or the High Scenic Integrity Objective. Consequently, as with the proposed Project, ~~an~~ amendments to the 2005 Forest Plan would be required for Alternative 7 for Forest Plan Standards S9 and S10~~, which is described in Table 3.14-5~~. Implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality) is also recommended to minimize impacts.

In the South Area, Alternative 7 would cross lands administered by the Puente Hills Landfill Habitat Preservation Authority (PHLHPA). Alternative 7 would conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan (see Appendix C of the *Visual Resources Specialist Report*).

Alternative 7 would be inconsistent with Standards~~Forest Standard S1,~~ S9 and S10 of the Forest Plan, and would require ~~an~~ amendments to the ~~SIOs within the 2005~~ Forest Plan. Alternative 7 would also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan. As such, Impact V-7 would be significant and unavoidable (Class I).

3.14.11.2 Cumulative Effects Analysis

Geographic Extent

Alternative 7 only differs from the proposed Project for a very small portion of the proposed route along Segments 7 and 8A; therefore, the geographic extent of the cumulative analysis for Alternative 7 is exactly the same as that for Alternative 2 and would include all of the North, Center, and South Areas.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 7 are exactly the same as for Alternative 2, as described in Section 3.14.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 7 would be exactly the same as Alternative 2, described in Section 3.14.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 7 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The minor re-route of the proposed Project transmission line associated with Alternative 7 would not affect the proposed Project's contribution to cumulative impacts. Therefore, cumulative impacts of Alternative 7 would be exactly the same as cumulative impacts for Alternative 2, as described in detail in Section 3.14.6.2.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 7 in Section 3.14.11.1 would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures

have been identified that would reduce cumulative impacts to a less-than-significant level for visual resources. Cumulative impacts would be significant and unavoidable (Class I).

3.14.12 Impact Significance Summary

Table 3.14-7 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on Visual Resources. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.14.6 through 3.14.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.14.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Table 3.14-7. Summary of Impacts and Mitigation Measures – Visual Resources

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands ±1	
V-1: Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views.	N/A	Class I1	Class I	Class I	Class I	Class I	Class I	Yes	V-1: Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis.
V-2: For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	~~Yes~~No	V-1 V-2a: Use tubular steel poles instead of lattice steel towers in designated areas. V-2b: Treat surfaces with appropriate colors, textures, and finishes. V-2c: Establish permanent screen. V-2d: At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible. *[Alternatives 3, 4, 7]*
V-3: For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	Yes	V-1 V-2a through V-2c V-2d *[Alternatives 3, 4, 7]* V-3a: Match spans of existing transmission structures. V-3b: On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality. V-4b: Slope-round and re-contour in areas as prescribed. ~~and~~ V-4d: Dispose of excavated materials as prescribed.
V-4: Vegetative clearing and/or earthwork associated with road improvements and	N/A	Class I	Class I	Class I	Class I	Class I	Class I	Yes	V-4a: Construct, operate, and maintain the Project with existing access and spur roads where feasible. V-4b~~: Slope-round and re-contour~~

Table 3.14-7. Summary of Impacts and Mitigation Measures – Visual Resources

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands *1	
pulling/splicing locations would adversely affect landscape character and visual quality.									~~in areas as prescribed.~~ V-4c: Avoid locating new roads in bedrock on NFS lands. V-4d~~: Dispose of excavated materials as prescribed.~~
V-5: New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	V-2b
V-6: The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or scenic trail viewshed.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	V-3b
V-7: The Project would conflict with established visual resource management plans or landscape conservation plans.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	No 2~~Yes~~	V-3b ~~None recommended~~

N/A = Not Available

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.

1 Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

2 Indicates no impact on NFS after implementation of a Project-specific amendment to the Forest Plan. Before that amendment, the Project would be a significant visual impact on NFS land.

Class I: Significant impact; cannot be mitigated to a level that is less than significant.

Class II: Significant impact; can be mitigated to a level that is less than significant

Class III: Adverse impact; less than significant.

Class IV: Beneficial impact.

Source: SCE, 2007a.

Photo by Lee Anderson

Aspen Environmental Group

Mitigation Measure V-2b
Treat surfaces with appropriate colors, textures, and finishes

Figure 3-14-84 (Revised)

Examples of Galvanized Color Treatments

3.15 Wilderness and Recreation

3.15.1 Introduction

This section describes effects related to wilderness and recreation that would be caused by implementation of the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to wilderness and recreation are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following issues related to wilderness and recreation were raised during the scoping period and are addressed in this analysis:

- Noise associated with the Project would impact recreation areas and open space enjoyment, as well as wildlife in designated preservation areas.
- The noise from helicopters used to construct transmission towers would impact recreationists and wildlife.
- The Project would impact recreationists in the Puente Hills Landfill Native Habitat Area (Puente Hills Habitat Area).
- The Project would impact recreation areas planned for development by the Water Conservation Authority (WCA) and the Rivers and Mountains Conservancy (RCA). In particular, the River Commons at the Duck Farm Project (Duck Farm Project) would be affected and the Project could interfere with wildlife movement.
- The Project would impact Los Angeles County parks and compromise park patrons' experience due to construction of the 500-kV towers.

Summary and Comparison of Alternatives

Table 3.15-1 on the following page presents some key factors related to wilderness and recreation for each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.15-1 are not impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.15.4.1 (Criteria for Determining Impact Significance) are described in Sections 3.15.5 through 3.15.11.

Table 3.15-1. Summary Comparison of Environmental Issues/Impacts – Wilderness and Recreation

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
Total number of Developed Recreation resources located within one-half mile of Project components[1] (North Region / Central Region / South Region)	Another, similar transmission line project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	126 (13 / 53 / 60)	Same as Alternative 2.	~~Alternative 4~~ Route A: 126 (13 / 53 / 60) ~~Alternative 4~~Route B: 125 (13 / 53 / 59) ~~Alternative 4~~Route C: 114 (13 / 53 / 48) Route C Modified: 114 (13 / 53 / 48) ~~Alternative 4~~Route D: 125 (13 / 53 / 59)	Same as Alternative 2.	122 (13 / 50 / 59)	Same as Alternative 2.
Comparison of Developed Recreation resources within one-half mile of Project components on NFS and non-NFS lands[2]	Same as above.	47 (NFS) / 79 (non-NFS)	Same as Alternative 2.	~~Alternative 4~~Route A: 47 / 79 ~~Alternative 4~~Route B: 47 / 78 ~~Alternative 4~~Route C: 47 / 71 Route C Modified: 47 / 71 ~~Alternative 4~~Route D: 47 / 78	Same as Alternative 2.	44 (NFS) / 78 (non-NFS)	Same as Alternative 2.
Total number of recreation resources (not incl. Dispersed Recreation) that would be temporarily disrupted during construction	Same as above.	80 (41 on NFS)	Same as Alternative 2.	~~Alternative 4~~Route A: 86 (+6) ~~Alternative 4~~Route B: 89 (+9) ~~Alternative 4~~Route C: 85 (+5) Route C Modified: 85 (+5) ~~Alternative 4~~Route D: 81 (+1)	Same as Alternative 2.	78 (39 on NFS)	Same as Alternative 2.
Total number of recreation resources (not incl. Dispersed Recreation) that	Same as above.	35 (16 on NFS)	Same as Alternative 2.	~~Alternative 4~~Route A: 40 (+5) ~~Alternative 4~~Route B:	Same as Alternative 2.	~~35 (16 on NFS)~~ Same as Alternative 2.	Same as Alternative 2.

Table 3.15-1. Summary Comparison of Environmental Issues/Impacts – Wilderness and Recreation

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
would be regularly disrupted due to operation and maintenance activities[3]				42 (+7) ~~Alternative 4~~Route C: 33 (-2) Route C Modified: 33 (-2) ~~Alternative 4~~Route D: 36 (+1)			
Level of disturbance to Dispersed Recreation that would occur as a result of construction-related access restrictions or disturbances such as increased noise.[4]	Same as above.	MED	Same as Alternative 2.	HIGH	Same as Alternative 2.	HIGH	Same as Alternative 2.
Number of recreation resources within one-half mile of the T/L route that are located on State Park lands	Same as above.	0	Same as Alternative 2.	~~Alternative 4~~Route A: 12 ~~Alternative 4~~Route B: 11 ~~Alternative 4~~Route C: 7 Route C Modified: 7 ~~Alternative 4~~Route D: 11	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Level of unmanaged recreation that would occur as a result of Project construction[5]	Same as above.	MED	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	LOW	Same as Alternative 2.
Level of temporary degradation of the "Solitude and Unconfined Recreation" characteristic of the San Gabriel WA[6]	Same as above.	LOW	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	MED	Same as Alternative 2.
Level of temporary degradation of the "backcountry experience" on the	Same as above.	MED / LOW	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	HIGH / LOW	Same as Alternative 2.

Table 3.15-1. Summary Comparison of Environmental Issues/Impacts – Wilderness and Recreation

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
PCT (temporary / permanent)[7]							
Level of temporary disturbance and/or preclusion that would affect hunting and fishing opportunities in the ANF[8]	Same as above.	MED	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	HIGH	Same as Alternative 2.

1 Project components are inclusive of transmission line facilities as well as substations and helicopter staging areas. Recreational resources on NFS lands in the ANF are managed by the Forest Service as either Developed Recreation or Dispersed Recreation. Unless defined otherwise on a case-by-case basis in this analysis, "Developed Recreation" includes resources that are regularly maintained by the Forest Service such as OHV routes, trails (for hiking, biking, and equestrian use), campgrounds, picnic areas, information centers, and other, similar facilities. Also unless defined otherwise on a case-by-case basis in this analysis, "Dispersed Recreation" includes undeveloped areas such as open space and natural scenic vistas which are used for recreational purposes but are not regularly maintained by the Forest Service.

2 The Central Region of the Project Area extends slightly beyond the southern border of the ANF and therefore, not all recreational resources in the Central Region are located on NFS lands.

3 Operation and maintenance activities would only have the potential to result in wilderness and recreation impact(s) for those resources which experience a "direct crossing" by the Project.

4 "Level of disturbance" is indicated as being "LOW", "MED", or "HIGH", which represent generalized rankings for the purposes of comparison only and do not reflect impact significance determinations, which are discussed in the impact analysis for wilderness and recreation. Dispersed Recreation includes undeveloped areas such as open space and natural scenic vistas which are used for recreational purposes but are not regularly maintained by the Forest Service or other responsible agency. With regards to Dispersed Recreation, Alternative 2 is ranked as MED due to effects within the ANF, while Alternative 4 is ranked as HIGH due to effects within the CHSP as well as the ANF, and Alternative 6 is also ranked as HIGH because although this alternative would not affect the CHSP, its effects within the ANF would be more substantial. Please see the impact analysis for further discussion.

5 Unmanaged recreation refers to recreational activities that occur but are not authorized, such as OHV use in areas that are managed to be non-motorized. In the ANF, unmanaged recreation would be expected to occur in areas where roads are improved or installed, thus providing access to areas that otherwise were not easily accessible by the public. With regards to unmanaged recreation, Alternative 2 is ranked as MED because this alternative would include road improvements throughout the ANF, which would introduce the potential for unmanaged recreation in some areas. Alternative 6 is ranked as LOW because more transmission towers would be constructed via helicopter for Alternative 6 and therefore, fewer spur roads would need to be installed and/or improved, which is expected to result in less unmanaged recreation in the Forest, particularly in the form of unauthorized OHV use.

6 Wilderness Areas (WA) are officially designated by the U.S. Congress only if they have the following primary characteristics: natural and undisturbed landscape; solitude and unconfined recreation; 5,000 contiguous acres; features of natural value. Due to the Project's proximity to the San Gabriel WA, construction noise would have the potential to affect the "Solitude and Unconfined Recreation" characteristic of the San Gabriel WA. With regards to this WA characteristic, Alternative 2 is ranked as LOW with Alternative 6 ranked as MED because the greater extent of helicopter construction included under Alternative 6 increases noise-related disturbances in the Forest, particularly in sensitive or unique areas such as the San Gabriel WA. The use of helicopters may require flight paths to enter airspace over the San Gabriel WA, depending on wind and weather conditions. This construction-related degradation of the "Solitude and Unconfined Recreation" characteristic of the San Gabriel WA would be temporary.

7 The proposed Project and each of the identified alternatives would traverse the Pacific Crest National Scenic Trail (PCT) in three locations: once in the North Region and twice in the Central Region. Transmission lines that would be replaced by the Project currently exist at each of the proposed crossings of the PCT. As such, under current conditions, hikers on the PCT pass under transmission lines at each location, and hikers may be exposed to operation and maintenance activities at each of these locations. Therefore, the presence of transmission lines would not dramatically change existing conditions; however, the size of infrastructure included under the proposed Project and alternatives is larger than existing infrastructure, and would be visible from a greater distance away on the PCT. During the construction period, the implementation of "maximum helicopter construction" under Alternative 6 would cause greater disturbance to the "backcountry experience" on the PCT due to the noise, aesthetics, and air quality affects associated with helicopter use. In addition, Alternative 6 includes a helicopter staging area (Alt. 6 #4) located within 0.1 mile of the PCT in an area where the trail would not be traversed by the transmission line or otherwise disturbed by construction activities, whereas Alternative 2 includes a helicopter staging area (SCE #1) that is located within 0.3 mile of the PCT in an area where the trail is traversed by existing transmission lines as well as Project transmission lines and would therefore already be disturbed by construction activities.

8 Construction activities that occur during designated hunting season(s) in Hunting Zone D-11 would affect recreational hunting activities through road closures that restrict hunters' movement through the Forest, and/or through the introduction of construction noise and aesthetics that may affect wildlife presence and/or movement. The use of helicopters during construction would have a greater affect on hunting activities, primarily as a result of noise and therefore, Alternative 6 would have a greater affect on hunting than Alternative 2. Impacts to fishing opportunities along the West Fork San Gabriel would not occur under Alternative 6 because construction traffic would not use Forest Road 2N25.1; other impacts to fishing opportunities would be the same for all alternatives.

3.15.2 Affected Environment

The Affected Environment for this analysis of wilderness and recreation describes "baseline" conditions, or existing environmental conditions that contribute to wilderness and recreation at the time of publishing the Draft EIR/EIS. For the purposes of this analysis, the wilderness and recreation Study Area has been defined as the area within one-half mile of the proposed Project route and alternatives, as well as the area within one-half mile of all new and expanded substation sites and other Project components, including helicopter staging areas and construction access roads. Additional wilderness and recreation resources which are outside of the one-half mile radius but which have national, regional, or local significance are also included in this analysis. This is an appropriate Study Area for wilderness and recreation because it captures all resources that contribute to baseline conditions and could potentially be affected by Project activities.

Baseline Data Collection Methodology

For the purposes of this analysis, the Study Area for wilderness and recreation has also been divided into three regions: North Region, Central Region, and South Region. The particular boundaries for each of these regions are described in further detail below and portrayed on Figure 3.15-1 (Project Study Area for Wilderness and Recreation).

- **North Region.** The North Region extends from the Windhub Substation milepost (MP) 0.0 of the proposed Project's Segment 10) to the Vincent Substation (MP 17.8 of the proposed Project's Segment 5). This Region includes the proposed Project's Segments 4, 5 and 10 and traverses parts of southern Kern County and northern Los Angeles County, as well as the incorporated cities of Lancaster and Palmdale. Five substations which are contained within the North Region include: Windhub, Cottonwood, Whirlwind, Antelope and Vincent.
- **Central Region.** The Central Region is situated between the Vincent Substation (MP 0.0 of the proposed Project's Segments 6 and 11) and the southern boundary of the ANF (MP 24.5 of the proposed Project's Segment 11 and MP 26.9 of the proposed Project's Segment 6). Most of the Central Region falls within the jurisdictional boundaries of the ANF. Although the Gould Substation is located beyond the jurisdictional boundaries of the ANF, it is included within the Central Region for the purposes of this analysis.
- **South Region.** The South Region extends from the southern boundary of the ANF (MP 0.0 of the proposed Project's Segment 7 and MP 24.5 of the proposed Project's Segment 11) to the Mira Loma Substation (MP 35.2 of the proposed Project's Segment 8A; MP 6.8 of the proposed Project's Segment 8B; and MP 6.4 of the proposed Project's Segment 8C). This region traverses lands within Los Angeles and San Bernardino Counties as well a multiple incorporated cities. The following five substations are contained within the South Region: Goodrich, Rio Hondo, Mesa, Chino, and Mira Loma.

Existing and planned recreational resources in the Project Regions described above were identified through a variety of sources. Information provided in Southern California Edison's (SCE's) Proponent's Environmental Assessment (PEA) was initially used to assess baseline conditions such as the location of major developed recreation (SCE, 2007). Recently published maps including USGS topographic maps and Thomas Guides, as well as available air and satellite photos, were used to verify the location of recreational areas and resources. Federal, State, and local (County and City) plans, such as Land Management Plans and General Plans, were consulted to describe the Project Regions outlined above with regards to wilderness and recreation. Similarly, extensive internet searches of agency (federal, State, and local) websites were conducted in order to identify applicable management regulations and standards, as well as to verify the location and specifics of both existing and planned recreational facilities. Resources with particular sensitivities were identified through consultation with appropriate federal, State, and local agency representatives.

For the Central Region, which encompasses the Angeles National Forest (ANF), the identification of recreational resources and designated Wilderness Areas (WA) included review of the U.S. Department of Agriculture Forest Service (Forest Service) 2005 Forest Land Management Plan (FLMP) for Angeles, Cleveland, Los Padres, and San Bernardino National Forests (USDA Forest Service, 2005a, 2005b, 1987). Recent aerial and satellite images were also used to evaluate developed recreation within the Forest, in addition to discussions with ANF Forest Service personnel and field reconnaissance. GIS data provided by the Forest Service and obtained from the Forest Service website was used to develop custom maps of the Central Region for the purpose of identifying recreational resources.

3.15.2.1 Regional Setting

The regional setting for the proposed Project and alternatives includes parts of Kern County, the Angeles National Forest, Los Angeles County (incorporated and unincorporated), and San Bernardino County (incorporated and unincorporated). The Project is also located within one-half mile of Riverside County (at Mira Loma Substation) and Orange County (along the proposed ROW for Segment 8A). The vast majority of incorporated cities located within the Project Regions are situated in the South Region. Two cities (Palmdale and Lancaster) are located in the North Region, there are no cities in the Central Region, and thirty-two cities are located in the South Region.

North Region

The North Region is generally characterized by undeveloped, high desert open space, with some cultivated areas and rural residential dwellings. As mentioned above, the southern portion of the North Region overlays the cities of Palmdale and Lancaster, which are characterized by existing and expanding residential developments. The recreational resources in the North Region are primarily in the form of open space, OHV (off-highway vehicle) roads, and walking trails. There are few recreational facilities in the North Region. Notable recreational resources within the North Region are described in further detail below.

Pacific Crest National Scenic Trail (PCT). The PCT is 2,650 miles long, extending from Mexico to Canada and running generally along the north-south oriented mountain ridges of California (Sierra Nevada), Oregon, and Washington (Cascade Range). The PCT crosses three national monuments, seven national parks, 24 national forests, and 33 federally mandated wildernesses. In 1968, the United States Congress designated the PCT as one of the first scenic trails in the National Trails System (PCT, 2005). It is the westernmost of the National Scenic Trails and has the greatest elevation change of all, extending from low desert valleys in Southern California, along the Sierra Nevada, and into rainforests of the Pacific Northwest (SCE, 2007). Use of the PCT is limited to non-mechanized means of travel. Every year, thousands of hikers and horseback riders use some portion of the PCT and approximately 300 through-hikers attempt to complete the entire trail in a single season (PCTA, 2007a).

The Pacific Crest Trail Association (PCTA) is a non-profit membership group dedicated to the preservation and protection of the trail. The PCTA currently has more than 6,000 members worldwide (PCTA, 2007a). In 1993, the PCTA signed a Memorandum of Understanding (MOU) with the USDA Forest Service and other land management agencies including the US Department of Interior (DOI), the National Park Service (NPS), and the Bureau of Land Management (BLM). This MOU identifies the PCTA as the federal government's "major partner" in the management of the PCT (PCTA, 2007b). As described in the PCTA's Strategic Plan, which was approved on July 15, 2006, the PCTA's mission is to "…protect, preserve, and promote the Pacific Crest National Scenic Trail as an internationally significant

resource for the enjoyment of hikers and equestrians, and for the value that wild and scenic lands provide to all people" (PCTA, 2006).

The PCT crosses through the North Region in a south-to-north direction. Although the trail is usually situated on ridgelines, it is routed off ridges in several places within the North Region due to a lack of necessary easements through private property. Please see Figure 3.15-2 (Pacific Crest National Scenic Trail Crossings in the North and Central Regions).

Antelope Valley California Poppy Reserve (Poppy Reserve). The Antelope Valley California Poppy Reserve is located 15 miles west of Highway 14, approximately three miles northwest of the existing Antelope Substation. The land is owned by the State of California and is managed by the California Department of Parks and Recreation. The reserve includes 1,745 acres of protected land in the Antelope Buttes where the California State Flower, the California poppy, flourishes every spring. There is a Visitor's Center and a parking area at the reserve, as well as seven miles of trails, which include a paved section for wheelchair access. The trails loop around the shallow hills of the Antelope Buttes and provide dramatic views of the spring flowers, the mountains to the north and south, and the western Mojave Desert. The land around the Poppy Reserve consists of similar desert habitat to the south and west. Off-highway vehicle (OHV) use is popular immediately to the north of the reserve, and some areas to the east are cultivated. Peak visitation at the Poppy Reserve occurs from March to May of each year (CA State Parks, 2005a). Please see Figure 3.15-2 (Pacific Crest National Scenic Trail Crossings in the North and Central Regions).

Los Angeles County Riding and Hiking Trails. The County of Los Angeles Department of Parks and Recreation manages and maintains a network of multi-use trails throughout Los Angeles County, including parts of the North Region. Table 3.15-2, below, provides a summary description of multi-use trails in the North Region. All trails are open for hiking, mountain biking, and equestrian use, unless otherwise noted.

Table 3.15-2. Los Angeles County Multi-Use Trails

Trail Number	Name	Length (miles)	Rating*
113	California Riding and Hiking Trail	8.0	ND
125	Three Points Trail	17.0	ND
126	Danielson Trail	3.8	ND
127	Ripley Trail	6.4	ND
129	Fairmont Connector Trail	1.4	ND
130	California Poppy Trail	21.6	ND
128	Munz Trail	4.8	ND
131	Little Buttes Trail	11.1	ND
111	North Side Trail	16.0	MD
112	Leona Valley Loop Trail	12.5	D
77	Bouquet Canyon Trail	7.0	D
116	Vasquez Loop Trail	17.3	MD
115	Northside Connector Trail	6.5	ND
114	Acton Community Trail	22.0	MD
110	Palmdale Hills Trail	15.0	D
108	Pearblossom Loop Trail	10.3	ND
109	Little Rock Connector Trail	3.0	ND
106	Juniper Hills Trail	6.5	ND
133	Little Rock Community Trail	12.5	ND
147	Avenue S Connector Trail	6.5	ND

Table 3.15-2. Los Angeles County Multi-Use Trails

Trail Number	Name	Length (miles)	Rating*
139	San Bernardino Connector Trail	20.7	ND
107	Pearblossom Connector Trail	2.0	ND
134	Big Rock Creek Trail	18.0	ND
146	Avenue O Connector Trail	4.0	ND
136	Piute Butte Loop Trail	3.5	ND
135	Lancaster Connector Trail	17.2	ND
140	Saddle Back Butte Trail	5.1	ND
141	Butte Valley Connector Trail	6.5	ND
143	Three Sisters Trail	12.1	ND
144	Fort Tejon Extension Trail	6.1	ND
145	Mescal Creek Trail	2.6	ND

* ND = Not Difficult; MD = Moderate Difficulty; D = Difficult

Antelope Valley Area Trails. The Antelope Valley Area Trails Plan (AVATP) is a Master Trails Plan developed and administered by the Antelope Valley Conservancy in conjunction with the City of Lancaster, the City of Palmdale, and the County of Los Angeles. The purpose of this Master Trails Plan is to interlink local and regional trails, including Forest Service trails and the Pacific Crest Trail, for recreational opportunities such as hiking and horseback riding. Although trail plans developed by the Conservancy as part of the AVATP have been approved by the City of Palmdale, the City of Lancaster, and Los Angeles County, not all of the necessary easements have been attained to ensure compliance with the plan (AVC, 2007).

A.C. Warnack Nature Park. This 132-acre open space park is located approximately 1,800 feet east of Godde Hill Road and immediately south of the Los Angeles Aqueduct, between 50th Street West and 55th Street West. The park is situated on land donated by the City of Palmdale. The park consists of open space characterized by rolling hills and native vegetation. The City of Palmdale is working with local scout organizations to develop signage, campsites, and amenities such as equestrian facilities, hiking trails, and picnic areas at the park (City of Palmdale, 2006). Access is provided to the southwest corner of Warnack Park by dirt roads off of Godde Hill Road.

Planned Development of Recreational Areas. There are planned areas of development in the North Region which include proposals for recreational facilities such as developed parks. Two large residential areas which are currently under development include the Ritter Ranch Master Planned Community and the Anaverde Specific Plan areas in Palmdale. A recreation center is included in the Ritter Ranch development and is planned to occupy 4.7 acres of land at the northeast corner of City Ranch Road and Ranch Center Drive. In addition, the Cities of Lancaster and Palmdale are expanding towards the west, into what is now open desert land. It is likely that additional neighborhood and community parks will be developed as part of the newer residential areas in this region.

Central Region

As described above under Baseline Data Collection Methodology, most of the Central Region falls within the jurisdictional boundaries of the ANF, which is predominantly characterized by undeveloped lands and open space which is managed by the Forest Service for the purposes of recreation and natural resources management, among various other uses. A wide variety of recreational resources are available within the ANF, including hiking, mountain biking, horseback riding, OHV use, camping, picnicking, fishing, water sports, and general outdoor relaxation and appreciation. A designated Forest Supervisor is

responsible for overseeing management of the ANF. In addition, the Forest is divided into three separate ranger districts based upon natural watershed boundaries, including: the Santa Clara / Mojave Rivers Ranger District, the Los Angeles River Ranger District, and the San Gabriel River Ranger District. Within each Ranger District, a District Forest Ranger is responsible for overseeing programs and staff specific to that district. The Central Region includes all three ranger districts mentioned above.

This section presents a discussion of Forest Service management of wilderness and recreation resources, including ANF Land Use Zones and Places, Recreation Opportunity Spectrum (ROS) designations, and High Impact Recreation Areas (HIRA), followed by discussions of Developed Recreation and Dispersed Recreation resources and opportunities in the Forest. As previously noted, recreational resources and opportunities on NFS lands in the ANF are managed by the Forest Service as either Developed Recreation or Dispersed Recreation. As described in Table 3.15-1 (Summary Comparison of Environmental Issues/Impacts – Wilderness and Recreation) and unless defined otherwise on a case-by-case basis in this analysis, "Developed Recreation" includes resources that are regularly maintained by the Forest Service such as OHV routes, trails (for hiking, biking, and equestrian use), campgrounds, picnic areas, information centers, and other, similar facilities. Also unless defined otherwise on a case-by-case basis in this analysis, "Dispersed Recreation" includes undeveloped areas such as open space and natural scenic vistas which are used for recreational purposes but are not regularly maintained by the Forest Service. This section presents discussions of Developed and Dispersed Recreation under respective subheadings, below.

ANF Land Use Zones and Places. The particular recreational activities and uses that are available on ANF lands are largely determined by the Land Use Zones and Places designated throughout the Forest, in accordance with the USDA Forest Service Land Management Plan and the Code of Federal Regulations (CFR) Section 219.11(c). Land Use Zones in the ANF include the following: Developed Area Interface (DAI); Back Country (BC); Back Country (Motor Use Restricted) (BCMUR); Back Country Non-Motorized (BCNM); Critical Biological (CB); Existing Wilderness (EW); Recommended Wilderness (RW); and, Experimental Forest (EF) (USDA Forest Service, 2005a, 2005b). The recreational resources available in each of these zones vary in accordance with allowable access and development. Land use zones within the ANF are described in detail in Section 3.9 (Land Use). Also described in Section 3.9 are the eleven Special Designation Overlays, or "Places," which are used in conjunction with Land Use Zones to manage resources throughout the ANF. The Central Region overlays seven of these eleven Places, including the following: Soledad Front Country, Angeles Uplands (West), Angeles Uplands East, Angeles High Country, Big Tujunga Canyon, the Front Country, and San Gabriel Canyon. ANF Land Use Zones and Places are relevant to wilderness and recreation because management practices assigned to each designation determine the types of recreational uses available in that area. Please see Section 3.9 for a fully detailed discussion of Land Use Zones and Places as well as figures portraying the boundaries of each.

Recreation Opportunity Spectrum (ROS). In addition to the Forest Land Use Zones and Places described above, Forest Service management direction for recreational opportunities in the ANF is further specified by Recreation Opportunity Spectrum (ROS) objectives, which are applied throughout the ANF. The 2005 Forest Land Management Plan (FLMP or Forest Plan) uses ROS objectives to plan for future management of recreation areas and resources in the ANF. The ROS classification system describes recreational settings according to five categories, which address existing land character ranging from highly developed to primitive, or undeveloped. The five governing ROS objectives of the 2005 Forest Plan include the following, which are listed in order of most remote and least developed to least remote

and most developed: Primitive (P); Semi-Primitive Non-Motorized (SPNM); Semi-primitive Motorized (SPM); Roaded Natural (RN); and Rural (R). Designated ROS objectives on NFS lands are portrayed in Figure 3.15-3 (Recreation Opportunity Spectrum Objectives for NFS Lands in the Central Region). In addition, ROS objectives are further described below, in Table 3.15-3, which indicates how ROS objectives are assigned to each of the Land Use Zones mentioned above.

Table 3.15-3. Recreation Opportunity Spectrum (ROS) Objectives for Land Use Zones in the ANF

Land Use Zone	ROS Objective(s)
Developed Area Interface	Rural and Roaded Natural • *Rural*: Developed environment with a background of natural-appearing elements. Moderate to high social encounters and interaction between users is typical. Renewable resource modification and utilization practices are used to enhance specific recreation activities. Sights and sounds of humans are predominant on the site and roads and motorized use is extensive. Facilities are more highly developed for user comfort with ample parking. • *Roaded Natural*: Predominantly natural-appearing environments with moderate evidence of the sights and sounds of people. Such evidence usually harmonizes with the natural environment. Interaction among users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities, which are present and well defined.
Back Country	Semi-Primitive Motorized with limited areas of Roaded Natural • *Semi-Primitive Motorized*: Predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present but would be subtle. Motorized use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motorbikes is permitted. Developed facilities are present but are more rustic in nature. • *Roaded Natural*: See above.
Back Country Motorized Use Restricted	Semi-Primitive Motorized and Semi Primitive Non-Motorized • *Semi-Primitive Motorized*: See above. • *Semi-Primitive Non-Motorized*: Predominantly natural or natural-appearing environment of moderate to large size. Interaction among users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized recreation is not permitted, but local roads used for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreation experience opportunities. A minimum of developed facilities (if any) are provided.
Back Country Non-Motorized	Semi-Primitive Non-Motorized • *Semi-Primitive Non-Motorized*: See above.
Critical Biological	Semi-Primitive Non-Motorized • *Semi-Primitive Non-Motorized*: See above.
Existing Wilderness	Primitive with limited areas of Semi-Primitive Non-Motorized • *Primitive*: Characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free of evidence of human-induced restrictions and controls. Motorized use within the area is not permitted. There are no developed facilities. • *Semi-Primitive Non-Motorized*: See above.
Recommended Wilderness	Semi-Primitive Non-Motorized • *Semi-Primitive Non-Motorized*: See above.
Experimental Forest	Closed to the public except by permit.

Source: USDA Forest Service, 2005h.

Within the ANF, the Project Study Area primarily encompasses areas designated for ROS objectives of Semi-Primitive Non-Motorized (SPNM) or Semi-Primitive Motorized (SPM). Some areas designated as Roaded Natural are also included in the Project Study Area. Different types of recreational resources,

activities, and opportunities are made available or restricted by Forest Service management practices, depending upon the applicable ROS objective. Accordingly, any activity on NFS lands that conflicts with the applicable ROS objective for that area may affect corresponding recreational opportunities that are intended to be available under the applicable ROS designation.

High-Impact Recreation Areas (HIRAs). In accordance with the Federal Lands Recreation Enhancement Act (REA) of 2004, the Forest Service has designated areas on NFS lands that experience concentrated use or higher rates of visitation as High Impact Recreation Areas, or HIRAs. The chosen boundaries for each HIRA are based upon public usage of the area for recreational purposes and available amenities maintained by the Forest Service within each area, with the intention that HIRAs represent the areas of highest recreational usage and Developed Recreation opportunities in the Forest. Recreational users are required to purchase a National Forest Adventure Pass or an America the Beautiful Interagency Pass in order to use recreational resources within a HIRA. The purpose of this fee-based program, as authorized under the Federal REA, is to generate necessary funding to pay for backlogged maintenance of recreational resources throughout the Forest. Table 3.15-4 lists HIRAs which are considered to be located within the proposed Project's Regional Setting.

Table 3.15-4. High Impact Recreation Areas in the Wilderness and Recreation Study Area

HIRA	Description and Proximity within Regional Setting	Size (acres)
Big Tujunga	The Big Tujunga HIRA is located in the southwestern portion of the wilderness and recreation Study Area, which encompasses the eastern portion of this HIRA. Big Tujunga Dam is situated in the northeastern portion of the Big Tujunga HIRA. Upper Big Tujunga Canyon Rd bisects this HIRA in an east-west direction, continuing north to Mill Creek Summit.	14,700
Angeles Forest	The Angeles Forest HIRA is located along the southern border of the ANF and is centrally situated in the southern portion of the wilderness and recreation Study Area, which encompasses this HIRA entirely. Angeles Forest Highway (Hwy 2) crosses through the northern portion of this HIRA. The Angeles Forest HIRA is adjacent to the Developed Area Interface north of Arcadia, making it highly accessible to residents of cities south of the ANF. This HIRA includes a large number of Developed Recreation resources, as well the Arroyo Seco River, the West Fork San Gabriel River, and the Santa Anita Canyon River.	23,700
Angeles Crest	The Angeles Crest HIRA is located in the eastern portion of the wilderness and recreation Study Area, which encompasses the western portion of this HIRA. The Angeles Crest HIRA borders the San Gabriel Wilderness Area to the west and north and includes a portion of the Forest Service scenic byway from Shortcut Saddle to Islip Saddle.	21,800
San Gabriel Canyon	The San Gabriel Canyon HIRA extends beyond the eastern border of the wilderness and recreation Study Area; however, this HIRA is considered to be part of the Regional Setting because it includes roads that may be required for Project access. The San Gabriel Canyon HIRA borders the San Gabriel WA to the south and east, and borders the Sheep Mountain WA to the west. This HIRA is partly adjacent to the north of the City of Azusa and is highly accessible through the Developed Area Interface via Highway 39, which is routed in a south-north alignment through the HIRA. In addition, the San Gabriel Canyon WA includes the San Gabriel Canyon OHV area, the San Gabriel Reservoir, the Morris Reservoir, West Fork National Scenic Bikeway, and numerous other recreational resources.	35,800

Source: USDA Forest Service, 2007c

As mentioned, revenues generated from the sale of Adventure Passes and Interagency Passes are used to pay for backlogged maintenance, which includes the following: maintain trails, clean restrooms, pick up trash, remove litter and graffiti, provide visitor information, and fulfill other services as needed, based on visitor usage (USDA Forest Service, 2007c). The following Table 3.15-5 provides a summary of Developed Recreation resources located within each HIRA that is included in the wilderness and recreation Study Area; maintenance of these Developed Recreation resources is paid for by funds generated through the Federal REA, as described above. Please note that not all resources listed would be affected by the proposed Project or an alternative; potential impacts of the Project and alternatives are

discussed in Sections 3.15.5 through 3.15.11 and all affected resources are addressed in these latter sections.

Table 3.15-5. Developed Recreation Resources in the Project Area HIRAs

HIRA	Developed Recreation Resources
Big Tujunga	Delta Flat Day Use; Wildwood Picnic Area; Vogel Flat Picnic Area; Stonyvale Picnic Area; Condor Peak Trailhead; Big Tujunga Dam Scenic Vista (Day Use); Fall Creek Campground
Angeles Forest	Pines Picnic Area; Georges Gap Trailhead; Clear Creek Visitor Information; Switzers Picnic Area; Bear Canyon Campground; Millard Campground; Sunset Ridge Trailhead; Red Box Picnic Area, Trailhead, and Visitor Information; Valley Forge Campground; West Fork Campground; Devore Campground; Mt. Wilson Picnic Area and Scenic Vista (Day Use); Spruce Grove Campground; Cascade Picnic Area; Hoegees Campground; Chantry Flats Picnic Area, Trailhead, and FS Facility; Pack Station
Angeles Crest	Little Jimmy Campground; Islip Saddle Trailhead; Eagles Roost Picnic Area; Vista Point Picnic Area; Cooper Canyon Campground; Buckhorn Campground and Trailhead; Sulphur Springs Campground; Horse Flats Campground; Bandido Campground; Three Points Trailhead; Devil's Canyon Trailhead, Picnic Area, and Visitor Information; Chilao Campground; Coulter Campground; Vetter Mountain Lookout; Charlton Flats Picnic Area; Shortcut Saddle Trailhead
San Gabriel Canyon*	Spring Camp; Glenn Camp; West Fork National Scenic Bikeway; West Fork fishing area; San Gabriel Canyon OHV area; Burro Canyon shooting area

Source: USDA Forest Service, 2007c

* The San Gabriel Canyon HIRA is listed in this table because it is included in the Regional Setting; however, due to the large size of this HIRA and the fact that no part of the proposed transmission line route is aligned within this HIRA, only developed resources within the southwestern portion of the San Gabriel Canyon HIRA are included in this table, as this is the portion of the HIRA that is closest to the Project. Furthermore, if roads within this HIRA are used for Project access, only roads within the southwestern portion of the HIRA would be affected.

Developed and Dispersed Recreation resources in the Central Region are described in further detail below, under respective subheadings.

Developed Recreation in the Central Region

Developed Recreation resources are actively maintained by the Forest Service and experience high levels of usage by public recreationists.

Off-Highway Vehicle (OHV) Trails and Open Riding Areas. The Forest Service has designated an interconnected system of OHV trails and Open Riding Areas throughout the ANF, thus providing a range of recreational opportunities to OHV recreationists of all skill levels. For the safety of OHV recreationists, OHV use is not permitted on the same roadways as passenger vehicle travel. The types of vehicles that are permitted on Forest Service roads are defined by one of five Operational Maintenance Levels (OMLs) that are assigned to each Forest Service roadway. OMLs are guidelines for the degree of maintenance that the Forest Service invests in a road, towards the purpose of managing each road and the surrounding NFS lands for their intended uses. The Forest Service's OMLs applicable to the ANF are presented in Table 3.15-6.

Table 3.15-6. Forest Roads Operational Maintenance Level (OML) Guidelines for the ANF

Maintenance Guidelines	OML 1	OML 2	OML 3	OML 4	OML 5
Traveled Way	n/a*	Maintain for high-clearance vehicles. Log out, brush, and maintain road prism as necessary.	Maintain for standard passenger cars. Some surface roughness; low priority to user comfort; provide adequate drainage; replace base course and surfacing as needed.	Maintain for moderate user comfort. Replace surfacing to depth required for blade maintenance and to prevent wear of base course. Abate dust when needed.	Maintain for a high degree of user comfort and convenience

Table 3.15-6. Forest Roads Operational Maintenance Level (OML) Guidelines for the ANF

Maintenance Guidelines	OML 1	OML 2	OML 3	OML 4	OML 5
Shoulder	n/a*	Maintain only as necessary for planned traffic.	Maintain existing shoulders commensurate with the traveled way.	Same as OML 3.	Maintain to the same standard as the traveled way.
Drainage	Keep drainage facilities functional and prevent unacceptable environmental damage.	Same as OML 1.	Same as OML 1.	Same as OML 1.	Same as OML 1.
Roadway	Closed to vehicular traffic. Perform work to alleviate erosion or sedimentation on or from the road. Defer removal of brush and trees from the roadway.	Manage vegetative cover as needed for planned traffic. Remove and/or repair slides and/or slumps as needed for access with high clearance vehicles to control resource damage.	Maintain existing vegetative cover. Control vegetation to provide sight distance. Repair and/or remove slides and slumps to provide passage by prudent drivers in standard passenger cars.	Same as OML 3.	Same as OML 3.
Roadside	n/a*	n/a*	Remove hazard trees and clean up litter.	Clean up litter in accordance with road management objectives. Remove hazard trees and perform landscape treatments as required.	Same as OML 4.
Structure	Inspect and repair only those items that cannot be deferred, and that are necessary to protect investment, and preserve structural integrity.	Maintain all structures to provide for the passage of planned traffic.	Maintain structures to provide for passage of planned traffic. Defer noncritical items and combine to provide for more economical project. For example, defective bridge rails, running planks, and bridge guideposts on a current basis.	Same as OML 3.	Same as OML 3.
Traffic Service	Ensure that physical closure devices and/or appropriate signing are in place and functional at the road entrance. Defer the maintenance of signs within the closure until the road is opened. Correct deferred items prior to opening the road to traffic.	Install and maintain route markers; warning, regulatory, and guide signs; and other traffic control devices to provide for planned traffic and an appropriate traffic management strategy.	Install and maintain route markers; warning, regulatory, and guide signs; and other traffic devices to provide for planned traffic.	Same as OML 3.	Install and maintain route markers; warning, regulatory, and guide signs; and other traffic devices to provide for planned traffic. Renew centerlines, edge stripes. And other pavement and curb markings as needed to provide for planned traffic.

Source: USDA Forest Service, Technology & Development Program. 2005.

* n/a: Generally no work required.

Under special circumstances, OHV use may be permitted on an OML 3 roadway, providing that a Mixed Use Traffic Study has been completed to assess the safety risks involved with OHVs and passenger vehicles utilizing the same road (Seastrand, 2008). However, under normal circumstances, OHVs are restricted to OML 2 roads, thus avoiding hazards to OHV users that are created by the presence of larger vehicles on OML 3, 4, and 5 roads.

In comparison with designated OHV trails (OML 2 roads), which interconnect throughout the Forest, Open Riding Areas are designated areas where OHV recreationists are permitted to drive off trails. Each designated Open Riding Area includes an OHV Staging Area, which is where OHV's may be dropped off by their transport vehicles, which can also park in the Staging Area if a valid recreation pass is displayed (per the Federal REA described in the HIRA discussion above). There are three designated Open Riding Areas in the ANF; however, none of these Open Riding Areas are within the wilderness and recreation Study Area and therefore will not be addressed further.

Multi-Use Recreational Trails. There are more than 557 miles of hiking and equestrian trails within the ANF, including 176 miles of the Pacific Crest National Scenic Trail (PCT, as described above for the North Region) and 73 miles of National Recreation Trails, which are described in further detail below (USDA Forest Service, 2004). With the exception of the PCT and trails located within designated WAs, all trails in the ANF are open for mountain biking and equestrian use (terrain permitting). Throughout the ANF, trails provide access to recreational and wilderness resources such as campgrounds and backcountry camping areas, day use areas and picnic areas, scenic vistas, fishing and hunting areas, and designated WAs. There is a wide variety of hiking, mountain biking, and equestrian trails located throughout the ANF and within the Project Area. Table 3.15-7 (Popular Multi-Use Trail Routes in the ANF, Central Region) provides a brief summary of some popular trails, some of which (such as the NRTs and the PCT) are described in further detail below.

Table 3.15-7. Popular Multi-Use Trail Routes in the ANF, Central Region

Trail ID	Trail Name	Mileage	Beginning Trailhead	Ending Trailhead
11W06	Silver Moccasin NRT	14.2	West Fork Campground	Three Points PCT junction
11W08	Vetter Mountain	1.2	11W06 at Charlton Flats Picnic Area	Vetter Mountain Lookout
11W09	Barley Flat	3.5	FR2N46.1	FR3N19.1 at MP4.14
11W14	Gabrielino NRT	28.8	Chantry Flats Trailhead	Ventura Street / Windsor Avenue Trailhead
11W14.C	Arroyo Seco Watershed	0.4	Clear Creek (Intermittent Stream)	FR2N57
11W16	Sturtevant	2.6	11W14 at Spruce Grove	Mt. Wilson Trailhead
11W22	Mt. Wilson	6.0	Sierra Madre	FR2N45
11W28	Rim Trail	4.0	Mt. Wilson	Newcomb Pass
12W01	Arrastre Canyon	10.0	Mt. Gleason	Arrastre Canyon
12W03	World of Chaparral	1.8	Georges Gap	Clear Creek Station
12W03A	Nature's Canteen	1.0	Clear Creek (Intermittent Stream)	FR2N57
12W03B	The Pines	0.06	The Pines Day Use	12W03
12W03C	Pines PA	0.19	The Pines Day Use	Pines Picnic Area
12W03D	Trees for Tomorrow	0.5	Angeles Forest Highway	Angeles Forest Highway
12W04	Hoyt Mountain	2.0	12W03	FR2N79
12W04A	Hoyt Mountain / Pines Picnic Area	0.47	12W04	Pines Picnic Area
12W05.1	Strawberry Peak	5.0	Colby Ranch	Strawberry Peak
12W05.2	Strawberry	1.5	FR2N46.2	Tujunga Ranger District Boundary
12W09	Valley Forge	3.0	Red Box / Mt. Wilson Road	Valley Forge Campground
12W13	Dawn Mine	2.2	FR2N50.1 at Dawn Station	Tom Sloane Saddle

Table 3.15-7. Popular Multi-Use Trail Routes in the ANF, Central Region

Trail ID	Trail Name	Mileage	Beginning Trailhead	Ending Trailhead
12W14.1	Sam Merrill – Lower	2.65	Lake Ave at Loma Alta Drive	Echo Mountain Trail Junction
12W14.2	Sam Merrill – Middle	3.0	12W14.A	FR2N50A near FR2N50
12W14.3	Merrill – Upper	2.0	FR2N50.1 at the tennis court	FR2N50.1 at Markham Saddle
12W14.3A	Mt Lowe – West	1.4	12W14.3	12W14.3B
12W14.3B	Mt Lowe – East	0.3	12W14.3	Mt. Lowe Summit
12W14.A	Echo Mountain	1.0	FR2N50.2 at Cape Good Hope	Echo Mountain at the top of the incline
12W16	Idlehour	6.0	FR2N45.2	FR2N50A near FR2N50.1
12W18	Sunset Ridge	2.92	FR2N50.2	FR2N50.2
12W18.1	Sunset	0.5	Millard Campground	FR2N50.2
12W19	Burton	3.0	FR2N66 at the north end	11W14 above Oakwilde Trail Camp
12W22	Tom Sloan	2.0	FR2N50.1	Tom Sloan Saddle
12W23.1	Colby Canyon	3.5	Colby Bridge Trailhead	Strawberry Ridge
12W23.2	Colby Canyon	2.0	Colby Canyon Trailhead at Hwy 2	Josephine Saddle
12W27	El Prieto	2.0	FR2N66 above Arroyo Reserve	FR2N65
12W28	Castle Canyon	2.0	12W14.A at Echo Mountain	FR2N50A at Inspiration Point
2000	Pacific Crest National Scenic Trail	2,650	Mexico	Canada

Source: USDA Forest Service, 2007d; Okamoto, 2008

As mentioned above, the trails shown in Table 3.15-7 only represent a sample of the existing trails network in the ANF. The specific name and location of all trails that would be traversed by the proposed transmission lines or that are situated within one-half mile of the route for the proposed Project and all alternatives are identified in Sections 3.15.5 through 3.15.11 (Direct and Indirect Effects Analysis).

Pacific Crest National Scenic Trail (PCT). For a detailed description of the PCT, please see the discussion provided about with regards to the North Region. The PCT crosses through the Central Region in a west-east direction, following a natural topographic divide in the Central Region between the Soledad Front Country Place and the Angeles High Country Place. Along this topographic divide, the PCT crosses through Mill Creek Summit, a Developed Recreation area maintained by the Forest Service. The summit area includes resources such as Mill Creek Summit Fire Station, Mill Creek Summit Picnic Area, a parking area, and viewpoint look-outs. The Angeles Forest Highway also crosses this ridge at Mill Creek Summit.

National Recreation Trails (NRTs). As described above, there are more than 557 miles of multi-use trails in the ANF, including 73 miles of NRTs (USDA Forest Service, 2004). NRTs are designated by the Secretary of Interior or the Secretary of Agriculture to "recognize exemplary trails of local and regional significance in response to an application from the trail's managing agency or organization" (USFWS, 2007). The following designated NRTs are located within the Central Region: the Silver Moccasin NRT (14.2 miles), Gabrielino NRT (28.8 miles), High Desert NRT (8.4 miles), and the West Fork National Scenic Bikeway (6.7 miles).

- *Silver Moccasin NRT.* Although some sources claim that the Silver Moccasin NRT is 53 miles long, differences in trail mileage can be attributed to portions of the original Silver Moccasin NRT being designated for the PCT, which is described above. This NRT begins at West Fork Trail Camp and extending to Three Points, where there is a trailhead for the PCT. (Okamoto, 2008) The Silver Moccasin NRT was originally designated by the Los Angeles Area Council of Boy Scouts in 1942. Boy Scouts who hike the length of the Silver Moccasin NRT receive an award from the Boy Scouts of America organization. (USDA Forest Service, 2007b)

- *Gabrielino NRT*. The Gabrielino NRT, which is approximately 28.8 miles long, starts at Chantry Flat Day Use Area, with a trailhead located in Altadena at Windsor Avenue and Ventura Avenue, adjacent to the Hahamongna Watershed Park. The Gabrielino NRT was completed in 1970 through the joining of several existing trails situated mostly along canyon bottoms. There are several rest stops available along the Gabrielino NRT, including (in geographic order from the west end of the trail): Gould Mesa Trail Camp, Nino Picnic Area, Paul Little Picnic Area, and Oakwilde Trail Camp.
- *High Desert NRT*. A trailhead for High Desert NRT is available at Vincent Gap on the Angeles Crest Highway. The first portion of this NRT is also known as the Manzanita Trail, and connects Vincent Gap to South Fork Campground. The trail routes along Islip Saddle, between Mt. Williamson (to the northwest) and Mt. Islip (on the southeast), and continues for 8.4 miles along varied terrain.
- *West Fork National Scenic Bikeway (West Fork Bike Path)*. This 6.7-mile bike path was originally designated as an NRT in 1980 (NRTD, 2008). The West Fork Bike Path is accessible via Highway 39, approximately 1.5 miles north of Azusa and one mile past the Rincon Ranger Station. The West Fork Bike Path is highly accessible to the public and to bikers of most skill levels. It has an average width of ten feet, it is paved with asphalt, and the average grade is two percent (NRTD, 2008). The path runs along the southern border of the San Gabriel Wilderness Area and on the northern side of the West Fork San Gabriel River, between the San Gabriel Reservoir and Cogswell Reservoir. This bikeway is gated at each end, closing it off to motorized vehicles. However, there are ramps and platforms along the pathway that provide fishing access to the river for persons with disabilities, who can obtain access keys to drive through the gated entries from the San Gabriel Ranger District office. Other fishing resources are described below.

Campgrounds, Picnic Areas, and Other Developed Resources. The Forest Service maintains a wide variety of Developed Recreation facilities throughout the Central Region, including campgrounds and picnic areas that are highly popular with public recreationists. With the exception of group camps, which must be reserved in advance, campsites are available on a first-come, first-served basis, with a maximum stay of 14 days. A National Forest Adventure Pass must be purchased for vehicles parked in non-fee campgrounds, and a special permit is required for group camps. (USDA Forest Service, 2004)

Trailheads which provide access to the recreational trails network described above are also situated throughout the HIRAs, often in the same vicinity as campgrounds or picnic areas and day use facilities. Table 3.15-8 provides a list of campgrounds, picnic areas, day use facilities, and trailheads available within each HIRA included in the Study Area for wilderness and recreation. All developed resources in each HIRA are listed in the table below; however, some of these resources are considered to be outside the Project Area, as noted.

Campfires and cooking fires are permitted only within designated areas at developed Forest Service campgrounds and picnic areas. Outside of designated areas, a California Campfire permit (available for free) must be obtained for the use of portable stoves using gas, jellied petroleum, or pressurized liquid fuel. Open wood fires are not permitted outside of designated areas.

Table 3.15-8. Campgrounds, Picnic Areas, and Trailheads in Central Region HIRAs

Campgrounds (CG)	Picnic Areas (PA) / Day Use Facilities	Trailheads (TH)
Big Tujunga HIRA: n/a	*Big Tujunga HIRA:* • Delta Flat Day Use and Viewpoint* • Wildwood PA* • Vogel Flat PA*	*Big Tujunga HIRA:* • Condor Peak TH
Angeles Forest HIRA: • Bear Canyon CG • Millard CG • Mt. Lowe CG • Idlehouor CG • Valley Forge CG • West Fork CG • Devore CG	*Angeles Forest HIRA:* • Pines PA • Switzers PA • Clear Creek Visitor Information and FS Facility • Redbox PA and Visitor Information • Mt. Wilson PA • Cascade PA	*Angeles Forest HIRA:* • Georges Gap TH • Red Box TH • Sunset Ridge TH • Chantry Flats TH

Table 3.15-8. Campgrounds, Picnic Areas, and Trailheads in Central Region HIRAs

Campgrounds (CG)	Picnic Areas (PA) / Day Use Facilities	Trailheads (TH)
• Spruce Grove CG • Hoegees CG	• Chantry Flats PA, FS Facility, and Pack Station	
Angeles Crest HIRA: • Coulter Group CG (special permit) • Chilao CG (special permit) • Horse Flats CG (special permit) • Bandido Group CG (special permit) • Sulphur Springs Group CG (special permit)* • Buckhorn CG (special permit)* • Cooper Canyon CG* • Little Jimmy CG*	*Angeles Crest HIRA:* • Charlton Flats PA • Vetter Mtn. Lookout • Chilao PA, Visitor Information, and FS Facility • Vista Point PA* • Eagles Roost PA*	*Angeles Crest HIRA:* • Shortcut Saddle TH • Devil's Canyon TH • Three Points TH* • Buckhorn Station TH* • Islip Saddle TH*
San Gabriel Canyon HIRA: • Spring Camp • Glenn Camp • Coldbrook Campground* • Fawnskin Campground* • Deer Flat Group Campground*	*San Gabriel Canyon HIRA:* • West Fork fishing • Burro Canyon shooting area • Oaks Picnic Area*	*San Gabriel Canyon HIRA:* • West Fork TH • Heaton Flats TH* • East Fork TH* • Upper Bear TH* • Islip Wawona TH* • Deer Flat TH*

Source: USDA Forest Service, 2007e

* These resources are not considered to be within the Project Study Area but are included in this table because they are located in a HIRA that is included as part of the wilderness and recreation Study Area for this proposed Project.

Dispersed Recreation

As described above, Dispersed Recreation includes areas and resources that are used for recreational purposes but are not regularly maintained by the Forest Service. With regards to the HIRAs that are introduced in the beginning of this section, Dispersed Recreation is inclusive of recreational activities that occur outside of concentrated use areas such as campgrounds, picnic areas, and maintained trails. However, some areas that are considered to represent Dispersed Recreation also include Developed Recreation opportunities, such as designated Wilderness Areas (WAs) in the Forest that are managed to preserve the wilderness character of the natural landscape, yet include recreational resources that are considered to be Developed Recreation, such as trails and campgrounds. For the purposes of this analysis, the broader area (the WA itself) is included as Dispersed Recreation because the vast majority of recreation opportunities available in this area represent passive recreation that does not require maintained facilities and does not result in concentrated use.

Hunting. Hunting is permitted throughout the ANF during seasons that are designated and managed by the California Department of Fish and Game (CDFG). All hunters must hold a valid California hunting license to participate in recreational hunting. All hunters must comply with applicable laws, which include county, State, and federal laws which prohibit the use of fire arms in certain areas, such as within 150 feet of a residence, building, campsite, developed recreation area, or other occupied area (USDA Forest Service, 2008a). The CDFG manages recreational deer hunting throughout the State in separate zones; the Project Area is within Zone D-11. General deer hunting information for Zone D-11 is described in the California Fish and Game Commission's Mammal Hunting Regulations, Subdivision 2 (Game and Furbearers), Chapter 3 (Big Game), §360 (Deer) as follows:

(10) Zone D-11.

(A) Area: Those portions of Los Angeles and San Bernardino counties, within a line beginning at the intersection of Interstate 5 and Highway 138, south of Gorman; east on Highway 138 to Highway 14; south on Highway 14 to Palmdale and Highway 138; east on Highways 138

and 18 to Interstate 15; south on interstates 15 and 15E to Interstate 10; west on Interstate 10 to Interstate 405; north on Interstates 405 and 5 to the point of beginning.

(B) Season: The season in Zone D-11 shall open on the second Saturday in October and extend for 30 consecutive days.

(C) Bag and Possession Limit: One buck, forked horn (See subsection 351(a)) or better, per tag.

(D) Number of Tags: 5,500.

*(E) Special Conditions: Hunters that possess a D-11 deer tag may also hunt in zones D-13 and D-15 as described in subsections 360(a)(12)(A), (B) and (C), and subsections 360(a)(14)(A), (B) and (*C). (CDFG, 2008)

Two additional deer hunts are also permitted in Zone D-11, including Deer Hunt J-13 (Los Angeles Apprentice Either-Sex Deer Hunt), and Deer Hunt A-31 (Los Angeles Archery Either-Sex Deer Hunt). Dates designated by the CDFG for the regular deer season described above, as well as for Deer Hunts J-13 and A-31 in 2008 include the following:

- September 6 – September 28 (Deer Hunt A-31);
- October 11 – November 9 (regular D-11 deer hunt); and
- November 15 – November 23 (Deer Hunt J-13).

The CDFG designates opening and closing dates for each hunting season on an annual basis, and the dates that would be relevant to construction of the proposed Project or an alternative have not yet been determined. However, hunting seasons tend to occur around the same time every year, so it is reasonable to assume that the dates listed above (roughly the beginning of September through the end of November) represent the same general timing of future hunting seasons. (CFGC, 2008)

Fishing. Recreational fishing is also a popular day-use activity in the ANF. Within the Central Region, there is a variety of designated fishing areas available to the public, which are accessible using Forest System roads, designated OHV routes, and multi-use hiking trails. Some fishing areas are restricted to shoreline fishing only, while others allow for fishing from boats. Permits are required for all fishing activities. The CDFG stocks some waterways within the ANF with fish. Designated shoreline fishing areas that are stocked by the CDFG include: Upper Big Tujunga Canyon, Lower Big Tujunga Creek, Littlerock Creek and Reservoir, San Gabriel Reservoir, Arroyo Seco Creek, and the San Gabriel River (all forks). Un-stocked areas include: Bear Creek, San Antonio Creek, Big Santa Anita Creek, Santa Anita Creek, and Big Tujunga Canyon. No fishing is allowed in Cogswell Reservoir or Big Tujunga Reservoir.

Cogswell Reservoir is not located within one-half mile of the Project; however, it is included in the Study Area for this analysis because it is expected that Forest Road 2N25.1, also the West Fork Bike Path (see description above), would be used for construction access to the transmission line. This bikeway, which connects Highway 39 out of Azusa with Cogswell Reservoir just east of the proposed Segment 6, provides direct access to the West Fork San Gabriel River, which is a popular resource for "catch and release" fishing of native trout. The stretch of the West Fork San Gabriel River between approximately the second bridge upstream of Highway 39 to Cogswell Reservoir, which is the catch and release portion mentioned, also provides accessible fishing platforms for recreationists with disabilities. Although the ramps are located behind a locked gate, persons with disabilities may enter the area by motor vehicle by contacting the San Gabriel Ranger District for access. (USDA Forest Service, 2007e and 2004) In addition, the Pasadena Bait Club maintains a clubhouse located on Forest Road 2N25.1 which dates from the turn of the century (USDA Forest Service, 2008b). This clubhouse, also referred to as the Pasadena Bait Club

Cabin, is actively used by members of the Pasadena Bait Club.

Designated Wilderness Areas (WAs). There are several WAs designated on NFS lands in the ANF, however, only the San Gabriel Wilderness Area is located in the Study Area. The San Gabriel WA is located in the San Gabriel River Ranger District and covers a total of 36,118 acres, including parts of three ANF Places: San Gabriel Canyon, Angeles Uplands East, and Angeles High Country (USDA Forest Service, 2005b). In accordance with the federal Wilderness Act of 1964 (Public Law 88-57, 78 Stat. 890 16 U.S.C. 1131-1136), a Wilderness Area is defined as having the following four primary characteristics:

(1) Generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;

(2) Has outstanding opportunities for solitude or a primitive and unconfined type of recreation;

(3) Has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and

(4) May also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

As mentioned, the San Gabriel WA is included in this Study Area for the proposed Project. This WA can be accessed via Bear Creek Trail (11 miles with trailheads near Rincon and Coldbrook Ranger Stations off Highway 39), the Mt. Waterman Trail (10 miles from Three Points to Buckhorn with a one mile side trail to Twin Peaks Saddle), Devil's Canyon Trail (four miles down into Devil's Canyon) (USDA Forest Service, 2005b). Terrain in the San Gabriel WA is extremely rugged in parts and access is extremely limited in the western portion of the WA. Motorized vehicles (OHVs) are prohibited in the WA, so public access is limited to hiking or horseback riding. Most recreational use of the San Gabriel WA takes place in the riparian woodlands located in canyon bottoms, where access is provided via a small network of trails (USDA Forest Service, 2005b). Recreation activities in the San Gabriel WA include hiking, fishing, picnicking, and water play.

Other than the San Gabriel WA, described above, other designated Wilderness Areas that are located within the ANF but are not located within the Affected Environment for the proposed Project due to their distance from Project infrastructure include the following:

- *Sheep Mountain*. Designated by Congress in 1984, the Sheep Mountain WA currently includes approximately 41,883 acres with elevations ranging between 2,400 feet and over 10,000 feet at Mount Baldy (also known as Mount San Antonio). This WA traditionally receives heavy water-related recreational use such as boating, kayaking, and fishing.
- *Magic Mountain*. This Wilderness Area was designated by Congress in 2009, encompassing a total of approximately 12,282 acres. The Magic Mountain WA provides access to scenic vistas and dispersed recreation to the nearby Santa Clarita Valley.
- *Pleasant View Ridge*. Also designated by Congress in 2009, the Pleasant View Ridge WA encompasses approximately 26,757 acres, including 8,200-foot Mt. Williamson and a portion of the Pacific Crest National Scenic Trail. This WA includes extensive dispersed recreation opportunities and rugged backcountry landscape.

In ~~summary~~general, all designated Wilderness Areas are undisturbed landscapes which provide substantial opportunities for solitude, include at least 5,000 acres, and represent unique natural features.

Big Santa Anita Canyon. Big Santa Anita Canyon is a popular recreational destination located in the southern portion of the ANF. Chantry Flat is located approximately one mile north of the southern ANF border and is the primary access point into Big Santa Anita Canyon. From Sierra Madre in the San Gabriel Valley, Chantry Flat Road provides convenient access to Chantry Flat Picnic Area / Trailhead and Ranger Station / Information Center. North of Chantry Flat, Gabrielino NRT (11W14) provides

access to Mount Zion, which is located approximately 2.5 miles north of the southern ANF boundary. Mount Zion is a popular hiking destination for the Sierra Club and other conservation groups, as well as individual recreationists. Gabrielino NRT provides access to a variety of recreational resources farther north in the Forest, including multi-use trails (Sturtevant Trail, Forest Trail 11W16, Silver Moccasin NRT, Forest Trail 11W06), OHV routes (Rincon Red Box Road / OHV Road 2N24.1, OHV Road 2N23) and campgrounds (Hoegees, Spruce Grove, Devore, and West Fork).

***Scenic Vistas and Viewpoints*.** In addition to Mount Zion, which is described above in the discussion for Big Santa Anita Canyon, there are several other peaks and viewpoints in the Central Region that are located outside the Study Area but that are popular with public recreationists and could potentially provide a view of the Project. Due to the unique views and recreational opportunities available at these peaks and viewpoints, they are considered to be part of the setting for this analysis, and include the following: Cobb Estate, Mount Wilson, Mount Lowe, Mount Disappointment, and Strawberry Peak.

- **Cobb Estate**, a former estate under private ownership, is now owned by the Forest Service and maintained as a botanical garden and arboretum which offers free access to the public. Cobb Estate is located just north of the City of Altadena, at the northern terminus of Lake Avenue and the eastern terminus of East Loma Alta Drive, and along the southern border of the ANF. Trailheads for Mount Wilson and Mount Lowe are located within Cobb Estate. (Altadena Trails, 2008)
- **Mt. Wilson** has an altitude of 5,715 feet at its peak. The historic Mount Wilson Observatory and museum are located at the summit. The observatory, which is open on a seasonal basis, is accessible from CA Route 2 (Angeles Crest Highway) via Red Box Road and is popular with a variety of recreationists.
- **Mt. Lowe**, which is the site of an historic rail line, is accessible via Sunset Ridge Fire Road, which also provides access to Echo Mountain and Mr. Lowe Camp (formerly the Alpine Tavern). Mt. Lowe is a popular destination for hikers and other outdoor recreationists.
- **Mt. Disappointment** has an elevation of 5,960 feet at its peak. San Gabriel Peak, which is higher than Mt. Disappointment by 167 feet, is located approximately one-half mile to the east.
- **Strawberry Peak** summit is located relatively in the center of the Strawberry Peak Inventoried Roadless Area, and is accessible from CA Route 2 via Colby Canyon or Red Box Road and provides views of the Los Angeles Basin and the Pacific Ocean (providing clear conditions). Strawberry Peak is highly popular with outdoor recreationists due to its unique views and accessible hiking opportunities.

As mentioned, the peaks and viewpoints listed above are located outside the Study Area, but they could potentially provide views of Project infrastructure. Due to the popularity of these locations with public recreationists, they are considered in this analysis of wilderness and recreation.

South Region

The South Region extends from the southern boundary of the ANF to the existing Mira Loma Substation, as defined above under Baseline Data Collection Methodology. This region is highly urbanized and the majority of recreational resources available here are in the form of developed urban park areas, which are managed by local and regional agencies.

The South Region overlays both incorporated and unincorporated areas of Los Angeles County as well as incorporated areas of San Bernardino County. In total, there are 38 incorporated cities within the South Region (32 in Los Angeles County and 6 in San Bernardino County). Incorporated cities of Los Angeles County that are within the South Region are located south of the ANF boundary, east of Mesa Substation, north of the Orange County boundary and State Route 72, and west of the San Bernardino County boundary. Incorporated cities of San Bernardino County that are within the South Region are located west of Interstate 15. All incorporated cities of the South Region are listed below, in Table 3.15-9.

Table 3.15-9. Incorporated Cities of the Southern Region			
Los Angeles County			
Alhambra	Diamond Bar	Montebello	San Marino
Arcadia	El Monte	Monterey Park	Sierra Madre
Azusa	Glendora	Pasadena	South El Monte
Baldwin Park	Irwindale	Pico Rivera	South Pasadena
Bradbury	La Habre Heights	Pomona	Temple City
City of Industry	La Puente	Rosemead	Walnut
Claremont	La Verne	San Dimas	West Covina
Covina	Monrovia	San Gabriel	Whittier
San Bernardino County			
Chino	Montclair	Rancho Cucamonga	
Chino Hills	Ontario	Upland	

Source: Thomas Guide, 2006; Thomas Guide 2008

Recreational areas and facilities which are designated for public use within each of the cities listed above are managed by the individual cities' Department of Parks and Recreation, and/or by the County of Los Angeles Department of Parks and Recreation. These agencies are responsible for maintaining and protecting public recreational facilities such as playgrounds, open space/grassy areas, sports fields, community centers, equestrian facilities, and other recreational resources.

The specific recreational resources within each jurisdiction that fall within the Project Area are discussed below, in the appropriate sections for each alternative. Some portions of the South Region also fall under the jurisdictional authority of federal and State agencies, including the U.S. Department of Defense and the California State Lands Commission (CSLC). In addition, lands managed by the U.S. Army Corps of Engineers (USACE, or Corps) are also located in the Project area, including the Santa Fe Dam Recreation Area and the Whittier Narrows Recreation Area, both of which are discussed below. Section 3.9 (Land Use) provides more specific discussion of the land use characteristics in these areas, while Section 3.4 (Biological Resources) provides discussion of biological resources relevant to these USACE properties. The discussion provided in this section is specific to the wilderness and recreation characteristics of the Santa Fe Dam Recreation Area and the Whittier Narrows Recreation Area. Other notable recreational and wilderness resources in the South Region are discussed in further detail below.

***Hahamongna Watershed Park*.** The Hahamongna Watershed Park (formerly Oak Grove Park) is approximately 1,300 acres in size and is characterized primarily as open space. This park is located within the City of Pasadena, between the ANF and the Arroyo Seco. The Park forms the upper portion of the Arroyo Seco tributary area, with Central Arroyo and Lower Arroyo comprising the southern portions of the Arroyo Seco. The Hahamongna Watershed Park is managed by the City of Pasadena, Parks and Natural Resources Division, which has produced a Master Plan for the Watershed Park, towards the purposes of management for passive recreation uses, water conservation, and flood control activities (City of Pasadena, 2007).

***Eaton Canyon Natural Area Park / Eaton Canyon Park*.** This public park is approximately 184 acres in size and includes recreational facilities such as protected open space, a network of hiking trails, and a nature center with educational displays and programs. The park area serves as an entrance to Henninger Flats, Idlehour Campground, and Mount Wilson, which are all recreational resources within the proposed Project area. Eaton Canyon Park is managed by the Los Angeles County Department of Parks and Recreation, in conjunction with the Eaton Canyon Nature Center Associates (ECNCA), a non-profit organization dedicated to maintaining the park's open space character. The ECNCA also develops and

implements educational programs through the park towards the goal of instilling "appreciation of the natural world" in members of the public (ECNCA, 2007).

***Santa Fe Dam Recreation Area*.** The Santa Fe Dam Recreation Area is a 70-acre regional park, managed and operated by the Los Angeles County Department of Parks and Recreation. This large regional facility is located within the flood control basin of the Santa Fe Dam, which was built and operated by the US Army Corps of Engineers (SCE, 2007). Developed facilities within this recreational area include a children's water play area (open during summer), picnic areas, trails for biking and hiking, and campsites (CLADPR, 2007), which are clustered around the southern and eastern portions of the basin. A variety of boats are also available for rent, and a Nature Center provides interpretive displays and information. Per the Corps' regulations, a Master Plan has been prepared for the Santa Fe Flood Control Basin and Dam, focusing on the following primary areas of interest: (1) regional and ecosystem needs; (2) facility resource capabilities and suitability; and, (3) expressed public interests and desires (USACE, 2009). A youth athletic facility, known as the KARE Youth League Athletic Park, is currently proposed within the Basin; it would include soccer, football, softball and baseball fields as well as basketball courts and a parking lot. Also included in the KARE Youth League facilities would be a multi-purpose office/administration building with snack bar and indoor activity rooms, a picnic area and playground, a locker and restroom facility, and lighting structures for night-time activities (USACE, 2006).

San Gabriel River Corridor. The San Gabriel River is the central backbone of the San Gabriel River Watershed. The river runs north-to-south, with headwaters in the San Gabriel Mountains within the ANF. The river extends through the San Gabriel Valley and the Los Angeles Coastal Plain, terminating at the Pacific Ocean. The San Gabriel River Corridor connects a series of recreational areas within the South Region, including the regional recreation facilities are the Santa Fe Dam Recreation Area, Whittier Narrows Recreation Area, and San Gabriel Bike Trail. Local parks situated along the corridor include Encanto Park, Hacienda Park, Otis Gordon Sports Park, Barnes Park, Zamora Park, and Streamland Park (SCE, 2007).

The County of Los Angeles Department of Public Works (LADPW) developed the San Gabriel River Corridor Master Plan (2006) in order to provide ongoing planning efforts for habitat, recreation, open space, flood control, water supply, and economic development along the river's main corridor and West Fork (CLADPW, 2007a).

San Gabriel River Bike Trail. The San Gabriel River Bike Trail initiates in the City of Azusa, at the base of the San Gabriel Mountains, and continues for more than 38 miles to the Pacific Ocean, where the trail ends in Seal Beach. The trail is maintained primarily by the Los Angeles County Department of Public Works (Road Maintenance Division), although some areas of the southern portion of the bike path are maintained by the City of Long Beach and the City of Orange. In addition to providing a recreational resource for bicyclists and outdoor enthusiasts, this bike trail is also utilized by the Los Angeles Department of Public Works and other public agencies for access to facilities located along the San Gabriel River channel (SCE, 2007). The trail has more than 30 access points located along existing roadways, at bridge crossings, and in local parks, among other areas.

***Emerald Necklace Park Corridor (Emerald Necklace)*.** The Emerald Necklace (currently in development) is a 17-mile loop of interconnected trails, bike paths, parks, and greenways along the Rio Hondo River and the San Gabriel River. Several public agencies are working jointly on the Emerald Necklace project, including the Los Angeles Department of Public Works, the Los Angeles Flood Control District, and the Los Angeles Department of Parks and Recreation (SCE, 2007). These agencies are coordinating with ten

different cities along the Emerald Necklace loop, as well as a group called Amigos de los Rios and the Rivers and Mountains Conservancy. The ten cities that will be connected along the Emerald Necklace include: Pico Rivera, South El Monte, City of Industry, Baldwin Park, Peck Park, Irwindale, Arcadia, Temple City, and Rosemead. Nearly 500,000 residents in these cities will have access to new recreational opportunities through the Emerald Necklace (Amigos, 2007). The Emerald Necklace will provide a multitude of recreational opportunities in an urban environment.

Woodland Duck Farm / River Commons at the Duck Farm Project (Duck Farm). The River Commons at the Duck Farm is an ongoing open space project which is currently in development by the Watershed Conservation Authority (WCA). The WCA is a Joint Powers Authority allowed under the State of California, through which the following two public authorities operate together: the Los Angeles County Flood Control District, and the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC). The project site is a former duck farm which is located along the San Gabriel River. Upon completion, the Woodland Duck Farm project will include approximately 58 acres of open space with native habitat enhancements and low-impact recreational uses (RMC, 2007). Primary project features include the following: a 14-acre riparian corridor; a 4-acre native plant nursery; a 2-acre wildflower meadow; a 1-acre pocket park; interior trails; visitor center; amphitheater / outdoor classroom; 1.5-acre demonstration wetland and freshwater marsh; river-edge promenade; neighborhood park; community garden; upland vegetation; maintenance road improvements; sidewalk improvements; I-605 underpass improvements; expanded equestrian facility; a parking lot at the Proctor Street entrance; a parking lot at the Rall Avenue entrance (WCA, 2007). This project is further intended to connect communities on either side of the 605 freeway with the San Jose Creek Bike Trail and the San Gabriel River Bike Trail, pending ongoing improvements to the bike trails by the Los Angeles Department of Public Works (RMC, 2007). Based on grant funding, the Duck Farm project is divided into phases with Phase 1A, which includes the area between Valley Blvd and Avocado Creek, north of the 605, planned to begin construction in June of 2008 (Beesley, 2007).

Whittier Narrows Recreation Area. This Regional Park, which includes 1,400 acres and a wide variety of recreational opportunities, is managed by the Los Angeles County Department of Parks and Recreation (SCE, 2007). The Whittier Narrows are situated along the southern boundary of the San Gabriel Valley and encompass a diverse landscape area. The recreation area is situated along the San Gabriel River, at the confluence of Mission Creek, Rio Hondo, and the Alhambra Wash. Some of the recreational resources available within Whittier Narrows include: fishing lakes, comfort stations, picnicking areas, playgrounds, a nature center, an equestrian facility, trails, a multipurpose athletic complex, a military museum, soccer fields, volleyball courts, tennis courts with pro shop, and shooting ranges for archery, skeet, pistol, and trap (CLADPW, 2007b).

Puente Hills Landfill Native Habitat Preservation Area (Puente Hills Habitat Area). The Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority) is a Joint Powers Authority including the City of Whittier, County of Los Angeles, Sanitation Districts of Los Angeles County, and the Hacienda Heights Improvement Association. The Habitat Authority manages a 3,860-acre area designated as the Puente Hills Habitat Area for the purposes of restoration and preservation of open space and biological diversity, while also providing opportunities for outdoor education and low-impact recreation to the public. Established in 1994, the Habitat Authority currently owns 1,878 acres of the 3,860-acre Puente Hills Habitat Area in eastern Los Angeles County (Puente Hills Habitat Authority, 2007). The Habitat Authority's jurisdiction extends from the intersection of the 605 and 60 Freeways in the west to Harbor Boulevard in the east. Within this area, the Puente Hills Habitat Area includes portions of the

following, from west to east: Hacienda Hills (City of Hacienda Heights); Turnbull Canyon, Hellman Park, and Arroyo Pescadero (City of Whittier); Sycamore Canyon (Los Angeles County); Powder Canyon (La Habra Heights). The Habitat Authority contracts with the Mountains Recreation and Conservation Authority (MRCA) to provide ranger services within the Puente Hills Habitat Area, including regular patrols, 24-hour emergency response, educational outreach, and maintenance activities (Puente Hills Habitat Authority, 2007).

Skyline Trail and Schabarum Trail. ~~Skyline Trail is part of the~~The Schabarum Trail / Skyline Trail, also part of the "~~-~~Juan Bautista de Anza National Historic ~~historic Portola~~ Trail Recreation Route", is a multi-use recreational trail that roughly parallels Segment 8 of the proposed Project. The Juan Bautista Trail ~~which~~ follows the 1776~~69~~ journey of Spanish explorer Anza~~s~~ from Mexico ~~all the way~~ into central California ~~(Reynolds, 2007)~~. ~~The Portola Trail begins in Mexico and enters the United States near Nogales, Arizona.~~ It travels west through Arizona and California, eventually heading north to San Jose. In Puente Hills, the Skyline Trail travels in an east-west direction towards the Puente Hills Habitat Area (see description above), where Schabarum Trail connects to Skyline Trail through Powder Canyon, a 517-acre wilderness area in the eastern region of the Puente Hills Habitat Area. From Skyline Trail, Schabarum Trail continues through the Puente Hills Habitat Area and enters Schabarum Regional County Park north of Powder Canyon, joining the trail network in Powder Canyon with the trail network in the park. Schabarum Trail is managed primarily by the County of Los Angeles Department of Parks and Recreation (CLADPR), with management assistance provided by the National Parks Service (NPS). The CLADPR currently has easements from SCE for use of the utility corridor and ROW by the trail (Reynolds, 2007). In light of rapidly expanding residential development in the Chino Hills area, the CLADPR is also currently working with several government agencies and a private developer in an effort to protect the Skyline Trail and maintain some of its natural character as it passes through Chino Hills (Reynolds, 2007). Schabarum Regional County Park is also managed by the CLADPR and encompasses a total of 640 acres, of which 77 acres are developed (SCE, 2007). Recreational resources within the park include hiking, biking, and horseback riding trails, an eighteen-station fitness trail, an equestrian center, picnic areas, soccer fields, and playground areas (CLADPR, 2007).

***Chino Hills State Park*.** Chino Hills State Park occupies 12,452 acres and stretches for nearly 31 miles between the Santa Ana Mountains and the Whittier Hills, making it a major component in the Puente-Chino Hills biological corridor. This park provides a largely undeveloped open space area for outdoor appreciation and recreational opportunities. A 60-mile network of trails and fire roads within the Park accommodate recreational uses such as hiking, horseback riding, and bicycling. Some trails are restricted to non-motorized use only, for safety and habitat conservation purposes. Recreational resources provided within the park include picnic areas and equestrian facilities (staging area, pipe corrals and a historic barn).

3.15.2.2 Alternative 2: SCE's Proposed Project

Alternative 2 (the proposed Project) would include eight separate segments (Segments 4 through 11), which together would result in a 500-kV transmission line with required substations, extending from the Tehachapi Wind Resource Area in Kern County and south through the Angeles National Forest, before turning east from the Mesa Substation in Monterey Park and ending at the Mira Loma Substation in Ontario. As described in the Baseline Data Collection Methodology section, the Project Area has been divided into three separate regions, for the purposes of this analysis: the North Region, the Central Region, and the South Region. Table 3.15-10, below, provides a list of Alternative 2 Project components

within each region.

Table 3.15-10. Alternative 2 (Proposed Project) Components per Region

North Region (north of ANF)	Central Region (within ANF)	South Region (south of ANF)
S10 MP 0.0 – 16.8 S9 Cottonwind Substation S9 Whirlwind Substation S4 MP 0.0 – 19.6 S9 Antelope Substation S5 MP 0.0 – 17.8 S9 Vincent Substation S6 MP 0.0 – 1.4 S11 MP 0.0 – 1.5	S11 MP 1.5 – 24.5 S6 MP 1.4 – 26.9 S9 Gould Substation	S11 MP 24.5 – 36.2 S9 Goodrich Substation S9 Mesa Substation S7 MP 0.0 – 15.8 S9 Rio Hondo Substation S8A MP 0.0 – 35.2 S8B MP 0.0 – 6.4 S9 Mira Loma Substation S9 Chino Substation

The following section provides a description of the Affected Environment for Alternative 2 (proposed Project), including all recreational resources and designated Wilderness Areas located within one-half mile of the proposed transmission line route, as consistent with the Affected Environment defined for Land Use.

North Region

The North Region extends from the Windhub Substation (S10 MP 0.0) to the Vincent Substation (S5 MP 17.8). This region includes the proposed Project's Segments 4, 5 and 10. The North Region traverses parts of southern Kern County and northern Los Angeles County, as well as the incorporated cities of Lancaster and Palmdale. Five substations are contained within the North Region, including: Windhub, Cottonwood, Whirlwind, Antelope and Vincent. Table 3.15-11 describes the recreational and wilderness resources that are located within one-half mile of the proposed Project within the North Region.

Table 3.15-11. North Region Recreational Resources within One-Half Mile of Alternative 2

Project Component	Jurisdiction	Recreational Resource	Description	Proximity to Alternative 2 Alignment
S4 MP 2.7	Kern County	Pacific Crest National Scenic Trail (PCT)	2,650-mile trail extending from Mexico to Canada. Non-motorized traffic only.	Direct crossing
S4 MP 11.0	Los Angeles County	California Poppy Trail (130)	Los Angeles County Riding and Hiking Trail, managed by Los Angeles County Department of Parks and Recreation	Direct crossing
S4 MP 11.6 – 14.0	Los Angeles County	Antelope Valley California Poppy Reserve	1,745 acres of open space where the CA Poppy blooms annually	0.42 mile to the southwest (at S4 MP 12.7)
S4 MP 15.9	Los Angeles County	Del Sur Ranch (and associated neighborhood parks)	Proposed development in the City of Lancaster	0.38 mile to the east
S4 MP 16.0 – 18.0	Los Angeles County	California Poppy Trail (130)	Los Angeles County Riding and Hiking Trail, managed by Los Angeles County Department of Parks and Recreation	Adjacent to the east
S5 MP 1.8 – 2.0	City of Lancaster	Dirt trails and motocross trails	Used for walking, hiking, and OHV recreation	Adjacent to the southwest
S5 MP 4.4 – 17.8	City of Palmdale / L.A. County	Antelope Valley Area Trails	Planned and developing trails network described by the Antelope Valley Area Trails Plan (AVATP)	Multiple direct crossings

Table 3.15-11. North Region Recreational Resources within One-Half Mile of Alternative 2

Project Component	Jurisdiction	Recreational Resource	Description	Proximity to Alternative 2 Alignment
S5 MP 6.5 and 7.0	Los Angeles County	North Side Trail (111)	Los Angeles County Riding and Hiking Trail, managed by Los Angeles County Department of Parks and Recreation	Direct crossings
S5 MP 6.9	City of Palmdale	A.C. Warnack Nature Park	132 acres of open space with rolling hills. Signage, campsites, equestrian facilities, hiking trails, and picnic areas in development.	0.5 mile to the northeast
S5 MP 9.0	City of Palmdale	Ritter Ranch Master Planned Community	4.7-acre recreation center at the northeast corner of City Ranch Road and Ranch Center Drive	0.28 mile to the northeast
S5 MP 9.75 and 10.25	Los Angeles County	Northside Connector Trail (115)	Los Angeles County Riding and Hiking Trail, managed by Los Angeles County Department of Parks and Recreation	Direct crossing
S5 MP 13.0 – 14.0	Los Angeles County	Northside Connector Trail (115)	See above	Within and adjacent to ROW
S5 MP 14.5	Los Angeles County	Vasquez Loop Trail (116)	Los Angeles County Riding and Hiking Trail, managed by Los Angeles County Department of Parks and Recreation	Direct crossing
S5 MP 17.0	Los Angeles County	Acton Community Trail (114)	Los Angeles County Riding and Hiking Trail, managed by Los Angeles County Department of Parks and Recreation	Direct crossing
		Palmdale Hills Trail (110)	Los Angeles County Riding and Hiking Trail, managed by Los Angeles County Department of Parks and Recreation	0.25 mile to the east
S11 MP 0.2	Los Angeles County	Small dirt roads	OHV use	Direct crossing
		Vacant (undeveloped) land	Owned by BLM	0.5 mile to the east
S11 MP 0.0 – 1.5	Los Angeles County	Small dirt roads	Used for OHV recreation	Multiple direct crossings

Segment 10, North Region

Segment 10 is situated in vacant desert land. Named streets which are laid out in a grid pattern in the vicinity of Segment 10 indicate that the land is (or was) subdivided. A few existing dirt roads travel at an angle from northeast to southwest across this road pattern. Most of the proposed route for Segment 10 runs in parallel to General Petroleum Road. The land is flat with a very shallow slope from the Tehachapi Mountains in the northwest towards the southeast (SCE, 2007).

There are no formal improved recreational facilities in the vicinity of the proposed and alternative routes for Segment 10. A few parcels of land in the vicinity are in public ownership, but these are vacant and not associated with any trail systems. The Whirlwind Substation is located at MP 4.0 of Segment 4, at the southern terminus of Segment 10. This area is characterized by vacant desert land in the northwest, which transitions to cultivated lands in the southeast. There are no developed or maintained recreational facilities in the vicinity of Whirlwind Substation. A few dirt roads and trails which are known to be informally utilized by OHV recreationists are generally located northwest of the substation.

The Pacific Crest National Scenic Trail (PCT) crosses within approximately 1.2 miles to the northwest of Whirlwind Substation, which is the southern terminus of Segment 10. In this area, the PCT is located beyond the 0.5-mile radius defined as the Affected Environment; however this is considered to be a

particularly sensitive resource and is therefore noted in this discussion. The PCT is further discussed below, with regards to the proposed Segment 4.

Segment 4, North Region

The proposed Segment 4 initiates at Cottonwind Substation in Kern County and is routed along the existing Antelope-Magunden #2 (220-kV) and Midway-Vincent #3 (500-kV) transmission lines. From Cottonwind Substation in the north, Segment 4 passes through Kern County and Los Angeles County, to its terminus at the existing Antelope Substation in the City of Lancaster. Most of the land in the vicinity of Segment 4 is characterized as undeveloped desert with sparse vegetative cover and some areas of cultivated fields in the southern portion of Kern County. Recreational resources within one-half mile of Segment 4 in the North Region include the PCT and the Antelope Valley California Poppy Reserve, which are described in further detail below.

Pacific Crest National Scenic Trail (PCT). Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the PCT. In the vicinity of Segment 4, the PCT generally follows access roads and trails associated with the Los Angeles Aqueduct (SCE, 2007). Although most of the PCT is situated to follow ridgelines, it has been diverted northeast of the nearest ridgeline in this area due to the location of private property (Tejon Ranch) where easements for the trail have not been granted. The proposed Project would traverse the PCT at MP 2.7 of Segment 4.

Antelope Valley California Poppy Reserve (Poppy Reserve). Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the Poppy Reserve. The Poppy Reserve is located generally to the southwest of the proposed Project route, between S4 MP 11.6 and 14.0. The Visitor Center is located on Lancaster Road, at Avenue I. The entrance for the parking lot is off of Lancaster Road, approximately 2.8 miles southwest of S4 MP 13. The parking area, restrooms, and picnic area are located roughly one-half mile southwest of S4 MP 12.5. The distance from Segment 4 to the nearest trails in the Poppy Reserve is about 1.2 miles. As such, recreational resources associated with the Poppy Reserve are located outside the defined boundaries of this Affected Environment; however, the Poppy Reserve is considered to be a particularly unique recreational resource and is therefore included in this analysis. Access to the Poppy Reserve is available from both Highway 14 and Interstate 5, as shown in Figure 3.15-2 (Pacific Crest National Scenic Trail Crossings in the North and Central Regions).

Los Angeles County Riding and Hiking Trails. Please see Section 3.15.2.1 (Regional Setting) for a complete list of Los Angeles County multi-use trails in the North Region. Segment 4 would directly cross the California Poppy Trail (130), an easy hiking trail which provides access through the California Poppy Reserve.

Segment 5, North Region

Segment 5 of the proposed Project initiates at Antelope Substation, in the western portion of Lancaster and extends approximately 17 miles in a southeastern direction through western Palmdale and unincorporated areas of Los Angeles County, before reaching its terminus at Vincent Substation, south of the City of Palmdale. Antelope Substation is located in the City of Lancaster. There are no recreational resources or designated Wilderness Areas within one-half mile of Antelope Substation or of Segment 4 within the City of Lancaster. The nearest recreational resource in Lancaster is the Meadowlark Golf Course, which is located approximately 3.5 miles to the southeast of Antelope Substation and is therefore not included under the Affected Environment. The largest recreational resource in the City of Palmdale is the A.C. Warnack Nature Park.

Segment 5 of the proposed Project would terminate at the existing Vincent Substation. There are no recreational resources in the vicinity of this substation. The main recreational activities which occur in this area include OHV use and hiking. A network of OHV roads and trails such as those included in the Antelope Valley Area Trails Plan (AVATP), as described above, cross through the area surrounding Vincent Substation. The ANF boundary is approximately 1.5 miles to the south of the Vincent Substation, vacant State Lands Commission property is located one mile to the west, and vacant BLM land is located 0.5 mile to the southwest. Vincent Substation and the proposed expansion area are located within the existing Kentucky Springs Significant Ecological Area (SEA), which is addressed in the Land Use analysis as well as the Biological Resources analysis.

Los Angeles County Riding and Hiking Trails. Please see Section 3.15.2.1 (Regional Setting) for a complete list of Los Angeles County multi-use trails in the North Region. Segment 5 would directly cross the following trails, which are part of the Los Angeles County Riding and Hiking Trails network: North Side Trail (111), Northside Connector Trail (115), Vasquez Loop Trail (116), and Acton Community Trail (114).

Antelope Valley Area Trails. The proposed Segment 5 transmission lines would traverse multiple dirt roads and trails which cross under the existing ROW and lie within the Antelope Valley Area Trails Plan (AVATP), which is described in detail in Section 3.15.2.1 (Regional Setting). Trail designations included in the AVATP extend from approximately Mile 4.4 of Segment 5 (in the vicinity of the Los Angeles Aqueduct) through the first mile of Segment 6 (south of Vincent Substation).

A.C. Warnack Nature Park. Please see Section 3.15.2.1 (Regional Setting) for a detailed description of this 132-acre open space park. The closest portion of the proposed Project is along Segment 5 at MP 6.9, which is located approximately 0.5 mile southwest of the park. Segment 5 would be constructed within an existing ROW, which is situated within one-half mile to the southwest of the access road leading to Warnack Park.

Planned Development of Recreational Areas. Please see Section 3.15.2.1 (Regional Setting) for a detailed description of planned recreational areas in the North Region. The planned Ritter Ranch recreation center, located at the northeast corner of City Ranch Road and Ranch Center Drive, would be situated approximately 0.28 mile northeast of the proposed Segment 5 at MP 9. Because there are existing transmission lines located along the proposed route for Segment 5, both specific plans have already considered the existing utility corridor in their land use designations (SCE, 2007).

Segment 11, North Region

Segment 11 (S11) of the proposed Project is a total of 36.2 miles long and extends through all three Project Regions: North, Central, and South. The northernmost portion of Segment 11 is located in the North Region of the proposed Project area, between MP 0.0 and MP 1.5. This portion of the North Region is located in unincorporated Los Angeles County, just north of the ANF. The main recreational activities which occur in this area include OHV use and hiking. There are no recreational resources in the vicinity of this portion of Segment 11. The proposed route would cross over several informal OHV roads and hiking trails.

Central Region

The Central Region is located between the Vincent Substation (S6 MP 0.0 and S11 MP 0.0) and the southern boundary of the ANF (S11 MP 24.5 and S6 MP 26.9). The majority of the Central Region falls within the jurisdictional boundaries of the ANF and includes all of the proposed Project's Segment 6 and

approximately 70 percent of Segment 11. Within the ANF, the proposed route would cross through the following Ranger Districts (RDs): the Santa Clara / Mojave Rivers RD, the Los Angeles River RD, and the San Gabriel River RD. The Gould Substation is located outside of the ANF's jurisdictional boundaries, but is included as part of the Central Region.

ANF Land Use Zones and Places. Please see Section 3.15.2.1 (Regional Setting) for a summary of Land Use Zones and Forest Service Places within the Central Region. A detailed discussion of Land Use Zones and Places is provided in Section 3.9 (Land Use). Segment 11 of the proposed Project would be situated in the following Land Use Zones: "Back Country," "Back Country Motorized Use Restricted," and "Back Country Non-Motorized" while the Utility Corridor that would be occupied by Segment 6 (east of Segment 11) is designated primarily as "Back Country", with some areas of "Back Country Motorized Use Restricted." The Segment 6 ROW is also situated adjacent to some "Back Country Non-Motorized" areas along the central portion of the route. These designations are relevant to wilderness and recreation because they define the character of the landscape and the nature of recreational activities which take place in the vicinity of the proposed Project. The recreational resources available in each of these zones are slightly varied due to access restrictions and limited development.

Segments 11 and 6 would both traverse the following five Forest Service Places: Soledad Front Country (partially traversed by the PCT; ANF Key Place), Angeles High Country (traversed by the PCT; ANF Key Place; considered as the ANF core area), Angeles Uplands West (high recreational use; ANF Key Place), Big Tujunga Canyon (high recreational use associated with accessibility of water in the canyon bottom; no special designations); and The Front Country (high recreational use; extensive trails network; five designated IRAs). Segment 6 would also be situated along the border of the San Gabriel Canyon Place for approximately one-half mile, from S6 MP 18.0 – 18.5. This area is described below, under "San Gabriel Wilderness." (USDA Forest Service, 2005b)

Recreation Opportunity Spectrum (ROS). As previously described, management direction for recreational opportunities in the Forest is guided by ROS objectives which, per the 2005 Forest Land Management Plan (FLMP), are designated for all NFS lands in the ANF. The proposed Project would traverse the following ROS designations: Semi-Primitive Non-Motorized (SPNM), Semi-Primitive Motorized (SPM), Roaded Natural (RN), and Rural (R), as described below in Table 3.15-12.

Table 3.15-12. Forest Service ROS Objectives Traversed by Mile Post

Segment	Approximate Mile Posts	ROS objective*
Segment 11	0.0 – 1.5	N/A**
	1.5 – 4.5	SPM
	4.5 – 7.25	SPNM
	7.25 – 8.0	SPM
	8.0 – 13.25	SPNM
	13.25 – 15.0	RN
	15.0 – 15.75	SPM
	15.75 – 16.25	RN
	16.25 – 17.0	SPM
	17.0 – 18.75	RN
	18.75 – 19.25	N/A
	19.25 – 20.0	SPNM
	20.0 – 20.75	N/A
	20.75 – 21.5	R
	21.5 – 23.25	RN
	23.25 – 24.0	SPNM
	24.0 – 36.2	N/A

Table 3.15-12. Forest Service ROS Objectives Traversed by Mile Post

Segment	Approximate Mile Posts	ROS objective*
Segment 6	0.0 – 1.5	N/A
	1.5 – 4.5	SPM
	4.5 – 8.0	RN
	8.0 – 16.5	SPM
	16.5 – 17.0	RN
	17.0 – 23.25	SPM
	23.25 – 24.25	SPNM
	24.25 – 25.0	SPM
	25.0 – 27.0	SPNM

* P: Primitive; SPNM: Semi-Primitive Non-Motorized; SPM: Semi-Primitive Motorized; RN: Roaded Natural; R: Rural

** N/A: Not applicable because this portion of the Project is located on non-NFS lands.

The proposed transmission line would not traverse any ROS areas designated as "Primitive", although it would be adjacent to Primitive lands in the San Gabriel Wilderness Area for a short distance along Segment 6, between approximately MP 18.0 and MP 18.5 (the San Gabriel WA is described in this section under a subheading for "San Gabriel Wilderness Area"). The following Table 3.15-13 provides a summary of the total miles that the proposed Project would be situated on lands designated as each of the five ROS objectives, as well as a summary of the types of recreational uses that the public can expect to enjoy or have available under each ROS objective.

As described in Table 3.15-13, public recreationists can expect to have a different recreational experience depending upon which ROS objective area they choose to visit. This is largely due to the types of recreational resources, facilities, and opportunities available under each ROS designation. For instance, recreationists interested in OHV use would not be able to participate in this activity in an area designated as Primitive ROS, while backcountry enjoyment would not be available to recreationists in a designated Rural ROS area.

Table 3.15-13. Summary of Forest Service ROS Objectives Traversed by the Project

ROS Objective	Total Miles*	Forest Service Management Goals Relevant to Wilderness and Recreation	Examples of Consistent Land Uses and Recreational Resources
Primitive	0	Large, unmodified natural area with minimal interaction between users. Motorized use is not permitted. There are no developed facilities.	Designated Wilderness Areas (IRAs) and Inventoried Roadless Areas (WAs). Open space enjoyment and seclusion are available with passive recreation.
Semi-Primitive Non-Motorized	12.5	Predominantly natural or natural-appearing environment of moderate to large size. Interaction among users is low with some evidence of other users. Motorized recreation is not permitted, but some limited roads may be present for use in managing other resources. A minimum of developed facilities (if any) are provided.	Inventoried Roadless Areas (please see Section 3.9 (Land Use)). Backcountry hiking, camping, water play, and other passive recreation uses are common.
Semi-Primitive Motorized	26.75	Predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, with common evidence of other users. Motorized use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motorbikes is permitted. Developed facilities are present but are more rustic in nature.	Off-Highway Vehicle (OHV) use permitted on designated trails. Basic amenities such as campgrounds (without running water or facilities) are available.
Roaded Natural	9.75	Predominantly natural-appearing environments with moderate evidence of the sights and sounds of people. Interaction among users may be moderate to high, with evidence of other users prevalent. Conventional motorized use is allowed and incorporated into construction standards and design of facilities, which are present and well defined.	Off-Highway Vehicle (OHV) use permitted on designated trails and "open riding" areas. Developed Recreation resources such as information booths and campgrounds with bathroom facilities are available.

Table 3.15-13. Summary of Forest Service ROS Objectives Traversed by the Project

ROS Objective	Total Miles*	Forest Service Management Goals Relevant to Wilderness and Recreation	Examples of Consistent Land Uses and Recreational Resources
Rural	0.75	Substantially developed environment with a background of natural-appearing elements. Moderate to high social encounters and interaction between users is typical. Renewable resource modification and utilization practices are used to enhance specific recreation activities. Sights and sounds of humans are predominant. Roads and motorized use is extensive. Facilities are more highly developed for user comfort with ample parking.	Off-Highway Vehicle (OHV) use permitted on designated trails and "open riding" areas. Developed campgrounds, day use areas, and maintained trails for hiking, mountain biking, and equestrian use are available.

Source: USDA Forest Service, 2005h.
* Total miles of the proposed transmission line that would be situated on lands with this ROS designation.

Developed Recreation Resources and Dispersed Recreation Opportunities. Several tables are presented below to describe the recreational resources and opportunities within one-half mile of the proposed transmission line route through the Central Region. Each of these tables specifies the respective ROS objective for each identified recreational resource or opportunity, thus indicating Forest Service management goals for recreational activities at each location. Due to the differences between Developed Recreation and Dispersed Recreation, as previously described in Section 3.15.2.1 (Affected Environment: Regional Setting), recreational resources and opportunities are presented in separate tables specific to Developed Recreation and Dispersed Recreation. Also due to the reliance of access to recreational resources and opportunities (both Developed and Dispersed) on Forest System roadways throughout the Central Region, an additional table is presented for roads that provide access to recreational resources and are located within one-half mile of the proposed route. The following tables are presented in this discussion of the Affected Environment for Alternative 2:

- Table 3.15-14a: Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region. This table includes recreational resources and facilities that are actively maintained by the Forest Service.
- Table 3.15-14b: Dispersed Recreation Opportunities within One-Half Mile of Alternative 2 in the Central Region. This table includes natural features and recreational opportunities that are not maintained by the Forest Service but are commonly used for recreational purposes.
- Table 3.15-15: Forest Roads Relevant to Recreational Resources and Opportunities within One-Half Mile of Alternative 2 in the Central Region. This table includes Forest System roads that are used for access to recreational facilities, resources, and opportunities (both Developed and Dispersed).

As mentioned, the following Table 3.15-14a presents Developed Recreation opportunities in the Project Area, as well as ROS objectives relevant to each identified resource.

Table 3.15-14a. Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
Segment 11 Mile Post (MP) 0.0 – 24.5					
S11 MP 2.6 – 8.0	ANF	Forest Road 4N24 (OHV)	SPM (MP 2.6 – 4.5 and 1.25 – 8.0); SPNM (MP 4.5 – 7.25)	Unimproved, dirt road, not maintained for passenger car travel; connects Mt. Gleason Road to the northern ANF boundary	Adjacent to and/or within ROW with multiple direct crossings
S11 MP 3.8	ANF	Bear Trap Canyon OHV road	SPM	Dirt road; connects to Forest Road 4N24 (OHV)	Direct crossing

Table 3.15-14a. Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
S11 MP 7.6	ANF	Pacific Crest National Scenic Trail (PCT)	SPM	2,650-mile trail extending from Mexico to Canada. Non-motorized traffic only.	Direct crossing
S11 MP 7.9 – 11.0 and MP 11.5 – 13.0	ANF	Forest Road 3N27 (OHV)	SPM (MP 7.9 – 8.0); SPNM (MP 8.0 – 13.0)	Connects Mt. Gleason Road to Big Tujunga Canyon Road, south of Big Tujunga Reservoir. Unimproved, dirt road, not maintained for passenger car travel	Direct crossing at MP 8.0; Adjacent to and/or within ROW with multiple direct crossings
S11 MP 15.0	ANF	Clear Creek School Camp	SPNM	Outdoor education center and overnight camp operated by the Los Angeles Unified School District; year-round programs for students of all ages	0.5 mile to the east
S11 MP 16.7	ANF	Forest Road 2N75 (OHV) road	SPM	Unimproved, dirt road, not maintained for passenger car travel	Direct crossing
S11 MP 16.8 – 18.9	ANF	Gabrielino NRT	SPM (MP 16.8 – 17.0); RN (17.0 – 18.75); N/A (18.75 – 18.9)	Designated under the National Trails System Act of 1968; trailheads at Windsor Ave. in Altadena (west end) and Chantry Flat near Arcadia (east end)	Parallel to ROW, 0.25 mile to the east
S11 MP 17.0	ANF	Oakwilde Trail Camp	RN	7 campsites, open year-round, access is hike-in only	0.25 mile to the east
		Ken Burton Trail (Forest Trail 12W19)	RN	Popular hiking and mountain biking trail; accessible to urban areas	Direct crossing
S11 MP 17.9	ANF	Angeles Crest Fire Station	RN	Forest information and resources provided by District Rangers	0.2 mile to the east
S11 MP 18.1	City of La Cañada Flintridge	Gould Canyon Trail	RN	Part of the La Canada Flintridge Trails network; Multi-use trails maintained by the City and County (Los Angeles)	0.38 mile to the west
S11 MP 18.4	City of La Cañada Flintridge	Cross Town Trail	RN	Part of the La Canada Flintridge Trails network; Multi-use trails maintained by the City and County (Los Angeles)	0.19 mile to the east
S11 MP 18.3	ANF	Paul Little Picnic Areas	RN	Day use area; access to hiking and biking trails	0.4 mile to the east
S11 MP 18.6	ANF	Niño Picnic Area	RN	Day use area; access to hiking and biking trails	0.2 mile to the east
S11 MP 19.0	City of La Cañada Flintridge	La Cañada Flintridge Country Club	N/A	Private club with 18-hole golf course	0.4 mile to the south
S11 MP 19.3	ANF	Gabrielino NRT	SPNM	See above for description	Direct crossing
		Gould Mesa Trail Camp	SPNM	5 campsites, open year-round, access is hike-in only	0.2 mile to the north
S11 MP20.6 – 20.8, MP 21.2	Altadena (unincorporated L.A. County)	Altadena Crest Trail (proposed)	N/A	Popular hiking trail; leads to Millard Falls and Dawn Mine; proposed Altadena Crest Trail would connect the Hahamongna Watershed Park to Eaton Canyon Natural Area.	Multiple direct crossings

Table 3.15-14a. Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
S11 MP 21.0	ANF	Trail 12W18 (Sunset Ridge Trail) / 2N65 Chaney Trail – Los Angeles Count road	R	Hiking and mountain biking opportunities	Direct crossing (MP 21.0) and adjacent to the north (MP 21.0 – 21.2)
		Millard Trail Camp	R	5 campsites, open year-round, access is hike-in only. Trailhead for Inspiration Point and Mt. Lowe is here.	0.2 mile to the north
S11 MP 21.5	Unincorporated L.A. County	Camp Chiquita	N/A	Along the boundary with Pasadena	0.3 mile to the south
S11 MP 22.5	City of Altadena	Forest Trail 12W14A / Sam Merrill Trail	N/A	Popular trail for hiking, mountain biking, and equestrian use; access to Forest viewpoints.	Direct crossing
		Echo Mountain Picnic Area	N/A	Day use area; access to hiking and biking trails, including the Sam Merrill Trail	0.25 mile to the north
S11 MP 22.75	ANF	OHV roads (unnamed)	RN	Two unimproved, dirt roads, not maintained for passenger car travel; access around base of Mt Lowe	Direct crossing (MP 22.75) and adjacent to the north of ROW (MP 22.75 – 23.4)
S11 MP 23.0	ANF	Old Railroad Grade portion of Sam Merrill Trail	RN	Provides access to Echo Mountain Picnic area	0.5 mile to the north
Segment 6 Mile Post (MP) 0.0 – 26.9					
S6 MP 1.5 – 2.75	Unincorporated LA County	Several OHV roads	N/A	Unimproved, dirt roads, not maintained for passenger car travel	Multiple direct crossings; adjacent to ROW
S6 MP 5.5 – 7.0	ANF	Hiking trails (unnamed)	RN	Hiking trails connecting through Tie Canyon (to the south)	Within 0.5 mile to the west; Direct crossings (MP 5.9 and 6.25)
S6 MP 6.0 – 7.3	ANF	Forest Road 4N41 (OHV)	RN	Unimproved dirt road, not maintained for passenger car travel	0.1 mile to the west
S6 MP 7.3	ANF	Mill Creek Summit Picnic Area	RN	Picnic tables, restrooms, shaded area, parking area. Visitor information and resources provided by adjacent FS Fire Station.	Direct crossing by ROW
		Pacific Crest National Scenic Trail (PCT) and PCT Trailhead	RN	2,650-mile trail extending from Mexico to Canada. Non-motorized traffic only. TH located on south corner of Mount Gleason road, across the Angeles Forest Highway from Mill Creek Summit	Direct crossing at Mill Creek Summit; PCT crosses through the Picnic Area and across Angeles Forest Highway
S6 MP 7.3 – 8.0	ANF	Forest Road 4N18 (OHV)	RN	Dirt road; OHV opportunities	Direct crossing
S6 MP 8.5 – 11.0	ANF	Forest Road 4N18.1 (OHV)	SPM	Unimproved dirt road, not suitable for passenger car travel; provides access to hiking, streams/creeks, and several mines	Multiple direct crossings; adjacent to and/or within the ROW

Table 3.15-14a. Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
S6 MP 10.5 – 11.0	ANF	Forest Road 3N23 (OHV)	SPM	Unimproved dirt road, not suitable for passenger car travel; runs along Monte Cristo Creek; provides access to Angeles Forest Hwy and Monte Cristo Mine	Direct crossing (MP 10.8)
S6 MP 11.2 – 12.2	ANF	Forest Road 4N18.2 (OHV)	SPM	Unimproved dirt road, not suitable for passenger car travel; connects to Forest Road 3N19.2 (paved) in Lynx Gulch	Adjacent to and within ROW; multiple direct crossings
S6 MP 13.3	ANF	Alder Creek Trail (Forest Trail 11W05)	SPM	Hiking and mountain biking trail; stretches between Big Tujunga Canyon Road (Forest Road 3N19.2) in the south and Loomis Ranch (private in-holding) in the north; runs along Alder Creek	Direct crossing
S6 MP 13.7 – 15.0	ANF	Forest Road 3N20 (OHV)	SPM	Unimproved dirt road, not suitable for passenger car travel	Adjacent to and within ROW; multiple direct crossings
S6 MP 16.75	ANF	Shortcut Saddle Trailhead / Silver Moccasin NRT / Rincon Shortcut OHV	RN	Access to Shortcut Canyon Trail (popular hiking trail connecting to a network of other trails) / National Recreation Trail / designated OHV	0.25 mile to the east
S6 MP 17.0 and 17.5	ANF	Forest Road 2N23 (OHV)	RN (MP 17.0); SPM (MP 17.5)	Unimproved dirt road, not maintained for passenger car travel	Direct crossing
S6 MP 17.2	ANF	Silver Moccasin National Scenic Trail (Trail 11W06)	SPM	53-mile trail popular with the Boy Scouts of America	Direct crossing
S6 MP 18.8 – 19.8	ANF	Forest Road 2N23 (OHV)	SPM	Unimproved dirt road, not maintained for passenger car travel; gated at connection to Forest Road 2N25.2 (OHV) / Rincon Red Box Road (OHV)	Adjacent to the west until MP 19.5 (direct crossing), then adjacent to the right
S6 MP 19.5	ANF	Trail 11W16 and misc. trails	SPM	11W16 follows border of Los Angeles River RD / San Gabriel River RD; crosses through Newcomb Pass and connects with Rincon Red Box OHV Road	Portions of the trail are within 0.25 – 0.5 mile to the southwest
S6 MP 19.8 – 23.2	ANF	Rincon Red Box Road (OHV)	SPM	Unimproved dirt road, not maintained for passenger car travel; gated at ROW edge; West Fork Red Box Road (FR 2N25.2) connects northeast to Cogswell Reservoir; Rincon Red Box Road (FR 2N24.2) continues east; OHV use by permit only	Adjacent to and within ROW; multiple direct crossings
S6 MP 20.3 – 21.0	ANF	Forest Road 2N25.2 (OHV)	SPM	Unimproved dirt road, not maintained for passenger car travel; connects with West Fork Red Box Road to Cogswell Reservoir	Adjacent to and within ROW; multiple direct crossings

Table 3.15-14a. Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
S6 MP 21.0 – 23.2	ANF	Forest Road 2N24.1 (OHV)	SPM	Unimproved dirt road, not maintained for passenger car travel; same as Rincon Red Box Road	Adjacent to and within ROW; multiple direct crossings
S6 MP 22.2	ANF	Forest Road 2N31 (OHV)	SPM	Unimproved dirt road, not maintained for passenger car travel; access to Clamshell Canyon; connects to Rincon Shortcut (OHV) and Red Box (OHV)	Direct crossing at connection with FR 2N24.1 (OHV) / Rincon Red Box Road (OHV)
		Spring Camp	SPM	3 sites; open year-round; access via the Rincon-Shortcut OHV route; permits required for use of access road and campground	0.13 mile to the south (within the Los Angeles River Ranger District)
S6 MP 23.5	ANF	Truck Trail OHV route / Forest Road 2N24.1 (OHV)	SPNM	Unimproved dirt road, not maintained for passenger car travel; gated at connection to Rincon Red Box OHV Road	Direct crossing
S6 MP 23.5 – 24.3	ANF	Forest Road 2N30.1 (OHV)	SPNM (MP 23.5 – 24.25); SPM (MP 24.25 – 24.3)	Unimproved dirt road, not maintained for passenger car travel	Adjacent to and within ROW; multiple direct crossings
S6 MP 24.7 – 25.0	ANF	Silver Fish OHV Road / Forest Road 1N29 (OHV)	SPM	Unimproved dirt road, not maintained for passenger car travel; connects to Sawpit OHV Road, Van Tassel OHV Road, and hiking trails to the east	Direct crossing
		Silver Fish Trail	SPM	Hiking trail; connects the two segments of Silver Fish OHV Road: FR 1N29 (OHV) to the west and FR 2N28 (OHV) to the east	Direct crossing at Silver Fish OHV Road / Forest Road 1N29 (OHV)
		Van Tassel OHV Road / Forest Road 1N36 (OHV)	SPM	Unimproved dirt road, not maintained for passenger car travel; traverses Van Tassel Ridge (to the south); connects to Van Tassel Truck Trail	Direct crossing
		Sawpit OHV Road / Forest Road 2N30.2 (OHV)	SPM	Unimproved dirt road, not maintained for passenger car travel; runs along Sawpit Canyon; accessible from City of Santa Anita	Direct crossing
S6 MP 25.5 – 26.7	ANF	Van Tassel Truck Trail (OHV) / Forest Road 1N36 (OHV)	SPNM	Unimproved dirt road, not maintained for passenger car travel; gated at ROW, MP 26.7; connects with Silver Fish OHV Road to the north and Fish Canyon Road to the south in the City of Azusa	Direct crossings (NP 25.5 and MP 26.7); adjacent to the ROW within 0.25 – 0.5 mile to the west (MP 25.5 – 26.7)
		OHV road	SPNM	Unimproved dirt road, not maintained for passenger car travel	Within 0.1 mile of the ROW to the west; Direct crossing at MP 26.3

Source: USDA Forest Service, 2005e

* P: Primitive; SPNM: Semi-Primitive Non-Motorized; SPM: Semi-Primitive Motorized; RN: Roaded Natural; R: Rural

Also as described above, the following Table 3.15-14b presents Dispersed Recreation opportunities in the Project Area, as well as the designated ROS objective relevant to each opportunity. The Dispersed Recreation opportunities listed in Table 3.15-14b are presented separately from those listed in Table 3.15-14a in order to provide for an equal comparison of resources among the three Project Regions, taking into consideration that resources available in the North and South Regions represent the equivalent of Developed Recreation resources and facilities. However, for the purposes of the impact analysis presented in Sections 3.15.5 through 3.15.11, both Developed and Dispersed Recreation resources are taken into full consideration.

Table 3.15-14b. Dispersed Recreation Opportunities within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
Segment 11 Mile Post (MP) 0.0 – 24.5					
S11 MP 3.5 – 4.75	ANF	Aliso Canyon	SPM (MP 3.5 – 4.5); SPNM (MP 4.5 – 4.75)	Popular canyon recreation area with trails for hiking, biking, equestrian use, and OHV use; close proximity to cities makes Aliso Canyon highly accessible to the public	Direct crossing
S11 MP 8.0 – 11.0 and MP 11.5 – 13.0	ANF	North Fork Mill Creek	SPNM	Intermittent stream providing outdoor enjoyment and water play opportunities	Adjacent to the ROW (MP 8.0 – 11.0) and direct crossing (MP 9.4)
S11 MP 10.0	ANF	Mill Creek	SPNM	Intermittent stream providing outdoor enjoyment and water play opportunities	Direct crossing
S11 MP 11.5 – 12.5	ANF	Fall Creek	SPNM	Intermittent (north parts) and perennial (south parts) stream with recreational opportunities	Within 0.25 mile to the east
S11 MP 12.5 – 13.1	ANF	Fox Creek	SPNM	Perennial stream connecting to Big Tujunga Reservoir	0.25 mile to the west
S11 MP 13.1 – 13.5	ANF	Big Tujunga Canyon	SPNM (MP 13.1 – 13.25); RN (MP 13.25 – 13.5)	Situated at Northeast end of Big Tujunga Reservoir; includes multiple campgrounds, picnic and day use areas, trails, and scenic roadways	Direct crossing (upstream end of Big Tujunga Reservoir)
S11 MP 13.2	ANF	Big Tujunga Reservoir	SPNM	Formed by the Big Tujunga Dam for the purposes of flood control and water conservation; operated by Los Angeles County	Direct crossing at the confluence of Big Tujunga Creek and Josephine Creek
S11 MP 13.2 – 14.0	ANF	Big Tujunga Reservoir	SPNM (MP 13.1 – 13.25); RN (MP 13.25 – 14.0)	See above.	0.25 – 0.5 mile to the west
S11 MP 13.5	ANF	Big Tujunga Dam Scenic Vista	RN	Day use area	0.5 mile to the west
S11 MP 14.0 – 14.5	ANF	Strawberry Peak Inventoried Roadless Area	RN	7,193 acres; no construction permitted; located between Big Tujunga Creek (to the north) and West Fork San Gabriel River (to the south)	Within 0.5 mile to the east

Table 3.15-14b. Dispersed Recreation Opportunities within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
S11 MP 14.9	ANF	Clear Creek	RN	Perennial stream that stretches from Big Tujunga Creek (to the west) towards Arroyo Seco Creek	Direct crossing
S11 MP 15.5	ANF	Hoyt Mountain	SPM	Provides hiking opportunities and viewpoints for natural scenery	0.5 mile to the east
S11 MP 16.7	ANF	CCC Ridge	SPM	Natural feature; hiking and rock climbing opportunities	Direct crossing
S11 MP 16.8 – 18.9	ANF	Arroyo Seco Stream	SPM (MP 16.8 – 17.0); RN (MP 17.0 – 18.75); N/A (MP 18.75 – 18.9)	Perennial stream (in this part; intermittent in other parts); water supply in Pasadena and recreation in Forest, including Class IV rapids	0.25 mile to the east; runs adjacent to Gabrielino National Recreational Trail
S11 MP 19.3	ANF	Arroyo Seco Stream	SPNM	See above for description	Direct crossing
S11 MP 19.6	ANF	Fern Canyon	SPNM	Natural feature with hiking and mountain biking opportunities	Direst crossing
S11 MP 20.0 – 20.1	ANF	El Prieto Canyon / Altadena Crest Trail	N/A	Hiking and mountain biking opportunities	Direct crossing
S11 MP 20.1 – 20.3	ANF / unincorporated LA County	Multiple OHV roads	N/A	Paved and unpaved routes, providing access to Forest recreational resources	Direct crossings
S11 MP 22.5	City of Altadena	Rubio Canyon	N/A	Accessible from Altadena; popular hiking area; includes intermittent stream and small waterfalls	Direct crossing
Segment 6 Mile Post (MP) 0.0 – 26.9					
S6 MP 7.3	ANF	Mill Creek Summit	RN	Natural topographic feature (elevation: 4,910 feet); cluster of Forest infrastructure including a bulletin board with visitor information, fire safety facilities, picnic area, and trailhead. Angeles Forest Highway, Mt. Gleason Road, Forest Road 3N17, and the PCT also converge here	Direct crossing
S6 MP 10.5 – 11.0	ANF	Monte Cristo Creek	SPM	Intermittent waterway and historic gold-mining creek; runs along the west side of Iron Mountain.	Adjacent to ROW (MP 10.7 – 11.3); Direct crossing (MP 10.8)
S6 MP 13.6	ANF	Alder Creek	SPM	Perennial stream; provides a variety of water-oriented recreational opportunities	Direct crossing
S6 MP 14.0 – 16.4	ANF	Big Tujunga Creek	SPM	Intermittent stream within Big Tujunga Canyon; hiking, camping, fishing, and scenic driving opportunities along the creek	Within 0.2 mile to the west

Table 3.15-14b. Dispersed Recreation Opportunities within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
S6 MP 18.0 – 18.8	ANF	San Gabriel Wilderness Area	SPM	36,118 acres of protected wilderness area with extremely rugged terrain. Hiking, camping, and water sporting opportunities. OHV use is prohibited.	Adjacent to the east; southwest border of the wilderness area is within 0.03 mile (200 feet)
S6 MP 18.7	ANF	West fork of San Gabriel River	SPM	Currently eligible for designation as a Wild and Scenic River	Direct crossing
S6 MP 18.7 – 18.8	ANF	West Fork Inventoried Roadless Area	SPNM	1,156 acres; no construction allowed; located directly south of the West Fork of the San Gabriel River and the San Gabriel Wilderness Area	Adjacent to the east of the ROW
S6 NP 21.6 – 22.1	ANF	East Fork Santa Anita Canyon Creek	SPM	Intermittent stream (in this area)	Direct crossing of one fork at MP 22.6; two forks are 0.2 mile to the south (MP 21.9 and 22.1)
S6 MP 22.3 – 22.9	ANF	Westfork Inventoried Roadlesss Area	SPNM	4,385 acres; no construction allowed; located directly south of the San Gabriel Wilderness Area	Adjacent to the east of the ROW

In addition to the Dispersed Recreation opportunities described in Table 3.15-14b, hunting activities permitted in Zone D-11 are also considered to represent Dispersed Recreation and are included in the Affected Environment. Zone D-11 is not listed above in Table 3.15-14b because the entire Central Region of the Study Area is located within Zone D-11 and as such, construction activities along the entire length of the Project or an alternative would have the potential to affect recreational hunting activities within Zone-D-11 (please see Sections 3.15.6 – 3.15.11 for discussion of impacts).

For the purposes of this wilderness and recreation analysis and as previously introduced, the following Table 3.15-15 describes Forest System roads which provide access throughout the ANF for the Developed and Dispersed Recreation resources and opportunities described in the preceding Tables 3.15-14a and 3.15-14b. These roads do not represent Developed or Dispersed Recreation resources, facilities, or opportunities, but they are taken into consideration in the impact analysis presented in Sections 3.15.5 through 3.15.11, with regards to how Project effects to these roads could impact wilderness and recreation in the Central Region. Similar roads tables are not presented for the North and South Regions because extensive roads networks already existing in the North and South Regions provide ample and convenient access to recreation resources, whereas access in the Central Region is constrained by the availability and accessibility of Forest System roads such as those described below in Table 3.15-15.

Table 3.15-15. Forest System Roads Relevant to Recreational Resources and Opportunities within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
Segment 11 Mile Post (MP) 0.0 – 24.5					
S11 MP 7.8	ANF	Santa Clara Divide Road (3N17)	SPM	Connects to Mt. Gleason Road; provides forest access	Direct crossing
S11 MP 7.9 – 8.0	ANF	Mt. Gleason Road / Forest Road 3N17.5	SPM	Provides access to a wide variety of recreational resources within the ANF; runs parallel to the PCT	Direct crossing
		Forest Road 3N27 (OHV)	SPM	Connects Mt. Gleason Road to Big Tujunga Canyon Road, south of Big Tujunga Reservoir	Direct crossing
S11 MP 8.0 – 11.0 and MP 11.5 – 13.0	ANF	Forest Road 3N27 (OHV)	SPNM	Unimproved, dirt road, not maintained for passenger car travel	Adjacent to and/or within ROW with multiple direct crossings
S11 MP 13.5	ANF	Big Tujunga Canyon Road / Forest Road 3N53 / Angeles Forest Highway	RN	Provide access through the Forest and connections to a wide range of recreational resources	Direct crossing
S11 MP 14.2 and MP 14.5	ANF	Angeles Forest Highway (Forest Route 59)	RN	Loops from Angeles Crest Highway (California State Route 2) and provides public access through the Forest	Direct crossings
S11 MP 15.6 – 15.8	ANF	Grizzly Flat Road / Forest Road 2N79.1	SPM (MP 15.6 – 15.75); RN (MP 15.75 – 15.8)	Provides access to Grizzly Flat, Big Tujunga Canyon, and Dark Canyon	Adjacent to the west of the ROW (MP 15.6 – 15.8); Direct crossing (MP 15.8)
S11 MP 16.0	ANF	Angeles Crest Highway (Angeles Crest National Scenic Byway / Hwy 2)	RN	Provides access to multiple recreational resources within the Forest; scenic driving opportunities	Direct crossing
S11 MP 16.7	ANF	CCC Ridge Road	SPM	Natural feature; hiking and rock climbing opportunities	Direct crossing
S11 MP 16.8	ANF	Dark Canyon Road	SPM	Unimproved, dirt road, not maintained for passenger car travel; provides access to Dark Canyon and CCC Ridge	Direct crossing
S11 MP 18.3 – 18.4	ANF	Mount Lukens Road / Forest Road 2N76.2	RN	Unimproved, dirt road, not maintained for passenger car travel; hiking and mountain biking	Two direct crossings
S11 MP 20.0	ANF	Forest Road 2N66	RN	Unimproved, dirt road, not maintained for passenger car travel; connects to Ken Burton Trail	Direct crossing
S11 MP 21.2	ANF	Forest Road 2N50.2	R	Dirt road, provides access to trailheads and paved Forest road	Direct crossing
S11 MP 24.5	ANF	Mt. Wilson Road / Forest Road 2N45.3	RN	Provides access between the City of Pasadena and Henninger Flats Campground in the ANF	Direct crossing

Table 3.15-15. Forest System Roads Relevant to Recreational Resources and Opportunities within One-Half Mile of Alternative 2 in the Central Region

Project Component	Jurisdiction	Recreational Resource or High Use Area	ROS Objective*	Description	Proximity to Alternative 2 Alignment
Segment 6 Mile Post (MP) 0.0 – 26.9					
S6 MP 0.0 – 7.3	Unincorporated LA County / ANF	Angeles Forest Highway (County Road N-3 / Forest Highway 59)	N/A (MP 0.0 – 1.5); SPM (MP 1.5 – 4.5); RN (MP 4.5 – 7.3)	Connects the north and south borders of the ANF; provides access to recreational resources throughout the Forest	Adjacent and parallel to the east
S6 MP 7.3	ANF	Mount Gleason Road / Forest Road 3N17	RN	Dirt road; provides access to Mt. Pacifico Campground (to the east) as well as multiple OHV roads and hiking trails	Connects to the west side of Angeles Forest Highway, directly across from Mill Creek Summit
S6 MP 13.7 – 16.7	ANF	Big Tujunga Canyon Road (Forest Road 3N19.2 (paved))	SPM (MP 13.7 – 16.5); RN (MP 16.5 – 16.7)	Provides access to multiple recreational resources in the ANF; scenic driving opportunities	Parallel to ROW within 0.2 miles to the west; direct crossing (MP 15.5 and 16.7)
S6 MP 16.8	ANF	Angeles Crest Highway (National Scenic Byway / Hwy 2)	RN	Provides access to multiple recreational resources within the Forest; scenic driving opportunities	Direct crossing

As discussed, the roads described above in Table 3.15-15 are identified in order to fully assess potential Project impacts to wilderness and recreation that may result due to access constraints, which are not of concern in the North and South Regions. Project impacts are fully assessed in Sections 3.15.5 through 3.15.11. Although the Affected Environment discussed thus far is defined as resources within one-half mile of the transmission line route, this analysis also considers helicopter staging areas to be included as part of the Affected Environment, including those staging areas that are located beyond one-half mile of the transmission line and would be used during Project construction. The following Table 3.15-16 (Alt. 2 Helicopter Staging Areas – ROS Designations and Affected Environment) indicates the ROS objective applicable to each helicopter staging area and provides a summary of Developed and Dispersed Recreation opportunities that could be affected by helicopter use of the staging areas.

Table 3.15-16. Alternative 2 Helicopter Staging Areas – ROS Designations and Affected Environment

Site #	Site Name	Location	Proximity to T/L	ROS*	Affected Environment
1	SCE #0	Along west side of Beartrap Canyon, ~0.06 mile south of Aliso Canyon Road and 0.6 mile west of Price Ranch Road	~0.4 mile east of S11 MP 3.8	SPNM	Forest Road 4N24 (OHV) is within the ROW to the west; Beartrap Canyon OHV road is within the ROW to the southwest; dispersed recreation opportunities in Aliso Canyon to the west.
2	SCE #1	Along north side of Mt. Gleason Road, ~0.5 mile southeast of the former Big Buck Trail Camp location (presently closed)	~0.3 mile east of S11 MP 7.6	SPNM	Pacific Crest National Scenic Trail is traversed by the T/L ~0.3 mile to the west.
3	SCE #2	Adjacent to the south of Forest Road 3N27, ~1.4 mile south of Mt. Gleason Road	~0.06 mile west of S11 MP 9.3	SPNM	Forest Road 3N27 (OHV) is adjacent to the ROW to the east; dispersed recreation opportunities along North Fork Mill Creek ~0.06 mile to the east.
4	SCE #3	Adjacent to the north of Forest Road 3N27, ~2.75 miles (aerial) northeast of Big Tujunga	~0.1 mile west of S11 MP 10.75	SPNM	Dispersed recreation opportunities along North Fork Mill Creek ~0.06 mile to the east.

Table 3.15-16. Alternative 2 Helicopter Staging Areas – ROS Designations and Affected Environment

Site #	Site Name	Location	Proximity to T/L	ROS*	Affected Environment
		Reservoir			
5	SCE #3B	~0.5 mile S/SE of Big Tujunga Reservoir, on a terraced area ~ 0.15 mile W/SW of Big Tujunga Canyon Road	~0.15 mile W-SW of S11 MP 14.5	RN	Dispersed recreation opportunities in Strawberry Peak Inventoried Roadless Area ~0.5 mile to the NE
6	SCE #4	Non-NFS lands, adjacent to the west of Mt. Lukens Road (Forest Road 2N76.3), ~0.7 mile (aerial) west of Angeles Crest Station and Angeles Crest Hwy.	~0.55 mile (aerial) west of S11 MP 18.0	n/a	This is a private site called "Bee Flat", gated at the entrance and used for apiary purposes (bee farming); accessed via Mt. Lukens Road** (Forest Road 2N76.2), which is commonly used for recreational hiking and mountain biking.
7	SCE #5	Non-NFS land along Forest Road 2N69, adjacent to the north of Gould Substation	Adjacent to the west of S11 MP 18.6	n/a	Niño Picnic Area (ANF) is ~0.2 mile to the east
8	SCE #6	~0.1 mile west of the Shortcut Fire Station, Upper Big Tujunga Canyon Road (Forest Road 3N19) is located to the south (~0.15 mile), east (~0.34 mile) and north (~0.16 mile)	~ 0.35 mile west of S6 MP 16.5	SPM	Dispersed recreation opportunities along Big Tujunga Creek within ~0.15 mile to the NE
9	SCE #6B	Barley Flats (former US Air Force Nike missile site), 0.5 mile north of Angeles Forest Hwy and 1.75 miles west-NW of intersection with Upper Big Tujunga Canyon Rd	~ 1.8 miles west of S6 MP 16.75	SPM	No recreational resources present.
10	SCE #7	Adjacent to the north of Rincon-Redbox Road in the Newcomb Pass area, ~0.36 mile west of the junction with Shortcut-Edison Trail	Adjacent to the west of S6 MP 19.5	SPM	Forest Road 2N23 (OHV) is adjacent to the east of the T/L
11	SCE #8	~0.5 mile SW of Mount Bliss, along Van Tassel Truck Trail / Motorway (Forest Road).	~0.3 mile west of S6 MP 26	SPNM	Adjacent to Van Tassel Truck Trail / Motorway (OHV)
12	SCE #9	Fish Canyon Rifle Range, via Fish Canyon Road in Azusa (non-NFS lands)	1.2 miles east of S7 MP 0.6	n/a	Adjacent to shooting range** utilized by local gun clubs
13	SCE #10	Southwest of Cogswell Reservoir, accessed via Highway 39, San Gabriel Canyon Road	~2.3 miles east of S6 MP 20	SPNM	Site consists of Cogswell Main and Cogswell Annex, two open graded areas at the top of a fill slope adjacent to the reservoir; no recreational resources are present.

* P: Primitive; SPNM: Semi-Primitive Non-Motorized; SPM: Semi-Primitive Motorized; RN: Roaded Natural; R: Rural

** Recreational resource or opportunity indicated is not within 0.5 mile of the proposed transmission line and therefore is not included in Tables 3.15-14a or 3.15-14b, but is within 0.5 mile of a helicopter staging area to be used during Project construction and is therefore considered to be within the Affected Environment.

Management direction for recreational opportunities in the Forest is guided by ROS objectives which, per the 2005 Forest Land Management Plan (FLMP), are designated for all NFS lands in the ANF. The proposed helicopter staging areas included under the proposed Project are situated on lands with the following ROS objectives: Roaded Natural (SCE #3B), Semi-Primitive Non-Motorized (SCE #0, 1, 2, 3, ~~and~~ 8, and 13), and Semi-Primitive Motorized (SCE #6, 6B, and 7). None of the SCE-proposed helicopter staging areas are situated on lands designated as Primitive or Rural. Table 3.15-3 (Recreation Opportunity Spectrum (ROS) Objectives for Land Use Zones in the ANF) describe the types of recreational opportunities are available under each ROS designation on NFS lands.

Most of the Developed and Dispersed Recreation resources/opportunities identified in Table 3.15-16 as being within one-half mile of the helicopter staging areas have previously been identified in Tables 3-15.14a and 3-15.14b as being within one-half mile of the proposed transmission line. Site SCE #4 is located on private property (Bee Flat); however, this site is accessed via a Forest Service road (Mount Lukens Road) which is commonly used for recreational purposes such as hiking and mountain biking. It is reasonably assumed that access to helicopter staging area SCE #4 is dependent upon use of Mount Lukens Road and therefore, this road is included in the Affected Environment for the proposed Project.

In addition to those resources identified in Table 3.15-16 and discussed above, four other Developed Recreation resources would be affected under the proposed Project as a result of construction traffic utilizing Forest Road 2N25.1 for access to parts of Segment 6 in the Forest. These resources include the following, which are described above in Section 3.15.2.1 (Regional Setting):

- West Fork Bike Path (Forest Road 2N25.1);
- Fishing platforms and ramps along the West Fork Bike Path that provide access to the West Fork San Gabriel River for persons with disabilities (fishing opportunities are generally considered to be Dispersed Recreation; however, these platforms and ramps are considered to be Developed Recreation because they are regularly maintained and they provide unique recreational opportunities for persons with disabilities);
- Pasadena Bait Club Cabin; and
- Glenn Camp.

Project-related impacts are addressed in detail in Sections 3.15.5 through 3.15.11 analysis. Following are descriptions of the affected environment specific to Segments 11 and 6.

Segment 11, Central Region

Most of Segment 11 is situated within the existing Vincent-Gould designated Utility Corridor within the ANF. This Utility Corridor extends for 18.5 miles through the ANF and occupies 2,259 acres (USDA Forest Service, 2005b; Table 484). In this area of the ANF, recreational activities include hiking, OHV use, camping, and enjoyment of the rugged landscape and native habitats. The Forest Service maintains campgrounds and picnic facilities, as well as an extensive system of OHV roads and trails that provide access to NFS lands throughout the ANF (SCE, 2007). The proposed Segment 11 would traverse the PCT as well as multiple other trails and developed resources within the ANF.

Inventoried Roadless Areas (IRAs). IRAs are identified by the Forest Service in areas designated for Primitive ROS objectives. A detailed description of IRAs is presented in the Land Use analysis. For the purposes of wilderness and recreation, IRAs are identified as Dispersed Recreation and considered particularly sensitive because road improvements are not permitted within any IRA and because the IRAs identified in the Project Area are considered eligible for Wilderness Area designation. The Strawberry Peak IRA and the Arroyo Seco Roadless Area IRA are both located directly east of Segment 11, between approximately MP 13.0 and MP 18.0. The proposed route would be situated within 0.5 mile of Strawberry Peak IRA from S11 MP 14.0 – 14.5, and within 0.5 mile of Arroyo Seco IRA from approximately S11 MP 16.0 – 17.0. In addition, the proposed route would be adjacent to the western boundary of Arroyo Seco IRA for approximately 0.25 mile, from S11 MP 16.6 – 16.75. Segment 11 would not cross directly through any Inventoried Roadless Areas.

Off-Highway Vehicle (OHV) Roads. Please see Section 3.15.2.1 (Regional Setting) for a detailed description of designated OHV trails and Open Riding Areas within the ANF. These OHV resources provide a range of recreation opportunities for OHV enthusiasts through the development of an integrated system of trails and low-maintenance standard roads (USDA Forest Service, 2007a). There are no

designated Open Riding Areas in the Project Study Area. Designated OHV trails which are currently identified within the Central Region and would be traversed by Segment 11 are listed in Table 3.15-14a (Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region).

Pacific Crest National Scenic Trail (PCT). Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the PCT. About 1,000 miles of the PCT are located on federally protected lands and approximately 126 miles occur within the ANF (USDA Forest Service, 1987). The PCT enters the ANF from the eastern boundary of the Santa Clara/Mojave Rivers Ranger District and exits the ANF from the northwestern boundary of the same district (USDA Forest Service, 2005b). The proposed route for Segment 11 would traverse the Pacific Crest Trail at approximately Mile 7.6.

National Recreation Trails (NRTs). Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the Silver Moccasin NRT and the Gabrielino NRT. Segment 11 of the proposed Project would run adjacent to the Gabrielino NRT within 0.25 mile from S11 MP 16.8 – 18.9, and would also cross over the Gabrielino NRT at MP S11 19.3.

***La Cañada Flintridge Trails*.** The City of La Cañada Flintridge, which borders the ANF to the south, maintains a network of multi-use trails in conjunction with the County of Los Angeles Department of Parks and Recreation and the Los Angeles County Flood Control District. Roughly 24 miles of trails are maintained within this network, which connects with other trails in Pasadena, Glendale, South Pasadena, and Altadena, in addition to existing trails within the ANF (SCE, 2007). The proposed Project would be situated within 0.38 mile to the east of Gould Canyon Trail at Segment 11, MP 18.1 and within 0.19 mile to the east of Cross Town Trail at Segment 11, MP 18.4.

Sunset Ridge Trail / Altadena Crest Trail (proposed). The proposed Altadena Crest Trail would run from the Hahamongna Watershed Park, on the west side of Altadena, to Eaton Canyon Natural Area, on the east side of Altadena. This trail would traverse the foothills of the San Gabriel Mountains and would be accessible from various points along its length. The Altadena Crest Trail is currently in three unconnected segments due to poor trail maintenance and natural events such as erosion, flood, and fire damage, in addition to loss of access during development (ACTWG, 2007). The County of Los Angeles has recommended that the existing Sunset Ridge Trail be used to connect the segments of the Altadena Crest Trail (SCE, 2007). As discussed with regards to Segment 11 in the Central Region, the proposed Altadena Crest Trail would be traversed by the proposed Project in the Central Region, between Segment 11 MP 20.6 and MP 20.8, then again at Segment 11 MP 21.1.

Segment 6, Central Region

The proposed Segment 6 would initiate at Vincent Substation and travel in a southerly direction for 1.5 miles to the border of the ANF. Inside the Forest boundaries, Segment 6 would continue for 25.3 miles and would be situated within the existing Vincent Rio Hondo Designated Utility Corridor (USDA Forest Service, 2005b, Table 484). While not explicitly shown on the Forest Service Land Management Plan maps, this Utility Corridor lies generally within land designated as "Back Country" (SCE, 2007). As with Segment 11, recreational uses along Segment 6 include hiking, OHV use, camping, and enjoyment of the rugged landscape and native habitats. Campgrounds and picnic facilities are maintained by the Forest Service, in addition to OHV roads and trails that provide access to the Forest lands. Segment 6 would also cross the PCT and other recreational resources within the ANF, such as trails and campgrounds.

San Gabriel Wilderness Area (WA). Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the San Gabriel Wilderness Area. This WA is identified as Dispersed Recreation and is

considered to be a particularly sensitive resource due to the management objectives applied to all WAs. The proposed route for Segment 6 would not enter the San Gabriel Wilderness Area; however, it would be positioned directly adjacent to a portion of the southwestern boundary of this WA S6 MP 18.0 and MP 18.5.

Inventoried Roadless Areas (IRAs). As described above for Segment 11, IRAs are identified by the Forest Service in areas designated for Primitive ROS objectives and a detailed description of IRAs is presented in the Land Use analysis. The West Fork IRA (1,156 acres) and the Westfork IRA (4,385 acres) are located directly east of Segment 6, from just before MP 19.0 to approximately MP 23.0. The proposed route would be adjacent to the western boundary of the West Fork Roadless Area between MP 18.7 and 18.8, where Segment 6 would cross the West Fork of the San Gabriel River. Segment 6 would also be adjacent to the western boundary of the Westfork Roadless Area from S6 MP 22.3 – 22.9. The proposed Project would not cross through any Inventoried Roadless Areas.

Off-Highway Vehicle (OHV) Roads. Please see Section 3.15.2.1 (Regional Setting) for a detailed description of OHV trails and Open Riding Areas in the Central Region. These OHV resources in ANF provide a range of recreational opportunities through the development of an integrated system of trails and low-maintenance standard roads (USDA Forest Service, 2007a). OHV roads which are currently identified within the Central Region and would be traversed by Segment 6 are listed in are listed in Table 3.15-14a (Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region). In addition, several OHV roads are gated off at the ROW boundary in the vicinity of S6 MP 22.5 – 23.0 (SCE, 2007). Roads and trails which qualify for the California Back Country Discovery Trail also may exist in the vicinity of the proposed Segment 6 route.

Pacific Crest National Scenic Trail (PCT). Please refer to Section 3.15.2.1 (Regional Setting) for a detailed description of the PCT. The proposed route for Segment 6 would run roughly parallel to and west of the Angeles Forest Highway from Vincent Substation (S6 MP 0.0) to Mill Creek Summit (S6 MP 7.3). Segment 6 would traverse the PCT at S6 MP 7.3, where it crosses over Mill Creek Summit.

National Recreation Trails (NRTs). Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the Silver Moccasin NRT and the Gabrielino NRT. The proposed Segment 6 would cross the Silver Moccasin NRT at S6 MP17.2.

San Gabriel River, West Fork. The West Fork of the San Gabriel River is currently considered eligible for designation as a Wild and Scenic River. The Wild and Scenic Rivers Act, which was signed into law in 1968, specifically protects free-flowing waterways through: prohibition of the construction of dams or other federally-assisted water resources projects; protection of outstanding natural, cultural, or recreational values; ensures that water quality is maintained; and requires the creation of a comprehensive river management plan (NWSRS, 2007). Recreational activities that occur on this portion of the river, which is considered to represent Dispersed Recreation opportunities, include fishing and boating (kayaking), as well as general water and outdoor enjoyment. Although the proposed Project would traverse other waterways, as indicated in Table 3.15-14b (Dispersed Recreation Opportunities within One-Half Mile of Alternative 2 in the Central Region),the West Fork San Gabriel River is considered a particularly sensitive resource due to its eligibility for designation as a Wild and Scenic River. The proposed Segment 6 would cross the West Fork of the San Gabriel River at MP 18.7. This portion of the proposed Project is situated within a “Back Country” land use zone, which permits utility installations (SCE, 2007).

South Region

The South Region of the proposed Project extends from the southern boundary of the ANF (S7 MP 0.0 and S11 MP 24.5) to the Mira Loma Substation (S8A MP 35.2, S8B MP 6.8 and S8C MP 6.4). The South Region includes the following five substations: Goodrich, Rio Hondo, Mesa, Chino, and Mira Loma. This region traverses lands within Los Angeles and San Bernardino Counties, as well multiple incorporated cities. Table 3.15-17, below, describes the recreational and wilderness resources that are located within one-half mile of the proposed Project in the South Region. Recreational resources in the South Region are also portrayed on Figure 3.15-4 (Recreational Resources in the South Region).

As described in Section 3.15.2.1 (Regional Setting) and noted below in Table 3.15-17, the proposed Project is routed through and in the vicinity of USACE properties in the South Region, including the Santa Fe Dam Recreation Area and the Whittier Narrows Recreation Area, both of which are also addressing in Section 3.4 (Biological Resources) and Section 3.9 (Land Use), with regards to those resource issue areas.

Table 3.15-17. South Region Recreational Resources within One-Half Mile of Alternative 2

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Alternative 2 Alignment
Segment 11 MP 24.5 – 36.2				
S11 MP 24.7 – 26.6	City of Pasadena, L.A. County	Eaton Canyon Natural Area Park / Eaton Canyon Park	184-acre natural park area with hiking trails, nature center, and parking area.	Direct crossing.
S11 MP 26.6	City of Pasadena	Eaton Canyon Golf Course	9-hole, public course	Adjacent to western boundary of the golf course
		Hamilton Park	6.4 acres, multiple sports fields, picnic areas, and a playground	0.5 mile to the east
		Victory Park	26.6 acres with volleyball, baseball, and soccer areas	0.35 mile to the west
S11 MP 26.8	City of Pasadena	Eaton Sunnyslope Park	1.9 acres of open space	0.1 mile to the west
S11 MP 26.9	City of Pasadena	Gwinn Park	2.5-acre picnic and grass area	0.1 mile to the west (of ROW)
		Eaton Wash Park, Vina Vieja Park, and Alice Frost Kennedy Off-Leash Dog Area	7.5 acres (licensed from SCE), playground, picnic area, off-leash dog area, and multi-use paths connecting the park area to Alameda St and Avocado Ave (south of dog park)	Direct crossing through the east side of the park
S11 MP 28.2 – 28.4	City of Pasadena	Eaton Blanche Park	5.5 acres, multiple sports fields, picnic areas, and a playground	Direct crossing
S11 MP 31.7	City of Rosemead	Sally Tanner Park	Picnic and grass area	0.3 mile to the west
S11 MP 32.5	City of Rosemead	Rosemead Community Center Park		0.4 mile to the east
S11 MP 32.8	City of Rosemead	Guess Park	Park area is leased from SCE	Within ROW
S11 MP 33.0	City of Rosemead	Jesse Gonzales Sports Park	Sports fields adjacent to Sanchez School	0.3 mile to the east
S11 MP 33.4	City of Rosemead	Zapopan Park	Parking area, turf, two playgrounds, basketball court; park area is leased from SCE	Within ROW, between Earle Avenue on north and Garvey Avenue on south

Table 3.15-17. South Region Recreational Resources within One-Half Mile of Alternative 2

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Alternative 2 Alignment
Segment 7 MP 0.0 – 15.8				
S7 MP 1.0	City of Duarte	Valley View Park	Mostly vacant land north of Valley View School	0.19 mile to the east
S7 MP 1.4	City of Duarte	Royal Oaks Park	7.4 acres with turf area, parking, picnic area, lighted tennis courts, lighted basketball courts	0.06 mile to the west; closest section of park is large turf area. Active areas are 0.26 mile to the west
S7 MP 1.5	City of Duarte	Encanto Park	Multipurpose field, picnic area, playground, tennis, basketball, and sand volleyball courts	0.29 mile to the east
S7 MP 1.5 – 1.6	City of Duarte	Hacienda Park	1.64 acres with walkways, turf, play structure, picnic benches, BBQ area; existing transmission line tower near southwest corner and overhead transmission lines	Within SCE ROW
S7 MP 1.6 – 1.7	City of Duarte	Rancho Duarte Golf Club	Public 9-hole golf course	Straddles ROW and extends 850 feet to east and west
S7 MP 1.8	Enter City of Irwindale	Public trails	Hiking and biking trails along north side of San Gabriel River	South of the ROW
S7 MP 2.5	City of Irwindale / LA County Parks and Rec Dept / US ACE	Santa Fe Dam Recreation Area	Large regional park with extensive trail system, turf areas, 70-acre lake, Nature Center, swimming, boating, fishing, group camping, picnic areas, lake beach	Turf areas are more than 0.95 mile from ROW along southerly and easterly edges of recreation area
S7 MP 3.3 – 3.8	City of Irwindale	Otis Gordon Sports Park (City of Duarte)	5.98 acres, picnic and BBQ area, playground, lighted softball fields	0.25 mile to the northwest
S7 MP 3.8	City of Irwindale	Beardslee Park (City of Duarte)	4.91 acres, picnic and BBQ area, playground, soccer field, amphitheater	0.50 mile to the northwest
S7 MP 4.9	City of Irwindale	Irwindale Speedway	6,000 seats, twin paved oval tracks, parking for 3,000 cars	Across (to the northwest) I-605 from ROW
S7 MP 5.5 and 107 – 11.8	Multiple, from City of Irwindale to City of South El Monte	San Gabriel River Bike Trail	Continuous pathway along San Gabriel River, spanning 38 miles from the City of Azusa to the City of Long Beach	Multiple direct crossings
S7 MP 6.0 – 11.8, 13.5	Multiple, including Cities of El Monte and South El Monte	Emerald Necklace	Planned 17-mile interconnected network of trails, parks, and greenways	Multiple direct crossings
S7 MP 7.8	City of Baldwin Park	Barnes Park	Family recreation center, basketball courts, turf area, picnic area	0.04 mile to the east, across I-605
S7 MP 7.9	City of Baldwin Park	Zamora Park (City of El Monte)	Picnic and turf areas	0.47 mile to the northwest
S7 MP 8.2	City of Baldwin Park	Walnut Creek Nature Park	4.1 acres with trails for hiking and mountain biking	0.38 mile to the east
S7 MP 8.9 – 10.5	Unincorporated LA County (Avocado Heights and Bassett)	Woodland Duck Farm Park / River Commons at the Duck Farm Project	58 acres of open space with native habitat enhancements and low-impact recreational uses	Within ROW; proposed Project would replace existing transmission towers
S7 MP 9.1	City of El Monte	San Angelo County Park (Community of Bassett)	Small County park bordered by San Angelo Ave, Proctor St, Clogston Dr, and Arillo St.	0.28 mile to the southeast, across I-605

Table 3.15-17. South Region Recreational Resources within One-Half Mile of Alternative 2

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Alternative 2 Alignment
S7 MP 9.6 – 10.5	City of Industry	California Country Club	Private 18-hole golf course	Two holes are northwest of I-605, adjacent to ROW (MP 9.6 – 9.9); remainder of holes are southeast of I-605
S7 MP 10.7	City of South El Monte	Thienes Gateway Park (County of Los Angeles Department of Public Works)	Small resting area with benches, a drinking fountain, and bicycle racks	Located within ROW
S7 MP 11.4 – 13.6	City of South El Monte	Whittier Narrows Recreational Area (Los Angeles County Parks and Recreation Department)	1,400 acres; includes San Gabriel River, Mission Creek, Hondo Rio, Alhambra Wash; fishing, picnic areas, playgrounds, nature center, equestrian facility, trails, athletic fields, military museum, volleyball, archery, skeet pistol and trap ranges, tennis courts	Direct crossing through the center of the complex, in an east-west direction.
S7 MP 11.8	City of South El Monte	San Gabriel River Discovery Center	Located within the Whittier Narrows Recreation Area	0.15 mile to the northwest
		Lario Creek	Located within the Whittier Narrows Recreation Area	0.04 mile to the southeast
		Pico Rivera Bicentennial Park (City of Pico Rivera)	Sports arena for rodeos, picnic areas	0.19 mile to the south
S7 MP 13.5	City of Rosemead	Whittier Narrows Golf Course	Private 18-hole golf course	0.47 mile to the north
		Kingerman Park	Small community park	Adjacent to ROW; licensed from SCE
S7 MP 15.0	City of Montebello	Portrero Heights Park (Community of South San Gabriel)	Narrow community park along the northern border of the City of Montebello	0.38 mile to the north
S7 MP 15.8	City of Monterey Park	La Loma Park (City of Monterey Park)	7.5 acres, baseball and softball fields, playground, picnic area	0.28 mile to the northwest
Segment 8A MP 0.0 – 35.2; Segment 8B MP 0.0 – 6.4				
S8A MP 0.0 – 2.2	*Same as Segment 7 MP 13.6 - 15.8 (see above)*			
S8A MP 2.5 – 3.2	City of South El Monte	Whittier Narrows Recreation Area	See description for Segment 7, above	Direct crossing from northwest to southeast across the recreation area
S8A MP 3.8 – 4.3	City of Pico Rivera	Pico Rivera Bicentennial Park	Picnic areas, parking, rodeo arena and related fields	Direct crossing from west to east through the park; picnic areas north and south of the ROW; parking, rodeo arena and related fields are north of the ROW
S8A MP 7.2	Los Angeles County	Skyline Trail and Schabarum Trail	Part of the historic Juan Batista de Anza ~~Portola~~ Trail; Schabarum Trail connects to Schabarum Regional County	Direct crossing
S8A MP 9.9 – 13.5	City of La Habra Heights	Powder Canyon (Puente Hills Habitat Area)	517-acre wilderness space area with multi-use trails, oak woodland, and oak riparian forest; trail system connects to Schabarum Trail / Skyline Trail	Adjacent to the northern boundary of Powder Canyon
S8A MP 11.2	Cross into City of La Habra Heights	Generally vacant ridgeline / open space	Separates City of Hacienda Heights (to north) from La Habra Heights	Direct crossing

Table 3.15-17. South Region Recreational Resources within One-Half Mile of Alternative 2

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Alternative 2 Alignment
S8A MP 12.1 – 13.4	City of La Habra Heights	Schabarum Regional County Park	Wilderness park, open space, natural areas, canyons and hills, hiking, biking, horseback riding, equestrian center, fitness trail, picnic area, soccer field, playground	0.04 mile to the north; improved recreation areas are 0.38 mile to the north of ROW; proposed Project would be adjacent to the south of existing Olinda-Walnut 200-kV T/L
S8A MP 13.1	City of La Habra Heights	Trailview Park (Los Angeles County)	1.8 acres, picnicking, multi-use trail connects Trailview Park to Schabarum Regional Park	0.13 mile to the north; existing ridge and plateau with water tank is located between the park and the proposed Segment 8
S8A MP 13.7	Los Angeles County (Hacienda Heights)	Pathfinder Park	Recreation center, ball fields, picnic area, tennis courts, turf area	Direct crossing through northern portion of park; turf, parking, tennis courts are north of the ROW
S8A MP 17.7	Los Angeles County	Trails from Diamond Bar	Connect with OHV roads in Puente Hills at Brea Ridge Mountain Way	Direct crossing
S8A MP 19.2	Los Angeles County	Firestone Scout Reservation	Mostly undeveloped with vacant land and some OHV roads along ridgelines in north; access and facilities are along Tonner Canyon	0.19 mile to the southeast; Tonner Canyon is 0.95 mile to the southwest
S8A MP 22.3 – 22.4	City of Chino Hills	Western Hills Country Club	Private 18-hole golf club	Eucalyptus Avenue runs parallel to ROW, 0.04 – 0.13 mile to the northeast
S8A MP 22.9 – 23.0	City of Chino Hills	Coral Ridge Park	6.5 acres with playground, picnic area, basketball ½-court, par course, BBQ area, 4 lighted tennis courts	Direct crossing; from this park, a bike-pedestrian pathway continues to the northeast, within the ROW
S8A MP 23.6 – 23.8	City of Chino Hills	Crossroads Park	12.8 acres with trail access, par course, basketball court, grass area, summer concert-in-the-park series, playground, picnic areas, exercise course, 2 tennis courts, BBQ area, gazebo	Direct crossing
S8A MP 23.8 – 24.5	City of Chino Hills	Pedestrian and bike path	Extends from Crossroads Park across Chino Hills Parkway, connecting to Morning Field Park at Lost Trail Drive	Pathway is located within the ROW
S8A MP 23.9	City of Chino Hills	Oak Ridge Park	3.7 acres with playground, soccer field, football field, trailhead	0.49 mile to the southeast
S8A MP 24.1	City of Chino Hills	Morningside Park	3.5 acres with open space, grassy area, and picnic tables	0.38 mile to the southeast
S8A MP 24.5	City of Chino Hills	Morningfield Park	Terminus for the pedestrian and bike path linking to Crossroads Park and Coral Ridge Park; playground, picnic area with BBQ	0.05 mile to the south
S8A MP 25.4	City of Chino Hills	Glenmeade Park	3.2 acres with a playground, volleyball court, picnic tables, and barbeque facilities	0.38 mile to the south
S8A MP 27.7 – 28.6	City of Chino	Ruben S. Ayala Park	124 acres with ball fields, trails, and picnic areas	Park runs along the south side of Edison Avenue and includes a pedestrian and bike path within the ROW along the northern boundary of the park.
S8A MP 29.3	City of Chino	Cypress Trails Park	Large outdoor park with grassy areas and lighted tennis courts	0.28 mile to the north
S8A MP 35.0	City of Ontario	Creekside Golf Course	9-hole public golf course	0.47 mile to the north

[1] Applies equally to Segments 8B and 8C

The Regional Setting for the South Region of the proposed Project is characterized as a highly urbanized landscape with multiple parks and other recreational facilities in the vicinity of the proposed route. The South Region includes five substations as well as parts of Segment 11 and all of Segments 7, 8A and 8B. The wilderness and recreation setting for these project components is described below.

Segment 11

The southern portion of Segment 11 crosses through the densely urbanized areas south of the San Gabriel Mountains. A complex pattern of city limits and urban land uses characterizes this area. Most recreational facilities here are either neighborhood or community parks, typically with picnic areas, playgrounds, grass areas, parking, and restrooms, among other possible facilities. Other recreational facilities include golf courses and larger regional parks, most of which are operated by the Los Angeles County Department of Parks and Recreation. The recreational resources which are directly crossed by the proposed Project and other notable resources within the vicinity are described in more detail below.

Eaton Canyon Natural Area Park / Eaton Canyon Park. Please see Section 3.15.2.1 (Regional Setting) for a complete description of the Eaton Canyon Natural Area Park (Eaton Canyon Park). As described, the proposed route for Segment 11 crosses through Eaton Canyon Park for approximately 1.9 miles, between MP 24.7 and MP 26.6.

Segment 7

As mentioned above, recreational resources which are directly crossed by the proposed Project and other notable resources within the vicinity are described below.

***San Gabriel River Corridor*.** Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the San Gabriel River Corridor. Segment 7 of the proposed Project would intersect the San Gabriel River Corridor at approximately MP 1.8 and run generally alongside the river within one-half mile until about S7 MP 12, at the Whittier Narrows Dam. Segment 7 crosses the river at approximately S7 MP 5.6 and S7 MP 10.7.

San Gabriel River Bike Trail. Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the San Gabriel River Bike Trail. The proposed Project would traverse the bike trail at approximately Segment 7 MP 5.5, as well as at Segment 7 MP 10.7, at Thienes Gateway Park, or Thienes Avenue Gateway, a small resting area with benches, a drinking fountain, and bike racks. Thienes Gateway Park is located within the existing Los Angeles County Flood Control District ROW (SCE, 2007). The proposed route for Segment 7 would then run adjacent to the San Gabriel River Bike Trail from MP 10.7 to approximately MP 11.8.

***Emerald Necklace*.** Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the Emerald Necklace. Segment 7 of the proposed Project would run alongside the Emerald Necklace for 5.8 miles, from approximately MP 6 to MP 11.8. Segment 7 would also cross over part of the Emerald Necklace area at MP 13.5.

***River Commons at the Duck Farm Project (Duck Farm Project)*.** Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the Duck Farm Project. The proposed Segment 7 would replace an existing transmission line within the Woodland Duck Farm for 1.6 miles, from Segment 7 MP 8.9 to MP 10.5.

***Whittier Narrows Recreation Area*.** Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the Whittier Narrows Recreation Area. The ROW for Segment 7 of the proposed Project crosses through the middle of the Whittier Narrows Recreation Area in an east-west direction, between S7 MP 11.4 and MP 13.6 (2.2 miles).

***Pico Rivera Bicentennial Park and Sports Arena*.** The Pico Rivera Bicentennial Park includes picnic areas and an equestrian center with horse boarding facilities on 60 acres of land in the north part of the city (City of Pico Rivera, 2007). The Pico Rivera Sports Arena, which is immediately adjacent to Bicentennial Park, has a capacity of 6,000 seats and is famous for its Mexican rodeos (City of Pico Rivera, 2007). The proposed Segment 8A would cross directly through the park area for 0.5 mile, from the west to the east. Entering the park at S8A MP 3.8, the ROW would remain south of the rodeo area and equestrian facilities until S8A MP 4.3, where it would exit the park.

Segment 8

The recreational resources which are directly crossed by Segment 8 are described in further detail below.

***Whittier Narrows Recreation Area*.** Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the Whittier Narrows Recreation Area. Segment 8 of the proposed Project would cross through Whittier Narrows Recreation Area from the northwest to the southeast from S8 MP 2.5 – 3.2.

***Puente Hills Landfill Native Habitat Preservation Area (Puente Hills Habitat Area)*.** Please see Section 3.15.2.1 (Regional Setting) for a detailed description of the Puente Hills Habitat Area. As described, the Puente Hills Habitat Area is managed by the Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority), a Joint Powers Authority with the City of Whittier, County of Los Angeles, Sanitation Districts of Los Angeles County, and the Hacienda Heights Improvement Association. The proposed TRTP alignment would enter the jurisdiction of this Joint Powers Authority after crossing the San Gabriel River Freeway (I-605), at approximately S8A MP 3.3 and exit this jurisdiction at approximately MP 13.58, where the line would cross Harbor Boulevard south of the community of Rowland Heights. As described in Section 3.15.2.1 (Regional Setting), this jurisdiction is not entirely under the ownership of the Joint Powers Authority; rather, the Habitat Authority owns 1,878 acres of the 3,860-acre Puente Hills Habitat Area and the remaining 1,982 acres are managed through agreements with the Joint Powers Authority.

The proposed Project would cross through two areas of the Puente Hills Habitat Area that are owned directly by the Habitat Authority for roughly 0.7 mile in each area: in the Hacienda Hills area between Turnbull Canyon (to the southwest) and Hacienda Hills (to the northeast), and in western Hacienda Heights, adjacent to the northeast of Worsham Canyon and La Canada Verde. In the Hacienda Hills area, the proposed transmission line would traverse Schabarum Trail (please see full description below) in two places: between the trailheads for Native Oak Trail and Ahwinga Trail, and at the trailhead for Coyote Trail. The proposed transmission line would also traverse Ahwingna Trail in this area, and would be situated in close proximity to Puma Trail and Coyote Trail. The proposed Project would also traverse land adjacent to Habitat Authority property, where the transmission line would be routed along the northern border of Powder Canyon (Habitat Authority property), between the northern border of Powder Canyon and the southern border of Schabarum Regional Park (Los Angeles County Department of Parks and Recreation). Powder Canyon is located in the eastern portion of the Puente Hills Habitat Area. Segment 8A would traverse the northern boundary of Powder Canyon for approximately 3.5 miles, from S8A MP 9.9 to S8A MP 13.5. Multiple recreational trails are located in the Powder Canyon area, including Nogales Trail.

***Schabarum Trail / Skyline Trail and Puente Hills Habitat Area*.** Please see Section 3.15.2.1 (Regional Setting) for a detailed description of Schabarum Trail and Skyline Trail. As described, Skyline Trail is part of an historic trail network and Schabarum Trail connects Skyline Trail with the Schabarum Regional County Park. Within the Puente Hills Habitat Area, most of the Schabarum Trail is currently situated within and adjacent to the existing utility ROW and as such, the proposed route would traverse Schabarum Trail multiple times between S8A MP 3.3 and S8A MP 13.58 (within the Puente Hills Habitat Area). One area where Scabarum Trail is not currently situated adjacent to the existing utility corridor is northeast of Rose Hills Memorial Park, in the western portion of the Puente Hills Habitat Area. However, along this portion of the proposed route, the transmission line would diverge from the existing ROW and re-locate five existing transmission towers to a new, expanded ROW along the northeastern boundary of Rose Hills Memorial Park. This new, expanded ROW would traverse and/or be situated immediately adjacent to Schabarum Trail from approximately S8A MP 5.85 to S8A MP 7.2, in an area where Schabarum Trail currently passes through open space along a ridgeline. One other location where the proposed Project would require expanded ROW over Schabarum Trail is north of Powder Canyon, where Schabarum Trail connects the existing trail network in Powder Canyon with Schabarum Regional County Park. In this area, the existing ROW runs in an east-west direction between Powder Canyon to the south and Schabarum Regional County Park to the north.

***Schabarum Regional County Park*.** Please see Section 3.15.2.1 (Regional Setting) for a detailed description of this county park. The proposed Project would traverse the southern boundary of Schabarum Regional County Park along Segment 8A for approximately 1.3 miles, from MP 12.1 through MP 13.4, running between Powder Canyon (to the south) and the park (to the north).

Crossroads Park and Bike Path. Crossroads Park is a 12.8-acre open space area, with recreational resources including a playground, picnic tables, full basketball court, exercise course, two tennis courts, barbeque area, a gazebo, and a golfing area. The main feature of Crossroads Park is an open, grassy area which is used for a "Concert in the Park" series during the summer months (City of Chino Hills, 2007). A pedestrian and bike path extends from Crossroads Park, across Chino Hills Parkway, and connects to Morning Field Park at Lost Trail Drive. Segment 8A of the proposed Project would pass through Crossroads Park for 0.2 mile, between S8A MP 23.6 and MP 23.8. In addition, the pedestrian and bike trail that connects Crossroads Park with Morning Field Park is situated within the Project ROW along Segment 8A, between MP 23.8 and MP 24.5.

***Ruben S. Ayala Park*.** This is a large community area in the City of Chino Hills, which encompasses 124 acres and includes multiple recreational features, such as a skate park, baseball and softball fields, picnic areas, and large grassy areas (SCE, 2007). A bicycle and pedestrian trail exists within the ROW, along the northern boundary of this park. The ROW in this area is also landscaped. Segment 8A would run along the north boundary of the park for nearly one mile, from MP 27.7 to MP 28.6, thereby separating the park from Edison Avenue.

3.15.2.3 Alternative 3: West Lancaster Alternative

This alternative includes one deviation from the proposed Project route, which would extend for 3.4 miles along Segment 4, between S4 MP 14.9 and S4 17.9. This reroute is located in the North Region of the Project Area. No other portion of the proposed Project route would be altered under Alternative 3. As with the proposed Project and consistent with the Land Use analysis, the Affected Environment for Alternative 3 is inclusive of all wilderness and recreation resources located within one-half mile of the proposed transmission line route.

North Region

The portion of Segment 4 that would be rerouted for Alternative 3 is situated in an area that is predominately used for agriculture. Land use on either side of the rerouted segment is characterized as open space and agriculture (cultivated fields). Table 3.15-11 (North Region Recreational Resources within One-Half Mile of Alternative 2) indicates that there are no recreational resources along Segment 4 for the proposed Project route that are in the vicinity of the proposed reroute under Alternative 3 (S4 MP 14.9 – 17.9). Therefore, no new Wilderness or Recreational resources within one-half mile of the proposed route would be introduced through Alternative 3. The Affected Environment for the North Region of Alternative 3 is exactly the same as the Affected Environment for the proposed Project, as described in Section 3.15.2.2.

Central Region

The Affected Environment for the Central Region of Alternative 3 is exactly the same as the Affected Environment for the Central Region of the proposed Project, as described in Section 3.15.2.2.

South Region

The Affected Environment for the South Region of Alternative 3 is exactly the same as the Affected Environment for the South Region of the proposed Project, as described in Section 3.15.2.2.

3.15.2.4 Alternative 4: Chino Hills Route Alternatives

Under Alternative 4, the proposed transmission line would follow the same route as the proposed Project through the North and Central Regions. In the South Region, Alternative 4 would diverge from the proposed Project route at S8A MP 19.2 and turn to the southeast, crossing through part of Orange County before entering San Bernardino County and the Chino Hills State Park (CHSP). As described below, Alternative 4 includes five different routing options: Routes A through D and Route C Modified. Figure 3.15-5 (Chino Hills State Park Management Zones) shows the alignment of these five route options in relation to CHSP Management Zones. Descriptions of each routing option, provided below, include discussion of the Management Zones traversed by each proposed route. As with the proposed Project and consistent with the Land Use analysis presented in Section 3.9, the Affected Environment for Alternative 4 is inclusive of all wilderness and recreation resources located within one-half mile of the proposed transmission line route.

North Region

The Affected Environment for the North Region of Alternative 4 is exactly the same as the Affected Environment for the North Region of the proposed Project, as described in Section 3.15.2.2.

Central Region

The Affected Environment for the Central Region of Alternative 4 is exactly the same as the Affected Environment for the Central Region of the proposed Project, as described in Section 3.15.2.2.

South Region

As described above, the Affected Environment of Alternative 4 is identical to the Affected Environment of the proposed Project (Section 3.15.2.2) for all Segments except Segment 8A, in the South Region. The Affected Environment of Segment 8A differs from that of the proposed Project along S8A, between MP 19.2 and 35.2. In addition, the upgrades associated with Segments 8B and 8C would not occur under

Alternative 4 and therefore any Affected Environment characteristics associated with wilderness and recreation for these Segments are not applicable to Alternative 4.

As mentioned, the proposed routes for Alternative 4 would cross through parts of Orange County and San Bernardino County, which the proposed Project (Alternative 2) would not enter. The routing options for Alternative 4 would also cross through the CHSP, which is managed by the California Department of Parks and Recreation, with assistance from the Chino Hills State Park Interpretive Association (CHSPIA), a non-profit volunteer organization (CHSPIA, 2007). The ~~four~~ five different routing options (Routes A through D and Route C Modified) which are included under Alternative 4 are discussed in further detail below.

Route A

This alternative would deviate from the proposed Project route at Segment 8A MP 19.2 and run parallel to the existing Mira Loma-Walnut/Olinda 220-kV transmission line for 6.2 miles, 2.3 miles of which would be within the CHSP. Route A would be situated within an existing utility corridor, but would require that the corridor be widened by 150 feet along the length of Route A. In addition, Route A would require the installation of a new switching station within the CHSP. The size of new switching station would be a minimum of 4 to 5 acres in size (using gas-insulated technology) and a minimum of 11 to 12 acres in size (using air-insulated technology). Table 3.15-18, below, provides a list of recreational resources within one-half mile of the proposed Route A, under Alternative 4.

Table 3.15-18. Recreational Resources within One-Half Mile of Alternative 4, Route A

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource Route A Alignment
S8A MP 19.2	Los Angeles County	Firestone Scout Reservation	Mostly undeveloped with vacant land and some OHV roads along ridgelines in north; access and facilities are along Tonner Canyon	Nearest border is 0.19 mile to the southeast, but is the access area and main facilities are 0.95 away
S8A MP 23.2	CHSP	North Ridge Trail (Fire Road)	Strenuous ridgeline trail on north side of slope; trails runs along the northern park boundary in this section	Direct crossing
		Sycamore Trail (Fire Road)	Maintained dirt road and multi-use trail; connects North Ridge Trail (to the north) with Telegraph Canyon Trail (to the south)	0.25 mile to the southwest
S8A MP 23.9	CHSP	McDermont Trail (Fire Road)	Connects North Ridge Trail (to the north) with Telegraph Canyon Trail (to the south)	Direct crossing
S8A MP 24.1	CHSP	Trail	Connects McDermott Fire Trail with Four Corners Rest Area	Direct crossing
S8A MP 24.4	CHSP	Trail (Fire Road)	Connects Four Corners Rest Area to northern Park boundary	Direct crossing
		Four Corners Rest Area	Popular rest area and convergence point for multiple trails, including Telegraph Canyon Trail and Hills For Everyone Trail	0.15 mile to the south
S8A MP 24.5	CHSP	Raptor Ridge Trail	Ridgeline hiking trail; mountain biking and equestrian use not allowed	Direct crossing
S8A MP 24.5 – 25.5	CHSP	South Ridge Trail	TH at Rolling M Ranch; steep trail (also a Fire Road) leads to San Juan Hill (the highest point in CHSP) and Four Corners Rest Area	0.3 – 0.5 mile to the south
S8A MP 24.6 and 24.8	CHSP	Hills For Everyone Trail (via Telegraph Canyon Trail)	TH one mile down Telegraph Canyon Trail; popular single-track trail; ends at Four Corners Rest Area	Direct crossings

Table 3.15-18. Recreational Resources within One-Half Mile of Alternative 4, Route A

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource Route A Alignment
S8A MP 24.75	CHSP	Telegraph Canyon Trail	TH at Rolling M Ranch; travels easterly along ridgelines to the Four Corners Rest Area and beyond Four Corners (for 6 miles) to the Carbon Canyon park entrance (Orange County); 16 miles R/T between Rolling M and Carbon Canyon	0.05 mile to the southeast
S8A MP 25.0	CHSP	Raptor Ridge Trail (Fire Road)	Maintained dirt road; ridgeline trail	Direct Crossing
S8A MP 25.3	CHSP	Fire Road Trail	Connects Hills For Everyone Trail and Telegraph Canyon Trail (to the south) with Raptor Ridge Trail (to the north)	Direct Crossing

Source: CHSPIA, 2007

As described above in Table 3.15-18, the proposed Route A would make direct crossings of eight different trails and/or Fire Roads in the CHSP. No backcountry camping or trail camping is permitted within CHSP and no campgrounds would be directly traversed by the route. Rolling M Ranch Campground is the park's main campground, with 20 developed sites and opportunities for equestrian camping in the Equestrian Staging Area; however, Rolling M Ranch is located outside the Project Study Area.

The new switching station that would provide the terminus for Route A would be situated along an existing Fire Road between Raptor Ridge (to the north) and Telegraph Canyon (to the south). As described above, the switching station would be between 4 and 12 acres in size, depending on the type of technology used. Figure 3.15-5 indicates that, with respect to CHSP Management Zones designated in the CHSP General Plan, the transmission line and switching station proposed under Route A would be located entirely within the Natural Open Space Zone (within CHSP).

Route B

Route B would follow the same path as Route A into CHSP, but instead of terminating at the new switching station described above, Route B would continue to just beyond the eastern Park boundary, eventually terminating at a new switching station located outside CHSP. As with the Route A alternative, the new switching station for Route B would be between 4 and 12 acres in size, depending on the type of technology used. Route B would travel through CHSP for approximately 4.3 miles. Table 3.15-19, below, provides a list of recreational resources within one-half mile of the proposed Route B, under Alternative 4.

Table 3.15-19. Recreational Resources within One-Half Mile of Alternative 4, Route B

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route B Alignment
S8A MP 24.5	CHSP	Raptor Ridge Trail	Ridgeline hiking trail; mountain biking and equestrian use not allowed	Direct crossing
S8A MP 24.5 – 25.5	CHSP	South Ridge Trail	TH at Rolling M Ranch; steep trail (also a Fire Road) leads to San Juan Hill (the highest point in CHSP) and Four Corners Rest Area	0.3 – 0.5 mile to the south
S8A MP 24.6 and 24.8	CHSP	Hills For Everyone Trail (via Telegraph Canyon Trail)	TH one mile down Telegraph Canyon Trail; popular single-track trail; ends at Four Corners Rest Area	Direct crossings

Table 3.15-19. Recreational Resources within One-Half Mile of Alternative 4, Route B

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route B Alignment
S8A MP 24.75	CHSP	Telegraph Canyon Trail	TH at Rolling M Ranch; travels easterly along ridgelines to the Four Corners Rest Area and beyond Four Corners (for 6 miles) to the Carbon Canyon park entrance (Orange County); 16 miles R/T between Rolling M and Carbon Canyon	0.05 mile to the southeast
S8A MP 25.0	CHSP	Raptor Ridge Trail (Fire Road)	Maintained dirt road; ridgeline trail	Direct Crossing
S8A MP 25.3	CHSP	Fire Road Trail	Connects Hills For Everyone Trail and Telegraph Canyon Trail (to the south) with Raptor Ridge Trail (to the north)	Direct Crossing
S8A MP 26.2	CHSP	Upper Aliso Canyon Trail (Fire Road)	TH north of Rolling M red barn; popular hiking trail for families with small children; connects to Raptor Ridge and Four Corners Rest Area	Direct Crossing
S8A MP 26.6	CHSP	Bane Ridge Hiking Trail	Popular ridgeline hiking trail; connects northern Park entrance with Rolling M Ranch; runs parallel to Bane Canyon Road	Direct crossing
S8A MP 26.7 - 27.4	CHSP	Fire Road Trail	Connects Bane Ridge Trail (to the west) with East Fence Line Trail (to the east)	Multiple direct crossings
S8A MP 26.8	CHSP	Bane Canyon Road	Maintained dirt road heads south from the Bane Canyon Park Entrance; popular multi-use trail	Direct crossing
S8A MP 27.3	CHSP	East Fence Line Trail	Access via Bane Canyon Road; travels east and south along the eastern border of the CHSP; connects via a Fire Trail to McLean Overlook	Direct crossing

Source: CHSPIA, 2007

The proposed path for Route B would make direct crossings of nine different trails and/or fire roads within CHSP. Under the Route B alternative, the new switching station of 4 to 12 acres in size would be installed outside the eastern boundary of the CHSP. Figure 3.15-5 indicates that Route B would cross through Natural Open Space Zone for roughly two miles after the route enters CHSP, then run along the south-southeastern border of Core Habitat Zone for about a mile, and finally traverse Natural Open Space Zone again before exiting CHSP to the east. Where Route B crosses Bane Canyon in eastern CHSP, it would also traverse a portion of Recreational and Operational Zone.

Route C

The ~~proposed~~ original Route C option under Alternative 4 would involve the construction of a new transmission line just north of CHSP, as well as the re-routing of two existing lines within CHSP and the removal of existing transmission lines from within CHSP. As described in Section 2.4.3.1, Route C would also require construction of a new gas-insulated switching station just north of the CHSP boundary. Table 3.15-20, below, provides a list of recreational resources within one-half mile of the proposed Route C.

Table 3.15-20. Recreational Resources within One-Half Mile of Alternative 4, Route C

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route C Alignment
S8A MP 19.2	Los Angeles County	Firestone Scout Reservation	Mostly undeveloped with vacant land and some OHV roads along ridgelines in north; access and facilities are along Tonner Canyon	Nearest border is 0.19 mile to the southeast, but is the access area and main facilities are 0.95 away

Table 3.15-20. Recreational Resources within One-Half Mile of Alternative 4, Route C

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route C Alignment
S8A MP 23.2 – 24.0	San Bernardino County	North Ridge Trail (Fire Road); CHSP	Strenuous ridgeline trail on north side of slope; trails runs along the northern park boundary in this section	Adjacent to the south (trail is within CHSP)
S8A MP 24.1	San Bernardino County	McDermont Trail	Connects North Ridge Trail (to the north) with Telegraph Canyon Trail (to the south)	0.2 mile to the south (trail is within CHSP)
S8A MP 24.7	San Bernardino County	Raptor Ridge Hiking Trail and Fire Road Trail	Ridgeline hiking trail; mountain biking and equestrian use are only allowed on the Fire Road (maintained dirt road) portion of the trail	0.2 mile to the southeast from new switching station (trail is within CHSP)
		Hills For Everyone Trail	TH one mile down Telegraph Canyon Trail; popular single-track trail; ends at Four Corners Rest Area	0.4 mile to the south (trail is within CHSP)

Source: CHSPIA, 2007

Although the new transmission line associated with Route C would not make any direct crossings of recreational resources, as described in Table 3.15-20, the transmission line re-routing and removal activities associated with Route C would traverse seven multi-use trails within the CHSP, including the following: North Ridge Trail, McDermont Trail, Raptor Ridge Hiking Trail, Raptor Ridge Fire Road Trail, Hills For Everyone Trail, Telegraph Canyon Trail, and South Ridge Trail. Figure 3.15-5 indicates that Route C would traverse Core Habitat Zone from the point where it enters CHSP, to where it connects with existing transmission infrastructure in the Park. Transmission lines within CHSP that would be removed under Route C are located in both Core Habitat Zone and Natural Open Space Zone.

Route C Modified

The proposed Route C Modified is very similar to the original Route C, described above, with the exception that the switching station would be located on Aerojet property approximately 2,500 feet northwest of the location proposed under the original Route 4C. Table 3.15-20, above, provides a description of recreational resources within one-half mile of the original Route C. In comparison, because the switching station under Route C Modified would be located approximately 2,500 feet northwest of the location included under the original Route C, switching station facilities would be located more than one-half mile (limits of the Project Study Area) away from recreational resources within CHSP; however, the proposed transmission lines routed into and out of the new switching station would be situated within proximity of the same recreational resources affected by the original Route C. Part of the Route C Modified transmission line configuration within CHSP would avoid Raptor Ridge, but Raptor Ridge Trail is still within the Affected Environment for Route C Modified, as with the original Route C. The re-routing of the Serrano-Lugo/Mira Loma 500-kV single-circuit T/Ls and the Mira Loma/Walnut-Olinda 220-kV double-circuit T/L included under Route C Modified would affect the same recreational resources as would occur for the re-routing activities under the original Route C, as described above. As with the original Route C option, the Route C Modified option would traverse Core Habitat Zone and Natural Open Space Zone within CHSP.

Route D

The proposed Route D alternative would follow the same path as the proposed Route C alternative, but instead of terminating at a switching station at approximately Segment 8A MP 24.7, Route D would continue to follow the northern boundary of CHSP for approximately 2.4 miles, before crossing through

part of the Park in a southeasterly direction and terminating at a new switching station just outside the eastern Park boundary. The proposed switching station for Route D would be in the same location as that proposed for the Route B alternative. Table 3.15-21, below, provides a list of recreational resources within one-half mile of the proposed Route D, under Alternative 4.

Table 3.15-21. Recreational Resources within One-Half Mile of Alternative 4, Route D

Project Component	Jurisdiction	Recreational Resource	Description	Proximity of Resource to Route D Alignment
S8A MP 19.2	Los Angeles County	Firestone Scout Reservation	Mostly undeveloped with vacant land and some OHV roads along ridgelines in north; access and facilities are along Tonner Canyon	Nearest border is 0.19 mile to the southeast, but is the access area and main facilities are 0.95 away
S8A MP 23.2 – 24.0	San Bernardino County	North Ridge Trail (Fire Road); CHSP	Strenuous ridgeline trail on north side of slope; trails runs along the northern park boundary in this section	Adjacent to the south (trail is within CHSP)
S8A MP 24.1	San Bernardino County	McDermont Trail	Connects North Ridge Trail (to the north) with Telegraph Canyon Trail (to the south)	0.2 mile to the south (trail is within CHSP)
S8A MP 24.7	San Bernardino County	Raptor Ridge Hiking Trail and Fire Road Trail	Ridgeline hiking trail; mountain biking and equestrian use are only allowed on the Fire Road (maintained dirt road) portion of the trail	0.2 mile to the southeast from new switching station (trail is within CHSP)
		Hills For Everyone Trail	TH one mile down Telegraph Canyon Trail; popular single-track trail; ends at Four Corners Rest Area	0.4 mile to the south (trail is within CHSP)
S8A MP 27.0 – 27.3	San Bernardino County	Hiking Trail	Trail traverses Bane Ridge and Upper Aliso Canyon, looping around to connect through Rolling M Ranch.	0.1 – 0.2 mile to the south
S8A MP 27.1	CHSP	Fire Road Trail	Connects Bane Canyon Road to Bane Ridge trails and Upper Aliso Canyon	Direct crossing
S8A MP 27.3	CHSP	Bane Canyon Park Entrance	Northern entrance to the CHSP	0.1 mile to the north
S8A MP 27.4	CHSP	Bane Canyon Road	Maintained dirt road heads south from the Bane Canyon Park Entrance; popular multi-use trail Popular ridgeline hiking trail; connects northern Park entrance with Rolling M Ranch; runs parallel to Bane Canyon Road	Direct crossing
		Band Canyon Trail (Fire Road)	Popular ridgeline hiking trail; connects northern Park entrance with Rolling M Ranch; runs parallel to Bane Canyon Road	Direct crossing
S8A MP 28.2	CHSP	East Fence Line Trail	Access via Bane Canyon Road; travels east and south along the eastern border of the CHSP; connects via a Fire Trail to McLean Overlook	Direct crossing

Source: CHSPIA, 2007

The proposed path for the Route D alternative would make direct crossings of four different Fire Trails, roads, and/or trails, as described in Table 3.15-21. Figure 3.15-5 indicates that Route D would traverse Natural Open Space Zone in the northeast portion of CHSP, as well as a small portion of Recreational and Operations Zone, where the route crosses over Bane Canyon.

3.15.2.5 Alternative 5: Partial Underground Alternative

The proposed route for Alternative 5 (Partial Underground Alternative) would not diverge from that of the proposed Project (Alternative 2) and therefore, the Affected Environment for Alternative 5 is identical to the Affected Environment for the proposed Project, as described in Section 3.15.2.2 (Alternative 2: SCE's Proposed Project).

3.15.2.6 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Under Alternative 6, transmission towers in the ANF (along Segments 6 and 11) would be constructed using helicopters to the maximum extent possible. As with the proposed Project, the use of helicopters for Project construction would require that staging areas of up to four acres in size be established along the length of the transmission line route in the Forest. Alternative 6 includes eleven helicopter staging areas in the Forest, as described below and summarized in Table 3.25-22. Although Alternative 6 includes one less helicopter staging area than the proposed Project (twelve under Alternative 6 versus eleven under the proposed Project), helicopters would be used for the construction of 148~~3~~ transmission towers under Alternative 6, versus 33 under the proposed Project. Therefore, helicopter use would be more extensive under Alternative 6 compared to the proposed Project. Pulling and stringing sites to be used during construction of Alternative 6 would be the same as the proposed Project, with road access would required to all pulling and stringing locations. The use of helicopters to construct transmission towers would avoid the need to install or upgrade some spur roads in the Forest. The helicopter staging areas identified for use under Alternative 6 are described below, in Table 3.15-22. The proposed route for Alternative 6 (Maximum Helicopter Construction in the ANF Alternative) would not diverge from that of the proposed Project (Alternative 2).

North Region

The Affected Environment for the North Region of Alternative 6 is exactly the same as the Affected Environment for the North Region of the proposed Project, as described in Section 3.15.2.2.

Central Region

As with the proposed Project, several of the helicopter staging areas proposed under Alternative 6 are located more than one-half mile from the proposed transmission line route. Helicopter staging areas are described in detail in Section 2.6.1 (Alternative 6 Description); in addition, the following Table 3.15-22 (Alternative 6 Helicopter Staging Areas – ROS Designations and Affected Environment) indicates the ROS objective applicable to each helicopter staging area and provides a summary of recreational resources that are located within one-half mile of each helicopter staging area.

Table 3.15-22. Alternative 6 Helicopter Staging Areas – ROS Designations and Affected Environment

Site #	Site Name	Location	Proximity to T/L	ROS*	Affected Environment**
1	Alt 6 #1	Adjacent to the west of Angeles Forest Hwy at the intersection with Mount Emma Road	~0.1 mile east of S6 MP 3.0	RN	No recreational resources present.
2	Alt 6 #2	Adjacent to the south of Aliso Canyon Road, 0.5 mile NW of Price Ranch Rd (private in-holding)	Within 0.1 mile to the east of S11 MP 3.75	n/a	Forest Road 4N24 (OHV) and Bear Trap Canyon Road (OHV) within 0.1 mile to the west (within ROW)
3	Alt 6 #3	Adjacent to the south of Aliso Canyon Road and 0.75 mile east of Price Ranch Road	~0.8 mile west of S6 MP 4.75 and ~1.5 miles east of S11 MP 4.25	SPNM	Unnamed dirt tracks hiking trails are located on north side of Aliso Canyon Road.

Table 3.15-22. Alternative 6 Helicopter Staging Areas – ROS Designations and Affected Environment

Site #	Site Name	Location	Proximity to T/L	ROS*	Affected Environment**
4	Alt 6 #4	Along south side of Forest Road 3N17.6, roughly 0.15 mile north of Mt. Gleason Road	~1.7 miles west of S11 MP 7.8	SPM	Dispersed recreation (backcountry hiking, camping, etc) may occur in the area. The Pacific Crest National Scenic Trail (PCT) is located ~0.1 mile to the north.
5	Alt 6 #5	Within 0.1 mile to the west of Forest Road 4N18 and 0.3 mile NW of Rabbit Peak	Within 0.1 mile to the west of S6 MP 9.75	SPM	Forest Road 4N18.1 (OHV) within 0.1 mile to the east (within ROW)
6	Alt 6 #6	Adjacent to the west of Upper Big Tujunga Canyon Road and 0.8 mile SE of Lynx Gulch	0.25 mile west of S6 MP 14.0	SPM	Forest Road 3N20 (OHV) 0.25 mile to the east (within ROW)
7	Alt 6 #7 / SCE #6B	Barley Flats (former US Air Force Nike missile site), 0.5 mile north of Angeles Forest Hwy and 1.75 miles west-NW of intersection with Upper Big Tujunga Canyon Rd	~1.8 miles west of S6 MP 16.75	SPM	Public access is restricted by a locked Forest Service gate on Barley Flats Rd at Angeles Forest Hwy; no recreational resources are present
8	Alt 6 #8 / SCE #3B	~0.5 mile S/SE of Big Tujunga Reservoir, on a terraced area ~ 0.15 mile W/SW of Big Tujunga Canyon Road	0.15 mile west of S11 MP 14.5	RN	Dispersed Recreation along Clear Creek ~0.5 mile to the southeast
9	Alt 6 #9 / SCE #7	Adjacent to the north of Rincon-Redbox Road in the Newcomb Pass area, ~0.36 mile west of the junction with Shortcut-Edison Trail	Adjacent to the west of S6 MP 19.5	SPM	Forest Trail 11W16 and other multi-use recreational trails are within 0.25 – 0.5 mile to the southwest
10	Alt 6 #10	Adjacent to the north of Angeles Forest Hwy, ~0.25 mile north of intersection with Lower Big Tujunga Canyon Road	0.8 mile east of S11 MP 13.25	RN	Fall Creek Campground** is ~0.25 mile to the southwest and Shoening Springs Picnic Area** is ~0.5 mile to the east-southeast.
11	Alt 6 #11 / SCE #8	~0.5 mile SW of Mount Bliss, along Van Tassel Truck Trail / Motorway (Forest Road).	~0.3 mile west of S6 MP 26	SPNM	Adjacent to Van Tassel Truck Trail / Motorway (OHV)
12	Alt 6 #12	Adjacent to Angeles Forest Highway north of Mill Creek Summit Station	Adjacent to the east of S6 MP 6.6	RN	Site is a graded road turn-out; picnic area and trailhead at Mill Creek Summit located nearby
13	Alt 6 #13	SE of Mill Creek Summit Station	Adjacent to the east of S6 MP 7.5	RN	Site is an existing helicopter landing area; picnic area and trailhead at Mill Creek Summit located nearby

* P: Primitive; SPNM: Semi-Primitive Non-Motorized; SPM: Semi-Primitive Motorized; RN: Roaded Natural; R: Rural; n/a: site is located on non-NFS lands and ROS objectives are not applicable.

** Recreational resource or opportunity indicated is not within 0.5 mile of the proposed transmission line and therefore is not included in Tables 3.15-14a or 3.15-14b, but is within 0.5 mile of a helicopter staging area to be used during Project construction and is therefore considered to be within the Affected Environment.

As with the proposed Project, most of the Developed and Dispersed Recreation resources/opportunities identified as being within one-half mile of the helicopter staging areas for Alternative 6 have previously been identified in Tables 3-15.14a and 3-15.14b as being within one-half mile of the proposed transmission line route (which is the same under Alternative 6 as under the proposed Project). Resources that are within proximity of the staging areas but not the transmission line include the following, both of which are located near helicopter staging area #10 and are included in the Affected Environment for Alternative 6:

- Fall Creek Campground; and
- Shoening Springs Picnic Area.

In addition, Alternative 6 Sites #4, 12, and 13 ~~is~~are located within approximately 0.1 mile ~~to the south~~ of the Pacific Crest National Scenic Trail, which is considered to be a particularly sensitive recreational resource. Construction of Alternative 6 would not include the use of Forest Road 2N25.1 for access to Segment 6 and therefore, the four Developed Recreation resources that are located along this road and included in the Affected Environment under the proposed Project are not included in the Affected Environment for Alternative 6. Alternative 6 would also not include use of Mount Lukens Road (Forest Road 2N76.2), as required for access to helicopter staging area SCE #4 under the proposed Project. Potential impacts of Alternative 6 are discussed below in Section 3.15.10.

As noted in Table 3.15-22, the proposed helicopter staging areas included under Alternative 6 are situated on lands with the following ROS objectives: Roaded Natural (Alt. 6 Sites #1, 8 (SCE #3B), ~~and~~ 10, 12, and 13), Semi-Primitive Non-Motorized (Alt. 6 Sites #3 and 11 (SCE #8)), and Semi-Primitive Motorized (Sites 4, 5, 6, 7 (SCE #3B), and 9 (SCE #7)). None of the proposed Alternative 6 helicopter staging areas are situated on lands designated as Primitive or Rural. Table 3.15-3 (Recreation Opportunity Spectrum (ROS) Objectives for Land Use Zones in the ANF) describe the types of recreational opportunities are available under each ROS designation on NFS lands.

South Region

The Affected Environment for the South Region of Alternative 6 is exactly the same as the Affected Environment for the South Region of the proposed Project, as described in Section 3.15.2.2.

3.15.2.7 Alternative 7: 66-kV Subtransmission Alternative

As discussed in Section 2.7 (Alternative 7: 66-kV Subtransmission Alternative), Alternative 7 includes the re-routing and/or reconfiguration of the Project's 66-kV subtransmission line in ~~three~~ four areas within the South Region. The 500-kV transmission line associated with the proposed Project would be exactly the same under Alternative 7 as under Alternative 2. As with the proposed Project and consistent with the Land Use analysis, this Affected Environment for Alternative 7 is inclusive of all wilderness and recreation resources located within one-half mile of the proposed transmission line route.

North Region

The Affected Environment for the North Region of Alternative 7 is exactly the same as the Affected Environment for the North Region of the proposed Project, as described in Section 3.15.2.2.

Central Region

The Affected Environment for the North Region of Alternative 7 is exactly the same as the Affected Environment for the North Region of the proposed Project, as described in Section 3.15.2.2.

South Region

Under Alternative 7, the Project's 66-kV subtransmission line would be re-routed and/or re-configured in the following ~~three~~ four areas of the South Region: Segment 7 MP 8.9 – 9.9, Segment 7 MP 11.4 – 12.03, Segment 7 MP 12.0 – 13.6, and Segment 8A MP 2.2 – 3.8. Table 3.15-17 (South Region Recreational Resources within One-Half Mile of Alternative 2) lists the recreational resources that are within one-half mile of the proposed Project route through the South Region. Below is a summary list of

the recreational resources identified in Table 3.15-17 that are situated along the portions of the Alternative 7 66-kV subtransmission line that would be re-routed and/or re-configured.

- Segment 7, MP 8.9 – 9.9: *The 66-kV subtransmission line would be installed underground to avoid potential conflicts with the planned Duck Farm Project south of Valley Blvd.*
  - River Commons at the Duck Farm Project (located within the ROW S7 MP 8.9 – 10.5)
  - San Angelo County Park (0.28 mile to the southeast of S7 MP 9.1)
  - Private golf course at the California Country Club (adjacent to the ROW S7 MP 9.6 – 9.9)
- Segment 7, MP 11.4 – 12.03: *The 66-kV subtransmission line would be re-routed and installed underground around the north portion of the Whittier Narrows Recreation area to improve habitat for least Bell's vireos.*
  - Whittier Narrows Recreation Area (traversed by the Project along S7 MP 11.4 – 13.6)
  - Pico Rivera Bicentennial Park (0.19 mile to the south at S7 MP 11.8)
- Segment 7, MP 12.0 – 13.6: *The 66-kV subtransmission line would be re-routed through the Whittier Narrows Recreation Area, immediately north of the existing 220-kV ROW to reduce the number of structures required (20-foot expanded ROW required).*
  - Whittier Narrows Golf Course (0.47 mile to the north at S7 MP 13.5)
  - Kingerman Park, City of Rosemead (adjacent to ROW; licensed from SCE
- Segment 8A MP 2.2 – 3.8: *The 66-kV subtransmission line would be re-routed around the south portion of the Whittier Narrows Recreation Area as habitat enhancement for least Bell's vireos.*
  - Whittier Narrows Recreation Area (traversed by the Project along S8A MP 2.5 – 3.2)
  - Pico Rivera Bicentennial Park (traversed by the Project along S8A MP 3.8 – 4.3)

With regards to wilderness and recreation, the most notable resources within the Affected Environment for Alternative 7 include the River Commons at the Duck Farm Project (S7 MP 8.9 – 10.5), and the Whittier Narrows Recreation Area (S7 MP 11.4 – 13.6 and S8A MP 2.5 – 3.2). No other recreational resources would be introduced to the Affected Environment for Alternative 7.

3.15.3 Applicable Laws, Regulations, and Standards

3.15.3.1 Federal

Segments 6 and 11 of the Project would traverse NFS lands, which are under the jurisdiction of the Forest Service. The following is a discussion of the federal plans and policies that would be applicable to the Project and alternative routes across NFS lands.

Forest Service Manual

The Forest Service Manual Section 2700 (Special Uses Management) provides direction for the administration of special-use authorizations (SUAs) on NFS lands (USDA Forest Service, 2005g). As described in Section 2703.2, the Forest Service is instructed to deny a written request for the use of NFS lands according to the following criteria:

- The proposal is inconsistent with Forest land and resource management plans;
- The proposal is in conflict with other Forest management objectives, or applicable federal statutes and regulations; or
- The proposal can be reasonably accommodated on non-NFS lands, provided however, that First Amendment group uses (freedom of assembly and worship) may not be denied on this basis.

The Forest Service may not authorize the use of NFS lands just because it affords the applicant a lower cost and less restrictive location when compared with non-NFS lands (USDA Forest Service, 2005g).

Additional guidance regarding the management of special uses such as transmission lines across NFS lands has been provided in the Forest Service Manual Region 5 Supplement No. 2700-92-8 (USDA Forest Service, 1992). As stated in Section 2726.43 of the supplement, the objectives for the management of transmission lines include the following:

- To eliminate or mitigate long-term conflicts between power lines and the management of NFS lands and resources; and
- To eliminate identified fire and safety hazards.

According to the direction provided in Section 2726.43 for the construction of transmission lines over 35 kV, aerial construction of transmission line structures (as opposed to underground construction) may be authorized, except in those areas where the environmental analysis clearly indicates unacceptable effects on NFS resource and environmental values (USDA Forest Service, 1992). This supplement recognizes that construction costs and operational problems increase substantially for underground construction of transmission lines over 35 kV, and states that the authorizing officer would consider undergrounding only after a thorough assessment of the situation (USDA Forest Service, 1992).

Angeles National Forest Land Management Plan (FLMP), 2005

At the time of this analysis, the Forest Service had completed its update of the 1987 Land and Resources Management Plan. The 2005 Angeles National Forest Land Management Plan (FLMP) was approved through a Record of Decision signed September 20, 2005. Due to a technical error in the Record of Decision, the Forest Service reissued it on April 21, 2006, and provided a second 90-day appeal period on the Forest Plan in accordance with the provision of 36 CFR 217. The Forest Service will utilize or continue to implement the Forest Plan unless the decision is overturned (USDA Forest Service, 2005a). The FLMP consists of three Parts which respectively examine the Forest Service's Vision (Part 1), Management Strategy (Part 2), and Design Criteria (Part 3) for the ANF, as summarized below:

- Part 1 of the Plan includes a Forest vision of serving as an open space, visual backdrop, recreation destination, and natural environment for a diverse urban population.
- Part 2 of the FLMP includes the ANF program emphasis and objectives and strategic management direction, which allows the Forest Service to make progress towards its vision presented in Part 1 of the FLMP.
- Part 3 of the FLMP provides design criteria for managers to operate within in order to realize the Forest vision described in Part 1.

The Forest Service Vision, as presented in Part 1 of the FLMP, is organized by identified Goals and Objectives. The Part 1 Goals and Objectives that are relevant to this wilderness and recreation analysis for the proposed Project are summarized below in Table 3.15-23.

Part 2 of the FLMP describes the Management Strategies, or the trends and expectations as well as anticipated resource improvements planned over the next three to five years in the Forest. The program emphasis and objectives for non-recreation special uses is to manage infrastructure needs to support communities while preserving open space and natural settings. Special uses are authorized only when they cannot be reasonably accommodated on non-NFS lands. Maintaining open space is given priority over accommodating urban needs. In addition, Appendix B of Part 2 of the FLMP includes a list of program strategies that the ANF may choose to emphasize to progress toward achieving the desired conditions and goals of the FLMP. Part 2 Management Strategies that are relevant to this wilderness and recreation analysis for the proposed Project are summarized below in Table 3.15-24.

Table 3.15-23. Part 1 of the 2005 FLMP: Goals and Objectives Relevant to Wilderness and Recreation for the Proposed Project

Goals and Objectives	Relevance to Project
Strategic Goals – National Strategic Plan, Pages 16-17 and Appendix A, Pages 52-57	
Goal 3: Provide outdoor recreation opportunities	Objectives 1 and 2 under Goal 3 are relevant to the proposed Project, as described below.
Objective 1: Improve public access to National Forest System land and water and provide opportunities for outdoor health-enhancing activities.	The proposed Project would include road improvements to provide access to transmission tower locations. Road improvements may result in increased public access to NFS lands, including recreational areas such as water resources which may be utilized by the public for health-enhancing activities.
Objective 2: Improve the management of off-highway vehicle use to protect national resources, promote safety of all users, and minimize conflicts among various uses through the collaborative development and implementation of locally-based travel management plans.	The Project would require upgrades to existing roads that may alter the availability of existing OHV routes during construction and/or operational activities.
Goal 6: Mission related work in addition to that which supports the agency goals	The following objective and actions under Goal 6 are relevant to the proposed Project.
Objective 3: Maintain the environmental, social, and economic benefits of forests and grasslands by reducing their conversion to other uses.	The proposed Project would slightly intensify an existing use of NFS lands in the ANF which could have the potential to affect recreational and wilderness benefits of the Forest from an environmental and social perspective.
Actions needed to address the Four Threats include: • *Fire and fuels* – Restore healthy, disturbance-resilient ecosystems on lands that are at risk of catastrophic fire, improving the condition and function of critically important watersheds, and sustaining critical wildlife habitats nationwide. • *Invasive species* – Protect forest and rangeland ecosystems by preventing the release of non-native species and by controlling the spread of, or eradicating, invasive species. • *Loss of open space* – Conserve the nation's forests and rangelands most at risk (due to subdivision and land conversion) by working with partners, communities and landowners to balance development with sustaining ecosystem services and viable working landscapes. • *Unmanaged recreation* – Work with partners to develop travel management plans that regulate the use of off-highway vehicles (OHVs) on designated roads, trails, and parks in an appropriate manner.	Under the Four Threats identified, the "unmanaged recreation" threat is relevant to this wilderness and recreation analysis. The Project would include road improvements that could potentially be used by OHV recreationists for unmanaged or unauthorized recreational purposes.
Managed Recreation in a Natural Setting Element, Pages 34-36	
Goal 3.1: Provide for Public Use and Natural Resource Protection • Recreation • Conservation Education • Heritage Site Protection • Tribal and Native American Use • Road and Trail System • Habitat Protection	The proposed Project does not directly provide for public use and natural resource protection (Goal 3.1). The Project would have the potential to affect the availability for public use of specific recreational resources, roads, and trails during construction and/or operational activities.
Wilderness Element, Page 37	
Goal 3.2 Retain a Natural Evolving Character within Wilderness. Desired conditions for wilderness include: *Ecological Processes* – Ecological processes occur untrammeled. Human influences do not impeded the free play of natural forces in the ecosystem. Management activities prescribed for enhancement and recovery of threatened and endangered species and for the re-introduction of extirpated species are supported. *Vegetation Management/Fire* – Vegetation management maintains or mimics natural processes for the purpose of achieving wilderness fire management objectives. Reduce to an acceptable level, the risks and consequences of wildland fire within wilderness or escaping from	The Project would not substantially alter existing use of NFS lands; however, temporary construction and maintenance activities required for the Project could have the potential to have a location-specific and short-duration influence on the availability of opportunities for solitude in the Forest, as described under the Solitude element of Goal 3.2.

Table 3.15-23. Part 1 of the 2005 FLMP: Goals and Objectives Relevant to Wilderness and Recreation for the Proposed Project

Goals and Objectives	Relevance to Project
wilderness. *Solitude* – Outstanding opportunities for solitude and inspiration are characteristic and stable, or increasing. Challenge – Primitive and unconfined recreation opportunities that offer physical and mental challenges are stable or increasing. *Air Resources* – Remediate and prevent human caused impairments to air quality values (AQRV) including visibility, ozone injury, and acid and nitrogen deposition. Suppression of wildland fires and ignition of prescribed fires in wilderness will consider impacts to human health and air quality (AQRVs)	

Table 3.15-24. Part 2 of the 2005 FLMP: Management Strategies Relevant to Wilderness and Recreation for the Proposed Project

Management Strategies	Relevance to Project
Forest Specific Design Criteria, Page 76	
Place Specific Standards – ANF S1 – Pacific Crest Trail – Protect scenic integrity of foreground views as well as from designated viewpoints. Where practicable, avoid establishing nonconforming land uses within the viewshed of the trail (Liebre-Sawmill, Santa Clara Canyons, Soledad Front Country and Angeles High Country)	The Project would slightly intensify existing impacts of transmission towers to the viewshed of the PCT and would have some effect on the recreational experience available to users of the PCT, particularly in the two locations where the Project would traverse the PCT on NFS lands and particularly during construction and maintenance activities.
SD 1: Wilderness, Page 106	
Protect and manage wilderness to improve the capability to sustain a desired range of benefits and values and so that changes in ecosystems are primarily a consequence of natural forces. Protect and manage areas recommended for wilderness designation to maintain their wilderness values.	The proposed Project would be situated in the vicinity of one designated Wilderness Area and several Inventoried Roadless Areas that could be under consideration for wilderness designation. Although the proposed transmission line would not enter any of these designated areas, construction activities associated with the Project (particularly roadway improvements) could have an effect on wilderness values.
TRANS 1: Transportation System, Page 116	
Plan, design, construct, and maintain National Forest System roads and trails to meet plan objectives, to promote sustainable resource conditions, and to safely accommodate anticipated levels and types of use.	The Project would include road improvements to provide access to each proposed transmission tower location during construction and operations/maintenance activities. Existing roadways would be utilized to the extent feasible, but installation of new roads or trails may also be necessary.
TRANS 3: Improve Trails, Page 117	
Develop an interconnected, shared-use trail network and support facilities that complement local, regional and national trails and open space, and that also enhance day-use opportunities and access for the general public: • Manage the Pacific Crest National Scenic Trail to protect the trail experience, and provide for the conservation and enjoyment of its nationally important scenic, historic, natural, and cultural qualities. • Maintain and/or develop access points and connecting trails linked to surrounding communities and create opportunities for non-motorized trips of short duration.	The Project would intensify existing transmission line usage of NFS lands and would have the potential to effect existing trails and trails networks in the Forest through restricting access and access points during construction and/or operation and through increasing the prominence of transmission towers in the viewshed of specific trails, including the PCT.

Table 3.15-24. Part 2 of the 2005 FLMP: Management Strategies Relevant to Wilderness and Recreation for the Proposed Project

Management Strategies	Relevance to Project
Lands 2: Non-Recreation Special Use Authorizations, Pages 119 – 120	
Optimize utilization of encumbered National Forest System land and efficiently administer special-use authorizations (SUAs): • Require SUAs to maximize opportunities to co-locate facilities and minimize encumbrance of National Forest System land. • Where overhead transmission lines occur in California Condor habitat, work with utility companies or authorization holders to install high-visibility or avoidance devices and raptor guards on poles and other structures potentially used as perching sites by California Condors. • For special-use authorization holders operating within threatened, endangered, proposed, candidate and sensitive species key and occupied habitats, or areas of heritage resource sites develop and provide information and education (e.g., workshops, annual meetings) on ways to avoid and minimize effects of their activities on occupied threatened, endangered, proposed, candidate and sensitive species habitat and heritage resource sites present. • Use signing, barriers, or other suitable measures to protect threatened, endangered, proposed, candidate and sensitive species key and occupied habitats within special-use authorization areas.	Infrastructure associated with the proposed Project would be situated adjacent to similar, existing infrastructure. Any SUAs for the Project would be acquired and complied with as necessary.

Part 3 of the FLMP presents the Design Criteria that Forest managers operate under in an effort to actualize the desired conditions described in Part 1 (Vision) of the FLMP. Part 3 includes two components: the first component contains the forest plan standards and guidelines, and the second component contains the laws, policy or other direction that may be applicable to proposed activities. The standards, which can only be changed through a Forest Plan amendment, are the fundamental requirements that define the parameters for activities within the Forest. Part 3 Design Criteria that are relevant to the wilderness and recreation analysis for the proposed Project are summarized below in Table 3.15-25.

Table 3.15-25. Part 3 of the 2005 FLMP: Design Criteria Standards Relevant to Wilderness and Recreation for the Proposed Project

Design Criteria Standards	Relevance to Project
Fish and Wildlife Standards, Pages 6-9	
S25: Conduct road and trail maintenance activities during the season of year that would have the least impact on threatened, endangered, and proposed wildlife species in occupied habitats, except as provided by site-specific consultation.	The Project would include road and trail improvements and maintenance in order to provide access to each of the transmission tower locations.
When Implementing Recreation Activities, Page 8	
S34: Where a threatened, endangered, proposed, candidate, or sensitive species occurs in a recreation site or area, take steps to avoid or minimize negative impacts to the threatened, endangered, proposed, candidate or sensitive species and its habitat. Use the least restrictive action that will effectively mitigate adverse impacts to the species and habitat.	The Project would traverse multiple recreation sites and areas on NFS lands. Construction and maintenance activities could require that certain recreation sites and areas be used for staging or other Project-related activities.

Table 3.15-25. Part 3 of the 2005 FLMP: Design Criteria Standards Relevant to Wilderness and Recreation for the Proposed Project

Design Criteria Standards	Relevance to Project
Wild and Scenic River Standards, Page 13	
S59: Manage eligible wild and scenic river segments to perpetuate their free-flowing condition and proposed classifications, and protect and enhance their outstandingly remarkable values and water quality through the suitability study periods and until designated or released from consideration. When management activities are proposed that may compromise the outstandingly remarkable value(s), potential classification, or free-flowing character of an eligible wild and scenic river segment, a suitability study will be completed for that eligible river segment prior to initiating activities.	The Project would traverse the West Fork of the San Gabriel River, which is currently eligible for designation as Wild and Scenic River and is also a popular recreational resource for water play and fishing. The Project would intensify existing transmission line usage of NFS lands in this area and could have the potential to affect the "outstandingly remarkable values" of this waterway with regards to its wilderness character and viewshed.

Additional laws, regulations, and standards relevant to the wilderness and recreation analysis for the proposed Project are presented below.

3.15.3.2 State

The four routing options available under Alternative 4 would cross through the Chino Hills State Park (CHSP), which is located in the South Region of the Project Area under study. The CHSP is situated in the counties of Orange, Riverside, and San Bernardino. As of November, 1998, the Park encompassed approximately 11,770 acres, most of which is made up of rolling hills. The following is a discussion of management goals and guidelines, as presented in the CHSP General Plan, which are considered to be relevant to this analysis of wilderness and recreation for the proposed Project.

California State Parks, Chino Hills State Park General Plan, February 1999

Each of the four routing options under Alternative 4 (Routes A through D) would enter the jurisdiction of the CHSP General Plan. As part of the California State Park System, the CHSP is managed under the direction of California Public Resources Code (PRC) which mandates per Section 5002.2 that a general plan be prepared and implemented prior to the development of any new facilities within a State Park. The existing General Plan for CHSP was approved in February of 1999, and serves as a management document for the CHSP. Management Goals and Guidelines from the CHSP General Plan that are relevant to this wilderness and recreation analysis for the Project, specifically Alternative 4 (Chino Hills Routes) are summarized below in Table 3.15-26.

Table 3.15-26. CHSP General Plan: Goals and Guidelines Relevant to Wilderness and Recreation for the Project

Goals and Guidelines	Relevance to Project
Cultural Resources, Pages 62 to 64	
Goal: Preserve and interpret the historic ranching landscape within the Historic Zone for the education and enjoyment of park visitors.	The Project could have the potential to temporarily affect opportunities for the education and enjoyment of visitors to the CHSP, such as within the Historic Zone, due to the use of heavy equipment and machinery during Project construction. In addition, construction of the Project could temporarily restrict access to certain resources in the CHSP, which would also have the potential to affect opportunities for visitor education and enjoyment of the CHSP.
Goal: Preserve historic roads and trails and at the same time provide for visitor, Department, and utility company use.	The Project would require improvement of some existing roadways in order to ensure access to proposed transmission tower locations during construction and operation.

Table 3.15-26. CHSP General Plan: Goals and Guidelines Relevant to Wilderness and Recreation for the Project

Goals and Guidelines	Relevance to Project
Aesthetic Resources, Page 65	
Goal: Protect scenic features from man-made intrusions and preserve the visitor's experience of the natural landscape by minimizing adverse impacts to aesthetic resources.	The Project would introduce transmission towers to the viewsheds of certain recreational trails in the CHSP, which could affect the visitors' experience of the natural landscape.
Guideline: Tranquility and the sounds associated with the park's natural resources will be preserved. Unnatural sounds that adversely affect park resources, values, or visitors' enjoyment will be prevented or minimized.	Construction of the proposed transmission line would require the use of heavy equipment and machinery, which would create temporary and location-specific noise that would be considered unnatural in the Park's wildland setting and may have the potential to create a temporary yet adverse affect on visitors' enjoyment of recreational resources in the Park.
Visitor Use and Development, Pages 68 to 70	
Guideline: When road or trail conditions are such that further use is either unsafe or would result in significant impacts to natural or cultural resources, the affected routes will be closed until appropriate repairs are made or conditions change.	The Project would use existing roads and trails in the Park during construction and maintenance activities; in addition, the construction of some new roads may be required to ensure access to all proposed transmission tower locations.

In order for a State Park General Plan for the CHSP to become the official management document for the park, it must be approved by the California State Park and Recreation Commission (Commission). Any subsequent amendments to the General Plan must also be approved by the Commission. The authority to grant entitlements for a proposed project within the CHSP lies with the Department.

3.15.3.3 Local

Local land use plans are evaluated in this section to assist the CPUC and the Forest Service in determining the proposed Project's consistency with local plans, goals, and policies as related to wilderness and recreation. As the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities, no local discretionary permits (e.g., conditional use permits) or local plan consistency evaluations are required for the proposed Project or the Project alternatives. However, SCE would be required to obtain all ministerial building and encroachment permits from local jurisdictions. The following discussion summarizes the local plans and policies that are applicable to the Project.

The proposed Project would cross lands within Kern County, Los Angeles County and San Bernardino County, and would come within 0.5 mile of Riverside County. The Project would also traverse through the following 22 city jurisdictions:

- City of Lancaster
- City of Palmdale
- City of Duarte
- City of Monrovia
- City of Azusa
- City of Irwindale
- City of Baldwin Park
- City of El Monte
- City of Industry
- City of South El Monte
- City of Montebello
- City of Monterey Park
- City of Pico Rivera
- City of Whittier
- City of La Habra Heights
- City of La Cañada Flintridge
- City of Pasadena
- City of San Gabriel
- City of Temple City
- City of Rosemead
- City of Chino Hills
- City of Ontario

As required by the State of California, each General Plan includes the following seven mandatory elements: Circulation, Conservation, Housing, Land Use, Noise, Open Space, Safety, and Seismic Safety. Although it is not mandatory that General Plans include an element for Wilderness and/or

Recreation, some cities may choose to include additional elements to address such issue areas. In addition, some aspects of Wilderness and/or Recreation may be addressed in the Conservation or Open Space elements of a General Plan.

3.15.4 Impact Analysis Approach

3.15.4.1 Criteria for Determining Impact Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that would result from the proposed Project and alternatives. Appropriate criteria have been identified and utilized to make these significance conclusions. The following significance criteria for wilderness and recreation were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). Impacts of the proposed Project or alternatives would be considered significant and would require mitigation if:

- Criterion REC1: Directly or indirectly disrupt or preclude activities in established federal, State, or local recreation areas or wilderness areas.
- Criterion REC2: Substantially contribute to the long-term loss or degradation of the factors that contribute to the value of federal, State, local, or private recreational facilities or wilderness areas.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.15.4.2 Applicant-Proposed Measures (APMs)

APMs were identified by SCE in the PEA. Table 3.15-27 presents the APMs that are relevant to the issue area of wilderness and recreation. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. Therefore, the following discussions of impact analysis assume that all APMs will be implemented as defined in the table. Additional mitigation measures are recommended in this section if it is determined that APMs do not fully mitigate the impacts for which they are presented.

Table 3.15-27. Applicant-Proposed Measures – Wilderness and Recreation

APM REC-1	Temporary closures. When temporary, short-term park or trail closures (including off-highway vehicle [OHV] routes and the PCT) are necessary for construction activities, SCE would coordinate those closures with applicable agencies. To the extent practicable, SCE would schedule construction activities to avoid heavy recreational use periods, such as holidays.
APM REC-2	Closure notices. When temporary park or trail closures are necessary, SCE would post notice of the closure onsite 30 days prior to the closure and alternative access routes, when applicable.
APM REC-3	Revegetation. Any park areas temporarily affected by Project construction would be revegetated and returned to their original state. SCE would coordinate with owners of landscaped areas, parks, and hillsides to restore disturbed areas to a condition equal to or better than original.

3.15.4.3 Impact Assessment Methodology

This analysis of wilderness and recreation impacts first involved the establishment of Baseline Conditions for the Regional Setting, or Affected Environment, as presented above in Section 3.15.2. Characterization of Baseline Conditions included the identification and description of all wilderness and recreation resources in the Project Study Area, as comprised by the North Region, Central Region, and South Region. Baseline Conditions were evaluated based on their potential to be affected by activities associated with the construction, operation, and maintenance of the proposed Project and Project alternatives.

In order to develop a quantitative comparison of impacts that could occur under the proposed Project and each Project Alternative, one of the primary methodologies used in this impact assessment included tabulating the number of wilderness and recreation resources that each identified impact could potentially affect, and subsequently comparing the proposed Project and Project alternatives on a per-impact basis. Because not all wilderness and recreation resources would be affected in the same way by Project activities, each resource identified in the Project Study Area was evaluated individually for its potential to be affected by impacts of the proposed Project and Project alternatives.

The following sections describe and summarize how wilderness and recreation resources in the Project Study Area may be affected under the proposed Project each Project Alternative.

For the purposes of satisfying CEQA requirements, the significance of each impact is also identified according to the following classifications: Class I: Significant impact; cannot be mitigated to a level that is less than significant; Class II: Significant impact; can be mitigated to a level that is less than significant; Class III: Adverse impact; less than significant; and Class IV: Beneficial impact. Sections 3.15.5 through 3.15.11, below, provide a detailed discussion of the impacts identified for the proposed Project and alternatives.

3.15.5 Alternative 1: No Project/Action

Under the No Project/Action Alternative, construction and operation of the proposed TRTP would not occur. As such, associated impacts to wilderness and recreation resources would not occur. However, in the absence of the proposed Project or an alternative to the Project, the purposes and need for the power transmission capabilities that would be met by the proposed Project (or an alternative) would not be achieved. As a result, it is possible that another, similar transmission line project would be constructed in the future to meet the power transmission needs of developing wind farms in the Tehachapi Wind Resource Area. Such a project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the proposed TRTP or an alternative.

Environmental conditions in the Project Area are expected to naturally change or evolve over time and therefore, independently of the proposed Project or an alternative to the Project (including the No Project/Action Alternative), the regional setting and baseline conditions in the Project Area which are discussed in Section 3.15.2.1 (Regional Setting) would not remain static. If the No Project/Action Alternative is implemented, wilderness and recreation resources within the Project Area will continue to naturally evolve over time, independently of the potential impacts associated with the proposed TRTP. The following section describes how recreational and wilderness resources in the Project Area are expected to change in the future, under the No Project/Action Alternative. Because the potential impacts of the proposed Project would not occur under the No Project/Action Alternative, the significance criteria described in Section 3.15.4 (Impact Analysis Approach) are not used for analysis of the No Project/Action Alternative.

North Region

As described in Section 3.15.2.1, there are currently planned residential developments in the North Region which include proposals for recreational facilities and developed parks, including the Ritter Ranch Master Planned Community and the Anaverde Specific Plan area. It is reasonably foreseeable that these developments will be constructed and that in the future, further development surrounding the Cities of Lancaster and Palmdale will include additional recreational facilities for public use. The types of recreational resources that are reasonably foreseeable to be included as part of this ongoing development

include facilities such as community recreation centers, designated park areas with playground equipment for children, and multi-use trails to connect residential areas with recreational facilities. Such resources are similar to existing resources in the South Region, which is highly urbanized.

As described in Section 3.15.2.1 (Regional Setting), the PCT crosses through the North Region and would be traversed by the proposed Project. Under the No Project/Action Alternative, this crossing of the PCT would be avoided. The Pacific Crest Trail Association (PCTA), which works jointly with State and Federal agencies to protect the PCTA (as described in Section 3.15.2.1), is currently working to reroute a portion of the PCT within the North Region through Tejon Ranch in order to maintain the length of the PCT along ridgelines. It is expected that this reroute will succeed under any of the Project alternatives, including the No Project/Action Alternative. It is further expected that the PCT will continue to be protected and maintained in the future.

In general, the extent and variety of recreational resources within the North Region are expected to increase in the future. However, this increase is not dependent upon selection of the No Project/Action Alternative and will likely occur independently of the proposed Project or an alternative to the proposed Project. Due to the general lack of wilderness areas in the North Region, it is not expected that designated Wilderness Areas will be established in the area.

Central Region

The Central Region of the Project Area includes the ANF. The ANF will continue to be managed by the Forest Service in the future, regardless of the potential implementation of the proposed Project or an alternative to the proposed Project, including the No Project/Action Alternative. As such, designated Wilderness Areas including the San Gabriel WA, which is adjacent to the proposed TRTP route, would remain protected. Recreational resources within the Central Region, as presented in Table 3.15-14a (Central Region Recreational Resources within One-Half Mile of Alternative 2), would continue to exist under the management of the Forest Service for the purpose of public recreation and enjoyment.

Section 3.15.2.1 (Regional Setting) describes the land use zones that are used by the Forest Service for management of the ANF. One of these land use designations is the Developed Area Interface (DAI) zone, which applies to lands that are adjacent to communities or concentrated developed areas. The management goal for this zone is to encourage slow development with carefully designed facilities. Baseline conditions in areas surrounding the ANF, as described in Section 3.15.2.1 (Regional Setting), include rapidly expanding urban development to the north and highly urbanized and built-up communities to the south. As such, the DAI zone designation applies to areas of the ANF which buffer Forest boundaries to the north and south. In the future, as Palmdale (which is adjacent to the northern border of the ANF) continues to expand and develop, Forest Service management of the DAI zone along this northern border will control potential impacts associated with urban encroachment on Forest lands. Similarly, Forest management of the DAI zone along the southern border of the ANF will protect the Forest from urban encroachment by the existing cities and communities of the south region. Urban development in the south is expected to be slower than in the north due to existing built-up conditions, but the demand for open space and public recreation areas is still high and expected to rise as the general population increases. Slow development of recreational facilities within all DAI land use areas is permitted and expected to occur gradually.

South Region

As described in Section 3.15.2.1 (Regional Setting), the South Region is highly urbanized and includes a variety of developed resources including urban parks, trails, and sporting areas. For the most part,

population growth in the cities and communities of the South Region is expected to continue in the future. As such, open space and recreational resources in the South Region will continue to be in high demand and as population growth continues, the demand for open space is also expected to increase. It is expected that communities will continue to utilize transmission corridors for the establishment of urban parks and trails.

Existing utility corridors in the South Region currently represent valuable open space areas that public recreationists commonly utilize for outdoor enjoyment and general recreation. Table 3.15-17, which is presented in the Affected Environment discussion for the proposed Project (Section 3.15.2) provides a list of recreational resources within one-half mile of the proposed route. Some of these resources are situated within the existing utility corridor, including: Woodland Duck Farm / River Commons at the Duck Farm Project and the Eaton Canyon Natural Area. In the future, it is expected that such resources will continue to exist within the utility corridors and that as the demand for recreational areas continues to rise, cities and communities may increasingly look to open space within existing utility corridors for the establishment of recreational public use areas.

3.15.6 Alternative 2: SCE's Proposed Project

The following section describes the proposed Project's impacts to wilderness and recreation, as determined by the significance criteria listed in Section 3.15.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

3.15.6.1 Direct and Indirect Effects Analysis

Direct and indirect effects associated with Alternative 2 (SCE's proposed Project) are discussed below and summarized in Table 3.15-40 (Summary of Impacts and Mitigation Measures – Wilderness and Recreation). In accordance with CEQA Section 15358(a)(2), "Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems." The significance criteria used to identify wilderness and recreation impacts are introduced in Section 3.15.4.1 (Criteria for Determining Impact Significance) and summarized below in Table 3.15-28, as well as the impacts that have been identified under each criterion.

Table 3.15-28. Significance Criteria and Impacts – Wilderness and Recreation

Significance Criteria	Impact Statements
Criterion REC1: Directly or indirectly disrupt or preclude activities in established federal, State, or local recreation areas or wilderness areas.	R-1: Construction activities would restrict access to or disrupt activities within established recreational areas.
	R-2: Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas.
Criterion REC2: Substantially contribute to the long-term loss or degradation of the factors that contribute to the value of federal, state, local, or private recreational facilities or wilderness areas.	R-3: Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136).
	R-4: The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT).
	R-5: The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.
	R-6: The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

The wilderness and recreation impact analysis presented in this section is described in terms of the three Project Regions discussed in Section 3.15.2 (Affected Environment): North Region, Central Region, and South Region. Consistent with the Affected Environment discussion presented in Section 3.15.2, this impact analysis identifies which of the wilderness and recreation impacts (as listed in Table 3.15-28) have the potential to occur for each identified resource presented in the Affected Environment discussion. Each of the wilderness and recreation impacts identified above in Table 3.15-28 are discussed in full detail following the summary tables presented below:

- Table 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region). This table identifies which of the wilderness and recreation impacts listed in Table 3.15-28 could potentially affect each resource in the North Region of the Project Study Area.
- Table 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region). This table identifies which of the wilderness and recreation impacts listed in Table 3.15-28 could potentially affect each Developed Recreation resource in the Central Region of the Project Study Area. The concept of Dispersed Recreation is specific to NFS lands in the Central Region, whereas all recreational resources identified in the North and South Regions are considered Developed Recreation. Therefore, towards the purpose of comparing impacts equally across all three regions, Dispersed Recreation is not presented in this summary Table 3.15-30, although all recreation resources and opportunities (including both Developed and Dispersed Recreation) have been considered in this impact analysis. A thorough description of each impact as well as any impacts which are not reflected in this table is presented in the section following these summary tables. For instance, Impact R-3 identified in Table 3.15-28 is not reflected in this summary Table 3.15-30 because it is specific to designated Wilderness Areas, which are included in this analysis as Dispersed Recreation. However, as described, all wilderness and recreation resources (including Developed and Dispersed Recreation) are taken into full consideration in this impact analysis.
- Table 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region). This table identifies which of the wilderness and recreation impacts listed in Table 3.15-28 could potentially affect each resource in the South Region of the Project Study Area.

Factors taken into consideration in determining which of the identified wilderness and recreation impacts could potentially affect the resources discussed in Section 3.15.2 (Affected Environment) include the following: proximity of the resource to the proposed transmission line and related facilities; intended use or value of the resource or opportunity; sensitivity of the resource or opportunity; and level of visitation to the resource. As mentioned, all identified wilderness and recreation impacts of the Project are discussed in detail following the summary tables presented below.

Please see Table 3.15-11 (North Region Recreational Resources within One-Half Mile of Alternative 2) for jurisdictional information and further description of the resources listed in Table 3.15-29. As mentioned, a detailed description of each impact related to wilderness and recreation is presented following Tables 3.15-28 through 3.15-31.

Table 3.15-29. Wilderness and Recreation Impacts Applicable to Resources in the North Region

Project Component	Recreational Resource	Proximity to Alternative 2 Alignment	Potentially Applicable Impacts*
S4 MP 2.7	Pacific Crest National Scenic Trail (PCT)	Direct crossing	R-1, R-2, R-4
S4 MP 11.0	California Poppy Trail (130)	Direct crossing	R-1
S4 MP 11.6 – 14.0	Antelope Valley California Poppy Reserve	0.42 mile to the southwest (at S4 MP 12.7)	N/A
S4 MP 15.9	Del Sur Ranch (and associated neighborhood parks)	0.38 mile to the east	N/A
S4 MP 16.0 – 18.0	California Poppy Trail (130)	Adjacent to the east	R-1
S5 MP 1.8 – 2.0	Dirt trails and motocross trails	Adjacent to the southwest	R-1, R-5
S5 MP 4.4 – 17.8	Antelope Valley Area Trails	Multiple direct crossings	R-1

Table 3.15-29. Wilderness and Recreation Impacts Applicable to Resources in the North Region

Project Component	Recreational Resource	Proximity to Alternative 2 Alignment	Potentially Applicable Impacts*
S5 MP 6.5 and 7.0	North Side Trail (111)	Direct crossings	R-1
S5 MP 13.0 – 14.0	Northside Connector Trail (115)	Within and adjacent to ROW	R-1
S5 MP 14.5	Vasquez Loop Trail (116)	Direct crossing	R-1
S5 MP 17.0	Acton Community Trail (114)	Direct crossing	R-1
	Palmdale Hills Trail (110)	0.25 mile to the east	N/A
S5 MP 6.9	A.C. Warnack Nature Park	0.5 mile to the northeast	N/A
S5 MP9	Ritter Ranch Master Planned Community	0.28 mile to the northeast	N/A
S11 MP 0.2	Small dirt roads	Direct crossing	R-1
	Vacant (undeveloped) land	0.5 mile to the east	N/A
S11 MP 0.0 – 1.5	Small dirt roads	Multiple direct crossings	R-1

* "N/A" indicates a resource within the Project Area that would not be affected by wilderness and recreation impacts of the proposed Project.

Potential impacts of the proposed Project that could affect Developed Recreation resources and opportunities in the Central Region are presented below in Table 3.15-30. Please see Tables 3.15-14a (Central Region Recreational Resources within One-Half Mile of Alternative 2) and 3.15-16 (Alternative 2 Helicopter Staging Areas – ROS Designations and Affected Environment) for additional information and further description of Developed Recreation resources in the Central Region. A detailed description of each impact related to wilderness and recreation is presented in the text following these summary tables.

Table 3.15-30. Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region

Project Component	Recreational Resource	Proximity to Alternative 2 Alignment	Potentially Applicable Impacts
Segment 11 Mile Post (MP) 0.0 – 24.5			
S11 MP 2.6 – 8.0	Forest Road 4N24 (OHV)	Adjacent to and/or within ROW with multiple direct crossings	R-1, R-2, R-5
S11 MP 3.8	Bear Trap Canyon OHV road	Direct crossing	R-1, R-5
S11 MP 7.6	Pacific Crest National Scenic Trail (PCT)	Direct crossing by the T/L; within 0.3 mile of helicopter staging area SCE #1	R-1, R-2, R-4
S11 MP 7.9 – 11.0 and MP 11.5 – 13.0	Forest Road 3N27 (OHV)	Direct crossing at MP 8.0; Adjacent to and/or within ROW with multiple direct crossings	R-1, R-2, R-5
S11 MP 15.0	Clear Creek School Camp	0.5 mile to the east	N/A
S11 MP 16.7	Forest Road 2N75 (OHV) road	Direct crossing	R-1, R-5
S11 MP 16.8 – 18.9	Gabrielino NRT	Parallel to ROW, 0.25 mile to the east	R-1
S11 MP 17.0	Oakwilde Trail Camp	0.25 mile to the east	N/A
	Ken Burton Trail (Forest Trail 12W19)	Direct crossing	R-1
S11 MP 17.9	Angeles Crest Fire Station	0.2 mile to the east	N/A
S11 MP 18.0	Mount Lukens Road (Forest Road 2N76.2)	Helicopter staging area SCE #4 would include use of this road during construction	R-1
S11 MP 18.1	Gould Canyon Trail	0.38 mile to the west	N/A
S11 MP 18.4	Cross Town Trail	0.19 mile to the east	N/A
S11 MP 18.3	Paul Little Picnic Areas	0.4 mile to the east	N/A
S11 MP 18.6	Niño Picnic Area	0.2 mile to the east; within 0.2 mile of helicopter staging area SCE #5	R-1 (SCE #5)
S11 MP 19.0	La Cañada Flintridge Country Club	0.4 mile to the south	N/A
S11 MP 19.3	Gabrielino NRT	Direct crossing	R-1, R-2
	Gould Mesa Trail Camp	0.2 mile to the north	N/A

Table 3.15-30. Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region

Project Component	Recreational Resource	Proximity to Alternative 2 Alignment	Potentially Applicable Impacts
S11 MP 20.6 – 20.8, MP 21.2	Altadena Crest Trail (proposed)	Multiple direct crossings	R-1
S11 MP 21.0	Trail 12W18 (Sunset Ridge Trail) / 2N65 Chaney Trail – Los Angeles Count road	Direct crossing (MP 21.0) and adjacent to the north (MP 21.0 – 21.2)	R-1
	Millard Trail Camp	0.2 mile to the north	N/A
S11 MP 21.5	Camp Chiquita	0.3 mile to the south	N/A
S11 MP 22.5	Forest Trail 12W14A / Sam Merrill Trail	Direct crossing	R-1
	Echo Mountain Picnic Area	0.25 mile to the north	N/A
S11 MP 22.75	OHV roads (unnamed)	Direct crossing (MP 22.75) and adjacent to the north of ROW (MP 22.75 – 23.4)	R-1, R-5
S11 MP 23.0	Old Railroad Grade portion of Sam Merrill Trail	0.5 mile to the north	N/A
Segment 6 Mile Post (MP) 0.0 – 26.9			
S6 MP 1.5 – 2.75	Several OHV roads	Multiple direct crossings; adjacent to ROW	R-1, R-5
S6 MP 5.5 – 7.0	Hiking trails (unnamed)	Within 0.5 mile to the west; Direct crossings (MP 5.9 and 6.25)	N/A
S6 MP 6.0 – 7.3	Forest Road 4N41 (OHV)	0.1 mile to the west	R-1
S6 MP 7.3	Mill Creek Summit Picnic Area	Direct crossing by ROW	R-1, R-2
	Pacific Crest National Scenic Trail (PCT)	Direct crossing at Mill Creek Summit; PCT crosses through the Picnic Area and across Angeles Forest Highway	R-1, R-2, R-4
S6 MP 7.3 – 8.0	Forest Road 4N18 (OHV)	Direct crossing	R-1, R-5
S6 MP 8.5 – 11.0	Forest Road 4N18.1 (OHV)	Multiple direct crossings; adjacent to and/or within the ROW	R-1, R-2, R-5
S6 MP 10.5 – 11.0	Forest Road 3N23 (OHV)	Direct crossing (MP 10.8)	R-1, R-5
S6 MP 11.2 – 12.2	Forest Road 4N18.2 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 13.3	Alder Creek Trail (Forest Trail 11W05)	Direct crossing	R-1
S6 MP 13.7 – 15.0	Forest Road 3N20 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 16.75	Shortcut Saddle Trailhead / Silver Moccasin NRT / Rincon Shortcut OHV	0.25 mile to the east	N/A
S6 MP 17.0, 17.5, and 19.5	Forest Road 2N23 (OHV)	Direct crossing; helicopter staging area SCE #7 is adjacent to the west at MP 19.5	R-1, R-5
S6 MP 17.2	Silver Moccasin National Scenic Trail (Trail 11W06)	Direct crossing	R-1, R-2
S6 MP 18.8 – 19.8	Forest Road 2N23 (OHV)	Adjacent to the west until MP 19.5 (direct crossing), then adjacent to the right	R-1
S6 MP 19.5	Trail 11W16 and misc. trails	Portions of the trail are within 0.25 – 0.5 mile to the southwest	N/A
	West Fork Bike Path (Forest Road 2N25.1)	Located east of the T/L (not within 0.5 mile); would be utilized for construction traffic access to Segment 6	R-1
	Fishing platforms and ramps for persons with disabilities	East of the T/L along the West Fork San Gabriel River (not within 0.5 mile); access via Forest Road 2N25.1	R-1
	Pasadena Bait Club Canyon	East of the T/L (not within 0.5 mile); access via Forest Road 2N25.1	R-1
	Glenn Camp	East of the T/L (not within 0.5 mile); access via Forest Road 2N25.1	R-1

Table 3.15-30. Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region

Project Component	Recreational Resource	Proximity to Alternative 2 Alignment	Potentially Applicable Impacts
S6 MP 19.8 – 23.2	Rincon Red Box Road (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 20.3 – 21.0	Forest Road 2N25.2 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 21.0 – 23.2	Forest Road 2N24.1 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 22.2	Forest Road 2N31 (OHV)	Direct crossing at connection with FR 2N24.1 (OHV) / Rincon Red Box Road (OHV)	R-1, R-5
	Spring Camp	0.13 mile to the south (within the Los Angeles River Ranger District)	N/A
S6 MP 23.5	Truck Trail OHV route / Forest Road 2N24.1 (OHV)	Direct crossing	R-1, R-5
S6 MP 23.5 – 24.3	Forest Road 2N30.1 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 24.7 – 25.0	Silver Fish OHV Road / Forest Road 1N29 (OHV)	Direct crossing	R-1, R-5
	Silver Fish Trail	Direct crossing at Silver Fish OHV Road / Forest Road 1N29 (OHV)	R-1
	Van Tassel OHV Road / Forest Road 1N36 (OHV)	Direct crossing	R-1, R-2, R-5
	Sawpit OHV Road / Forest Road 2N30.2 (OHV)	Direct crossing	R-1, R-2, R-5
S6 MP 25.5 – 26.7	Van Tassel Truck Trail (OHV) / Forest Road 1N36 (OHV	Direct crossings (NP 25.5 and MP 26.7); adjacent to the ROW within 0.25 – 0.5 mile to the west (MP 25.5 – 26.7); helicopter staging area SCE #8 is adjacent at MP 26.0	R-1, R-5
	OHV road	Within 0.1 mile of the ROW to the west; Direct crossing at MP 26.3	R-1, R-5

As noted above, it is expected that four Developed Recreation resources along Forest Road 2N25.1 that are located beyond one-half mile of the proposed transmission line would experience Project-related impacts as a result of construction traffic. These resources are discussed in detail in Sections 3.15.2.1 (Affected Environment: Regional Setting) and 3.15.2.2 (Affected Environment: Alternative 2). Potential impacts of the proposed Project that could affect wilderness and recreation resources in the South Region are presented below in Table 3.15-31. Please see Table 3.15-17 (South Region Recreational Resources within One-Half Mile of Alternative 2) for jurisdictional information and further description of identified resources. A detailed description of each impact related to wilderness and recreation is presented in the text following this summary table.

Table 3.15-31. Wilderness and Recreation Impacts Applicable to Resources in the South Region

Project Component	Recreational Resource	Proximity of Resource to Project Component	Potentially Applicable Impacts
Segment 11 MP 24.5 – 36.2			
S11 MP 24.7 – 26.6	Eaton Canyon Natural Area Park / Eaton Canyon Park	Direct crossing.	R-1, R-2
S11 MP 26.6	Eaton Canyon Golf Course	Adjacent to western boundary of the golf course	N/A
	Hamilton Park	0.5 mile to the east	N/A
	Victory Park	0.35 mile to the west	N/A
S11 MP 26.8	Eaton Sunnyslope Park	0.1 mile to the west	N/A

Table 3.15-31. Wilderness and Recreation Impacts Applicable to Resources in the South Region

Project Component	Recreational Resource	Proximity of Resource to Project Component	Potentially Applicable Impacts
S11 MP 26.9	Gwinn Park	0.1 mile to the west	N/A
	Eaton Wash Park, Vina Vieja Park, and Alice Frost Kennedy Off-Leash Dog Area	Direct crossing through the east side of the park	R-1, R-2
S11 MP 28.2 – 28.4	Eaton Blanche Park	Direct crossing	R-1
S11 MP 31.7	Sally Tanner Park	0.3 mile to the west	N/A
S11 MP 32.5	Rosemead Community Center Park	0.4 mile to the east	N/A
S11 MP 32.8	Guess Park	Within ROW	R-1, R-2
S11 MP 33.0	Jesse Gonzales Sports Park	0.3 mile to the east	N/A
S11 MP 33.4	Zapopan Park	Within ROW, between Earle Avenue on north and Garvey Avenue on south	R-1, R-2
Segment 7 MP 0.0 – 15.8			
S7 MP 0.6	Fish Canyon Rifle Range	1.2 miles to the east; helicopter staging area SCE #9 is adjacent to the north	R-1
S7 MP 1.0	Valley View Park	0.19 mile to the east	N/A
S7 MP 1.4	Royal Oaks Park	0.06 mile to the west; closest section of park is large turf area. Active areas are 0.26 mile to the west	N/A
S7 MP 1.5	Encanto Park	0.29 mile to the east	N/A
S7 MP 1.5 – 1.6	Hacienda Park	Within SCE ROW	R-1, R-2
S7 MP 1.6 – 1.7	Rancho Duarte Golf Club	Straddles ROW and extends 850 feet to east and west	R-1
S7 MP 1.8	Public trails	South of the ROW	N/A
S7 MP 3.3 – 3.8	Otis Gordon Sports Park (City of Duarte)	0.25 mile to the northwest	N/A
S7 MP 3.8	Beardslee Park (City of Duarte)	0.50 mile to the northwest	N/A
S7 MP 4.9	Irwindale Speedway	Across (to the northwest) I-605 from ROW	N/A
S7 MP 5.5 and 107 – 11.8	San Gabriel River Bike Trail	Multiple direct crossings	R-1, R-2
S7 MP 6.0 – 11.8, 13.5	Emerald Necklace	Multiple direct crossings	R-1, R-2
S7 MP 7.8	Barnes Park	0.04 mile to the east, across I-605	R-1
S7 MP 7.9	Zamora Park (City of El Monte)	0.47 mile to the northwest	N/A
S7 MP 8.2	Walnut Creek Nature Park	0.38 mile to the east	N/A
S7 MP 8.9 – 10.5	Woodland Duck Farm Park / River Commons at the Duck Farm Project	Within ROW; proposed Project would replace existing transmission towers	R-1, R-2
S7 MP 9.1	San Angelo County Park (Community of Bassett)	0.28 mile to the southeast, across I-605	N/A
S7 MP 9.6 – 10.5	California Country Club	Two holes are northwest of I-605, adjacent to ROW (MP 9.6 – 9.9); remainder of holes are southeast of I-605	N/A
S7 MP 10.7	Thienes Gateway Park	Located within ROW	R-1, R-2
S7 MP 11.4 – 13.6	Whittier Narrows Recreational Area	Direct crossing through the center of the complex, in an east-west direction.	R-1, R-2
S7 MP 11.8	San Gabriel River Discovery Center	0.15 mile to the northwest	N/A
	Lario Creek	0.04 mile to the southeast	R-1
	Pico Rivera Bicentennial Park (City of Pico Rivera)	0.19 mile to the south	N/A
S7 MP 13.5	Whittier Narrows Golf Course	0.47 mile to the north	N/A
	Kingerman Park	Adjacent to ROW; licensed from SCE	R-1

Table 3.15-31. Wilderness and Recreation Impacts Applicable to Resources in the South Region

Project Component	Recreational Resource	Proximity of Resource to Project Component	Potentially Applicable Impacts
S7 MP 15.0	Portrero Heights Park (Community of South San Gabriel)	0.38 mile to the north	N/A
S7 MP 15.8	La Loma Park (City of Monterey Park)	0.28 mile to the northwest	N/A
Segment 8A MP 0.0 – 35.2			
S8A MP 0.0 – 2.2	*Same as S7 MP 13.6 - 15.8 (see above)*		
S8A MP 2.5 – 3.2	Whittier Narrows Recreation Area	Direct crossing from northwest to southeast across the recreation area	R-1, R-2
S8A MP 3.8 – 4.3	Pico Rivera Bicentennial Park	Direct crossing from west to east through the park; picnic areas north and south of the ROW; parking, rodeo arena and related fields are north of the ROW	R-1, R-2
S8A MP 7.2	Skyline Trail / Schabarum Trail	Direct crossing	R-1
S8A MP 9.9 – 13.5	Puente Hills Landfill Native Habitat Preservation Area (Powder Canyon)	Adjacent to the northern boundary of Powder Canyon	R-1, R-2
S8A MP 12.1 – 13.4	Schabarum Regional County Park (County of Los Angeles Park and Recreation Department)	0.04 mile to the north; improved recreation areas are 0.38 mile to the north of ROW; proposed Project would be adjacent to the south of existing Olinda-Walnut 200-kV T/L	N/A
S8A MP 13.1	Trailview Park (Los Angeles County)	0.13 mile to the north; existing ridge and plateau with water tank is located between the park and the proposed Segment 8	N/A
S8A MP 13.7	Pathfinder Park	Direct crossing through northern portion of park; turf, parking, tennis courts are north of the ROW	R-1, R-2
S8A MP 17.7	Trails from Diamond Bar	Direct crossing	R-1
S8A MP 19.2	Firestone Scout Reservation	0.19 mile to the southeast; Tonner Canyon is 0.95 mile to the southwest	N/A
S8A MP 22.3 – 22.4	Western Hills Country Club	Eucalyptus Avenue runs parallel to ROW, 0.04 – 0.13 mile to the northeast	N/A
	Coral Ridge Park	Direct crossing; from this park, a bike-pedestrian pathway continues to the northeast, within the ROW	R-1, R-2
S8A MP 23.6 – 23.8	Crossroads Park	Direct crossing	R-1, R-2
S8A MP 23.8 – 24.5	Pedestrian and bike path	Pathway is located within the ROW	R-1, R-2
S8A MP 23.9	Oak Ridge Park	0.49 mile to the southeast	N/A
S8A MP 24.1	Morningside Park	0.38 mile to the southeast	N/A
S8A MP 24.5	Morningfield Park	0.05 mile to the south	N/A
S8A MP 25.4	Glenmeade Park	0.38 mile to the south	N/A
S8A MP 27.7 – 28.6	Ruben S. Ayala Park	Park runs along the south side of Edison Avenue and includes a pedestrian and bike path within the ROW along the northern boundary of the park.	R-1, R-2
S8A MP 29.3	Cypress Trails Park	0.28 mile to the north	N/A
S8A MP 35.0	Creekside Golf Course	0.47 mile to the north	N/A
Segment 8B MP 0.0 – 6.8			
Same as S8A MP 28.3 – 35.2 (See above)			
Segment 8C MP 0.0 – 6.4			
Same as S8A MP 28.3 – 35.2 (See above)			

All identified wilderness and recreation impacts of the proposed Project, including those identified above in summary Tables 3.15-28 through 3.15-31, are discussed in full detail below, and organized according to the significance criteria presented in Section 3.15.4.1 (Criteria for Determining Impact Significance).

Directly or indirectly disrupt or preclude activities in established federal, State, or local recreation areas or wilderness areas. (Criterion REC1)

Construction, operation, and maintenance of the proposed Project could potentially disrupt access to established recreational resources in the Project Study Area, or otherwise disturb current activities in such areas. Impacts associated with construction activities would be temporary in nature, whereas impacts associated with operation and maintenance of the Project would continue for the lifetime of the Project and are therefore considered to be permanent or recurring impacts.

Impact R-1: Construction activities would restrict access to or disrupt activities within established recreational areas.

Impact R-1 would occur for all Developed Recreation resources that are subject to a "direct crossing" by the proposed transmission line; all direct crossings are noted in the following tables, respective to each of the three Project Regions: Table 3.15-11 (North Region Recreational Resources within One-Half Mile of Alternative 2), Table 3.15-14a (Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region), and Table 3.15-17 (Recreational Resources within One-Half Mile of Alternative 2 in the South Region). Recreational resources that would experience a direct crossing would not necessarily be physically impacted by the presence of the overhead transmission line because in most cases the transmission line would span over the resource or area without any ground impact.

Although it is not expected that resources with a direct crossing of the line would be physically altered by the Project, such resources and areas would be restricted from use during Project construction in order to protect the safety of public recreationists and to accommodate transport and use of the necessary equipment and activities required to install the new transmission line. During Project construction, ground work would be required at each tower pad location as well as along select roadways between the locations, as materials to build the towers would be transported by truck to the tower sites (with the exception of extremely rugged areas which would require helicopter construction). As a result, resources and areas with a direct crossing of the transmission line would be temporarily closed during construction activities.

Due to temporary construction closures, activities within resources with direct crossings would be temporarily disrupted. Recreational areas located in the near vicinity of the proposed route may also experience temporary use disruptions due to factors such as construction noise and the potential need to stage construction vehicles, equipment, or infrastructure. In addition, access to recreational areas may be restricted if roads or trails to such areas are used by construction equipment and vehicles during the construction period. Such impacts would be temporary and of short duration, lasting only as long as required to complete construction activities in a given location.

North Region

As described in Table 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), Impact R-1 would affect approximately 11 recreational resources in the North Region, including the PCT and several recreational trails maintained by the Los Angeles County Department of Parks and Recreation. There are no developed parks or other established recreation areas in the North Region that

could be affected by Impact R-1. Most of the North Region, particularly along Segment 10, is characterized by open space and undeveloped land. Table 3.15-11 (North Region Recreational Resources within One-Half Mile of Alternative 2) indicates that the recreational resources that would be traversed by Segments 10, 4, and 5 of the proposed Project include trails and small dirt roads that are known to be informally used by OHV recreationists.

Segment 10 would be constructed entirely within a new utility corridor. Parts of Segment 4 would also require a new utility corridor. The establishment of this new corridor and construction of the proposed transmission line would normally be expected to restrict the use of nearby recreational resources, but given the undeveloped nature of this portion of the North Region, Segments 10 and 4 are not expected to restrict or disrupt the use of established recreational areas; Impact R-1 would not occur. The nearest designated recreational area to this portion of the proposed route is the California Poppy Reserve, which is located 0.42 mile to the west of the route at Segment 4, MP 12.7. The California Poppy Reserve is located on Lancaster Road, which is accessible via Highway 14 and Interstate 5. Construction of the proposed Project would not restrict access to the California Poppy Reserve or disrupt recreational activities at this site.

Segments 4 and 5 would cross through an area of Los Angeles County that includes a network of multi-use trails which are managed by the Los Angeles County Department of Parks and Recreation. Los Angeles County trails that would be traversed in this area include the following: California Poppy Trail (Trail #130), North Side Trail (Trail #111), Northside Connector Trail (Trail #115), Vasquez Loop Trail (Trail #116), Acton Community Trail (Trail #114), and Palmdale Hills Trail (Trail #110). During construction activities in these locations, the trails would be temporarily restricted from public use. As mentioned, such restriction would be temporary and of a short duration, lasting only long enough to complete installation of Project infrastructure at each trail crossing.

Central Region

As discussed in Section 3.15.2 (Affected Environment: Alternative 2) and described in Tables 3.15-14a (Developed Recreation Resources within One-Half Mile of Alternative 2 in the Central Region) and 3.15-11b (Dispersed Recreation Opportunities within One-Half Mile of Alternative 2 in the Central Region), recreational areas and activities in the ANF include both Developed Recreation resources as well as Dispersed Recreation opportunities. Table 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region) indicates that Impact R-1 would affect approximately 37 Developed Recreation resources in the Central Region, including 26 OHV routes, ten multi-use trails, and one day-use area. Central Region trails that would be directly crossed by Segment 11 include the following: Forest Trail 12W31, Forest Road 11W14 (Gabrielino NRT), Altadena Crest Trail (proposed), 12W19 (Sunset Ridge Trail), and Forest Trail 12W14A (Sam Merrill Trail). Segment 6, which is also contained within the Central Region, would directly cross the following trails: Forest Trail 11W05 (Alder Creek Trail), Forest Trail 11W06 (Silver Moccasin Trail), and Forest Trail 11W19, as well as various unnamed trails in the lower portion of the Central Region.

In addition to the Developed Recreation resources described above, Dispersed Recreation opportunities such as those described in Table 3.15-14b would also be affected by Impact R-1 due to temporary access restrictions during the construction period, as well as possible activity disruptions due to factors such as construction equipment staging and noise generated during the construction period. The degree to which Dispersed Recreation opportunities would be affected by Impact R-1 depends upon which ROS designation is affected by closures or restrictions related to Project construction. As described in Section

3.15.2 (Affected Environment: Alternative 2), the type of recreational resource or opportunity available to the public largely depends upon the applicable ROS objective. In general, recreational activities within and adjacent to the Project ROW will be temporarily suspended during Project construction.

In addition to the recreational resources that would experience a direct crossing by the proposed Project, other resources including those identified in Tables 3.15-14a and 3.15-14b may be temporarily restricted from use due to access restrictions resulting from the use of Forest System roads and trails for construction activities. Identification of the exact roads and necessary improvements that would be required during Project construction is pending finalization of a Project Road Plan, which would be produced during final engineering for the Project. However, it is reasonably assumed that any Developed or Dispersed Recreation located within 0.25 mile of the proposed route (as identified in Tables 3.15-14a and 3.15-14b) would have the potential to be affected by Impact R-1 as a result of construction-related road closures. It is expected that Forest Road 2N25.1 (the West Fork Bike Path), a 6.7-mile paved road that connects Highway 39 from Azusa to Cogswell Reservoir, just east of Segment 6, would be used for construction access to the Project. During the construction period, Impact R-1 would temporarily affect recreational activities along this route, as well as fishing activities in the West Fork San Gabriel River. As described in Section 3.15.2.1 (Affected Environment: Regional Setting), there are ramps and platforms in place along the West Fork Bike Path which provide access for persons with disabilities to the river. These unique resources are commonly used for recreational fishing along the West Fork San Gabriel River, and would be temporarily affected by Impact R-1 during the construction period. One campground (Glenn Camp) is located along the West Fork Bike Path and would also be temporarily affected by Impact R-1 due to increased traffic and noise near the camp. Similarly, the Pasadena Bait Club Cabin would also be subject to elevated noise and traffic conditions along Forest Road 2N25.1 (West Fork Bike Path) during the construction period. Also as described in Section 3.15.2 (Affected Environment: Alternative 2), the West Fork Bike Path is located within the San Gabriel Canyon HIRA, which is a fee area requiring an Adventure Pass to be purchased prior to visitation. The potential effects to public revenue that are expected to occur as a result of decreased Adventure Pass sales from restricted recreational areas such as the West Fork Bike Path are discussed in the Socioeconomics analysis (Section 3.12).

Recreational hunting activities permitted in Zone D-11, which includes the entire Central Region of the Project Area, would be affected by Impact R-1 as a result of construction noise, traffic, and road closures. The aspect of Project construction which would likely be most disruptive to recreational hunting activities is road closures that would potentially restrict hunters from accessing certain areas of the ANF (Stowers, 2008). As described in Section 3.15.2.2 (Affected Environment), the 2008 hunting seasons in Zone D-11 occur roughly between the beginning of September and the end of November, including the regular deer season as well as two additional seasons for Deer Hunt J-13 and Deer Hunt A-31. The dates for Zone D-11 hunting seasons beyond 2008 have not yet been designated by the CDFG; however, as described in Section 3.15.2.2, it is reasonably assumed that future seasons will occur during the same months as 2008 seasons. In addition to road closures that could restrict hunters' movement through the Forest, recreational hunting could also be affected by aspects of Project construction such as noise from heavy equipment that may affect the presence and movement of wildlife. Project construction activities that occur outside of the designated hunting season(s) would have no affect on recreational hunting in Zone D-11.

Impact R-1 would also apply to OHV routes that would need to be improved or upgraded to accommodate construction vehicle traffic. As described in Section 3.15.2.1 (Affected Environment: Regional Setting) and in Table 3.15-6 (Forest Roads Operational Maintenance Level (OML) Guidelines for the ANF), OHV

use is restricted to roads maintained to OML 2 due to safety concerns associated with passenger vehicles and OHVs traveling on the same roadways (OML 2 roads are not accessible by passenger vehicles). If an OML 2 road is required for construction access during Project installation, roadway requirements associated with construction vehicle access would require that upgrades comparable to OML 3 would need to be applied, thereby temporarily disrupting OHV activity during the construction period. However, any such road improvements would be temporary and would not be maintained following the Project construction period; designated OMLs would not be permanently altered.

As indicated in Table 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), the majority of Developed Recreation resources that are located within one-half mile of the proposed route and would be affected by Impact R-1 are OHV routes; roughly 70 percent, or 26 of the 37 affected resources, are existing OHV routes. The concentration of this type of resource in the vicinity of the Project ROW is likely due to the fact that access roads not maintained for passenger vehicle travel (i.e. OML 2 roads) tend to be concentrated adjacent to or within Utility Corridors. It is possible that in reaction to existing OHV routes being restricted during Project construction (Impact R-1), some OHV recreationists may choose to utilize illegal OHV routes or create new, unauthorized OHV routes in the Forest, thereby participated in unmanaged or unauthorized recreational uses. Please see Impact R-6 (The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities) for a detailed discussion of unmanaged/unauthorized recreation that may occur in connection with the proposed Project.

According to the results of the National Visitor Use Monitoring (NVUM) program for the Angeles National Forest, the most popular visitor activities in 2001 included the following: General Relaxation (hanging out/escaping noise and heat/etc): 38 percent of visitors; Downhill Skiing or Snowboarding: 35 percent of visitors; Wildlife Viewing/Bird Watching: 31 percent of visitors; Hiking or Walking: 29 percent of visitors; and Picnicking/Family Day Gatherings: 18 percent of visitors. The NVUM results for this year also indicate that when visitors to the Forest were asked to select a substitute recreational activity in case their preferred activity were to be unavailable in the ANF, 64 percent of visitors said they would go somewhere else for the same activity, while 14 percent of visitors said they would return to the ANF at another time to participate in the same activity (USDA Forest Service, 2001). As such, it is reasonably expected that if recreationists are unable to access desired resources or opportunities within the ANF as a result of the Project, a certain percentage of recreationists will utilize similar resources in other areas of the Forest or the Project Study Area.

South Region

As described in Table 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region), Impact R-1 would affect approximately 24 recreational resources in the South Region, including 18 urban parks, four multi-use trails, one private golf course, and one open space preserve, the Puente Hills Habitat Area (Puente Hills Landfill Natural Habitat Preservation Area). Designated recreational areas that provide public trails which could be affected by the proposed Project include the following: Puente Hills Habitat Area, Eaton Canyon Natural Area (Eaton Canyon Park), the Emerald Necklace development, Whittier Narrows Recreational Area, and Crossroads Park. Other trails that would be crossed by the proposed Project but are not contained within an established recreational area include: public trails along the San Gabriel River, the San Gabriel River Bike Trail, and Schabarum Trail (Skyline Trail). In addition, the Woodland Duck Farm / River Commons at the Duck Farm Project (Duck Farm) is a planned open space and passive recreation area located within the existing SCE ROW that would be affected by access restrictions during implementation of the proposed Project.

Of the designated recreational areas mentioned above, the Puente Hills Habitat Area is considered to be particularly sensitive because it encompasses multiple different properties which, as a collective unit, provide extensive open space (3,860 acres) for passive recreation and outdoor enjoyment in an area of Los Angeles County where expanding urban development is encroaching upon remaining open space areas. Recreation opportunities in the Puente Hills Habitat Area include but are not limited to the following: hiking, mountain biking, and equestrian trail use; outdoor education; general outdoor enjoyment and backcountry experience. Parking areas and ADA access is also provided in some areas of the Puente Hills Habitat Area for access to wilderness and recreation resources. Impact R-1 would affect recreationists in the Puente Hills Habitat Area as a result of Project construction activities that would result in the temporary degradation of the quality of outdoor / backcountry experiences available to public recreationists. In addition, the portion of the Project that would be constructed along Powder Canyon would introduce Impact R-1 to multiple recreational trails in the area, including Nogales Trail and, as described above, would result in the temporary degradation of the backcountry experience for recreationists in the Powder Canyon area.

As with the North and Central Regions, Impact R-1 would occur in the South Region for all recreational areas or resources that experience a direct crossing by the transmission line, as a result of temporary closures or access restrictions that are applied during the construction period to provide for public safety and/or allow for construction vehicle and equipment traffic. Any such access restrictions or disruption to existing recreational activities would be temporary and of short duration, lasting only as long as required to complete construction activities along each portion of the transmission line.

Mitigation Measures for Impact R-1

R-1a **Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas.** SCE shall develop the Project construction schedule and coordinate construction with the authorized officer(s) or the agencies of all recreational areas affected by Project construction. SCE shall also coordinate maintenance activities beyond the periodic visual inspections which are required by current SCE Transmission Operations and Maintenance Policies and Procedures (TOM) with these parties, including but not limited to the following: FS (ANF); California Department of Fish and Game (CDFG); Pacific Crest Trail Association (PCTA); California State Park and Recreation Commission; California Department of Parks and Recreation; Kern County Department of Parks and Recreation; Los Angeles County Department of Parks and Recreation; San Bernardino County Regional Parks; Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority); Watershed Conservation Authority (WCA); and San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC).

Through coordination efforts with the agencies listed above as well as any additional agencies that manage recreational resources which would be affected by the Project, ~~and at the discretion of the authorized officer(s) responsible for management of the affected resource(s),~~ SCE shall ensure the following occurs unless otherwise approved by the affected agencies:

- Construction and maintenance activities are scheduled to avoid heavy recreational use periods (including major holidays) to the maximum extent feasible, with the understanding that such efforts may not always be feasible;
- Staging areas for Project-related equipment, materials, and vehicles are located in areas with least possible effect on recreational activities and opportunities; and
- Timetables for the required period of usage of each staging area are developed and adhered to in coordination with all affected resource agencies.

SCE shall document its coordination and provide this documentation to the CPUC and the FS no less than 30 days prior to construction and maintenance activities (beyond periodic visual inspections).

R-1b **Identify and provide noticing of alternative recreation areas.** SCE shall coordinate with the authorized recreation officer(s) or the agencies of all recreational areas affected by Project construction and maintenance activities (beyond periodic visual inspections), including but not limited to those listed under Mitigation Measure R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), the purpose of which is to accomplish the following:

- Identify recreational areas (i.e., trails, parks, day-use areas) that would be closed during Project construction or maintenance activities;
- To the extent feasible, identify alternative recreational areas for each resource that would be made unavailable to the public due to Project construction or maintenance activities; and
- Post a public notice which identifies alternative recreational areas at FS Ranger Stations within the ANF and at all recreational areas to be closed due to Project construction or maintenance activities.

SCE shall document these coordination efforts to identify and provide noticing of alternative recreational areas and submit this documentation to the CPUC and the FS no less than 30 days prior to construction and maintenance activities (beyond periodic visual inspections) that would occur within one-half mile of wilderness or recreation areas that would be affected by such activities.

R-1c **Notification of temporary closure of OHV routes.** SCE shall coordinate with the FS (ANF) to identify all Operational Maintenance Level (OML) 2 roads and other designated off-highway vehicle (OHV) routes which would be closed or otherwise made unavailable for use as a result of Project construction and/or maintenance activities. Included in this coordination effort, SCE shall prepare a public notice which identifies all OML 2 roads and OHV routes to be closed as a result of Project construction and/or maintenance activities and shall comply with the following:

- Distribute the public notice to relevant FS Ranger Stations within the ANF;
- Publish the public notice in local newspapers which service communities bordering the ANF;
- Publish updated notices in local newspapers if any significant changes in scheduling occur; and
- Maintain public notices and postings throughout the OML 2 road / OHV route closure period.

SCE shall document these coordination efforts related to OML 2 road / OHV route closures and submit this documentation to the CPUC and FS no less than 30 days prior to construction and/or maintenance activities that would affect OHV routes.

R-1d **Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT).** SCE shall coordinate with the FS and with the Pacific Crest Trail Association (PCTA) regarding temporary closure of the PCT that would occur during Project construction and maintenance activities. The following shall be included in this coordination effort:

- SCE and the PCTA shall identify trail diversions to be applied at each point where the PCT would be temporarily closed to through-traffic as a result of Project construction and maintenance activities; and
- SCE shall post public notices of temporary closures/diversions of the PCT at FS Ranger Stations within the ANF and at additional locations determined to be appropriate by the PCTA. The public notice shall provide information on temporary trail reroutes that would be implemented during construction and maintenance activities as well as the time period for implementation of such reroutes.

SCE shall document these coordination efforts, including the location of all posted notices, and submit this documentation to the CPUC and the FS for approval no less than 30 days prior to construction and maintenance activities that would occur within one-half mile of the PCT.

R-1e **SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project. ~~assist in the completion of backlogged maintenance activities in the ANF.~~** Prior to the onset of Project construction in the ANF, SCE shall coordinate with the FS (ANF) to identify recreational resources on NFS lands in the ANF that would be temporarily closed as a direct result of Project construction. A resource is only considered to be closed directly as a result of Project construction if the resource is made entirely inaccessible to the public as a sole result of Project activities; in other words, no other factors contribute to the resource's inaccessibility. ~~If the FS has an existing (as of December of 2008) backlogged maintenance order for a recreational resource that would be directly closed as a result of the Project, including temporary and construction related closures, SCE shall assist the FS in completing the backlogged maintenance order for the affected resource, to the degree necessary as determined by the FS. Backlogged maintenance includes only those activities which are slated for completion using funding from the Adventure Pass fee program, as authorized by Congress under the Federal Lands Recreation Enhancement Act (REA) of 2004.~~ SCE shall coordinate with the FS in reviewing financial records of the Adventure Pass program as well as recreational use data for the ANF, in order to determine a compensation amount comparable to the direct impacts of the Project.

Environmental Effects of Mitigation Measure R-1d

While Mitigation Measure R-1d is recommended to reduce impacts to recreationists using the PCT, this measure may adversely affect other issue areas. A trail diversion would potentially disturb sensitive biological resources or would possibly damage any cultural resources that may be located along the diverted route. Such potential impacts are similar to the effects of other Project activities, and would require the implementation of mitigation measures presented in Sections 3.4 (Biological Resources) and 3.5 (Cultural Resources).

CEQA Significance Conclusion

Temporary access restrictions to established recreational resources or disruption of activities within such resources as a result of Project construction would negatively affect members of the public who would otherwise use the affected recreational resources. Such temporary impacts could also lead to unauthorized recreational uses of National Forest System lands, which is described in the discussion for Impact R-6 (The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities). Coordination between SCE and the Forest Service regarding road improvements and construction timelines will facilitate advanced planning for any potential access restrictions or recreational use disruptions that would occur under Impact R-1.

The following mitigation measures, which are described in detail above, would help to reduce the significance of Impact R-1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and

- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

Mitigation Measure R-1a would help to minimize Impact R-1 for both Developed and Dispersed Recreation (including as related to recreational hunting in Zone D-11) by requiring coordination among all relevant agencies. Similarly, Mitigation Measures R-1b through R-1e would help to minimize Impact R-1 through public awareness and outreach. Mitigation Measure R-1c is similar to Applicant-Proposed Measures (APMs) REC-1 (Temporary Closures) and REC-2 (Closure Notices) and would reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. Implementation of Mitigation Measures R-1a through R-1e, as described above, would reduce Impact R-1 to a less-than-significant level (Class II).

Impact R-2: Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas.

During Project operation and maintenance activities, it is expected that ground work would be limited to transmission tower locations and other ground-based Project infrastructure located along the proposed route. Recreational resources that are adjacent to areas where ground work is necessary would be temporarily restricted from use during such activities, thus restricting access to or resulting in the disruption of normal recreational activities within such areas. In addition, Impact R-2 would affect recreational resources which are considered to be particularly sensitive and are located in close proximity to (versus being adjacent to) operation and maintenance activities; for instance, operation and maintenance activities which occur within close proximity to the PCT would disrupt recreationists who utilize the PCT for its designated purposes of solitude and/or an undisturbed backcountry experience and as such, Impact R-2 applies to the PCT. Impact R-2 would also occur if operation and maintenance activities require that certain roads and/or trails be closed for access to Project infrastructure and such closures remove access to existing recreational resources or opportunities. Such closures would be temporary and of short duration, lasting only as long as required to complete necessary operation and maintenance of Project infrastructure.

North Region

As described in Table 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), Impact R-2 would apply to one road in the North Region that is utilized by OHV recreationists. There are no developed parks or established recreation areas in the North Region that would be affected by Impact R-2. The proposed Project would replace existing transmission infrastructure within established utility corridors and as such, operation and maintenance activities associated with the proposed Project would be consistent with existing activities and would not alter the available uses of established recreation areas. Although operation and maintenance activities may require that existing roads and/or trails be used for access to tower locations, such use would not restrict or disrupt recreational uses in the North Region. Operation and maintenance activities of the proposed Project would not affect access to the California Poppy Reserve, which is the nearest designated recreational area to the proposed route.

Central Region

As described in Table 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), Impact R-2 would apply to approximately 15 Developed Recreation resources in the Central Region, including 11 OHV routes, four multi-use trails, and one day-use area. As described above, operation and maintenance activities for the proposed Project would temporarily restrict the use of

or disrupt activities within existing recreational areas if roads, OHV routes, and/or trails which provide access to the resource(s) are closed or restricted as a result of ongoing operation and maintenance activities. As opposed to construction activities, which would require that access ways (roads / trails) be closed to the public due to safety considerations with the transport of large equipment, it is not expected that standard operation and maintenance activities would require road closures. For instance, although the West Fork Bike Trail (Forest Road 2N25.1) would be closed to the public to accommodate construction access to Segment 6, it is expected that this roadway would remain open to the public during standard operation and maintenance activities.

As with Impact R-1, described above, OHV routes reflect the majority of recreational resource type that would be affected under Impact R-2 for the proposed Project. Impact R-2 applies more specifically to OHV routes than other recreational resources due to the proximity of this resource to existing Utility Corridors, as well as to road improvements associated with Project operation and maintenance that may require OHV routes (OML 2 roads) to be gated at the ROW border and/or to be restricted from OHV use until naturally returned to pre-improvement (OML 2) conditions.

The proposed transmission line route is situated along and within existing Utility Corridors on NFS lands and as a result, any Developed or Dispersed Recreation resources and opportunities that could be restricted by the operation and maintenance of a transmission line have already been affected by the existing transmission lines and would not be further affected or restricted by operation and maintenance of the proposed Project. Furthermore, as described above in the discussion for Impact R-1, the degree to which Dispersed Recreation opportunities that would be affected by Impact R-2 depend upon which ROS designation is affected by Project operation and maintenance.

As a result of the restriction of access or activities associated with Developed or Dispersed Recreation resources or opportunities resulting from Project operation and maintenance activities, some recreationists may choose to use other, nearby resources or opportunities. It is also possible that recreationists may choose to participate in unmanaged recreational activities, such as using illegal OHV routes or creating new, unauthorized routes to access recreational resources that are restricted due to operation and maintenance of the proposed Project. Please see Impact R-6 (The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities) for a further discussion of unmanaged / unauthorized recreation.

South Region

As described in Table 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region), Impact R-2 would apply to approximately 17 recreational resources in the South Region, including 15 urban parks and two multi-use trails. Other open space areas that provide dispersed or low-impact recreation opportunities, including general outdoor enjoyment, may also be affected by Impact R-2. These open space areas include but are not limited to the following: Puente Hills Habitat Area, Eaton Canyon Natural Area (Eaton Canyon Park), the Emerald Necklace development, Santa Fe Dam Recreation Area (also addressed in Sections 3.4 and 3.9), and Whittier Narrows Recreational Area (also addressed in Sections 3.4 and 3.9). Similar to the North and Central Regions, as described above, operation and maintenance activities for the proposed Project would temporarily restrict or disrupt the use of recreational resources if access to such resources is restricted or if the intended recreational activities associated with such resources are disrupted. All existing recreational resources that would experience a direct crossing by the proposed Project, as indicated in Table 3.15-17 (South Region Recreational Resources within One-Half Mile of Alternative 2), would have the potential to be disrupted or restricted

from use during operation and maintenance of the proposed Project in the same manner as described above for the Central Region.

In the Puente Hills Habitat Area, installation of the proposed Project would include construction of transmission towers near the entrance to Powder Canyon, which would be highly visible to public recreationists entering the Puente Hills Habitat Area, as well as hikers, mountain bikers, and other recreationists using trails such as Nogales Trail which are located in the vicinity of Powder Canyon. These Project features would contrast substantially with the goals of open space and natural resource protection for which the Puente Hills Habitat Area is managed by the Habitat Authority. The proposed Project would introduce Impact R-2 to this portion of the Puente Hills Habitat Area as a result of Project features that would contribute to the degradation of the backcountry experience for public recreationists.

Due to the highly urbanized nature of the South Region, community organizations and regional agencies have begun to explore recreation opportunities within established utility corridors. As a result, some of the resources listed in Table 3.15-17 (South Region Recreational Resources within One-Half Mile of Alternative 2) are located within the Project ROW, as noted. Any such resources, which include public parks, community open space areas, and multi-use trails, among other resources, that are situated within the Project ROW would be temporarily restricted from use during site-specific Project operation and maintenance activities. For instance, the Duck Farm Project is a planned passive recreation area located within the existing utility corridor (as described in Section 3.15.2.1 (Affected Environment: Regional Setting) and mentioned above under Impact R-1). This recreational resource is planned to be constructed in phases based on grant funding and although detailed site plans have been developed and approved for the first phase of construction (Phase 1A), construction of the project has not yet commenced. Because the Duck Farm Project is located within the proposed Project ROW, the construction schedule and existing planned layout of the Duck Farm Project may be subject to change depending upon final engineering design and tower locations for the proposed Project. Such impacts, which are included under Impact R-2, are considered to be temporary and of short duration, as construction and operation of the proposed Project would not preclude the Project ROW from use by the Duck Farm Project, or other similar projects that are situated in the ROW.

To minimize operation and maintenance impacts on the availability and quality of established recreational areas in the Project Study Area, the following mitigation measures are recommended: Mitigation Measures R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), R-1b (Identify and provide noticing of alternative recreation areas), R-1c (Notification of temporarily closure of OHV routes), and R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)).

CEQA Significance Conclusion

The restriction or disruption of recreational resources due to operation and maintenance of the proposed Project would negatively impact members of the public who would otherwise use affected recreational resources during the time period(s) that they would be restricted or disrupted. To ensure that this impact would remain less than significant, the following mitigation measures have been identified:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes); and
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)).

As described for Impact R-1, Mitigation Measure R-1c is similar to Applicant-Proposed Measures (APMs) REC-1 (Temporary Closures) and REC-2 (Closure Notices) and would reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. The implementation of these mitigation measures would reduce Impact R-2 to a less-than-significant level (Class II).

Substantially contribute to the long-term loss or degradation of the factors that contribute to the value of federal, State, local, or private recreational facilities or wilderness areas (Criterion REC2)

Construction or operation and maintenance of the proposed Project would contribute to the loss or degradation of recreational resources or Wilderness Areas if such activities permanently preclude access, permanently remove parts or all of the affected area from being utilized for its intended purpose, or result in degradation such that the intended recreational use or wilderness value is permanently lost.

Impact R-3: Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136).

In accordance with the federal Wilderness Act, which is described in the Dispersed Recreation discussion presented in Section 3.15.2.1 (Affected Environment: Regional Setting), a designated Wilderness Area is defined as having four primary characteristics, including the following: a natural and undisturbed landscape; extensive opportunities for solitude and unconfined recreation; at least 5,000 contiguous acres; and feature(s) of scientific, educational, scenic, and/or historic value. Impact R-3 would affect the San Gabriel WA, which is described in Table 3.15-14b (Dispersed Recreation Opportunities within One-Half Mile of Alternative 2 in the Central Region) as being adjacent to the east of Segment 6 for approximately 0.8 mile, from MP 18.0 – 18.8. In addition, the West Fork Bike Path (Forest Road 2N25.1), which is located adjacent to the south of the San Gabriel WA, would be used for access to the Segment 6 alignment during Project construction activities. No other designated WAs are located in the Project Study Area.

Impact R-3 would apply to the San Gabriel WA if activities associated with the proposed Project have the potential to negatively affect any of the four primary characteristics of a WA (as listed above) for which the San Gabriel WA has been designated by the U.S. Congress. These four characteristics and the proposed Project's potential to negatively affect each one are described below.

- **Natural and undisturbed landscape.** The proposed Project would be situated in an existing Utility Corridor adjacent to a portion of the San Gabriel WA, but no Project infrastructure would be located within the San Gabriel WA and the Project would therefore not contribute to a loss of the natural and/or undisturbed landscape within this WA.
- **Solitude and unconfined recreation.** Although the proposed Project would not enter the San Gabriel WA, the transmission line route would be situated immediately adjacent to this WA and due to this close proximity, noise, dust, visual factors, and other potential effects of Project construction activities may impinge upon, reduce, or otherwise alter the perception of solitude that recreationists in the southwestern portion of the San Gabriel WA would otherwise have.
- **5,000 contiguous acres.** The proposed Project would not remove any portion of the San Gabriel WA from its wilderness designation and would therefore have no affect on the size of this WA.
- **Features of natural value.** The proposed Project would not result in any loss or potential loss of natural features or resources in the San Gabriel WA which are considered to have scientific, educational, scenic, and/or historic value.

As described above, the proposed Project may cause or contribute to the degradation of the San Gabriel WA's characteristics of solitude and unconfined recreation due to the close proximity of Project construction, operation, and maintenance activities to this WA. During construction, this impact would be of temporary duration, while during operations and maintenance activities, this impact would be intermittent. The proposed Project would be adjacent to the San Gabriel WA along its western border, where topography is extremely rugged. Access to this portion of the WA is minimal, provided by several non-motorized trails that require a high degree of physical aptitude for access by foot. Visitation to this portion of the San Gabriel WA is low. (Seastrand, 2008)

Project construction activities would include the use of Forest System Roads along the southern border of the San Gabriel WA. The transport and/or use of heavy vehicles and equipment in this area would introduce elevated noise in the southern portions of the San Gabriel WA, which would subsequently have the potential to degrade the WA's characteristics of solitude and unconfined recreation. This area of the San Gabriel WA is highly accessible to the public and is commonly used for recreational activities and general outdoor enjoyment. Visitation to this area of the San Gabriel WA is much higher than in the more rugged areas described above. As a result of this elevated visitation, the characteristics of solitude and unconfined recreation are not prominent as other, more remote areas of the WA.

Some transmission towers in particularly rugged terrain may be constructed using helicopters, which would introduce noise and visual impacts that would result in temporary degradation of the characteristics of solitude and unconfined recreation currently attributed to the San Gabriel WA. All helicopter activities would be conducted in coordination with the USDA Forest Service and all other applicable agencies/parties, including but not limited to the following: the Federal Aviation Administration (FAA), the National Oceanic and Atmospheric Administration (NOAA), military authorities, and local pilots. In addition, all helicopter activities would occur in compliance with the ANF's Wilderness Management Manual. As stated in this Wilderness Manual, flights are "discouraged" over wilderness within 2,000 feet of the ground surface, except in emergencies. (USDA Forest Service, 2007f)

CEQA Significance Conclusion

As described above, Project activities would have the potential to degrade the qualities of solitude and unconfined recreation in the remote southwestern portion of the San Gabriel WA, as well as the more intensely visited southern portions of the San Gabriel WA. Due to the low volume of recreationists that would experience this impact in the southwest, and the lower prominence of these characteristics in the south, Impact R-3 would be less than significant with no mitigation required (Class III).

Impact R-4: The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT).

As described in Section 3.15.2.1 (Affected Environment: Regional Setting), the PCT is a 2,650-mile-long hiking and equestrian trail which extends from Mexico to Canada, through the states of California, Oregon, and Washington. This impact of the proposed Project addresses the potential loss or degradation of physical aspects of the PCT, as well as the potential loss or degradation of the pristine backcountry experience that recreationists using the PCT expect to have. Effects to the recreational experience of the PCT are included as part of this impact analysis because the PCT is a designated National Scenic Trail which, by this designation, is meant to be a continuous protected scenic corridor for outdoor recreation. As such, the recreational experience of the PCT is unique to other recreational resources and is considered to be an integral aspect of the trail.

The PCT would be physically affected by the proposed Project if any of the following events were to occur in connection with Project construction or operation and maintenance:

- Permanent closure of parts of the trail;
- Installation of Project infrastructure within or adjacent to the trail in a way that would prevent that area from being used in the future; and
- Any other Project-related activity that would physically remove parts of the PCT from use.

Additionally, loss or degradation of the pristine backcountry experience considered intrinsic of the PCT would occur under the following circumstances associated with Project construction or operation and maintenance:

- Installation of Project infrastructure contrasts substantially with natural aesthetics currently existing along the PCT;
- Noise levels introduced through Project activities are substantially greater or have substantially different characteristics from existing conditions along the PCT;
- Any other Project-related activity substantially contrasts with the existing wilderness character and/or experience of the PCT.

As described here, visual resources and noise both contribute to the pristine backcountry experience of the PCT; visual and noise aspects of the proposed Project are only discussed here in terms of their contributions to wilderness and recreation, not in terms of specific Visual and Noise impacts that would be introduced by the Project. Please see Sections 3.10 and 3.14 for identification and discussion of specific Project-related impacts to noise and visual resources, respectively.

North Region

Within the North Region, the proposed Project would include one crossing of the PCT, which would take place along Segment 4, at MP 2.7, as indicated above in Table 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region). In this portion of the proposed route, the Project would include the construction of two parallel single-circuit 220-kV transmission lines, situated parallel to the east side of the existing utility corridor. No towers or transmission-related infrastructure would be permanently located on or within the PCT and the Project would not result in the permanent closure or re-routing of the PCT, although temporary diversions during the construction period would be required. In addition, the proposed Project towers would be situated along an existing utility corridor, adjacent to existing transmission towers. As such, although the towers would be prominent visual features of the landscape, they would not significantly change the existing aesthetics.

During construction of the proposed Project and installation of the Project towers, temporarily elevated noise levels would be introduced through the use of construction vehicles and machinery. Although this type of noise would be in substantial contrast to the existing types of noise which occur along the PCT, it would be temporary and would not lead to permanent degradation of the pristine backcountry experience enjoyed by PCT recreationists. The portion of the PCT that would be crossed by the proposed Project would be temporarily closed during Project construction and the PCT would be temporarily rerouted for the safety of recreationists using the trail.

Central Region

As indicated in Table 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), the proposed Project would traverse the PCT at two locations within the ANF; one crossing would take place along Segment 11 at MP 7.6, and one crossing would take place along Segment

6 at MP 7.3. At each of these crossings, the proposed Project would include the replacement of existing 220-kV towers with 500-kV towers. As with the PCT crossing described for the North Region, the Central Region crossings would not result in Project infrastructure permanently removing any portion of the PCT from continuation of existing uses. Visual and noise aspects of the pristine backcountry experience enjoyed by recreationists on the PCT would be the same at the Central Region crossings as the North Region crossing, described above. SCE's helicopter staging area #1, which is located approximately 0.3 mile east of S11 MP 7.6 along Mt. Gleason Road, is also 0.3 mile east of the PCT, where the trail is traversed by the proposed transmission line. Use of this helicopter staging area would introduce additional construction-related noise that would also affect the pristine backcountry experience for recreationists on the PCT (please see Table 3.15-16 for a complete description of helicopter staging areas included under the proposed Project). As mentioned, the portion of the PCT that would be affected by SCE's staging area #1 is also traversed by the proposed transmission line and is therefore already subject to construction-related disturbance.

The portions of the PCT that would be crossed by the proposed Project would be temporarily closed during Project construction and the PCT would be temporarily rerouted in these areas for the safety of recreationists using the trail. ~~If the Forest Service issues a decision to authorize SCE's Special Use Easement for the proposed Project, an amendment to the governing 2005 Forest Plan would be required in order to ensure consistency of actions under the Special Use permit with management direction in the Forest Plan, as relevant to the PCT. The 2005 FLMP includes a Forest Standard (S1) related to the Pacific Crest Trail; because construction of the proposed Project would adversely affect foreground views from the PCT, the 2005 FLMP would be modified to allow for this impact of the proposed Project.~~ Please see Section 3.14 (Visual Resources) for a complete discussion of ~~foreground~~ views from the PCT.

South Region

The proposed Project would not cross the PCT within the South Region of the Project Study Area.

To minimize Project impacts to the PCT, the following mitigation measures are recommended: Mitigation Measures R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)), and R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

CEQA Significance Conclusion

Construction of the proposed Project would not result in a permanent reroute of the PCT and no permanent physical modifications to the PCT would occur as a result of Project activities. Additionally, the proposed Project would not change the existing types of land uses and recreational opportunities along and adjacent to the PCT. Any Project activities that would alter the ability of recreationists to access and utilize the PCT would be temporary and of short duration. However, because the recreational experience for users of the PCT would be temporarily degraded during construction activities and permanently altered due to the introduction of visual and noise features of new transmission towers (which would be larger than existing transmission towers), the following mitigation measures would be required to minimize such effects:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas);

- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

Recreational opportunities along the PCT are particularly valued for the solitude and natural setting of the trail, which characterizes the majority of its length. The transmission lines associated with the proposed Project would create a constant buzzing or crackling noise (corona noise) from the conductors. Although existing transmission lines currently span each of the three PCT crossings described above, the proposed Project would replace existing lines with larger, 500-kV lines, which would generate a higher level of corona noise, thereby intensifying the existing noise disturbance to the recreational experience. Implementation of the mitigation measures described above would reduce impacts to the recreational experience of the PCT to a less-than-significant level (Class II).

Impact R-5: The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.

Impact R-5 would occur as a result of the proposed Project if existing OHV routes or designated OHV areas are permanently removed from use as a result of Project activities. Construction or operation and maintenance activities associated with the proposed Project could result in the long-term loss or degradation of OHV routes if such activities would require that OHV routes or trails be repeatedly and/or frequently closed due to maintenance activities, or if OHV routes are permanently closed or altered as a result of the proposed Project.

North Region

As indicated in Table 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), Impact R-5 is not expected to occur in the North Region. There are several small dirt roads adjacent to Segment 5 that are known to be used by OHV recreationists, but it is not expected that activities associated with the proposed Project would require these roads to be repeatedly and/or frequently closed for Project operation and maintenance. No OHV routes in the North Region would be permanently restricted from use as a result of the Project. The proposed route would not cross through any designated OHV Open Riding Areas.

Central Region

Within the Central Region, the proposed Project would traverse NFS lands in the ANF that have an ROS designation of Semi-Primitive Motorized, which permits motorized use of local primitive or collector roads and includes trails suitable for off-highway vehicles such as motorbikes and ATVs (USDA Forest Service, 2005h). Please see Section 3.15.2.2 (Affected Environment: Alternative 2) for a full description of ROS objective designations and their relationship to available recreational resources. As shown in Table 3.15-13 (Summary of Forest Service ROS Objectives Traversed by the Project), the proposed Project (Segments 6 and 11 combined) would traverse approximately 26.75 miles of NFS lands designated as ROS objective Semi-Primitive Motorized, which accommodates extensive OHV use and OHV recreation opportunities. Also as discussed in Section 3.15.2.1 (Affected Environment: Regional Setting), OHV use on NFS lands in the ANF is restricted to OML 2 roadways (see Table 3.15-6: Forest Roads Operational Maintenance Level (OML) Guidelines for the ANF), or to designated Open Riding Areas where OHV recreation is permitted off-trail. Under special circumstances, OHV use may be permitted on an OML 3 roadway, providing that a Mixed Use Traffic Study has been completed to assess the safety risks involved with OHVs and passenger vehicles utilizing the same road (Seastrand, 2008). However,

under normal circumstances, OHVs are restricted to OML 2 roads, thus avoiding hazards to OHV users that are created by the presence of larger vehicles on OML 3, 4, and 5 roads. Therefore, any long-term or permanent upgrade of the OML for an OHV route or for a Forest Road utilized by OHV recreationists would result in a loss of recreational opportunity to OHV users.

Table 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region) indicates that Impact R-5 would potentially affect 23 OHV routes in the Central Region, as a result of direct crossings of the proposed transmission line over these OHV routes. There are no designated Open Riding Areas in the Project Study Area. The proposed Project would include clearing and grading of existing access and spur roads within the ANF, some of which would be located along existing OHV routes and could affect the suitability of such routes for continued OHV use. Furthermore, multiple OHV routes in the Central Region are situated within or immediately adjacent to the Project ROW and would be restricted from use during Project construction activities, as well as during certain operation or maintenance activities along the ROW.

It is expected that during Project construction, the transport of construction vehicles and equipment to transmission tower sites would require that access roads be upgraded to OML 3 standards, thus accommodating the large size of construction vehicles, equipment, and materials. Any roads designated as OML 1 or 2 that would need to be upgraded to OML 3 standards during the construction period would result in temporary restriction of OHV use, or temporary loss of OHV opportunities, until the affected roads are returned to OML 2 conditions. Operation and maintenance of the proposed Project would require that ground-access be available to all transmission tower sites; however, operation and maintenance would not require the heavy equipment required during Project construction and therefore, roads designated as OML 2 would be sufficient to accommodate operation and maintenance activities. Any road upgrades that are applied during the construction period would be strictly temporary; no permanent upgrades to existing OML standards would occur as a result of the proposed Project. Therefore, any loss of recreational opportunity to OHV users would be temporary in nature.

South Region

As indicated in Table 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region), Impact R-5 would not occur in the South Region due to an existing lack of OHV recreational opportunities in this area.

Mitigation Measure for Impact R-5

To minimize the effects of Impact R-5 in the Central Region, Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) is recommended.

R-5 **Avoid permanent upgrades to Forest System roads.** SCE shall avoid the permanent upgrade of Forest System roads as a result of Project construction or operation and maintenance activities unless otherwise approved by the FS. Any road upgrades that are required to accommodate construction of the Project shall be temporary in nature. Following construction of the Project, existing OML standards designated for any temporarily improved roads shall be adhered to, thereby returning improved roads to existing maintenance practices, unless otherwise authorized by the FS. As determined to be necessary through coordination between SCE and the FS and at the discretion of the FS, SCE shall develop a plan for returning improved Forest System roads to existing conditions. SCE shall implement the restrictions for

road improvements and maintenance set forth in the Special Use or Road Use Authorization to be issued by the FS for the Project.

Environmental Effects of Mitigation Measure R-5

While Mitigation Measure R-5 is recommended to avoid the permanent loss of OHV routes on OML 1 or 2 designated roads, this measure may adversely affect other issue areas. The activities that would be associated with returning improved roads to existing maintenance practices would require earthmoving equipment, which would increase construction noise within the ANF. Earthmoving and other equipment that may be required for this measure would also contribute to additional air quality emissions. In addition, greater land disturbance as a result of road activities would contribute to increased soil erosion, which would potentially affect water quality.

Such potential impacts are similar to the effects of other Project activities, and would require the implementation of mitigation measures presented in Sections 3.10 (Noise), 3.3 (Air Quality), and 3.8 (Hydrology and Water Quality).

CEQA Significance Conclusion

As described above, any Project-related road improvements or access restrictions that would result in a loss of recreational opportunity for OHV users would be temporary in nature. Designated OML standards for Forest System roads would not be permanently altered; however, OHV use would be restricted on any roadways improved above OML 2 standards (OML 3, 4, or 5) until the affected roadways are returned to existing conditions. In order to ensure that existing OHV routes would not be permanently removed from OHV use due to Project construction, Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) would be required. Implementation of this mitigation measure would ensure coordination between SCE and the Forest Service in developing and implementing necessary road improvements in a way that is consistent with existing OML designations. Due to the availability of OHV opportunities throughout the ANF and the temporary nature of Impact R-5 to OHV opportunities along the Project route, the provision of compensatory recreation opportunities is not considered a necessary mitigation for this impact. Implementation of the mitigation measure listed above would reduce Impact R-5 to a less-than-significant level (Class II).

Impact R-6: The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

Long-term loss or degradation of recreational resources or opportunities could occur through unmanaged or unauthorized use of such resources. For example, unauthorized OHV use in a designated Wilderness Area (WA) would result in a loss of the wilderness character for which the area is protected, thereby causing degradation of the resource. Unmanaged recreation could occur if the proposed Project facilitates access to areas that are not intended or suitable for certain recreational uses, particularly through the creation or improvement of roadways in the ANF. Two types of roads are associated with construction and operation of the proposed Project: access roads and spur roads. Access roads are through-ways that serve as the main transportation route along the Project ROW, whereas spur roads are smaller roads that connect access roads directly to tower sites and are not considered part of the Forest System roads. Unmanaged recreation activities (particularly OHV-related) currently occur throughout the ANF via existing spur roads and utility corridors.

During construction and operation of the proposed Project, existing roadways would be utilized wherever possible to accommodate necessary traffic of vehicles and equipment. However, installation of new roads

and improvement of existing roads would also be required in order to provide access to the proposed route during construction and operation of the proposed Project. In some areas, improvement of existing roads and installation of new roads may provide access to areas that are not currently accessible by roads. As a result, these new and improved roads could potentially be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes, as described above.

In addition, some recreational resources may become temporarily inaccessible or precluded from use during construction and/or operation and maintenance of the proposed Project, as described above with regards to Impact R-1 (Construction activities would restrict access to or disrupt activities within established recreational areas) and Impact R-2 (Operational and maintenance activities would restrict access to or disrupt activities within established recreational areas). This could potentially result in unmanaged recreational uses, as recreationists seek alternative or comparable recreational resources to those which are made unavailable by Project activities. Because the three regions in the Project Area are characterized by different types of recreational resources, the effects of unmanaged recreational uses and resulting loss or degradation of recreational facilities are expected to vary by region.

North Region

The North Region is largely characterized by open space and undeveloped land with few recreational resources or opportunities, as portrayed in Table 3.15-11 (North Region Recreational Resources within One-Half Mile of Alternative 2). The majority of resources in the North Region include multi-use trails maintained by the Los Angeles Department of Parks and Recreation, which are concentrated in the southern portions of this region. It is not expected that road improvements associated with construction and operation of the proposed Project in the North Region would lead to unauthorized recreational uses; degradation of recreational resources resulting from unauthorized recreation would not occur in the North Region.

Central Region

Within the Central Region, the proposed Project would be situated almost entirely on NFS lands in the ANF. Although existing roads would be utilized to the fullest extent possible during Project construction and operation, roadway improvements would be required in some areas, particularly for hillside towers. The creation of new roads and the improvement of existing roads could potentially facilitate OHV access to areas of the ANF that are not authorized for OHV use, which would contribute to resource damage and degradation. As discussed in the analysis of Impact R-5 (The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users), it is expected that Project construction activities would require that some roads in the Forest be upgraded to OML 3 standards, which would preclude the use of OHVs; such preclusion or restriction from use may encourage some OHV recreationists to utilize other roads in the areas which may not necessarily be designated for OHV use, thereby participating in unmanaged recreation.

Table 3.15-15 (Forest System Roads Relevant to Recreational Resources and Opportunities within One-Half Mile of Alternative 2 in the Central Region), which is presented in Section 3.15.2.2 (Affected Environment: Alternative 2) describes roads located within one-half mile of the proposed route in the Central Region that may be used and/or improved during construction and/or operation and maintenance activities. Identification of the specific roads and necessary improvements required for Project construction will be determined in SCE's Project Road Plan, which is included as part of final engineering. Table 3.15-15 also indicates the ROS objective designated for each roadway in the Project

vicinity; these ROS designations are indicative of the types of recreational activities the Forest Service intends to encourage in the area. If unmanaged or unauthorized OHV use occurs in an area that is incompatible with OHV recreation (for instance, ROS Primitive or ROS Semi-Primitive Non-Motorized) as a result of Project-related road improvements in the area, such unmanaged recreation would be contrary to Forest management objectives of the relevant OHV-incompatible ROS designation.

Additionally, it is possible that some OML 1 roads may need to be upgraded to OML 2 or higher to facilitate Project construction access. Such upgrades would essentially create new roads that are passable by OHVs and as a result, some OHV recreationists may choose to participate in OHV recreation on these improved roads, regardless of whether such roads are intended by the Forest to be managed for OHV use. The installation of new access or spur roads where none currently exist would have the potential to facilitate unmanaged recreational uses. As discussed, of particular concern with regards to unmanaged recreation in the Forest is the potential for OHV recreationists to use Project roads to operate OHVs in areas where such use is prohibited by Forest management goals and objectives. It is possible that in an effort to control unmanaged recreation and the associated impacts, the Forest Service may decide to close public access to some areas of the ANF, which would remove recreational opportunities in the Forest.

South Region

In comparison with the North and Central Regions, the South Region is characterized as highly developed and largely urbanized. Existing roadways currently provide access to recreational resources throughout the South Region. Open space is provided for recreational purposes in designated areas throughout the region. Due to the extensive network of roadways and access points to recreational areas already available in the South Region, it is not expected that roadways associated with the proposed Project would be used for unauthorized recreational purposes. Loss or degradation of recreational opportunities as a result of unmanaged recreation would not occur in the South Region.

To minimize unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities in the Central Region as a result of the Project, Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads), as presented above for Impact R-5, would be required.

CEQA Significance Conclusion

Improvement of existing roads and construction of new access and spur roads associated with the proposed Project could facilitate unmanaged recreational uses, particularly OHV use, within the ANF. In order to minimize the potential for unmanaged recreation to occur, implementation of Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) would be required. With implementation of this mitigation measure, Impact R-6 would be reduced to a less-than-significant level (Class II).

3.15.6.2 Cumulative Effects Analysis

A cumulative impact is one which results from the incremental impact of the proposed Project when combined with other past, present, or reasonably foreseeable future actions that occur within the geographic extent of the cumulative effects analysis.

Geographic Extent

The geographic extent of this cumulative effects analysis is the same as the extent of the Regional Setting, as described in Section 3.15.2 (Affected Environment). As such, this cumulative effects analysis is presented according to three separate geographic regions: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the

ANF, and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County and western San Bernardino County. This geographic scope is appropriate for the issue area of wilderness and recreation because impacts of the proposed Project would not be expected to combine with similar impacts of other projects beyond this area.

Existing Cumulative Conditions

Existing cumulative conditions for wilderness and recreation are defined by past and present designation and development of recreational resources and wilderness areas.

North Region

The North Region is largely characterized by open space and agricultural areas, although rapid development and population growth has been ongoing within and surrounding the incorporated Cities of Lancaster and Palmdale. New land uses associated with this population growth have been situated in open space areas and have also extended into agricultural areas in southern Kern County and northern Los Angeles County. For example, the Ritter Ranch and Anaverde developments that are currently under construction, in addition to the approved Agua Dulce Residential Project (TR 50385), are located in former open space areas. There are hundreds of current development projects in the North Region, some of which are hundreds of acres in size, and many of which include designated recreational facilities such as sporting fields and playground equipment.

Central Region

Existing cumulative conditions in the Central Region are defined by efforts of the Forest Service to manage the ANF. From a wilderness and recreation perspective, past and present projects within the Forest are characterized by Forest Service activities to improve and maintain Developed Recreation resources such as campgrounds and picnic areas, manage trails and OHV networks, and prevent construction within or degradation of designated wilderness areas. Section 3.15.2.1 (Regional Setting: Central Region) provides a detailed description of recreational resources and wilderness areas in the ANF which have resulted from past and present projects and make up the existing cumulative conditions. In addition to projects across the ANF, an increase in the developmental density surrounding the ANF (in the North and South Regions) strains the capacity of the recreational resources on NFS lands. Recreational facilities such as roads, trails, campgrounds, and day use areas have been constructed to meet the demands of increased visitation to the ANF.

South Region

The South Region is currently largely built-up with urban development, part of which has included urban parks and trails. Over time, open space areas in the South Region have been consistently converted to other land uses, as needed to accommodate the increasing population. Designated recreation areas such as the Whittier Narrows Recreation Area and the Emerald Necklace Corridor, which are described in the Regional Setting (Section 3.15.2.1: South Region), have been established to protect recreational and wilderness opportunities in the urban setting. In light of on-going development and urban expansion, conservation groups and agencies such as the Los Angeles County Department of Park and Recreation have utilized existing utility corridors to establish public recreation opportunities such as park areas and trails. For instance, the Woodland Hills Duck Farm Project, as being developed by the Watershed Conservation Authority (WCA) in conjunction with the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC), is proposed to be situated within the existing ROW along a portion of

the proposed Project route. For the purposes of this cumulative analysis, the South Region also considers part of San Bernardino County, including the CHSP to be included in the geographic extent. As such, reasonably foreseeable cumulative projects in this southern-most portion of the Project Area would include standard trail maintenance and open space protection efforts within the CHSP.

Reasonably Foreseeable Future Projects and Changes

As discussed above, ongoing development throughout the cumulative effects area for wilderness and recreation is dominated by residential developments, clustered in and around communities located on non-NFS lands. This trend in residential development is also representative of reasonably foreseeable future projects in the cumulative effects area, as supported by the aggressive population growth forecasted throughout the Project Area. Reasonably foreseeable future projects within the Project Area are expected to be characteristic of past and ongoing projects. The types of cumulative projects that are expected to occur in each of the three Regions are described below.

North Region

As previously discussed, the North Region is currently undergoing rapid population growth and development, particularly in and surrounding Lancaster and Palmdale. The Cumulative Scenario presents data regarding population growth in Kern and Los Angeles County; according to this information, the population in Kern County is expected to rise by 113 percent between the years 2000 and 2050. During the same time period, the population in Los Angeles County is expected to rise by varying degrees, depending on the city, with the Cities of Lancaster and Palmdale experiencing growth of 117.5 percent and 186.5 percent, respectively. As such, development and urbanization in the North Region is expected to continue and increase substantially to accommodate the increasing population. Furthermore, it is expected that presently open space areas in the North Region, which are currently used by recreationists for OHV use, hiking, and general outdoor enjoyment, will be utilized for the construction of residential developments and other city infrastructure. With regards to recreation, it is also reasonably foreseeable that additional facilities and resources such as sporting fields and park areas will be established to meet the needs of the growing population. However, as discussed above, urban development in this region is commonly sited on former open space or agricultural areas and therefore, as such development continues, less open space would be available for recreational purposes such as hiking and OHV use. It is assumed that the Los Angeles County Riding and Hiking Trails network, which is described in Section 3.15.2.1 (Regional Setting) would continue to be managed and protected by the LA County Department of Parks and Recreation.

Central Region

As with the future non-NFS projects, the past and ongoing NFS projects are representative of future NFS projects. It is expected that most of these projects are focused on repairs, re-establishment, or rehabilitation of existing facilities. As presented in the Cumulative Scenario, some of the Forest Service projects which are planned or underway in the ANF include the following: Big Tujunga Dam Operation and Maintenance Plan, Hi-Hill Outdoor School Permit Re-issuance, Millard and Big Tujunga Canyon Recreation Tracts, Santa Anita Canyon Special Use Cabins, Drinkwater Flat and Rowher Flat OHV Site Improvements, Littlerock Reservoir Sediment Removal Project, Old Highway 99 Re-pavement Project, PCT Bridge Construction at Cooper Canyon, Teresita Pines Organization Camp Construction, and Uppershake Campground Improvements Project, as well as a variety of “fuels reduction” activities, which include fire prevention measures throughout the Forest. These projects indicate a persistence of past and

present Forest Service activities to preserve natural resources within the Forest while providing recreational opportunities for the public. Reasonably foreseeable changes to recreational resources in the Forest may include improvements to and expansion of existing resources as well as establishment of additional resources or facilities. It is expected that existing wilderness areas in the Forest will continue to be protected from development and expanded if possible (for instance, through the conversion of an Inventoried Roadless Area under consideration for wilderness designation to a designated Wilderness Area).

South Region

As described above, the South Region is characterized by a predominately built-out urban setting. It is reasonably foreseeable that this setting will persist in the future and may continue as population growth continues. As presented in the Cumulative Scenario, expected population growth in the South Region ranges from about 5 percent or less (City of Industry, La Canada Flintridge, San Marino) to more than 90 percent (City of Ontario), between the years 2000 and 2030. Considering that the area is already highly urbanized, the lower growth projections could be an indication that those areas cannot accommodate further growth, while the higher projections indicate areas that are not yet fully built-out. As urban build-out continues in the South Region, it is reasonably foreseeable that remaining open space areas would either be occupied by development-related infrastructure, or specifically protected by conservation groups and resource agencies such as the Puente Hills Landfill Native Habitat Authority. In addition, it is reasonably foreseeable that the existing undeveloped land within utility corridors (under the transmission lines) will be increasingly utilized for recreational opportunities, such as the River and Mountains Conservancy's development of the Duck Farm Project, as described in Section 3.15.2 (Affected Environment).

Cumulative Impact Analysis

Impacts of the proposed Project would be cumulatively considerable if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. Table 3.15-32, below, identifies which impacts of the proposed Project would be cumulatively considerable and of those, what the cumulative significance of each impact would be. Impacts that are not found to be cumulatively considerable would not have an incremental effect on the cumulative scenario.

Table 3.15-32. Cumulative Impacts for Wilderness and Recreation – Alternative 2

Impact	Cumulatively Considerable?	Cumulative Significance
R-1: Construction activities would restrict access to or disrupt activities within established recreational areas.	Yes	Class I
R-2: Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas.	Yes	Class III
R-3: Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136).	Yes	Class III
R-4: The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT).	Yes	Class I
R-5: The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.	Yes	Class III
R-6: The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.	Yes	Class I

Each of the six wilderness and recreation impacts identified in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2) would be cumulatively considerable, in that each impact would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. As such, each of the six wilderness and recreation impacts discussed in Section 3.15.6.1 would have an incremental effect on the cumulative scenario. The potential for cumulatively considerable wilderness and recreation impacts of the proposed Project to combine with similar impacts of other projects within the geographic scope of the cumulative analysis are described below.

- **Construction activities would restrict access to or disrupt activities within established recreational areas (Impact R-1).** Construction activities associated with the proposed Project would result in temporary access restrictions and/or disruption of existing activities associated with established recreational areas. If construction activities for other projects in the Project Study Area result in similar impacts to established recreational resources or opportunities and such impacts would occur at the same time as they would for those associated with the proposed Project's construction activities, the resulting impacts would be cumulatively considerable to recreational resources. Due to the rapid growth that is current and ongoing in the North Region, in addition to the history of Forest maintenance activities and other projects in the Central Region that are expected to continue into the future, it is reasonably foreseeable that Impact R-1 would be cumulatively considerable. Due to the likely potential for this impact to affect the same recreational resource(s) at the same time, Impact R-1 would be ~~cumulatively~~ significant and unavoidable (Class I).
- **Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas (Impact R-2).** Operation and maintenance of the proposed Project would have the potential to temporarily restrict access to or disrupt activities within some recreational areas and Developed Recreation resources as a result of site-specific activities needed to operate and maintain the transmission line. As described in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2), recreational resources and opportunities located within the Project ROW would be particularly susceptible to Impact R-2. As described in Section 3.15.6.1 (Direct and Indirect Effects Analysis), the proposed Project would not result in permanent loss or degradation of recreational resources in the Project Study Area. If operation and maintenance activities associated with other projects in the geographic scope of this cumulative analysis would also result in temporary access restriction or disruption of existing activities within established recreational areas, and such effects of the operation and maintenance of other projects occur at the same time as they would for the proposed Project, the resulting impacts would be cumulatively considerable to recreational resources in the Project Area. However, it is highly unlikely that operation and maintenance activities for multiple projects would result in similar impacts to the same recreational resources at the same time. Furthermore, mitigation measures that would be implemented for the proposed Project would ensure that Project activities would be coordinated with recreation officers, thereby allowing for the planning of operation and maintenance activities so that similar impacts of the proposed Project and other cumulative projects would not affect the same recreational resources at the same time. ~~Impact R-2~~Cumulative impacts would not be ~~cumulatively considerable but less than~~ significant (Class III).
- **Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136) (Impact R-3).** As described in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2), the proposed Project would have the potential to cause or contribute to the degradation of one of the primary characteristics of a designated Wilderness Area in the ANF, which is the characteristic of "solitude and unconfined recreation" in the San Gabriel WA. From a cumulative perspective, existing development has occurred across NFS lands in the Central Region in the past (utility corridors, communication sites, powerhouses, reservoirs, and mining sites) and it is reasonably foreseeable that similar future projects would occur in the ANF, ~~and~~ but it is considered highly unlikely that ~~at least~~ one such project would have the potential to cause or contribute to the degradation of a primary characteristic of the San Gabriel WA in the same way and/or during the same timeframe as the proposed Project. ~~, including one of the following: 1) Natural and undisturbed landscape; 2) Solitude and unconfined recreation; 3) 5,000 contiguous acres; 4) Features of natural value. Because designated WAs are considered to be particularly valuable and unique recreational resources, any combination of two similar impacts to the same WA would be a significant impact. Because is reasonably foreseeable that such a~~

~~combination of impacts could occur as a result of future projects, Impact R-3 would be cumulatively it~~Therefore, cumulative impacts would not be significant ~~and unavoidable~~ (Class III).

- **The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT) (Impact R-4).** As described in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2), the proposed Project route would cross over the PCT in three locations: once in the North Region and twice in the Central Region. If other projects such as those listed in the Cumulative Scenario introduce new infrastructure along the PCT or introduce construction impacts similar to the proposed Project along the PCT and at the same time as those of the proposed Project, it would be possible for such impacts to combine with impacts of the proposed Project and result in significant cumulative impacts. It is unlikely that the construction of other projects would occur at the same time as the proposed Project and near the same locations where the proposed Project would cross the PCT. However, as described in Section 3.15.6.1, long-term loss or degradation of the PCT could occur through effects to the unique recreational experience available to hikers along the PCT, as well as physical loss of trail access. Such effects to the recreational experience of the PCT could include the following: installation of infrastructure which would contrast substantially with natural aesthetics currently existing along the PCT; introduction of noise levels that would be substantially greater or have substantially different characteristics than that which currently exists along the PCT; any other Project-related activity that would substantially contrast with the existing backcountry experience of the PCT. As such, any past or reasonably foreseeable project that could affect the recreational experience for PCT users and could combine with this impact of the proposed Project would be considered cumulatively significant. Given the fact that urbanization is rapidly expanding throughout the Project Area, as described in Section 3.15.6.1 and demonstrated through the existing Cumulative Scenario, it is reasonable to conclude that projects related to such urban expansion could affect the PCT and potentially lead to the long-term loss or degradation of the trail. Although mitigation measures required for the proposed Project would help to reduce the proposed Project's incremental contribution to the cumulative significance of Impact R-4, this impact would still have the potential to combine with other, similar impacts of projects in the cumulative scenario. Because the PCT is considered to be particularly valuable and unique recreational resource, any combination of similar impacts that would affect the PCT in the Project Study Area would result in a significant cumulative impact~~. Impact R-4 would be cumulatively significant and unavoidable~~ (Class I).
- **The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users (Impact R-5).** As discussed in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2), this impact is not expected to occur in the North or South Regions and therefore it would not be cumulatively considerable for those areas. Although the proposed Project would contribute to the temporary loss of recreational opportunities for OHV users in the Central Region, no other proposed projects identified in the Cumulative Scenario would be expected to contribute to the loss of OHV routes within the ANF. Impact R-5 would not be ~~cumulatively less than~~ significant with no mitigation required (Class III).
- **The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities (Impact R-6).** As described in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2), roadways that are improved or installed to facilitate Project construction or operation and maintenance activities could potentially be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes, such as OHV use in a designated Wilderness Area. From a cumulative perspective, past projects throughout the Project Area but particularly in the Central Region have included the installation of roadways that facilitate unmanaged recreational uses. In addition, in light of aggressively expanding residential developments in the North Region, new roadways are expected to be installed throughout the region and it is reasonably assumed that such roads could be used for unauthorized recreational purposes in the future. Impact R-6 would be cumulatively significant and unavoidable (Class I).

In summary, the proposed Project would contribute to four wilderness and recreation impacts that would be cumulatively significant and unavoidable (Class I) and two wilderness and recreation impacts that would be less than significant with no mitigation required (Class III).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for the proposed Project in Section 3.15.6.1 (Direct and Indirect Effects Analysis) would help to reduce the proposed Project's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for wilderness and recreation.

3.15.7 Alternative 3: West Lancaster Alternative

The following section describes wilderness and recreation impacts of Alternative 3 (West Lancaster Alternative), as determined by the significance criteria listed in Section 3.15.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels. This alternative would deviate from the proposed route along Segment 4, at approximately S4 MP 14.9, where the new 500-kV transmission line would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This reroute would increase the overall distance of Segment 4 by approximately 0.4 mile, but it would not have the potential to avoid any recreational resources that would be affected by the proposed Project and likewise, it would not introduce any new recreational resources to Project-related impacts.

3.15.7.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to wilderness and recreation resources are introduced in Section 3.15.4.1 (Criteria for Determining Impact Significance). Impacts associated with this alternative are presented below under the applicable significance criterion.

Directly or indirectly disrupt or preclude activities in established federal, State, or local recreation areas or wilderness areas (Criterion REC1)

Impacts associated with Criterion REC1 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a reroute of part of the proposed transmission line in the North Region, the reroute would not cross through or be placed within one-half mile of any new recreational and wilderness resources. Therefore, the wilderness and recreation impacts of Alternative 3 would be the same as the proposed Project and as such, Tables 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), and 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region) reflect the resources that could potentially be affected by impacts of Alternative 3. These impacts and their associated mitigation measures that fall under Criterion REC1 are summarized in the following paragraphs. Please see Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2) for a detailed description of these impacts, as they are the same as the proposed Project.

Impact R-1 (Construction activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, Impact R-1 would occur in recreational areas which would experience a "direct crossing" by the proposed Project because these areas would require temporary closure during construction activities and therefore, such areas would be temporarily restricted from use. In addition, recreational resources or opportunities may also be restricted from use if access roads or trails to such areas are blocked or restricted during construction activities. For instance, recreational hunting permitted in Zone D-11, which includes the entire Central Region, would be affected

by Impact R-1 as a result of construction noise, traffic, and road closures, with road closures that would potentially restrict hunters from accessing certain areas of the ANF introducing the most noticeable effect. In addition, the use of Forest Road 2N25.1 (West Fork Bike Path) for construction access would introduce Impact R-1 to recreational biking and fishing opportunities in the area, particularly for persons with disabilities who use the platforms and ramps along the West Fork Bike Path for access to the river. Glenn Camp, which is located along the West Fork Bike Path approximately 3.75 miles east of Segment 6 MP 19.5, would also be affected by Impact R-1 due to increased traffic and noise near the camp. Similarly, the Pasadena Bait Club Cabin would also be subject to elevated noise and traffic conditions along Forest Road 2N25.1 (West Fork Bike Path) during the construction period. Impact R-1 for Alternative 3 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-1 of Alternative 3 would be less than significant (Class II).

Impact R-2 (Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, Impact R-2 would occur if operation and maintenance activities result in recreational resources or opportunities being made unavailable, particularly as a result of road and/or trail closures that are applied to provide access for vehicles and/or equipment to Project infrastructure. Impact R-2 would also occur if operation and maintenance activities disrupt activities within existing recreational resources or areas. Impact R-2 for Alternative 3 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes); and
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)).

As described for Impact R-1, Mitigation Measure R-1c is similar to Applicant-Proposed Measures (APMs) REC-1 (Temporary Closures) and REC-2 (Closure Notices) and would reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. The implementation of these mitigation measures would reduce Impact R-2 for Alternative 3 to a less-than-significant level (Class II).

No further impacts would be introduced by Alternative 3 under Criterion REC1. As mentioned, please see Section 3.15.6.1 for a detailed description of the impacts and mitigation measures listed above, including specific recreational or wilderness resources that could potentially be affected.

Substantially contribute to the long-term loss or degradation of the factors that contribute to the value of federal, State, local, or private recreational facilities or wilderness areas (Criterion REC2)

Impacts associated with Criterion REC2 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project. Although this alternative introduces a reroute of part of the proposed transmission line in the North Region, the reroute would not cross through or be placed within one-half mile of any new recreational or wilderness resources. Therefore, impacts of Alternative 3 that could potentially apply to recreational resources in the Project Study Area are the same as the proposed Project and as such, Tables 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), and 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region) reflect the resources that could potentially be affected by impacts of Alternative 3 under Criterion REC2.

Impact R-3 (Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136)) would be exactly the same for Alternative 3 as it would for the proposed Project. Although Alternative 3 includes a reroute of the proposed Project transmission line, no changes would occur in the vicinity of the San Gabriel WA and no other WAs would be situated within one-half mile of the proposed route for Alternative 3. Construction, operation, and maintenance of Alternative 3 would cause or contribute to degradation of the "solitude and unconfined recreation" characteristic of the San Gabriel WA. However, as described in Section 3.15.6.1, Impact R-3 would affect sparse recreationists in the remote southwestern portion of the WA. Impact R-3 for Alternative 3 would be less than significant with no mitigation required (Class III).

Impact R-4 (The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT)) would be exactly the same for Alternative 3 as it would for the proposed Project. Accordingly, Alternative 3 would traverse the PCT in the following three locations: Segment 4 MP 2.7 (North Region), Segment 11 MP 7.6 (Central Region), and Segment 6 MP 7.3 (Central Region). As described in Section 3.15.6.1, this impact addresses the potential loss or degradation to physical aspects of the PCT as well as the potential loss or degradation of the pristine backcountry experience that recreationists using the PCT expect to have. Impact R-4 for Alternative 3 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Alternative 3 would be less than significant (Class II).

Impact R-5 (The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas or would result in a loss of recreational opportunity for OHV users) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, this impact could occur if Project activities would require that OHV roads or trails be repeatedly and frequently closed due to maintenance activities, or permanently closed or altered due to

operational activities. As with the proposed Project, no Open Riding Areas would be situated in the Project Study Area for Alternative 3. Implementation of Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) would reduce Impact R-5 of Alternative 3 to a less-than-significant level (Class II).

Impact R-6 (The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities) would be the same under Alternative 3 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, Impact R-6 would occur if Project activities result in unauthorized or unmanaged recreational activities. For instance, improvement of existing roads and installation of new roads could provide access to areas that were not previously accessible by roads. As a result, these new and improved roads could potentially be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes, such as OHV use in restricted Forest (ANF) areas. In addition, some recreational resources may become temporarily inaccessible during construction and/or maintenance of the proposed transmission line, which could potentially result in unmanaged recreational uses, as recreationists seek alternative or comparable recreational resources to those which are made unavailable. Implementation of Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) would reduce Impact R-6 of Alternative 3 to a less-than-significant level (Class II).

3.15.7.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 3 (West Lancaster Alternative). This alternative consists of a brief reroute of the proposed transmission line just north of Antelope Substation, which would add approximately 0.4 mile to the length of the route. The remainder of this alternative route (south of Antelope Substation) would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. The rerouted portion of the Alternative 3 route generally parallels the proposed Project route to the west. As a result, this alternative traverses the same or similar land uses as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 3 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Alternative 3 only differs from the proposed Project for a very small portion of the proposed route in the City of Lancaster, near Antelope Substation. This area is still encompassed by the geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.15.2.2. Therefore, the geographic extent of the cumulative analysis for Alternative 3 is exactly the same as that for Alternative 2 and would include all of the North, Central, and South Regions.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 3 are exactly the same as for Alternative 2, as described in Section 3.15.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 3 would be exactly the same as Alternative 2, described in Section 3.15.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 3 would be cumulatively considerable if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The minor reroute of the proposed Project transmission line associated with Alternative 3 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 3 would be exactly the same as cumulative impacts for Alternative 2, as summarized in Table 3.15-32 (Cumulative Impacts for Wilderness and Recreation – Alternative 2) and described in detail in Section 3.15.6.2.

As with the proposed Project, each of the six wilderness and recreation impacts identified in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2) would be cumulatively considerable, in that each impact would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. Each of the six wilderness and recreation impacts under Alternative 3 (which are discussed in full detail in Section 3.15.6.1) would have an incremental effect on the cumulative scenario.

The following wilderness and recreation impacts of Alternative 3 would be ~~cumulatively considerable but~~ less than significant (Class III):

- **Impact R-2:** Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas;
- **Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136); and
- **Impact R-5:** The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.

Additionally, and as with the proposed Project, the following wilderness and recreation impacts of Alternative 3 would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that are expected to be significant and unavoidable (Class I):

- **Impact R-1:** Construction activities would restrict access to or disrupt activities within established recreational areas;
- ~~**Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136);~~
- **Impact R-4:** The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT); and
- **Impact R-6:** The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

As the cumulative wilderness and recreation impacts of Alternative 3 would be the same as those of the proposed Project, please see Section 3.15.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 3 in Section 3.15.7.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for recreational and wilderness resources.

3.15.8 Alternative 4: Chino Hills Route Alternatives

The following section describes the wilderness and recreation impacts of Alternative 4 (Chino Hills Route Alternatives), as determined by the significance criteria listed in Section 3.15.4.1 (Criteria for Determining Impact Significance). Mitigation measures are introduced where necessary in order to reduce Project impacts to less-than-significant levels.

3.15.8.1 Direct and Indirect Effects Analysis

The significance criteria used to identify the wilderness and recreation impacts of Alternative 4 are introduced in Section 3.15.4.1 (Criteria for Determining Impact Significance). As described in Section 3.15.2.4 (Affected Environment: Alternative 4), this alternative would follow the same route as the proposed Project through the North and Central Regions, diverging from the proposed Project route along Segment 8A in the South Region, at S8A MP 19.2. Therefore, any impacts of the proposed Project that would occur between S8A MP 19.2 and 35.2 (16 miles) through Chino Hills, Chino, and Ontario would not occur under Alternative 4. In addition, impacts associated with Segments 8B and 8C of the proposed Project also would not occur under Alternative 4. Where the proposed route for Alternative 4 diverges from the proposed Project route at S8A MP 19.2, it would turn to the southeast, crossing through part of Orange County, San Bernardino County, and the CHSP. Therefore, Alternative 4 would introduce the potential to affect resources in these areas which would not be affected under the proposed Project.

This alternative includes ~~four~~ five separate routing options: Route A, Route B, Route C, Route C Modified, and Route D. For the purposes of this impact analysis, the routing options for Alternative 4 are discussed in comparison to each other throughout the following section. As described, the alignment of Alternative 4 would be the same as the proposed Project for all Project components north of S8A MP 19.2. As such, Tables 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), and 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region) reflect the resources that would be affected by impacts of Alternative 4 for all portions of the proposed route located north of S8A MP 19.2.

All wilderness and recreation impacts that would occur under the proposed Project would also occur under each of the Alternative 4 routing options. However, due to differences between the proposed Project route and each of the proposed Alternative 4 routing options, different recreational and/or wilderness resources would be avoided and/or affected under each routing option. Therefore, this section summarizes all impacts of Alternative 4, which are described in detail for the proposed Project in Section 3.15.6.1, and specifies which recreational resources and opportunities would be avoided and/or affected under each routing option. Table 3.15-33 (Resources that would be Avoided by the Alternative 4 Routing Options), below, lists the recreational resources and opportunities that would be introduced to Project impacts along the proposed Project route but would be avoided under each of the routing options for Alternative 4.

Table 3.15-33. Resources that would be Avoided by the Alternative 4 Routing Options

Project Component	Recreational Resource	Proximity of Resource to Alternative 2 (proposed Project) Alignment	Potentially Applicable Impacts
S8A MP 22.3 – 22.4	Western Hills Country Club	Eucalyptus Avenue runs parallel to ROW, 0.04 – 0.13 mile to the northeast	N/A
	Coral Ridge Park	Direct crossing; from this park, a bike-pedestrian pathway continues to the northeast, within the ROW	R-1, R-2
S8A MP 23.6 – 23.8	Crossroads Park	Direct crossing	R-1, R-2
S8A MP 23.8 – 24.5	Pedestrian and bike path	Pathway is located within the ROW	R-1, R-2
S8A MP 23.9	Oak Ridge Park	0.49 mile to the southeast	N/A
S8A MP 24.1	Morningside Park	0.38 mile to the southeast	N/A
S8A MP 24.5	Morningfield Park	0.05 mile to the south	N/A
S8A MP 25.4	Glenmeade Park	0.38 mile to the south	N/A
S8A MP 27.7 – 28.6	Ruben S. Ayala Park	Park runs along the south side of Edison Avenue and includes a pedestrian and bike path within the ROW along the northern boundary of the park.	R-1, R-2
S8A MP 29.3	Cypress Trails Park	0.28 mile to the north	N/A
S8A MP 35.0	Creekside Golf Course	0.47 mile to the north	N/A
Segment 8B MP 0.0 – 6.8			
Same as S8A MP 28.3 – 35.2 (See above)			
Segment 8C MP 0.0 – 6.4			
Same as S8A MP 28.3 – 35.2 (See above)			

In comparison with Table 3.15-33, which represents recreational resources that would experience wilderness and recreation impacts under the proposed Project but would be avoided (i.e. would not experience impacts) under Alternative 4, Tables 3.15-34 through 3.15-37 list recreational resources that would be introduced to potential Project impacts under each of the Alternative 4 routing options (but would not be affected under the proposed Project). As with the preceding Project tables, mileposts (MPs) are provided in Tables 3.15-34 through 3.15-37 to indicate the approximate location along the proposed route at which specific recreational resources would be in proximity. For the purposes of this Alternative 4 analysis, the MPs provided for each routing option are estimated as continuations of the Segment 8A MPs, beginning at S8A MP 19.2 of the proposed Project and continuing to the end of each routing option. MPs along each of the Alternative 4 routing options are indicated by their respective route designations of A, B, C, C Modified, and D.

Table 3.15-34 (Impacts Applicable to Recreational Resources along Alternative 4, Route A), shows resources that could be affected by the Route A option.

Table 3.15-34. Impacts Applicable to Recreational Resources along Alternative 4, Route A

Project Component	Recreational Resource	Proximity to Route A Alignment	Potentially Applicable Impact/s
S8A-A MP 19.2	Firestone Scout Reservation	0.19 mile to the southeast; Tonner Canyon is 0.95 mile to the southwest	N/A
S8A-A MP 23.2	North Ridge Trail (Fire Road)	Direct crossing	R-1, R-2
	Sycamore Trail (Fire Road)	0.25 mile to the southwest	N/A
S8A-A MP 23.9	McDermont Trail (Fire Road)	Direct crossing	R-1, R-2
S8A-A MP 24.1	Trail	Direct crossing	R-1, R-2
S8A-A MP 24.4	Trail (Fire Road)	Direct crossing	R-1, R-2
	Four Corners Rest Area	0.15 mile to the south	R-1
S8A-A MP 24.5	Raptor Ridge Trail	Direct crossing	R-1, R-2
S8A-A MP 24.5 – 25.5	South Ridge Trail	0.3 – 0.5 mile to the south	N/A

Table 3.15-34. Impacts Applicable to Recreational Resources along Alternative 4, Route A

Project Component	Recreational Resource	Proximity to Route A Alignment	Potentially Applicable Impact/s
S8A-A MP 24.6 and 24.8	Hills For Everyone Trail (via Telegraph Canyon Trail)	Direct crossings	R-1, R-2
S8A-A MP 24.75	Telegraph Canyon Trail	0.05 mile to the southeast	R-1, R-2
S8A-A MP 25.0	Raptor Ridge Trail (Fire Road)	Direct Crossing	R-1, R-2
S8A-A MP 25.3	Fire Road Trail	Direct Crossing	R-1, R-2

Source: CHSPIA, 2007

Table 3.15-35 (Impacts Applicable to Recreational Resources along Alternative 4, Route B), shows resources that could be affected by the Route B option.

Table 3.15-35. Impacts Applicable to Recreational Resources Along Alternative 4, Route B*

Project Component	Recreational Resource	Proximity to Route B Alignment	Potentially Applicable Impact/s
S8A-B MP 19.2	Firestone Scout Reservation	0.19 mile to the southeast; Tonner Canyon is 0.95 mile to the southwest	N/A
S8A-B MP 23.2	North Ridge Trail (Fire Road)	Direct crossing	R-1, R-2
	Sycamore Trail (Fire Road)	0.25 mile to the southwest	N/A
S8A-B MP 23.9	McDermont Trail (Fire Road)	Direct crossing	R-1, R-2
S8A-B MP 24.1	Trail	Direct crossing	R-1, R-2
S8A-B MP 24.4	Trail (Fire Road)	Direct crossing	R-1, R-2
	Four Corners Rest Area	0.15 mile to the south	R-1
S8A-B MP 24.5	Raptor Ridge Trail	Direct crossing	R-1, R-2
S8A-B MP 24.5 – 25.5	South Ridge Trail	0.3 – 0.5 mile to the south	N/A
S8A-B MP 24.6 and 24.8	Hills For Everyone Trail (via Telegraph Canyon Trail)	Direct crossings	R-1, R-2
S8A-B MP 24.75	Telegraph Canyon Trail	0.05 mile to the southeast	R-1
S8A-B MP 25.0	Raptor Ridge Trail (Fire Road)	Direct Crossing	R-1, R-2
S8A-B MP 25.3	Fire Road Trail	Direct Crossing	R-1, R-2
S8A-B MP 26.2	Upper Aliso Canyon Trail (Fire Road)	Direct Crossing	R-1, R-2
S8A-B MP 26.8	Bane Canyon Road	Direct crossing	R-1, R-2
S8A-B MP 27.3	East Fence Line Trail	Direct crossing	R-1, R-2

Source: CHSPIA, 2007; * Affected Environment for S8A MP 19.2 – 25.5 of Route B is identical to Route A.

Table 3.15-36 (Impacts Applicable to Recreational Resources along Alternative 4, Route C), shows resources that could be affected by construction of the transmission line proposed under the Route C option.

Table 3.15-36. Impacts Applicable to Recreational Resources Along Alternative 4, Route C

Project Component	Recreational Resource	Proximity to Route C Alignment	Potentially Applicable Impacts
S8A-C MP 19.2	Firestone Scout Reservation	0.19 mile to the southeast; Tonner Canyon is 0.95 mile to the southwest	N/A
S8A-C MP 23.2 – 24.0	North Ridge Trail (Fire Road)	Adjacent to the south (trail is within CHSP)	R-1, R-2
S8A-C MP 24.1	McDermont Trail	0.2 mile to the south (trail is within CHSP)	N/A
S8A-C MP 24.9 – 25.9	Raptor Ridge Hiking Trail and Fire Road Trail	0.3 mile to the south	N/A
S8A-C MP 25.9	Aliso Canyon Trail	Direct Crossing	R-1, R-2

Source: CHSPIA, 2007

As described in Section 3.15.2.4 (Alternative 4: Chino Hills Route Alternatives), the Route C option includes removal of existing transmission lines within the CHSP, in addition to construction of the

transmission line reflected above in Table 3.15-36. The transmission lines that would be removed under Route C currently traverse multi-use trails within the CHSP, which would subsequently be affected during removal activities. Recreational resources that would be directly crossed during these removal activities include the following seven trails: North Ridge Trail, McDermont Trail, Raptor Ridge Hiking Trail, Raptor Ridge Fire Road Trail, Hills for Everyone Trail, Telegraph Canyon Trail, and South Ridge Trail.

Impact R-1 (Construction activities would restrict access to or disrupt activities within established recreational areas), which is described in full detail in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2), would apply to each of the seven multi-use trails listed above. Although the North Ridge Trail is also listed in Table 3.15-36 as being affected by the installation of new transmission lines for Route C of Alternative 4, Impact R-1 would occur for each trail crossing, due to the site-specific nature of this impact (which is described in full detail in Section 3.15.6.1). Transmission line removal activities would only take place during the Project construction process and, therefore, the seven trails that would be affected by transmission line removal would not experience Project impacts related to operation.

As described in Section 3.15.2.4 (Alternative 4: Chino Hills Route Alternatives), the Route C Modified option is very similar to the original Route C and although the configuration of Project infrastructure is altered under Route C Modified, the same recreational resources would be affected. Impact R-1 (Construction activities would restrict access to or disrupt activities within established recreational areas), which is described in full detail in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2), would apply to each of the seven multi-use trails listed under the Route C discussion, due to removal and relocation of existing transmission lines within CHSP. Under Route C Modified, as with the original Route C, Impact R-1 would have the potential to occur along trails and roads located within and adjacent to CHSP, including those required for access to the proposed switching station location.

Table 3.15-37 (Impacts Applicable to Recreational Resources along Alternative 4, Route D), shows resources that could be affected by the Route D option.

Table 3.15-37. Impacts Applicable to Recreational Resources Along Alternative 4, Route D*

Project Component	Recreational Resource	Proximity to Route D Alignment	Potentially Applicable Impact/s
S8A-D MP 19.2	Firestone Scout Reservation	0.19 mile to the southeast; Tonner Canyon is 0.95 mile to the southwest	N/A
S8A-D MP 23.2 – 24.0	North Ridge Trail (Fire Road); CHSP	Adjacent to the south (trail is within CHSP)	R-1, R-2
S8A-D MP 24.1	McDermont Trail	0.2 mile to the south (trail is within CHSP)	N/A
S8A-D MP 24.7	Raptor Ridge Hiking Trail and Fire Road Trail	0.2 mile to the southeast from new switching station (trail is within CHSP)	N/A
	Hills For Everyone Trail	0.4 mile to the south (trail is within CHSP)	N/A
S8A-D MP 27.0 – 27.3	Hiking Trail	0.1 – 0.2 mile to the south	N/A
S8A-D MP 27.1	Fire Road Trail	Direct crossing	R-1, R-2
S8A-D MP 27.3	Bane Canyon Park Entrance	0.1 mile to the north	N/A
S8A-D MP 27.4	Bane Canyon Road	Direct crossing	R-1, R-2
	Band Canyon Trail (Fire Road)	Direct crossing	R-1, R-2
S8A-D MP 28.2	East Fence Line Trail	Direct crossing	R-1, R-2

Source: CHSPIA, 2007

* Affected Environment for S8A MP 19.2 – 24.7 of Route D is identical to Route C.

All wilderness and recreation impacts that would occur under the routing options for Alternative 4 (including but not limited to the impacts listed in Tables 3.15-34 through 3.15-37) are presented in the discussion below according to corresponding significance criteria.

Directly or indirectly disrupt or preclude activities in established federal, State, or local recreation areas or wilderness areas (Criterion REC1)

As described in the introduction for this analysis of Alternative 4, impacts associated with Criterion REC1 would be the same for Alternative 4 as for the proposed Project. However, the ~~four~~five different routing options included under Alternative 4 would avoid some recreational resources along the proposed Project alignment and would introduce other resources associated with each of the ~~four~~five routing options. These resources and the associated impacts and mitigation measures that fall under Criterion REC1 are summarized below.

Impact R-1 (Construction activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.15.6.1), with the exception of the ~~four~~five routing options which are described below. As described in Section 3.15.6.1, Impact R-1 would occur in recreational areas which would experience a "direct crossing" by the proposed Project because these areas would require temporary closure during construction activities and, therefore, such areas would be temporarily restricted from use. In addition, recreational resources or opportunities may also be restricted from use if access roads or trails to such areas are blocked or restricted during construction activities. As with the proposed Project, Impact R-1 of Alternative 4 would affect recreational hunters in Zone D-11; the ~~four~~five routing options under Alternative 4 are not located within Zone D-11, but no other recreational hunting areas or seasons would be affected. Hunting is not permitted in the Chino Hills State Park.

Access Roads. As with the proposed Project and other alternatives (with the exception of Alternative 6), construction of Alternative 4 would include the use of Forest Road 2N25.1 (West Fork Bike Path) for construction access. Use of this road would introduce Impact R-1 to recreational biking and fishing opportunities in the area, particularly for persons with disabilities who use the platforms and ramps along the West Fork Bike Path for access to the river. Glenn Camp, which is located along the West Fork Bike Path approximately 3.75 miles east of Segment 6 MP 19.5, would also be affected by Impact R-1 due to increased traffic and noise near the camp. Similarly, the Pasadena Bait Club Cabin would also be subject to elevated noise and traffic conditions along Forest Road 2N25.1 (West Fork Bike Path) during the construction period.

In addition, construction, operation, and maintenance of Alternative 4 (Routes A – D) would require installation and/or improvement of access road(s) located within and/or adjacent to the CHSP, in order to provide access to the switching station included under this alternative, as described in detail in Section 2 (Description of Alternatives). These access roads are described below, with regards to how they would affect wilderness and recreational resources or opportunities by causing or contributing to the occurrence of Impact R-1. Impact R-1 for Alternative 4 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project.~~assist in the completion of backlogged maintenance activities in the ANF~~).

Route A. The following resources that would have the potential to be affected by Impact R-1 under

the proposed Project would not be affected under the Route A option: Coral Ridge Park, Crossroads Park, one unnamed pedestrian and bike path in the City of Chino Hills (path connects Crossroads Park with Morningfield Park), Morningfield Park, and Ruben S. Ayala Park. As shown in Table 3.15-34, Route A would also introduce the potential for Impact R-1 to affect the following resources within the CHSP that would not be affected by the proposed Project: North Ridge Trail/Fire Road, McDermott Trail/Fire Road, two unnamed trails/Fire Roads, Raptor Ridge Trail, Hills For Everyone Trail, Telegraph Canyon Trail, and Fire Road Trail. In addition, the construction of Route A would require use of Bane Canyon Road and Telegraph Canyon Trail for access to the switching station, which would additionally introduce Impact R-1 to these resources in the CHSP. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-1 of Alternative 4, Route A, would be less than significant (Class II).

Route B. Route B would avoid the same recreational resources associated with the proposed Project as would Route A. However, due to its different alignment through the CHSP, Route B would introduce the potential for Impact R-1 to affect different resources than Route A, which would include the following (as presented in Table 3.15-35): North Ridge Trail/Fire Road, McDermott Trail/Fire Road, two unnamed trails/Fire Roads, Raptor Ridge Trail, Hills For Everyone Trail, Telegraph Canyon Trail, Fire Road Trail, Upper Aliso Canyon Trail/Fire Road, Bane Ridge Hiking Trail, Fire Road Trail, Bane Canyon Road, and East Fence Line Trail. In addition, the construction of Route B would require use of a short road segment from Butterfield Ranch Road to access the switching station for this route. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-1 of Alternative 4, Route B, would be less than significant (Class II).

Route C. Route C would also avoid the same recreational resources associated with the proposed Project as would Route A. Route C would introduce the potential for Impact R-1 to affect seven recreational trails within the CHSP, one of which (the North Ridge Trail/Fire Road) runs along the northern border of the park and would be adjacent to the south of a portion of the Route C alignment. As discussed above, construction and/or improvement of access roads would be required for implementation of the Alternative 4 routing options. Under Route C of Alternative 4, three routing options are proposed for access to the switching yard for this alternative. The first option would provide access through the Aerojet property to the north of the switching station; the section option would utilize Bane Canyon Road, Telegraph Canyon Trail, and a new road through the adjacent Aerojet property; and the third option would provide access via Bane Road and South Ridge Trail. Use of roads and trails in the CHSP would additionally introduce Impact R-1 to recreational users and resources within the CHSP. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-1 of Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. The trails described above, under Route C, would also have the potential to be affected by Impact R-1 under Route C Modified, due to re-routing of existing transmission lines within CHSP. Also as with the original Route C alternative (described above), construction of Route C Modified would require the use of roads within and adjacent to CHSP for access of construction vehicles and equipment to the proposed switching station site, thereby introducing the potential for Impact R-1 to temporarily affect recreational trail use and opportunity. However, the switching station included under Route C Modified is located approximately 2,500 feet to the northwest of the location proposed under the original Route C, which places switching station

facilities farther away from recreational resources and opportunities in CHSP. Therefore, Impact R-1 would occur in the same way under Route C Modified as it would under Route C, although affects would likely be less noticeable due to the new switching station location. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-1 of Route C Modified would be less than significant (Class II).

Route D. Route D would avoid the same recreational resources associated with the proposed Project as would Route A. However, due to its different alignment, Route D would introduce the potential for Impact R-1 to affect different resources than Route A, which would include the following (as presented in Table 3.15-37): North Ridge Trail/Fire Road, Fire Road Trail, Bane Canyon Road, Bane Canyon Trail/Fire Road, and East Fence Line Trail. Access roads that would be required for Route D are the same as would be required for Route B, as described above, and they would therefore introduce the same potential for Impact R-1 to affect recreational resources and opportunities in the CHSP. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-1 of Alternative 4, Route D, would be less than significant (Class II).

Impact R-2 (Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.15.6.1), with the exception of the ~~four~~five routing options which are described below. As described in Section 3.15.6.1, Impact R-2 would occur if operation and maintenance activities result in recreational resources or opportunities being made unavailable, particularly as a result of road and/or trail closures that are applied to provide access for vehicles and/or equipment to Project infrastructure. Impact R-2 would also occur if operation and maintenance activities disrupt activities within existing recreational resources or areas. Impact R-2 for Alternative 4 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes); and
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)).

As described for Impact R-1, Mitigation Measure R-1c is similar to Applicant-Proposed Measures (APMs) REC-1 (Temporary Closures) and REC-2 (Closure Notices) and would reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. The implementation of these mitigation measures would reduce Impact R-2 for Alternative 4 to a less-than-significant level (Class II).

Route A. The following resources that would have the potential to be affected by Impact R-2 under the proposed Project would not be affected under the Route A option: Coral Ridge Park, Crossroads Park, one unnamed pedestrian and bike path in the City of Chino Hills, Morningfield Park, and Ruben S. Ayala Park. However, as shown in Table 3.15-34, Route A would introduce the potential for Impact R-2 to affect the following resources within the CHSP that would not be affected by the proposed Project: North Ridge Trail/Fire Road, McDermott Trail/Fire Road, two unnamed trails/Fire Roads, Raptor Ridge Trail, Hills For Everyone Trail, Telegraph Canyon Trail, and Fire Road Trail. The switching station access roads described above under Impact R-1 would also introduce the potential for Impact R-2 to occur as a result of noise and visual effects associated

with use of the access roads by operation and maintenance vehicles, as such use would contribute to the degradation of the backcountry experience for recreationists within the CHSP. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-2 of Alternative 4, Route A, would be less than significant (Class II).

Route B. Route B would avoid the same recreational resources associated with the proposed Project as would Route A. However, due to its different alignment through the CHSP, Route B would introduce the potential for Impact R-2 to affect different resources than Route A, which would include the following (as presented in Table 3.15-35): North Ridge Trail/Fire Road, McDermott Trail/Fire Road, two unnamed trails/Fire Roads, Raptor Ridge Trail, Hills For Everyone Trail, Telegraph Canyon Trail, Fire Road Trail, Upper Aliso Canyon Trail/Fire Road, Bane Ridge Hiking Trail, Fire Road Trail, Bane Canyon Road, and East Fence Line Trail. Use of switching station access roads by operation and maintenance vehicles within and adjacent to the CHSP described above for Route A would have the same potential to introduce Impact R-2 to recreationists within the CHSP under Route B. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-2 of Alternative 4, Route B, would be less than significant (Class II).

Route C. Route C would also avoid the same recreational resources associated with the proposed Project as would Route A. Route C would also introduce the potential for Impact R-2 to affect two recreational trails within the CHSP, as shown in Table 3.15-36 (Impacts Applicable to Recreational Resources Along Alternative 4, Route C): the North Ridge Trail/Fire Road, which runs along the northern border of the park and would be adjacent to the south of the Route C alignment, and the Aliso Canyon Trail, which would be traversed by the Route C alignment shortly before its terminus. Use of the switching station access roads described under Route C for Impact R-1 would have a similar potential to introduce Impact R-2 under Route C, as noise and visual effects associated with use of the access roads by operation and maintenance vehicles would contribute to the degradation of the backcountry experience for recreationists within the CHSP. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-2 of Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. Impact R-2 would be the same under Route C Modified as it would under the original Route C, with the exception that the switching station location proposed under this modified route is located approximately 2,500 feet farther away from recreational resources and opportunities in CHSP and as a result, operation and maintenance activities at the switching station would have less of a potential to affect recreational resources and opportunities within CHSP. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-2 of Route C Modified would be less than significant (Class II).

Route D. Route D would avoid the same recreational resources associated with the proposed Project as would Route A. However, due to its different alignment, Route D would introduce the potential for Impact R-2 to affect different resources than Route A, which would include the following (as presented in Table 3.15-37): North Ridge Trail/Fire Road, Fire Road Trail, Bane Canyon Road, Bane Canyon Trail/Fire Road, and East Fence Line Trail. Use of switching station access roads by operation and maintenance vehicles within and adjacent to the CHSP described above for Route A would have the same potential to introduce Impact R-2 to recreationists within the CHSP under Route C. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-2 of Alternative 4, Route D, would be less than significant (Class II).

No further impacts would be introduced by Alternative 4 under Criterion REC1. As mentioned, please see Section 3.15.6.1 for a detailed description of the impacts and mitigation measures listed above, including specific recreational or wilderness resources that could potentially be affected.

Substantially contribute to the long-term loss or degradation of the factors that contribute to the value of federal, State, local, or private recreational facilities or wilderness areas (Criterion REC2)

Wilderness and Recreation impacts associated with Criterion REC2 for Alternative 4 would be the same as impacts associated with this criterion for the proposed Project. However, as previously described, each of the ~~four~~five routing options included under Alternative 4 would avoid some recreational resources along the proposed Project alignment and would introduce other resources associated with each of the ~~four~~five routing options. These resources and the associated impacts and mitigation measures that fall under Criterion REC2 are summarized below.

Impact R-3 (Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136)) would be exactly the same for Alternative 4, including each of the ~~four~~five routing options included under Alternative 4, as it would for the proposed Project. Although Alternative 4 includes ~~four~~five different routing options that diverge from the proposed Project route in the South Region, no changes to the transmission line route would occur in the vicinity of the San Gabriel WA and no other WAs would be situated within one-half mile of the proposed routing options for Alternative 4. Construction, operation, and maintenance of Alternative 4 (including each of the ~~four~~five routing options, as described below) would cause or contribute to degradation of the "solitude and unconfined recreation" characteristic of the San Gabriel WA.

> ***Route A.*** This impact would be exactly the same for Alternative 4, Route A, as it would for the proposed Project (please see Section 3.15.6.1). However, as described in Section 3.15.6.1, Impact R-3 would affect sparse recreationists in the remote southwestern portion of the WA. Impact R-3 for Route A of Alternative 4 would be less than significant with no mitigation required (Class III).
>
> ***Route B.*** The Route B option would be exactly the same as Route A with regards to Impact R-3. Impact R-3 for Route B of Alternative 4 would be less than significant with no mitigation required (Class III).
>
> ***Route C.*** The Route C option would be exactly the same as Route A with regards to Impact R-4. Impact R-3 for Route C of Alternative 4 would be less than significant with no mitigation required (Class III).
>
> ***Route C Modified.*** The Route C Modified option would be exactly the same as Route A with regards to Impact R-3. This impact would be less than significant with no mitigation required (Class III).
>
> ***Route D.*** The Route D option would be exactly the same as Route A with regards to Impact R-4. Impact R-3 for Route D of Alternative 4 would be less than significant with no mitigation required (Class III).

Impact R-4 (The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT)) would be exactly the same for Alternative 4 as it would for the proposed Project. None of the ~~four~~five routing options under Alternative 4 would be situated near the PCT. Under all ~~four~~five

routing options, Alternative 4 would traverse the PCT in the following three locations: Segment 4 MP 2.7 (North Region), Segment 11 MP 7.6 (Central Region), and Segment 6 MP 7.3 (Central Region). The location and nature of each of these three crossings of the PCT would be exactly the same under Alternative 4 (including all ~~four~~five routing options) as they would under the proposed Project. As described in Section 3.15.6.1, this impact addresses the potential loss or degradation to physical aspects of the PCT as well as the potential loss or degradation of the pristine backcountry experience that recreationists using the PCT expect to have. Implementation of the following mitigation measures is recommended for Impact R-4:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project.~~assist in the completion of backlogged maintenance activities in the ANF~~).

Route A. This impact would be exactly the same for Alternative 4, Route A, as it would for the proposed Project (please see Section 3.15.6.1). With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Alternative 4, Route A, would be less than significant (Class II).

Route B. The Route B option would be exactly the same as Route A with regards to Impact R-4. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Alternative 4, Route B, would be less than significant (Class II).

Route C. The Route C option would be exactly the same as Route A with regards to Impact R-4. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. The Route C Modified option would be exactly the same as Route A with regards to Impact R-4. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Route C Modified would be less than significant (Class II).

Route D. The Route D option would be exactly the same as Route A with regards to Impact R-4. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Alternative 4, Route D, would be less than significant (Class II).

Impact R-5 (The Project would contribute to degradation of designated Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.15.6.1). None of the ~~four~~five routing options introduced under Alternative 4 would avoid or introduce an OHV route or Open Riding Area in a way that would differ from this impact under the proposed Project. As described in Section 3.15.6.1, this impact could occur if Project activities would require that OHV roads or trails be repeatedly and frequently closed due to maintenance activities, or permanently closed or altered due to operational activities. Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) would be required for Impact R-5 of Alternative 4 (inclusive of all ~~four~~five routing options).

Route A. This impact would be exactly the same for Alternative 4, Route A, as it would for the proposed Project (please see Section 3.15.6.1). With implementation of the mitigation measures listed above, Impact R-5 of Alternative 4, Route A, would be less than significant (Class II).

Route B. The Route B option would be exactly the same as Route A with regards to Impact R-5. With implementation of the mitigation measures listed above, Impact R-5 of Alternative 4, Route B, would be less than significant (Class II).

Route C. The Route C option would be exactly the same as Route A with regards to Impact R-5. With implementation of the mitigation measures listed above, Impact R-5 of Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. The Route C Modified option would be exactly the same as Route A with regards to Impact R-5. With implementation of the mitigation measures listed above, Impact R-5 of Route C Modified would be less than significant (Class II).

Route D. The Route D option would be exactly the same as Route A with regards to Impact R-5. With implementation of the mitigation measures listed above, Impact R-5 of Alternative 4, Route D, would be less than significant (Class II).

Impact R-6 (The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities) would be the same under Alternative 4 as it would for the proposed Project (please see Section 3.15.6.1), with the exception of the ~~four~~five routing options which are described below. As described in Section 3.15.6.1, Impact R-6 would occur if Project activities result in unauthorized or unmanaged recreational uses. For instance, improvement of existing roads and installation of new roads could provide access to areas that were not previously accessible by roads. As a result, these new and improved roads could potentially be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes, such as OHV use in restricted Forest (ANF) or Park (CHSP) areas. In addition, some recreational resources may become temporarily inaccessible or precluded from use during construction and/or maintenance of the proposed transmission line, which could potentially result in unmanaged recreational uses, as recreationists seek alternative or comparable recreational resources to those which are made unavailable. Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) would be required for Impact R-6 under Alternative 4.

Route A. This impact would be the same for Alternative 4, Route A, as it would for the proposed Project (please see Section 3.15.6.1), with the exception that it would have the potential to affect the CHSP in addition to the ANF (as discussed in Section 3.15.6.1). It is reasonably assumed that some roadway improvements within the CHSP and along the northern border of the CHSP would be required in order to accommodate large vehicles and equipment that would be required during construction of Route A. Within the CHSP, the use of all vehicles, including Off-Highway Vehicles (OHVs) is restricted to the main roadways and is not permitted in backcountry areas. In addition, camping within the CHSP is restricted to developed sites only; backcountry camping and trail camping are not permitted (CA State Parks, 2008). As described above, any roadway improvements would have the potential to increase access within the park. Recreationists who are interested in OHV use or backcountry camping could potentially see roadway improvements as an opportunity to access areas of the park that would otherwise be difficult to access and to participate in unauthorized recreational activities using the improved roadways as primary access. The potential occurrence of this impact within the CHSP would be the same as in the ANF, which is described in Section 3.15.6.1. With implementation of the mitigation measure listed above and described in detail in Section 3.15.6.1, Impact R-6 of Alternative 4, Route A, would be less than significant (Class II).

Route B. The Route B option would be exactly the same as Route A with regards to Impact R-6. With implementation of the mitigation measure listed above and described in detail in Section 3.15.6.1, Impact R-6 of Alternative 4, Route B, would be less than significant (Class II).

Route C. The Route C option would be exactly the same as Route A with regards to Impact R-6. With implementation of the mitigation measure listed above and described in detail in Section 3.15.6.1, Impact R-6 of Alternative 4, Route C, would be less than significant (Class II).

Route C Modified. The Route C Modified option would be exactly the same as Route A with regards to Impact R-6. With implementation of the mitigation measure listed above and described in detail in Section 3.15.6.1, Impact R-6 of Route C Modified would be less than significant (Class II).

Route D. The Route D option would be exactly the same as Route A with regards to Impact R-6. With implementation of the mitigation measure listed above and described in detail in Section 3.15.6.1, Impact R-6 of Alternative 4, Route D, would be less than significant (Class II).

3.15.8.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 4 (Chino Hills Route Alternatives). This alternative consists of ~~four~~five different routing options which would diverge from the proposed Project route in the City of Chino Hills. The route for Alternative 4 would be exactly the same as that of the proposed Project for all segments except Segment 8A, where the Alternative 4 routing options (Routes A through D and Route C Modified) would diverge from the proposed Project alignment at S8A MP 19.2. Furthermore, Alternative 4 would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 4 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the rerouted portion of the alternative. With regards to Alternative 4, any incremental increase or decrease in the Project's contribution to the cumulative scenario would result from the location of the alternative alignments associated with Routes A, B, C, C Modified, and D.

Geographic Extent

The geographic extent of the cumulative effects analysis for Alternative 4 is the same as the extent of the regional setting for Alternative 4, as presented in Section 3.15.2.4. As such, this cumulative effects analysis is presented according to three separate geographic regions: the North Region, which includes parts of southern Kern County and northern Los Angeles County; the Central Region, which encompasses the ANF, and the South Region, which begins at the southern border of the ANF and includes lands within southern Los Angeles County, western San Bernardino County, and Chino Hills State Park.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 4 are exactly the same as for Alternative 2, as described in Section 3.15.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 4 would be exactly the same as Alternative 2, described in Section 3.15.6.2.

Cumulative Impact Analysis

Impacts associated with Alternative 4 would be cumulatively considerable if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The proposed reroute options of Alternative 4 would have the potential to incrementally increase or decrease the proposed Project's contribution to cumulative impacts because they would have the potential to affect recreational resources that would not be affected by the proposed Project, and they would likewise avoid effects to some recreational resources that would be impacted by the proposed Project. The analysis of the Alternative 4 routing options provided in Section 3.15.8.1 indicates that although there would be some location-specific differences between the proposed Project and Alternative 4, such location-specific differences are limited to a portion of the South Region and across the entirety of the proposed routes (including the proposed Project). Additionally, the nature of impacts that would occur are the same between the proposed Project and Alternative 4. As such, Alternative 4's contribution to cumulative impacts would be the same as the proposed Project's contribution, as summarized below. Please see Section 3.15.6.2 (Cumulative Impact Analysis: Alternative 2) for a detailed discussion of these cumulative Project impacts.

The following wilderness and recreation impacts of Alternative 4 (inclusive of all ~~four~~five routing options) would be ~~cumulatively considerable but~~ less than significant (Class III):

- **Impact R-2:** Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas;
- **Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136); and
- **Impact R-5:** The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.

Additionally, and as consistent with the proposed Project, the following wilderness and recreation impacts of Alternative 4 (inclusive of all ~~four~~five routing options) would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that are expected to be significant and unavoidable (Class I):

- **Impact R-1:** Construction activities would restrict access to or disrupt activities within established recreational areas;
- ~~**Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136);~~
- **Impact R-4:** The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT); and
- **Impact R-6:** The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

As the cumulative wilderness and recreation impacts of Alternative 4 would be the same as those of the proposed Project, please see Section 3.15.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 4 in Section 3.15.8.1 (Direct and Indirect Effects Analysis: Alternative 4) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for recreational and wilderness resources.

3.15.9 Alternative 5: Partial Underground Alternative

The following section describes the wilderness and recreation impacts of Alternative 5 (Partial Underground Alternative), as determined by the significance criteria listed in Section 3.15.4.1 (Criteria for Determining Impact Significance). Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

This alternative would follow the same route as the proposed Project through the North and Central Regions. In the South Region, Alternative 5 would place 3.5 miles of Segment 8A underground beneath the same corridor as the proposed Project, from S8A MP 21.9 to MP 25.4. Under this alternative, the existing 220-kV T/L along Segment 8A would be left in place from MP 21.9 to MP 25.4.

3.15.9.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to wilderness and recreation resources are introduced in Section 3.15.4.1 (Criteria for Determining Impact Significance). All wilderness and recreation impacts that would occur under the proposed Project would also occur under Alternative 5, although a 3.5-mile segment of this Alternative would be installed underground. Table 3.15-38 (Wilderness and Recreation Impacts Applicable to Resources along the Underground Portion of Alternative 5), below, lists the recreational resources situated along the portion of Alternative 5 that would be installed underground, as well as the wilderness and recreation impacts that would be applicable to each identified resource.

Table 3.15-38. Wilderness and Recreation Impacts Applicable to Resources along the Underground Portion of Alternative 5

Project Component	Recreational Resource	Proximity of Resource to Project Component	Potentially Applicable Impacts
S8A MP 22.4 – 22.4	Western Hills Country Club	Eucalyptus Avenue runs parallel to ROW, 0.04 – 0.13 mile to the northeast	N/A
	Coral Ridge Park	Direct crossing; from this park, a bike-pedestrian pathway continues to the northeast, within the ROW	R-1, R-2
S8A MP 23.6 – 23.8	Crossroads Park	Direct crossing	R-1, R-2
S8A MP 23.8 – 24.5	Pedestrian and bike path	Pathway is located within the ROW	R-1, R-2
S8A MP 23.9	Oak Ridge Park	0.49 mile to the southeast	N/A
S8A MP 24.1	Morningside Park	0.38 mile to the southeast	N/A
S8A MP 24.5	Morningfield Park	0.05 mile to the south	N/A
S8A MP 25.4	Glenmeade Park	0.38 mile to the south	N/A

As mentioned above, the route for Alternative 5 would follow the same route as the proposed Project and as such, all recreational resources and applicable impacts are listed in the proposed Project tables, as follows: 3.15-26 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), 3.15-28 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), and 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the South Region).

Although this alternative would place a portion of the transmission line underground in the South Region, no new recreational or wilderness resources would be introduced as a result of the underground segment,

and no resources identified as being affected under the proposed Project would be avoided (as described in Section 3.15.6.1, Direct and Indirect Effects Analysis: Alternative 2). Additionally, features of the underground segment, including access shafts and aboveground infrastructure, would not introduce any new impacts to recreational resources included under Alternative 5. Under Alternative 5, the transmission line would transition to underground at approximately S8A MP 21.9, and would transition back to overhead at approximately S8A MP 25.4. Table 3.15-38, above, indicates that the Alternative 5 alignment would not traverse or run adjacent to any recreational resource at either terminus; the nearest resource to an underground/overhead transition station is Glenmeade Park, located approximately 0.38 mile to the south of the eastern transition station at S8A MP 25.4. Therefore, facilities and infrastructure associated with transitioning the line between its overhead and underground alignments would not affect existing recreational resources identified within one-half mile of Alternative 5.

Wilderness and recreation impacts associated with Alternative 5 are presented below under the applicable significance criteria, and described in full detail in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2).

Directly or indirectly disrupt or preclude activities within established federal, State, or local recreation areas or wilderness areas (Criterion REC1)

Impacts associated with Criterion REC1 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project (please see Section 3.15.6.1 for a detailed description).

Impact R-1 (Construction activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, Impact R-1 would occur in recreational areas which would experience a "direct crossing" by the proposed Project because these areas would require temporary closure during construction activities and therefore, such areas would be temporarily restricted from use. As with the proposed Project, recreational hunting permitted in Zone D-11 would be affected by Impact R-1 as a result of construction noise, traffic, and particularly road closures that would potentially restrict hunters from accessing certain areas of the ANF. The underground portion of Alternative 5 would not affect hunting seasons or activities outside of Zone D-11. In addition, the use of Forest Road 2N25.1 (West Fork Bike Path) for construction access would introduce Impact R-1 to recreational biking and fishing opportunities in the area, particularly for persons with disabilities who use the platforms and ramps along the West Fork Bike Path for access to the river. Glenn Camp, which is located along the West Fork Bike Path approximately 3.75 miles east of Segment 6 MP 19.5, would also be affected by Impact R-1 due to increased traffic and noise near the camp. Similarly, the Pasadena Bait Club Cabin would also be subject to elevated noise and traffic conditions along Forest Road 2N25.1 (West Fork Bike Path) during the construction period. For recreational resources located along the underground portion of Alternative 5, as listed in Table 3.15-38 (Wilderness and Recreation Impacts Applicable to Resources along the Underground Portion of Alternative 5), the same impacts introduced under the proposed Project would have the potential to occur for Alternative 5. Impact R-1 for Alternative 5 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes);

- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-1 of Alternative 5 would be less than significant (Class II).

Impact R-2 (Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, Impact R-2 would occur if operation and maintenance activities result in recreational resources or opportunities being made unavailable, particularly as a result of road and/or trail closures that are applied to provide access for vehicles and/or equipment to Project infrastructure. Impact R-2 would also occur if operation and maintenance activities disrupt activities within existing recreational resources or areas. For the portion of Alternative 5 that would be situated underground, maintenance activities would occur in the underground shaft, with access provided via the access shafts located at either end of the underground segment. Impact R-2 for Alternative 5 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes); and
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)).

As described for Impact R-1, Mitigation Measure R-1c is similar to Applicant-Proposed Measures (APMs) REC-1 (Temporary Closures) and REC-2 (Closure Notices) and would reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. The implementation of these mitigation measures would reduce Impact R-2 for Alternative 5 to a less-than-significant level (Class II).

No further impacts would be introduced by Alternative 5 under Criterion REC1. As mentioned, please see Section 3.15.6.1 for a detailed description of the impacts and mitigation measures listed above, including specific recreational or wilderness resources that could potentially be affected.

Substantially contribute to the long-term loss or degradation of the factors that contribute to the value of federal, State, local, or private recreational facilities or wilderness areas (Criterion REC2)

Impacts associated with Criterion REC2 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project. As described above, although this alternative would place a portion of the transmission line underground, no new resources would be affected and no resources identified under the proposed Project would be removed from an identified impact. Therefore, impacts of Alternative 5 that would apply to recreational resources under Alternative 5 are the same as the proposed Project and as such, Tables 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), and 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region) reflect the resources that could potentially be affected by impacts of this alternative.

Impact R-3 (Project activities (construction or operation and maintenance) would cause or contribute to

the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136)) would be exactly the same for Alternative 5 as it would for the proposed Project; no changes to the transmission line alignment or infrastructure would occur in the vicinity of the San Gabriel WA and no other WAs would be situated within one-half mile of the proposed route for Alternative 5. Construction, operation, and maintenance of Alternative 5 would cause or contribute to degradation of the "solitude and unconfined recreation" characteristic of the San Gabriel WA. However, as described in Section 3.15.6.1, Impact R-3 would affect sparse recreationists in the remote southwestern portion of the WA. Impact R-3 for Alternative 5 would be less than significant with no mitigation required (Class III).

Impact R-4 (The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT)) would be exactly the same for Alternative 5 as it would for the proposed Project. Accordingly, Alternative 5 would traverse the PCT in the following three locations: Segment 4 MP 2.7 (North Region), Segment 11 MP 7.6 (Central Region), and Segment 6 MP 7.3 (Central Region). As described in Section 3.15.6.1, this impact addresses the potential loss or degradation to physical aspects of the PCT as well as the potential loss or degradation of the pristine backcountry experience that recreationists using the PCT expect to have. Impact R-4 for Alternative 5 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Alternative 5 would be less than significant (Class II).

Impact R-5 (The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas or would result in a loss of recreational opportunity for OHV users) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, this impact could occur if Project activities would require that OHV roads or trails be repeatedly and frequently closed due to maintenance activities, or permanently closed or altered due to operational activities. As with the proposed Project, no Open Riding Areas would be situated in the Project Study Area for Alternative 5. Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) would be required for Impact R-5 of Alternative 5. With implementation of this mitigation measure, Impact R-5 of Alternative 5 would be less than significant (Class II).

Impact R-6 (The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities) would be the same under Alternative 5 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, Impact R-6 would occur if Project activities result in unauthorized or unmanaged recreational activities. For instance, improvement of existing roads and installation of new roads could provide access to areas that were not previously accessible by roads. As a result, these new and improved roads could potentially be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes, such as OHV use in restricted Forest (ANF) areas. In addition, some recreational resources may become temporarily inaccessible during construction and/or maintenance of the proposed transmission line, which could potentially result in unmanaged recreational uses, as recreationists seek alternative or comparable recreational resources to those which are made unavailable. Mitigation Measure

R-5 (Avoid permanent upgrades to Forest System roads) would be required for Impact R-6 under Alternative 5. With implementation of this mitigation measure, Impact R-6 of Alternative 5 would be less than significant (Class II).

3.15.9.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 5 (Partial Underground Alternative). Under this alternative, 3.5 miles of the proposed transmission line would be installed underground. All other portions of this alternative would be identical to the proposed Project and would result in identical wilderness and recreation impacts as the proposed Project; therefore, the contribution of Alternative 5 to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Although a portion of the transmission line for Alternative 5 would be installed underground, the Alternative 5 alignment would be exactly the same as the proposed Project alignment. Therefore, the geographic extent of the cumulative analysis for Alternative 5 is exactly the same as that for Alternative 2 and would include all of the North, Central, and South Regions.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 5 are exactly the same as for the proposed Project (please see Section 3.15.6.2, Alternative 2: Cumulative Effects Analysis).

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 5 would be exactly the same as the proposed Project (please see Section 3.15.6.2).

Cumulative Impact Analysis

Impacts associated with Alternative 5 would be cumulatively considerable if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The underground portion of Alternative 5 would not affect the proposed Project's contribution to cumulative wilderness and recreation impacts and therefore, cumulative impacts of Alternative 5 would be exactly the same as cumulative impacts for the proposed Project, as summarized in Table 3.15-32 (Cumulative Impacts for Wilderness and Recreation – Alternative 2) and described in detail in Section 3.15.6.2.

As with the proposed Project, each of the six wilderness and recreation impacts identified in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2) would be cumulatively considerable, in that each impact would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects.

The following wilderness and recreation impacts of Alternative 5 would be ~~cumulatively considerable but~~ less than significant (Class III):

- **Impact R-2:** Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas;
- **Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136); and

- **Impact R-5:** The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.

Additionally, and as with the proposed Project, the following wilderness and recreation impacts of Alternative 5 would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that are expected to be significant and unavoidable (Class I):

- **Impact R-1:** Construction activities would restrict access to or disrupt activities within established recreational areas;
- ~~**Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136);~~
- **Impact R-4:** The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT); and
- **Impact R-6:** The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

As the cumulative wilderness and recreation impacts of Alternative 5 would be the same as those of the proposed Project, please see Section 3.15.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 5 in Section 3.15.9.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for recreational and wilderness resources.

3.15.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

The following section describes wilderness and recreation impacts of Alternative 6 (Maximum Helicopter Construction in the ANF), as determined by the significance criteria listed in Section 3.15.4.1. Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels. This alternative would include the use of helicopters to construct transmission towers in the ANF (Central Region). The proposed route for Alternative 6 (Maximum Helicopter Construction in the ANF Alternative) would not diverge from that of the proposed Project (Alternative 2).

3.15.10.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to wilderness and recreation resources are introduced in Section 3.15.4.1 (Criteria for Determining Impact Significance). Tables 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region) and 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region) identify all recreational resources that would experience impacts associated with the construction, operation, and maintenance of Alternative 6 in the North and South Regions. However, because different helicopter staging areas would be utilized during construction of Alternative 6 in comparison with the proposed Project, the recreational resources/opportunities that would be affected during construction of Alternative 6 would also be different. Therefore, the following Table 3.15-39 (Alternative 6 Wilderness and Recreation Impacts Applicable to Resources in the Central Region) identifies the recreational resources that would experience impacts associated with the construction, operation, and maintenance of Alternative 6, including as a result of helicopter activities.

As noted below in Table 3.15-39, the vast majority of recreational resources/opportunities that would be affected by impacts under Alternative 6 are the same as the proposed Project. Two resources that would be affected under Alternative 6 but would not be affected by the proposed Project include Fall Creek Campground and Shoening Springs Picnic Area, both of which are located within one-half mile of helicopter staging area #10. In addition, because construction of Alternative 6 would avoid the use of Forest Road 2N25.1 for construction traffic, impacts that would occur under the proposed Project to recreational resources along this road would not occur under Alternative 6. Impacts associated with this alternative are discussed below under the applicable significance criterion.

Table 3.15-39. Alternative 6 Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region

Project Component	Recreational Resource	Proximity to Alternative 2 Alignment	Potentially Applicable Impacts
Segment 11 Mile Post (MP) 0.0 – 24.5			
S11 MP 2.6 – 8.0	Forest Road 4N24 (OHV)	Adjacent to and/or within ROW with multiple direct crossings	R-1, R-2, R-5
S11 MP 7.8	Pacific Crest National Scenic Trail	Alt. 6 helicopter staging area #4 is within 0.1 mile to the south (this staging area is ~1.7 miles west of S11 MP 7.8).	R-1, R-4
S11 MP 3.8	Bear Trap Canyon OHV road	Direct crossing; Alt. 6 helicopter staging area #2 is within 0.1 mile to the east.	R-1, R-5
S11 MP 7.6	Pacific Crest National Scenic Trail (PCT)	Direct crossing by the T/L	R-1, R-2, R-4
S11 MP 7.9 – 11.0 and MP 11.5 – 13.0	Forest Road 3N27 (OHV)	Direct crossing at MP 8.0; Adjacent to and/or within ROW with multiple direct crossings	R-1, R-2, R-5
S11 MP 13.25	Fall Creek Campground	Alt. 6 helicopter staging area #10 is within 0.25 mile to the northeast	R-1
	Shoening Springs Picnic Area	Alt. 6 helicopter staging area #10 is within 0.5 mile to the west-northwest	R-1
S11 MP 15.0	Clear Creek School Camp	0.5 mile to the east	N/A
S11 MP 16.7	Forest Road 2N75 (OHV) road	Direct crossing	R-1, R-5
S11 MP 16.8 – 18.9	Gabrielino NRT	Parallel to ROW, 0.25 mile to the east	R-1
S11 MP 17.0	Oakwilde Trail Camp	0.25 mile to the east	N/A
	Ken Burton Trail (Forest Trail 12W19)	Direct crossing	R-1
S11 MP 17.9	Angeles Crest Fire Station	0.2 mile to the east	N/A
S11 MP 18.1	Gould Canyon Trail	0.38 mile to the west	N/A
S11 MP 18.4	Cross Town Trail	0.19 mile to the east	N/A
S11 MP 18.3	Paul Little Picnic Areas	0.4 mile to the east	N/A
S11 MP 18.6	Niño Picnic Area	0.2 mile to the east; within 0.2 mile of SCE helicopter staging area #5	R-1 (SCE #5)
S11 MP 19.0	La Cañada Flintridge Country Club	0.4 mile to the south	N/A
S11 MP 19.3	Gabrielino NRT	Direct crossing	R-1, R-2
	Gould Mesa Trail Camp	0.2 mile to the north	N/A
S11 MP 20.6 – 20.8, MP 21.2	Altadena Crest Trail (proposed)	Multiple direct crossings	R-1
S11 MP 21.0	Trail 12W18 (Sunset Ridge Trail) / 2N65 Chaney Trail – Los Angeles Count road	Direct crossing (MP 21.0) and adjacent to the north (MP 21.0 – 21.2)	R-1
	Millard Trail Camp	0.2 mile to the north	N/A
S11 MP 21.5	Camp Chiquita	0.3 mile to the south	N/A
S11 MP 22.5	Forest Trail 12W14A / Sam Merrill Trail	Direct crossing	R-1
	Echo Mountain Picnic Area	0.25 mile to the north	N/A

Table 3.15-39. Alternative 6 Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region

Project Component	Recreational Resource	Proximity to Alternative 2 Alignment	Potentially Applicable Impacts
S11 MP 22.75	OHV roads (unnamed)	Direct crossing (MP 22.75) and adjacent to the north of ROW (MP 22.75 – 23.4)	R-1, R-5
S11 MP 23.0	Old Railroad Grade portion of Sam Merrill Trail	0.5 mile to the north	N/A
Segment 6 Mile Post (MP) 0.0 – 26.9			
S6 MP 1.5 – 2.75	Several OHV roads	Multiple direct crossings; adjacent to ROW	R-1, R-5
S6 MP 5.5 – 7.0	Hiking trails (unnamed)	Within 0.5 mile to the west; Direct crossings (MP 5.9 and 6.25)	N/A
S6 MP 6.0 – 7.3	Forest Road 4N41 (OHV)	0.1 mile to the west	R-1
S6 MP 6.6	Mill Creek Summit Picnic Area	Adjacent to the west of SCE helicopter staging area #12	R-1
S6 MP 7.3	Mill Creek Summit Picnic Area	Direct crossing by ROW	R-1, R-2
	Pacific Crest National Scenic Trail (PCT)	Direct crossing at Mill Creek Summit; PCT crosses through the Picnic Area and across Angeles Forest Highway	R-1, R-2, R-4
S6 MP 7.5	Mill Creek Summit Picnic Area	Northwest of SCE helicopter staging area #13	R-1
S6 MP 7.3 – 8.0	Forest Road 4N18 (OHV)	Direct crossing	R-1, R-5
S6 MP 8.5 – 11.0	Forest Road 4N18.1 (OHV)	Multiple direct crossings; adjacent to and/or within the ROW; Alt. 6 helicopter staging area #5 is within 0.1 mile to the west at S6 MP 9.75	R-1, R-2, R-5
S6 MP 10.5 – 11.0	Forest Road 3N23 (OHV)	Direct crossing (MP 10.8)	R-1, R-5
S6 MP 11.2 – 12.2	Forest Road 4N18.2 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 13.3	Alder Creek Trail (Forest Trail 11W05)	Direct crossing	R-1
S6 MP 13.7 – 15.0	Forest Road 3N20 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 16.75	Shortcut Saddle Trailhead / Silver Moccasin NRT / Rincon Shortcut OHV	0.25 mile to the east	N/A
S6 MP 17.0, 17.5, and 19.5	Forest Road 2N23 (OHV)	Direct crossing; SCE helicopter staging area #7 is adjacent to the west at MP 19.5	R-1, R-5
S6 MP 17.2	Silver Moccasin National Scenic Trail (Trail 11W06)	Direct crossing	R-1, R-2
S6 MP 18.8 – 19.8	Forest Road 2N23 (OHV)	Adjacent to the west until MP 19.5 (direct crossing), then adjacent to the right	R-1
S6 MP 19.5	Trail 11W16 and misc. trails	Portions of the trail are within 0.25 – 0.5 mile to the southwest; Alt. 6 helicopter staging area #9 (same as SCE #7) are within 0.25 – 0.5 mile.	N/A
S6 MP 19.8 – 23.2	Rincon Red Box Road (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 20.3 – 21.0	Forest Road 2N25.2 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 21.0 – 23.2	Forest Road 2N24.1 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 22.2	Forest Road 2N31 (OHV)	Direct crossing at connection with FR 2N24.1 (OHV) / Rincon Red Box Road (OHV)	R-1, R-5
	Spring Camp	0.13 mile to the south (within the Los Angeles River Ranger District)	N/A
S6 MP 23.5	Truck Trail OHV route / Forest	Direct crossing	R-1, R-5

Table 3.15-39. Alternative 6 Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region

Project Component	Recreational Resource	Proximity to Alternative 2 Alignment	Potentially Applicable Impacts
	Road 2N24.1 (OHV)		
S6 MP 23.5 – 24.3	Forest Road 2N30.1 (OHV)	Adjacent to and within ROW; multiple direct crossings	R-1, R-2, R-5
S6 MP 24.7 – 25.0	Silver Fish OHV Road / Forest Road 1N29 (OHV)	Direct crossing	R-1, R-5
	Silver Fish Trail	Direct crossing at Silver Fish OHV Road / Forest Road 1N29 (OHV)	R-1
	Van Tassel OHV Road / Forest Road 1N36 (OHV)	Direct crossing	R-1, R-2, R-5
	Sawpit OHV Road / Forest Road 2N30.2 (OHV)	Direct crossing	R-1, R-2, R-5
S6 MP 25.5 – 26.7	Van Tassel Truck Trail (OHV) / Forest Road 1N36 (OHV	Direct crossings (NP 25.5 and MP 26.7); adjacent to the ROW within 0.25 – 0.5 mile to the west (MP 25.5 – 26.7); SCE helicopter staging area #8 is adjacent at MP 26.0; Alt. 6 helicopter staging area #11 (same as SCE #8) is adjacent at S6 MP 26	R-1, R-5
	OHV road	Within 0.1 mile of the ROW to the west; Direct crossing at MP 26.3	R-1, R-5

Directly or indirectly disrupt or preclude activities in established federal, State, or local recreation areas or wilderness areas (Criterion REC1)

As with the proposed Project, Impact R-1 (Construction activities would restrict access to or disrupt activities within established recreational areas) would affect all recreational resources and areas that experience a "direct crossing" by the proposed Project. These areas would require temporary closure during construction activities and therefore, such areas would be temporarily restricted from use. Tables 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), and 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region) identify all recreational resources that would experience a direct crossing and therefore be subject to Impact R-1.

As with the proposed Project, recreational resources or opportunities may also be restricted from use if access roads or trails to such areas are blocked or restricted during construction activities. Although helicopter construction is expected to avoid the need to construct or improve some roads in the Forest, ground access would still be required to all pulling and stringing locations along the Project route, as well as to each of the thirteen ~~ten~~ identified helicopter staging areas. As with the proposed Project, Forest Road 2N25.1 (West Fork Bike Path) would be used for construction access, thus temporarily introducing Impact R-1 for recreational biking and fishing, particularly for persons with disabilities (please see description of these resources in Section 3.15.2.1 (Affected Environment: Regional Setting). Glenn Camp, which is located along the West Fork Bike Path approximately 3.75 miles east of Segment 6 MP 19.5, would also be affected by Impact R-1 due to increased traffic and noise near the camp. Similarly, the Pasadena Bait Club Cabin would also be subject to elevated noise and traffic conditions along Forest Road 2N25.1 (West Fork Bike Path) during the construction period. In addition, recreational hunting permitted in Zone D-11 would also be affected by Impact R-1 as a result of construction noise, traffic, and particularly road closures that would potentially restrict hunters from accessing certain areas of the ANF. With regards to the Project resulting in access restrictions that restrict hunters' movement through the Forest, there is not expected to be a notable difference Alternative 6 and the proposed Project.

However, in contrast with the proposed Project, the noise, dust, and visual impacts associated with helicopter use during construction may temporarily alter wildlife movement in the Forest, which would also have the potential to affect active hunting season(s) in Zone D-11. Recreational hunting would experience more of an impact from helicopter construction activities under Alternative 6 than from ground-based construction under Alternative 2.

Helicopter construction included under Alternative 6 would affect a broader range of recreational areas (Developed Recreation) and public recreationists (Dispersed Recreation) because, in addition to requiring use of the same roadways that would be used under Alternative 2 for access to pulling and stringing sites, Alternative 6 would also include helicopter traffic between staging areas and transmission tower sites, thereby introducing disturbance to recreational areas and resources that would not be affected by road use alone. Such disturbance would result from factors that are inherent to the use of helicopters, including visual prominence, increased emissions (compared with ground construction), and operational noise. Four of the thirteen~~ten~~ identified helicopter staging areas (including Sites 3, 4, 7, and 10) are located more than one-half mile away from the transmission line route and helicopter flight paths associated with use of these sites would traverse up to 2.5 miles of Forest System lands that are managed for Developed and/or Dispersed Recreation. Specific flight paths are not known at this time and will be determined based upon a variety of factors, including final engineering and weather conditions during the construction period. It is expected that recreational activities within established recreation areas located between the helicopter staging areas and transmission tower sites (which may be located up to 2.5 miles from a staging area) would be disrupted during helicopter use, particularly as related to the enjoyment of wilderness, solitude, and a natural outdoor environment (Dispersed Recreation).

Impact R-1 for Alternative 6 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

The mitigation measures listed above would help to reduce the disruption of activities in established recreation areas to the maximum extent possible. As discussed, Impact R-1 of Alternative 6 would affect a broader range of recreation areas (Developed Recreation) and public recreationists (Dispersed Recreation) as a result of flight patterns that extend up to 2.5 miles between helicopter staging areas and transmission tower sites. However, as with the proposed Project, the duration of Impact R-1 would be temporary in nature and would not extend beyond the construction period. Therefore, with implementation of the mitigation measures listed above, Impact R-1 of Alternative 6 would be less than significant (Class II).

Impact R-2 (Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 6 as it would for the proposed Project (please see Section 3.15.6.1). Although Alternative 6 includes the use of helicopters during the construction period, operation and maintenance activities required under Alternative 6 would be the same as required under the proposed Project. As described in Section 3.15.6.1, Impact R-2 would occur if operation and maintenance activities result in recreational resources or opportunities being made

unavailable, particularly as a result of road and/or trail closures that are applied to provide access for vehicles and/or equipment to Project infrastructure. Impact R-2 would also occur if operation and maintenance activities disrupt activities within existing recreational resources or areas. Impact R-2 for Alternative 6 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes); and
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)).

Mitigation Measure R-1c is similar to Applicant-Proposed Measures (APMs) REC-1 (Temporary Closures) and REC-2 (Closure Notices) and would reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. The implementation of these mitigation measures would reduce Impact R-2 for Alternative 6 to a less-than-significant level (Class II).

No further impacts would be introduced by Alternative 6 under Criterion REC1. As mentioned, please see Section 3.15.6.1 for a detailed description of the impacts and mitigation measures listed above, including specific recreational or wilderness resources that could potentially be affected.

Substantially contribute to the long-term loss or degradation of the factors that contribute to the value of federal, State, local, or private recreational facilities or wilderness areas (Criterion REC2)

Impact R-3 (Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136)) would occur under Alternative 6 as a result of the close proximity of Project construction, operation, and maintenance activities to the San Gabriel WA, where the alignment of Segment 6 would be adjacent to the WA for approximately 0.8 mile, from MP 18.0 to MP 18.8. As previously described and in accordance with the federal Wilderness Act (please see Section 3.15.2.1 for a detailed discussion), the San Gabriel WA is designated by Congress for having the following four primary characteristics: (1) a natural and undisturbed landscape; (2) extensive opportunities for solitude and unconfined recreation; (3) at least 5,000 contiguous acres; and (4) feature(s) of scientific, educational, scenic, and/or historic value. The use of helicopters during construction of Alternative 6 would particularly contribute to the degradation of the San Gabriel WA's characteristic of solitude and unconfined recreation. Helicopter construction activities would also occur under the proposed Project, but helicopter use would be more extensive under Alternative 6, which includes 148~~3~~ helicopter-constructed transmission towers, in comparison with the proposed Project's 33 helicopter-constructed transmission towers. Therefore, it is expected that the use of helicopters during construction of Alternative 6 would have a more substantial contribution to the degradation of solitude and unconfined recreation in the San Gabriel WA.

As previously described, the southwestern portion of the San Gabriel WA (the area that would be affected by Impact R-3) is characterized by extremely rugged terrain and is not highly used by public recreationists. However, for the recreationists that do visit this portion of the WA, the experience of solitude and unconfined recreation is of a higher quality than in other portions of the WA that are more highly used by the public. All helicopter activities would be conducted in coordination with the USDA

Forest Service and all other applicable agencies/parties, including but not limited to the following: the Federal Aviation Administration (FAA), the National Oceanic and Atmospheric Administration (NOAA), military authorities, and local pilots. This coordination would help to avoid degradation of solitude and unconfined recreation resulting from helicopter construction. In addition, all helicopter activities would occur in compliance with the ANF's Wilderness Management Manual. As stated in this Wilderness Manual, flights are "discouraged" over wilderness within 2,000 feet of the ground surface, except in emergencies. (USDA Forest Service, 2007f)

Because helicopter activities included under Alternative 6 are more extensive than those under Alternative 2, the potential to affect WAs is more substantial for Alternative 6 and implementation of Mitigation Measure L-2b (Aircraft flight path and safety provisions and consultations), as described in Section 3.9 (Land Use), would be required in order to ensure that all appropriate agencies are consulted with prior to the onset of helicopter operations. Although visitation to the southwestern portion of the San Gabriel WA is low due to limited access and rugged terrain, Impact R-3 would substantially reduce the experience of solitude and unconfined recreation that would otherwise be experienced by public recreationists in the southwestern portion of San Gabriel WA as a direct result of the use of helicopters during the construction period. However, the significance of Impact R-3 under Alternative 6 is directly related to the use of helicopters during the construction period, which would be temporary. Therefore, with implementation of Mitigation Measure L-2b (as described in Section 3.9), this impact would be reduced to a less-than-significant level (Class II).

Impact R-4 (The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT)) would occur under Alternative 6 if construction or operation and maintenance activities result in the loss or degradation of physical aspects of the PCT, or if such activities result in the loss or degradation of the pristine backcountry experience that recreationists using the PCT expect to have. As described in Section 3.15.6 for the proposed Project, and similar to Impact R-1 under Alternative 6, aesthetics and noise both contribute to the pristine backcountry experience of the PCT; visual and noise aspects of Alternative 6 are only discussed here in terms of their contributions to wilderness and recreation, not in terms of specific visual and noise impacts that would be introduced by Alternative 6 (please see Sections 3.10 and 3.14 for identification and discussion of specific Project-related impacts to Noise and Visual Resources, respectively). The discussion provided above for Impact R-1 of Alternative 6 describes that certain factors associated with helicopter use, such as aesthetics, emissions, and noise, would result in a more substantial effect on recreational resources and public recreationists than would ground-based construction. Similarly, helicopter construction in the vicinity of the PCT would have a larger contribution to the degradation of the pristine backcountry experience than would ground-based construction activities. Because the Alternative 6 alignment would be the same as the proposed Project alignment, Alternative 6 would traverse the PCT in the following three locations: Segment 4 MP 2.7 (North Region), Segment 11 MP 7.6 (Central Region), and Segment 6 MP 7.3 (Central Region). Impact R-4 would occur at each of these three crossings.

For the North Region crossing (S4 MP 2.7), Impact R-4 would be exactly the same under Alternative 6 as under the proposed Project. In the Central Region, locations where the Alternative 6 transmission line traverses the PCT (S11 MP 7.6 and S6 MP 7.3) are the same as the proposed Project, but Alternative 6 would result in a more substantial effect from Impact R-4 as a result of the use of helicopters during the construction period. Under Alternative 6, SCE's helicopter staging area #1 would not be utilized; however, the Alternative 6 helicopter staging area #4, which is located approximately 1.7 miles west of S11 MP 7.8, is also approximately 0.1 mile south of the PCT and would therefore introduce helicopter-

related disturbances, particularly through noise, to recreationists along this portion of the PCT. This noise-related disturbance would be temporary and would not extend beyond the construction period. Impact R-4 for Alternative 6 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

Although helicopter construction activities would result in more substantial degradation of the pristine backcountry experience associated with the PCT, this impact would be temporary in nature and would not extend beyond the duration of the construction period. With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Alternative 6 would be less than significant (Class II).

Impact R-5 (The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas or would result in a loss of recreational opportunity for OHV users) would occur if existing OHV routes or designated OHV areas are permanently removed from use as a result of Project activities. Construction or operation and maintenance activities associated with Alternative 6 could result in the long-term loss or degradation of OHV routes if such activities would require that OHV routes or trails be repeatedly and/or frequently closed due to maintenance activities, or if OHV routes are permanently closed or altered as a result of the Project. As previously discussed, the use of helicopters for construction of Alternative 6 would avoid the need to upgrade or construct certain roadways. However, Alternative 6 would require ground access to the same pulling and stringing sites as the proposed Project and therefore, Alternative 6 would still require road upgrades in the Central Region, where helicopter construction would occur. It is expected that Alternative 6 would avoid the need to construct or upgrade certain spur roads in the Central Region; however, spur roads connect access roads directly to transmission towers and do not provide opportunities for OHV recreationists. Therefore, Impact R-5 under Alternative 6 would be exactly the same as under the proposed Project. With implementation of Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads), Impact R-5 of Alternative 6 would be less than significant (Class II).

Impact R-6 (The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities) would be slightly less substantial under Alternative 6 than under the proposed Project (please see Section 3.15.6.1) because fewer spur roads would need to be installed and/or improved within the ANF. As described in Section 3.15.6.1, Impact R-6 would occur if Project activities result in unauthorized or unmanaged recreational activities, particularly through the improvement of existing roads and installation of new roads that could provide access to areas that were not previously accessible by roads. As a result, these new and improved roads could potentially be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes, such as OHV use in restricted Forest (ANF) areas. In addition, some recreational resources may become temporarily inaccessible during construction and/or maintenance and operation of the transmission line, which could potentially result in unmanaged recreational uses, as recreationists seek alternative or comparable recreational resources to those which are made unavailable. As previously discussed, the use of helicopters for construction of Alternative 6 would avoid the need to install or improve spur roads to transmission towers that would be constructed by helicopter. Although ground

access to the same pulling and stringing sites as the proposed Project would still be required, Alternative 6 would require fewer spur road installations, as more towers would be constructed via helicopter. However, considering the large size of the Project Area and the road improvements that would occur throughout the Project Area, Alternative 6 would still require mitigation for Impact R-6. Therefore, with implementation of Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads), Impact R-6 of Alternative 6 would be less than significant (Class II).

3.15.10.2 Cumulative Effects Analysis

Impacts associated with Alternative 6 would be cumulatively considerable if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The use of helicopters during construction of Alternative 6 would result in disturbance of recreational areas and resources that would not occur with ground-based construction; however, such impacts would be temporary in nature and would not affect the contribution of Alternative 6 to cumulative wilderness and recreation impacts. Therefore, cumulative impacts of Alternative 6 would be exactly the same as cumulative impacts for the proposed Project, as summarized in Table 3.15-32 (Cumulative Impacts for Wilderness and Recreation – Alternative 2) and described in detail in Section 3.15.6.2.

Each of the six wilderness and recreation impacts identified in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2) would be cumulatively considerable, in that each impact would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects.

The following wilderness and recreation impacts of Alternative 6 would be ~~cumulatively considerable but~~ less than significant (Class III):

- **Impact R-2:** Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas;
- **Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136); and
- **Impact R-5:** The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.

Additionally, and as with the proposed Project, the following wilderness and recreation impacts of Alternative 6 would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that are expected to be significant and unavoidable (Class I):

- **Impact R-1:** Construction activities would restrict access to or disrupt activities within established recreational areas;
- ~~**Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136);~~
- **Impact R-4:** The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT); and
- **Impact R-6:** The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

As the cumulative wilderness and recreation impacts of Alternative 6 would be the same as those of the proposed Project, please see Section 3.15.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 6 in Section 3.15.10.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for recreational and wilderness resources.

3.15.11 Alternative 7: 66-kV Subtransmission Alternative

This section describes the wilderness and recreation impacts of Alternative 7 (66-kV Subtransmission Alternative), as determined by the significance criteria listed in Section 3.15.4.1 (Criteria for Determining Impact Significance). Mitigation measures are introduced where necessary in order to reduce significant impacts to less-than-significant levels.

The 500-kV transmission line associated with Alternative 7 would follow the same route as the proposed Project through the North, Central, and South Regions. However, in comparison with the proposed Project, the 66-kV subtransmission line associated with Alternative 7 would be re-routed and/or re-configured along several portions of the Project in the South Region. ~~Along Segment 7, the 66-kV subtransmission line would be installed underground from MP 8.9 – 9.9, and from MP 11.4 – 12.03 it would be installed underground as well as re-routed around the north portion of Whittier Narrows. Along Segment 8A, the 66-kV subtransmission line would be re-routed around the southern portion of Whittier Narrows in existing city streets and installed above-ground.~~ As described in Section 3.15.2.7, the Affected Environment for wilderness and recreation is the same for Alternative 7 as it is for the proposed Project. Re-routing and/or re-configuration activities proposed for the subtransmission line under Alternative 7 does not introduce any new wilderness or recreation resources to the Affected Environment that were not included in the Affected Environment for the proposed Project.

3.15.11.1 Direct and Indirect Effects Analysis

The significance criteria used to identify impacts to wilderness and recreation resources are introduced in Section 3.15.4.1 (Criteria for Determining Impact Significance). All wilderness and recreation impacts that would occur under the proposed Project would also occur under Alternative 7, with the exception that Project impacts would be minimized along the portion of Segment 7 where the River Commons at the Duck Farm Project is located within the Project ROW from MP 8.9 – 10.5, as described below.

Because the 500-kV transmission line route for Alternative 7 would follow the exact same route as the proposed Project, the vast majority of wilderness and recreation impacts associated with Alternative 7 would be exactly the same as the proposed Project. As such, all recreational resources and applicable impacts are listed in the proposed Project tables, as follows: 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), and 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region).

Although Alternative 7 would re-route and/or re-configure some portions of the 66-kV subtransmission line in the South Region, no new recreational or wilderness resources would be introduced as a result of the re-routed and/or re-configured subtransmission line. However, wilderness and recreation impacts associated with the River Commons at the Duck Farm Project, which is identified as being affected under the proposed Project, would be minimized under Alternative 7. With the exception of the Duck Farm Project, wilderness and recreation impacts that would occur under Alternative 7 would be exactly the

same as for the proposed Project (as described in Section 3.15.6.1, Direct and Indirect Effects Analysis: Alternative 2). Additionally, features of the underground segment, including access shafts and aboveground infrastructure, would not introduce any new impacts to recreational resources included under Alternative 7. Therefore, facilities and infrastructure associated with transitioning the line between its overhead and underground alignments would not affect existing recreational resources identified within one-half mile of Alternative 7.

Wilderness and recreation impacts associated with Alternative 7 are discussed below under the applicable significance criteria, and described in full detail in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2).

Directly or indirectly disrupt or preclude activities within established federal, State, or local recreation areas or wilderness areas (Criterion REC1)

Impact R-1 (Construction activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 7 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, Impact R-1 would occur in recreational areas which would experience a "direct crossing" by the proposed Project because these areas would require temporary closure during construction activities and therefore, such areas would be temporarily restricted from use. For the Duck Farm Project, which is located within the Project ROW along Segment 7 from approximately MP 8.9 – 10.5, Impact R-1 would be the same under Alternative 7 as it would under the proposed Project. The specific construction activities involved with installing the 66-kV subtransmission line underground would be different than required to re-locate the aboveground poles, as under the proposed Project. However, construction activities under both alternatives would restrict access to the Duck Farm Project area and would preclude the area from use during the construction period. Therefore, Impact R-1 would be the same under Alternative 7 as under the proposed Project. Impact R-1 for Alternative 7 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-1 of Alternative 7 would be less than significant (Class II).

Impact R-2 (Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas) would be the same under Alternative 7 as it would under the proposed Project (please see Section 3.15.6.1) for all wilderness and recreation resources identified within the Affected Environment except for the Duck Farm Project along Segment 7. As described in Section 3.15.6.1, Impact R-2 would occur if operation and maintenance activities result in recreational resources or opportunities being made unavailable, particularly as a result of road and/or trail closures that are applied to provide access for vehicles and/or equipment to Project infrastructure. Impact R-2 would also occur if operation and maintenance activities disrupt activities within existing recreational resources or areas. For Alternative 7, all resources included in the Affected Environment for the proposed Project

would be affected by Impact R-2 in the exact same way as the proposed Project, with the exception of the Woodland Duck Farm Project. Under Alternative 7, the planned Duck Farm Project would not experience the same long-term effects as under the proposed Project because the 66-kV subtransmission line would be installed underground through the portion of the ROW that would be occupied by the planned Duck Farm Project. It is possible that operation and maintenance activities under Alternative 7 could be more disruptive than would overhead subtransmission infrastructure, if the underground infrastructure needs to be removed in the future, thus necessitating excavation of the area. However, assuming that future removal would not be necessary, operation and maintenance of the underground subtransmission line would be less disruptive to the Duck Farm Project than if the subtransmission infrastructure were overhead. Impact R-2 for Alternative 7 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas);
- R-1b (Identify and provide noticing of alternative recreation areas);
- R-1c (Notification of temporary closure of OHV routes); and
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)).

As described for Impact R-1, Mitigation Measure R-1c is similar to Applicant-Proposed Measures (APMs) REC-1 (Temporary Closures) and REC-2 (Closure Notices) and would reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. The implementation of these mitigation measures would reduce Impact R-2 for Alternative 7 to a less-than-significant level (Class II).

No further impacts would be introduced by Alternative 7 under Criterion REC1. As mentioned, please see Section 3.15.6.1 for a detailed description of the impacts and mitigation measures listed above, including specific recreational or wilderness resources that could potentially be affected.

Substantially contribute to the long-term loss or degradation of the factors that contribute to the value of federal, State, local, or private recreational facilities or wilderness areas (Criterion REC2)

Impacts associated with Criterion REC2 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project. As described above, although this alternative would re-route and/or re-configure several portions of the proposed 66-kV subtransmission line in the South Region, no new resources would be affected. Impacts of Alternative 7 that would apply to recreational resources under Criterion REC2 would be the same as the proposed Project and as such, Tables 3.15-29 (Wilderness and Recreation Impacts Applicable to Resources in the North Region), 3.15-30 (Wilderness and Recreation Impacts Applicable to Developed Resources in the Central Region), and 3.15-31 (Wilderness and Recreation Impacts Applicable to Resources in the South Region) reflect the resources that could potentially be affected by impacts of this alternative.

Impact R-3 (Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136)) would be exactly the same for Alternative 7 as it would for the proposed Project; no changes to the transmission line alignment or infrastructure would occur in the vicinity of the San Gabriel WA and no other WAs would be situated within one-half mile of the proposed route for Alternative 7. Construction, operation, and maintenance of Alternative 7 would cause or contribute to degradation of the “solitude and unconfined recreation”

characteristic of the San Gabriel WA. Impact R-3 for Alternative 7 would be less than significant with no mitigation required (Class III).

Impact R-4 (The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT)) would be exactly the same for Alternative 7 as it would for the proposed Project. Accordingly, Alternative 7 would traverse the PCT in the following three locations: Segment 4 MP 2.7 (North Region), Segment 11 MP 7.6 (Central Region), and Segment 6 MP 7.3 (Central Region). As described in Section 3.15.6.1, this impact addresses the potential loss or degradation to physical aspects of the PCT as well as the potential loss or degradation of the pristine backcountry experience that recreationists using the PCT expect to have. Impact R-4 for Alternative 7 would require implementation of the following mitigation measures, which are fully described in Section 3.15.6.1:

- R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas);
- R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)); and
- R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project~~assist in the completion of backlogged maintenance activities in the ANF~~).

With implementation of the mitigation measures listed above and described in detail in Section 3.15.6.1, Impact R-4 of Alternative 7 would be less than significant (Class II).

Impact R-5 (The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas or would result in a loss of recreational opportunity for OHV users) would be the same under Alternative 7 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, this impact could occur if Project activities would require that OHV roads or trails be repeatedly and frequently closed due to maintenance activities, or permanently closed or altered due to operational activities. As with the proposed Project, no Open Riding Areas are situated in the Project Study Area for Alternative 7. With implementation of Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) Impact R-5 of Alternative 7 would be less than significant (Class II).

Impact R-6 (The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities) would be the same under Alternative 7 as it would for the proposed Project (please see Section 3.15.6.1). As described in Section 3.15.6.1, Impact R-6 would occur if Project activities result in unauthorized or unmanaged recreational activities. For instance, improvement of existing roads and installation of new roads could provide access to areas that were not previously accessible by roads. As a result, these new and improved roads could potentially be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes, such as OHV use in restricted Forest (ANF) areas. In addition, some recreational resources may become temporarily inaccessible during construction and/or maintenance of the proposed transmission line, which could potentially result in unmanaged recreational uses, as recreationists seek alternative or comparable recreational resources to those which are made unavailable. With implementation of Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads) Impact R-6 of Alternative 7 would be less than significant (Class II).

3.15.11.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 7 (66-kV Subtransmission Alternative). Under this alternative, several portions of the 66-kV subtransmission line in the South Region would be re-aligned and/or re-configured. All other portions of this alternative would be identical to the proposed Project and would result in identical wilderness and

recreation impacts as the proposed Project. The contribution of Alternative 7 to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

The only aspect of Alternative 7 that would differ from the proposed Project is the 66-kV subtransmission line and therefore, the geographic extent of cumulative analysis for Alternative 7 would be exactly the same as the proposed Project and includes all of the North, Central, and South Regions.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 7 are exactly the same as for the proposed Project (please see Section 3.15.6.2, Alternative 2: Cumulative Effects Analysis).

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 7 would be exactly the same as the proposed Project (please see Section 3.15.6.2).

Cumulative Impact Analysis

Impacts associated with Alternative 7 would be cumulatively considerable if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The re-aligned and/or re-configured portions of the Alternative 7 66-kV subtransmission line in the South Region would not affect the Project's contribution to cumulative wilderness and recreation impacts and therefore, cumulative impacts of Alternative 7 would be exactly the same as cumulative impacts for the proposed Project, as summarized in Table 3.15-32 (Cumulative Impacts for Wilderness and Recreation – Alternative 2) and described in detail in Section 3.15.6.2.

As with the proposed Project, each of the six wilderness and recreation impacts identified in Section 3.15.6.1 (Direct and Indirect Effects Analysis: Alternative 2) would be cumulatively considerable, in that each impact would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The following wilderness and recreation impacts of Alternative 7 would be ~~cumulatively considerable but~~ less than significant (Class III):

- **Impact R-2:** Operation and maintenance activities would restrict access to or disrupt activities within established recreational areas;
- **Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136); and
- **Impact R-5:** The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.

Additionally, and as with the proposed Project, the following wilderness and recreation impacts of Alternative 7 would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that are expected to be significant and unavoidable (Class I):

- **Impact R-1:** Construction activities would restrict access to or disrupt activities within established recreational areas;
- ~~**Impact R-3:** Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136);~~

- **Impact R-4:** The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT); and
- **Impact R-6:** The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

As the cumulative wilderness and recreation impacts of Alternative 7 would be the same as those of the proposed Project, please see Section 3.15.6.2 for a full description of these effects.

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 7 in Section 3.15.11.1 (Direct and Indirect Effects Analysis) would help to reduce this alternative's incremental contribution to cumulative impacts. However, no additional mitigation measures have been identified that would reduce cumulative impacts to a less-than-significant level for recreational and wilderness resources.

3.15.12 Impact Significance Summary

Table 3.15-40 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on wilderness and recreation. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.15.6 through 3.15.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.15.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Table 3.15-40. Summary of Impacts and Mitigation Measures – Wilderness and Recreation

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
R-1: Construction activities would restrict access to or disrupt activities within established recreational areas.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	R-1a: Coordinate construction schedule and maintenance activities with managing officer/s for affected recreation areas. R-1b: Identify and provide noticing of alternative recreation areas. R-1c: Notification of temporary closure of OHV routes. R-1d: Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail. R-1e: SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project.~~assist in the completion of backlogged maintenance activities in the ANF.~~

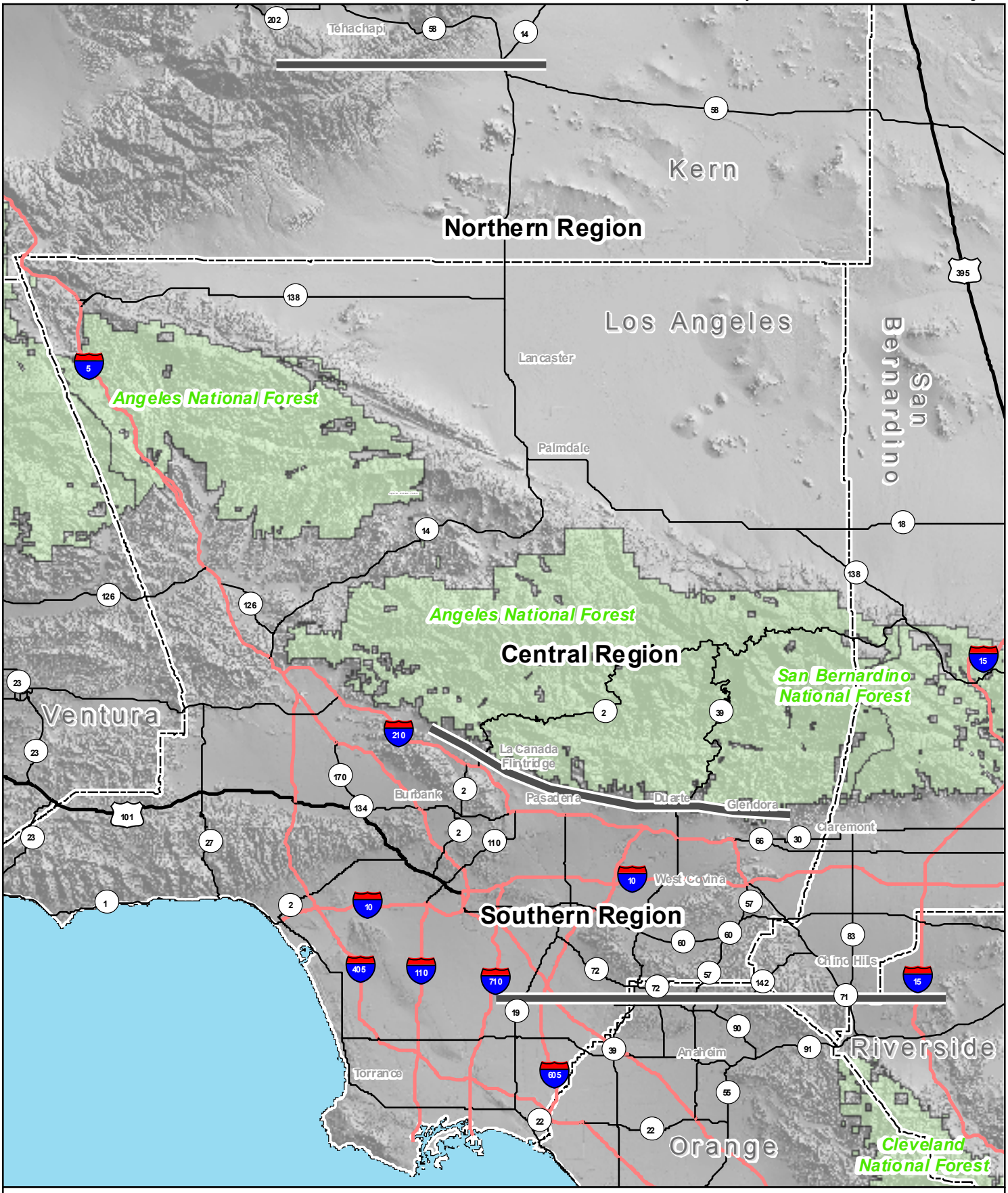
Table 3.15-40. Summary of Impacts and Mitigation Measures – Wilderness and Recreation

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
R-2: Operational and maintenance activities would restrict access to or disrupt activities within established recreational areas.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	R-1a ~~(see Impact R-1)~~ R-1b ~~(see Impact R-1)~~ R-1c ~~(see Impact R-1)~~ R-1d ~~(see Impact R-1)~~
R-3: Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act.	N/A	Class III	Class III	Class III	Class III	Class II	Class III	Yes	L-2b: Aircraft flight path and safety provisions and consultation. (See Section 3.9. Land Use)
R-4: The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	R-1a ~~(see Impact R-1)~~ R-1d ~~(see Impact R-1)~~ R-1e ~~(see Impact R-1)~~
R-5: The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	R-5: Avoid permanent upgrades to Forest System roads.
R-6: The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	R-5 ~~(see Impact R-5).~~

N/A = Not Available

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.



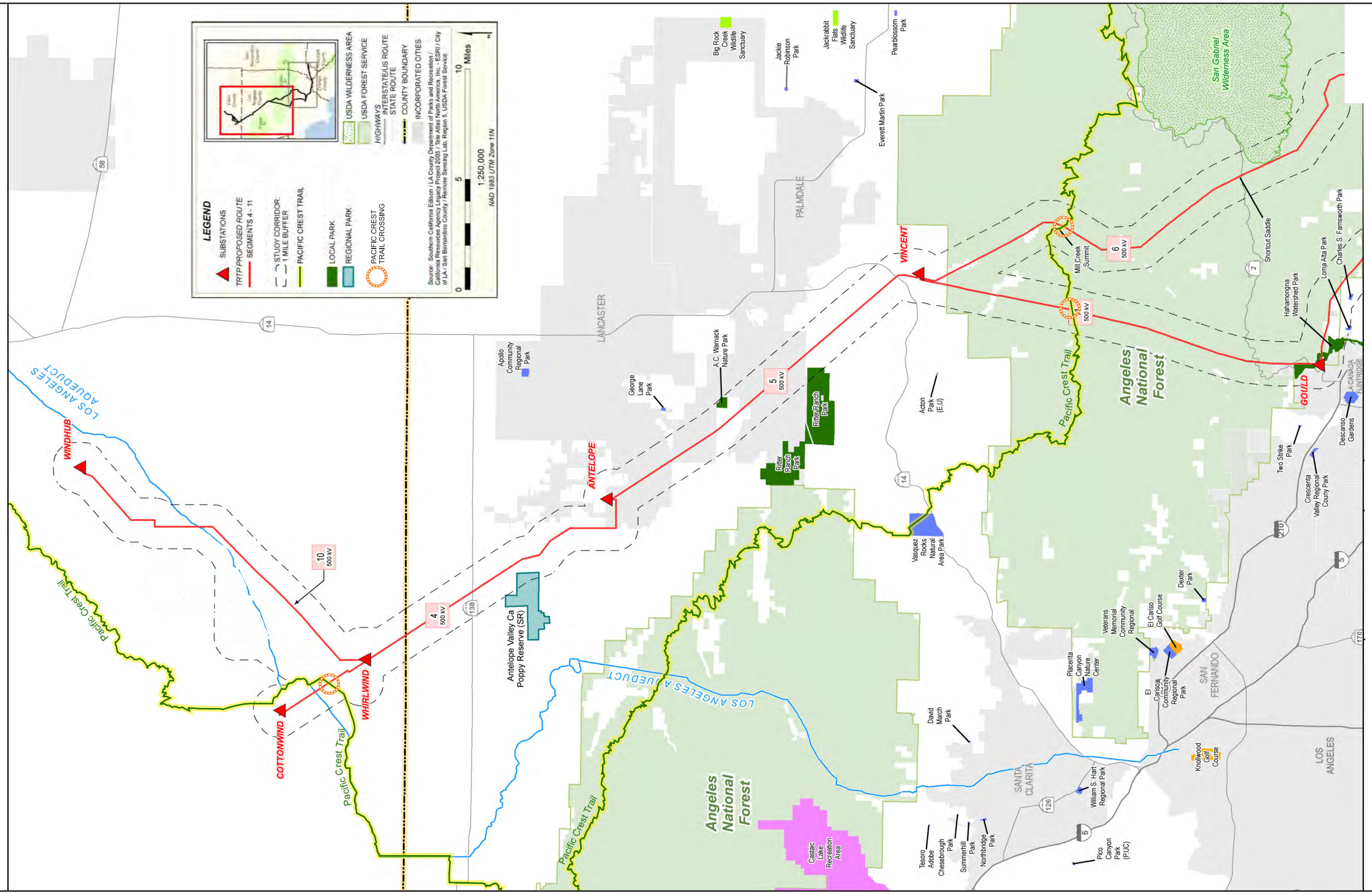
Aspen Environmental Group

SCE, 2007,
USDA Forest Service, 2007

0 2.5 5 10 15 20 Miles

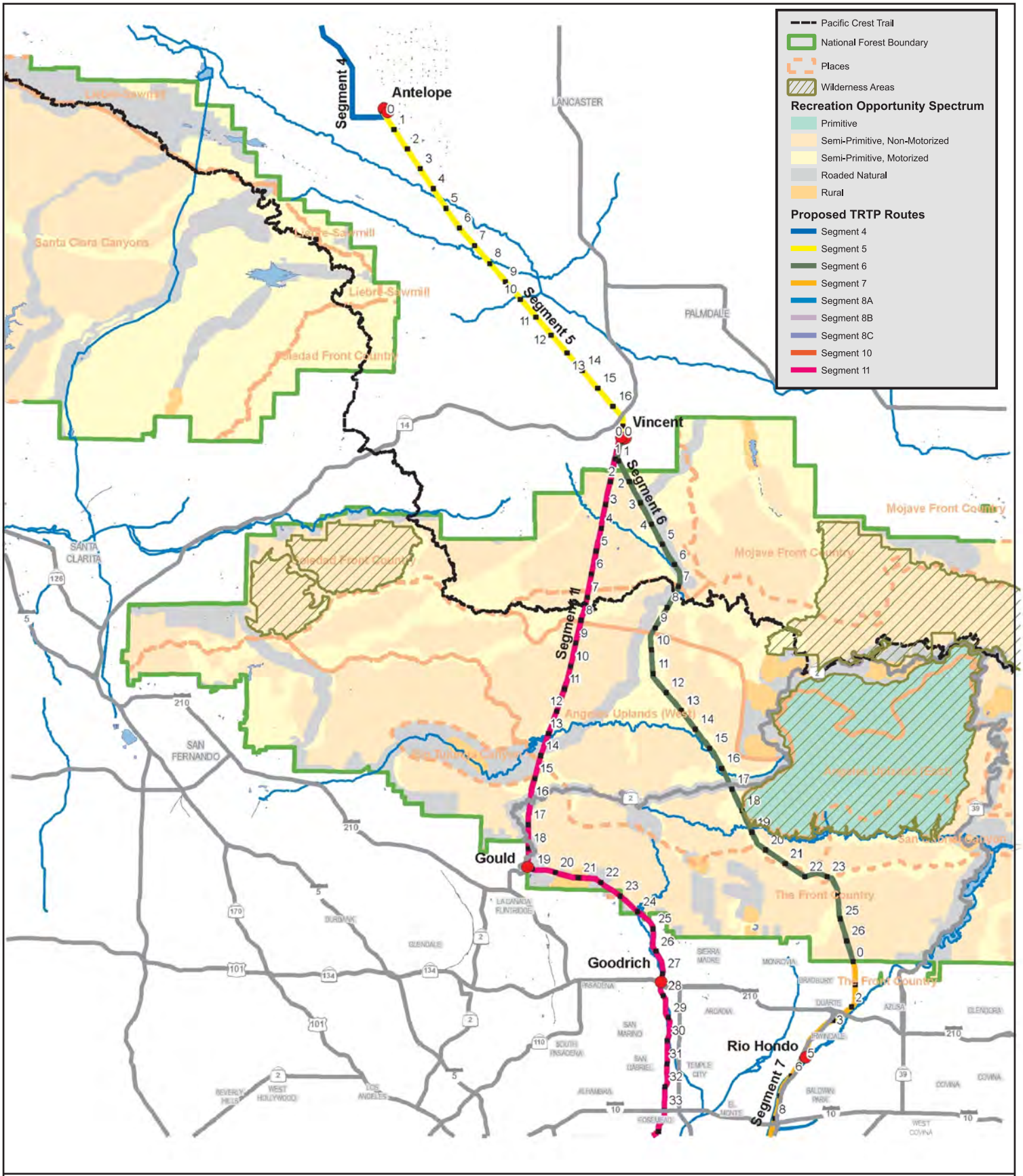
Figure 3.15-1

Wilderness and Recreation Study Area



Source: SCE, 2007.

Figure 3.15-2
Pacific Crest National Scenic Trail Crossings in the North and Central Regions

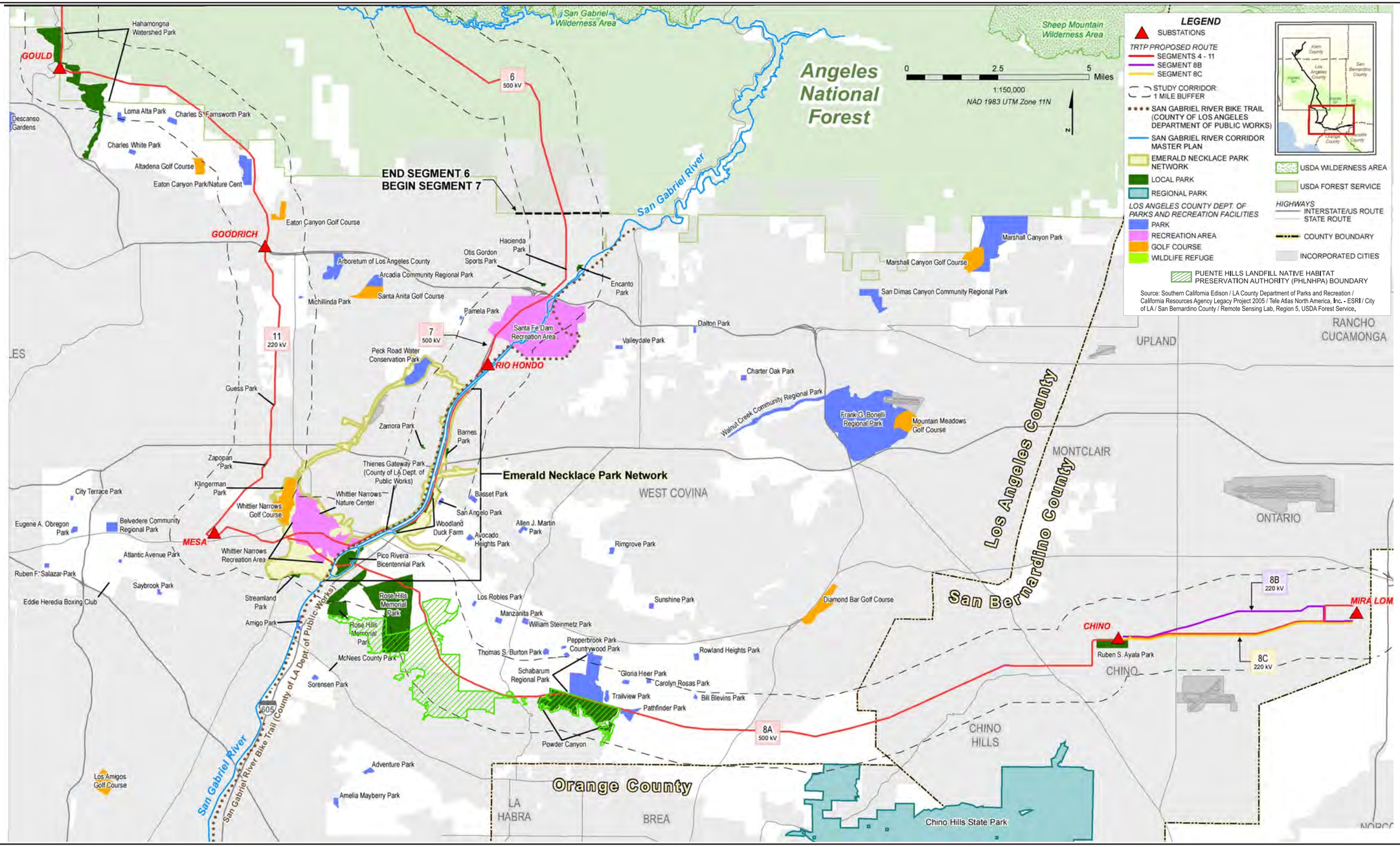


1:280,000

0 1.25 2.5 5 7.5 10 Miles

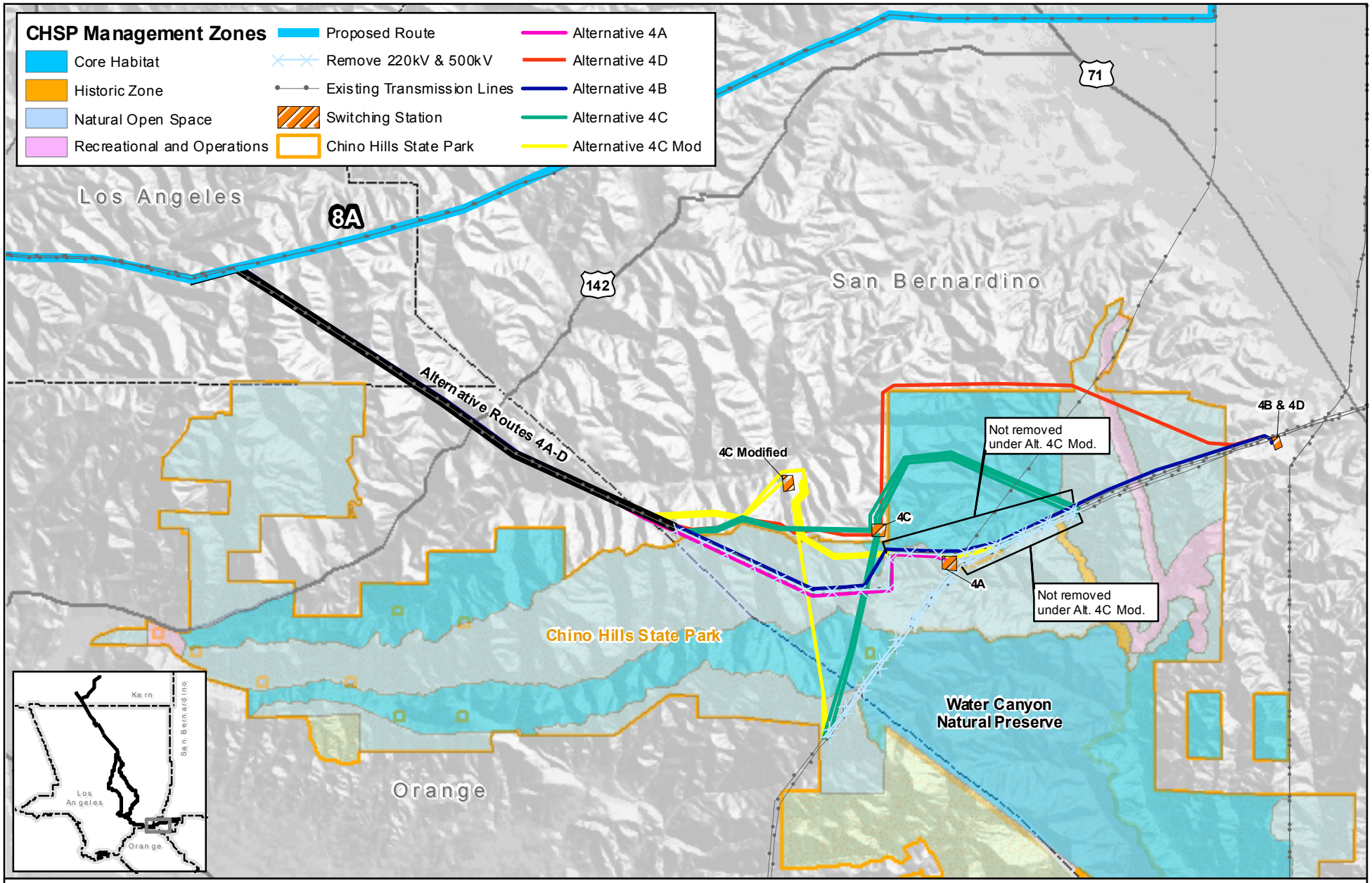
Figure 3.15-3 (Revised)

Recreation Opportunity Spectrum (ROS) Objectives and Wilderness Areas in the Central Region



Source: SCE, 2007.

Figure 3.15-4 (Revised)
Recreational Resources in the South Region



Aspen Environmental Group

1" = 1 miles

1:63,360

0 0.5 1 2 Miles

Figure 3.15-5 (New)

Chino Hills State Park Management Zones

3.16 Wildfire Prevention and Suppression

3.16.1 Introduction

This section describes effects on wildfire prevention and suppression that would be caused by implementation of the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to wildfire prevention and suppression are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following issues related to wildfire prevention and suppression that were raised during scoping are addressed in this section:

- No smoking allowed on the PHLNHPA properties. Coordination with fire rangers on fire prevention measures.
- Towers affect the ability of firefighters to use "air power" to fight fires. Placing higher towers along the corridor will make it more restrictive for aerial firefighting.
- Transmission lines pose a fire and safety hazard near homes and in the Angeles National Forest (ANF).
- The upgraded and/or new transmission lines may have an impact on Los Angeles County Fire Department Facilities and existing structures within 100 feet of drip lines. All new electrical structures and supply cables within Consolidated Fire Protection District shall be in compliance with Title 32 of the County code.

Summary and Comparison of Alternatives

Table 3.16-1 on the following page presents some key factors related to wildfire prevention and suppression for each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.16-1 are not impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.16.4.1 (Criteria for Determining Impact Significance), are described in Sections 3.16.5 through 3.16.11.

3.16.2 Affected Environment

The fire and fuels management study area is delimited for the purposes of this report by two, unique wildfire risk areas: the high fire risk Tehachapi Fireshed, and the low fire risk Project areas. The Tehachapi Fireshed, shown in Figure 3.16-1 (at the end of this section), is defined as the areas that:

- Have experienced multiple, large fires (at least 300 acres in extent) over a 50-year history (up to and including 2006),
- Are generally categorized as being located in High or Very High Fire Hazard Severity Zones as defined by Cal Fire,
- Contain surface fuels capable of carrying a large wildfire, and
- Are within the Santa Ana wind influence area in relation to potential ignitions from the proposed Project or alternatives.

Table 3.16-1. Summary Comparison of Environmental Issues – Wildfire Prevention and Suppression

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
Construction and/or maintenance activities would reduce the effectiveness of firefighting (Impact F-1)	Construction of a T/L in place of TRTP could interfere with emergency response vehicles during the construction phase through wildland areas with high-risk fuels.	Interference with emergency response vehicles during the construction phase through the ANF and Puente Hills Landfill Natural Habitat Authority (PHLNHPA) lands.	Same as Alternative 2.	Increased number of narrow, unpaved wildland access roads that would be potentially obstructed by emergency service vehicles in the event of a wildfire in Chino Hills State Park (CHSP).	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting (Impact F-2)	Presence of a T/L in place of TRTP in a new corridor could substantially increase the obstruction to firefighting operations.	Increased height of transmission structures in existing corridors along several segments, creating a marginal increased burden on aerial firefighting operations.	Same as Alternative 2.	Increased height of transmission structures in existing corridors along several segments, and increased length of new linear firefighting obstacles on the landscape, creating an increased burden on aerial firefighting operations.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Construction and/or maintenance activities would increase the risk of wildfire (Impact F-3)	Construction of a T/L in place of TRTP in a new corridor could substantially increase the risk of ignitions.	Wildfire ignition risks during the construction phase through wildland areas with high-risk fuels.	Same as Alternative 2.	Increased ~~transmission line increase~~transmission infrastructure through the high-risk Tehachapi Fireshed, thereby increasing the potential for construction and operational ignitions. Mileage of ~~transmission line~~new or expanded ROW increase: Alternative 4A ~~–~~ 6.2 ~~2.3~~ miles; Alternative 4B ~~–~~ 9.7 ~~4.5~~ miles; Alternative 4C ~~–~~ 9.3 ~~5.6~~ miles; Alternative 4C Modified 8.3 Alternative 4D – ~~5.2~~ 9.8 miles.	Same as Alternative 2.	Reduced construction-related ignitions compared with Alternative 2.	Same as Alternative 2.

Table 3.16-1. Summary Comparison of Environmental Issues – Wildfire Prevention and Suppression

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
				Alternative 4D would also add new linear element to a high-risk fuel-laden landscape that, in combination with other transmission lines, would create an indefensible space of approximately 2,000 acres. This would increase potential interference with fire suppression efforts.			
Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire (Impact F-4)	Construction and maintenance of a T/L in place of TRTP would have a similar risk of personnel injury or death of constructed through wildland areas with high-risk fuels and limited ingress/egress.	Increased risk of personnel injury or death due to presence of personnel in access-limited wildlands that are highly susceptible to wildfire.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2 after implementation of additional mitigation measures.	Same as Alternative 2.
Presence of the overhead transmission line would increase the risk of wildfire (Impact F-5)	Presence of a T/L in place of TRTP would have a similar risk of long-term ignitions if constructed through high-risk fuels for a similar length.	Same risk of igniting fire in fire-prone areas of route as existing T/L the Project would replace.	Same as Alternative 2.	Would incrementally increase risk of igniting wildfire in Chino Hills and CHSP.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Impact F-6)	Construction of a T/L in place of TRTP through wildland areas could have similar effects on fire behavior resulting from the introduction of non-native plants.	Introduces non-native plants, which would contribute to a change in fuel characteristics and fire behavior that could worsen the effects of fire.	Same as Alternative 2.	Introduces incrementally more non-native plants than Alt. 2, which would contribute to a change in fuel characteristics and fire behavior that could worsen the effects of fire.	Same as Alternative 2.	Introduces incrementally fewer non-native plants than Alt. 2 as a result of fewer roads (approx. 42 miles less) being constructed.	Same as Alternative 2.

Firesheds are conceptually analogous to watersheds. An ignition that escapes containment at the top of the fireshed could spread to the limits of the fireshed under extreme weather conditions. Furthermore, an individual fireshed encompasses areas with similar fire risk and where a similar prevention and response strategy could influence the wildfire outcome. The Tehachapi Fireshed encompasses portions of Los Angeles, San Bernardino, Orange, and Ventura Counties. Although neither the proposed Project nor any alternatives would be located in Ventura County, the Tehachapi Fireshed encompasses a portion of this county because it is located within the wildfire influence area of the proposed Project, and wildfires that occur in any portion of the fireshed could spread to any other downwind portion of the fireshed.

The low fire risk Project areas include the proposed Project and alternatives ROWs, construction laydown areas, pull sites, and any other areas where Project-related personnel are active or equipment is in use or stored outside of the Tehachapi Fireshed boundary. Low fire risk Project areas do not have sufficient fuels to carry a large fire and are considered low risk from a wildfire prevention and suppression perspective. The low fire risk Project areas are shown in Figure 3.16-1 (at the end of this section), and include portions of Kern, Los Angeles, and San Bernardino Counties.

Cal Fire's Fire and Resource Assessment Program (FRAP) assesses the amount and extent of California's forests and rangelands, analyzes their conditions, and identifies alternative management and policy guidelines. The FRAP has allowed for the collection of spatial data on wildfire history and the generation of spatial information on current wildfire hazard levels. FRAP spatial data are used in delineating the Tehachapi Fireshed area, in summarizing the environmental setting relevant to fire and fuels management in the Project area, and in evaluating impacts.

Surface fuels are vegetative materials near the ground through which fire will spread. These materials range from downed woody material (leaf litter, dead branches and logs) to brush and grass. The amount, size and moisture content of surface fuels determine how fast a fire spreads, how hot it burns and how high flames reach. Surface fuel types across Kern, Los Angeles, San Bernardino, Orange and Ventura Counties were obtained from the FRAP database, which summarizes vegetative cover information from various sources, and converts vegetation types into "fuel models". Surface fuel models are used to predict fire behavior, provide an input to fire behavior models, and are an important component of various hazard assessment methodologies.

3.16.2.1 Regional Setting

The regional setting for the proposed Project and alternatives includes parts of Kern County, the Angeles National Forest (ANF), Los Angeles County (incorporated and unincorporated), and San Bernardino County (incorporated and unincorporated). The Project is also located within one-half mile of Riverside County (at Mira Loma Substation) and Orange County (along the proposed ROW for Segment 8A).

The wildfire influence area of the proposed Project and alternatives is defined by the Tehachapi Fireshed, shown in Figure 3.16-1 (at the end of this section) and described in Section 3.16.2 above, and also includes portions of Ventura County. The behavior and characteristics of wildfires are dependent on a number of biophysical and anthropogenic (human-caused) factors. The biophysical variables are fuels (including composition, cover, and moisture content), weather conditions (particularly wind velocity and humidity), topography (slope and aspect), and ignitions (e.g., lightning). The anthropogenic variables are ignitions (e.g., arson, smoking, power lines) and management (wildfire prevention and suppression efforts). The wildfire history of the region is an indicator of future wildfire behavior. This section

describes these factors that influence wildfire behavior and characteristics and the indicators of future wildfire behavior.

Fuels

The Tehachapi Fireshed consists of several different fuel types but is dominated by chaparral (38.4 percent) and grassland fuels (37.1 percent) with small stands of low-density timber (10.3 percent; Cal Fire, 2005). The various categories of surface fuels that occur within the fireshed are described in detail, below, summarized in Table 3.16-2, and shown graphically in Figure 3.16-2 (at the end of this section).

Grass (13.0%). This fuel category is composed primarily of native and non-native annual and perennial grasses and associated vegetation. Very little shrub or timber is present, generally less than one third of the area. Fire spread is governed by the fine, very porous, and continuous herbaceous fuels that have less than 30 percent fuel moisture content during the fire season. Surface fires move rapidly through the dry grasses and associated material (Anderson, 1982).

Pine/Grass (24.1%). This fuel category is composed of conifer litter and understory[1] grass, with up to two thirds of the area covered by open shrublands, conifer stands, or scrub oak stands. Fire spread during the fire season is primarily through the fine herbaceous fuels, either live with low moisture content or dead. These are surface fires where the herbaceous material, in addition to litter and dead downed wood from the open shrub or timber overstory[2], contribute to the fire intensity (Anderson, 1982).

Tall Chaparral (4.9%). This fuel category is composed of stands of mature shrubs, six feet and taller. Besides flammable foliage, dead woody material in the stands significantly contributes to a high year-round fire intensity (Anderson, 1982).

Brush (28.3%). This fuel category is composed of stands of low, dense chaparral shrubs and taller stands of young, green chaparral with poor burning properties because of live vegetation. During the fire season, fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. Fires are generally of low intensity because surface fuel loads are light, shrubs are young with little dead material, and the foliage contains little volatile material (Anderson, 1982).

Dormant Brush (5.2%). This fuel category is composed of moderate density chaparral of intermediate age and height. Moderate winds will carry fires through the shrub layer, and fires will drop to the ground at low wind speeds or at openings in the stand (Anderson, 1982).

Hardwood/Lodgepole Pine (7.0%). This fuel category is composed of closed canopy stands of short-needle conifers and oaks that support fire in the compact litter layer. This layer is mainly needles, leaves, and occasionally twigs because little undergrowth is present in the stand. Slow-burning ground fires with low flame lengths are generally the case, although the fire may encounter an occasional heavy fuel concentration that can flare up. Only under severe weather conditions involving high temperatures, low humidities, and high winds do the fuels pose fire hazards (Anderson, 1982).

Mixed Conifer Light (3.2%). This fuel category is composed of long-needle conifer and hardwood stands. Surface fires run rapidly through surface litter, and concentrations of dead downed woody material can lead to spot and crown fires (Anderson, 1982).

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1 Understory is the term for the area of a forest which grows in the shade of the emergent or canopy forest canopy.

2 Overstory is the term for the area of a forest which is made up of the very tallest trees that stand over the rest of the plants, and is also referred to as the canopy.

Mixed Conifer Medium (0.1%). This fuel category is composed of conifer forests with a heavy load of dead downed materials resulting from over-maturity (due to an extended period of fire exclusion) or natural events that create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties (Anderson, 1982).

Desert Fuel (0.01%). Desert fuels consist of patchy, dry fuels that have a low burn intensity due to their sparse nature. During years of high precipitation, however, non-native, invasive grasses can create a continuous fine fuel bed within desert plant communities that can propagate fires.

Urban Fuel (8.5%). Urban fuels consist of patchy ornamental plants, which generally lack continuity and therefore do not propagate fires. During extreme firestorms, however, homes and ornamental plants can act as fuels at the wildland-urban interface.

Agricultural Lands (4.6%). Well irrigated and weed-free agricultural lands are generally poor fuels for propagating fires. However, orchards with a grass understory layer can sometimes propagate fires.

Water and Barren/Rock/Other (0.5%). These categories do not contain surface fuels and do not carry wildfires. The category "Other" includes paved surfaces (Scott & Burgan, 2005).

Table 3.16-2. Tehachapi Fireshed Surface Fuel Cover

Fuel Group	Fuel Model Code[1]	Surface Fuel	Fuel Percent Cover	Group Percent Cover
Grass group	1	Grass	13.0	37.1
	2	Pine/Grass	24.1	
Shrub group	4	Tall Chaparral	4.9	38.4
	5	Brush	28.3	
	6	Dormant Brush	5.2	
Timber group	8	Hardwood/Lodgepole Pine	7.0	10.3
	9	Mixed Conifer Light	3.2	
	10	Mixed Conifer Medium	0.1	
Non-wildland fuels	15[1]	Desert Fuel	0.01	13.1
	28[2]	Urban Fuel	8.5	
	97[2]	Agricultural Lands	4.6	
No fuel present	98	Water	0.6	1.1
	99	Barren/Rock/Other	0.5	

Source: Cal Fire, 2005.

1 Fuel model codes 1 through 10 are standard fuel models as defined by Anderson, 1982. Codes 89 and 99 are standard models as defined by Scott & Burgan, 2005.

2 Cal Fire custom fuel model code.

Fuels in the low-risk Project areas consist primarily of urban fuels, grasses, and agricultural lands, or are devoid of fuels.

Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses, extending the length of the fire season and creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year ~~and~~ thereby increasing the likelihood that the background sources of ignition in the environment would result in a wildfire ignition, contributing to an increased level of fire recurrence. While the introduction of non-native plants would not increase the background rate of ignition sources, it would increase the "ignition potential", or the likelihood that an ignition source would result in an actual wildfire ignition. In addition,

non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (Wiedinmyer and Neff, 2007).

Weather and Topography

The climate in the Tehachapi Fireshed supports dense, drought-adapted shrublands that are highly flammable, especially in the fall as fuel moistures reach very low levels. Most critically, winds originating from the Great Basin, locally known as Santa Anas, create extreme fire weather conditions characterized by low humidity, sustained high-speed winds, and strong gusts. Santa Ana winds typically blow from the northeast over the Peninsular Range. As the air is forced through coastal mountain passes, wind speeds of 40 mph can be maintained for hours with gusts from 70 to 115 mph possible (Schroeder et al., 1964). Santa Ana winds create extremely dangerous fire conditions and have been the primary driver of most of California's catastrophic wildfires. Santa Ana winds are at their peak during fall and early winter months, which marks the height of fire season. Because of the presence of dense, dry fuels and periodic Santa Ana winds, southern California has been characterized as having one of the most fire-prone landscapes in the world.

Under extreme weather conditions, the National Weather Service issues Red Flag Warnings for all affected areas. For the purposes of analysis, extreme weather conditions are defined as the Red Flag Warning criteria for the National Weather Service region encompassed by the Tehachapi Fireshed (the Los Angeles/Oxnard region)[3].

Large southern California fires generally occur between October and January during Santa Ana wind events. Most fires occur within early to middle afternoon hours when ambient temperature and fuel moisture levels are conducive to ignition.

Topography also plays a major role in determining the patterns of fire. The influence of topography on fire behavior escalates as the slope steepens and increases in complexity (USFS, 2003). Steep slopes promote significant preheating of fuels which leads to rapid upslope fire spread. Aspect, or slope orientation also influences fire behavior. Northeast-facing slopes have greater exposure to Santa Ana winds. Together, extreme weather and complex topography have interacted in the Tehachapi Fireshed to rapidly propel fires through the landscape.

Topography in the low-risk Project areas is primarily flat.

Fire History

The Tehachapi Fireshed is approximately 1,450,000 acres in extent, covering portions of Los Angeles, San Bernardino, Orange, and Ventura Counties. Although it is unlikely that a fire ignited in the vicinity of the proposed Project would spread throughout the entire fireshed, when fuel and weather conditions are right, a wildfire ignited in the vicinity of the proposed Project could burn through tens of thousands of acres within the fireshed boundary. The largest fire to burn within the Tehachapi Fireshed in the last 50

[3] Red Flag Warning criteria for the Los Angeles/Oxnard region are as follows. For all zones except the Antelope Valley, dry fuels plus any one of the following: 1) relative humidity 15 percent or less with wither sustained winds of 25 mph or greater or frequent gusts of 35 mph or greater (for a duration of 6 hours or more), 2) relative humidity 10 percent or less for an extended period of time (for a duration of 10 hours or more, 3) widespread and/or significant dry lightning. For the Antelope Valley, dry fuels plus relative humidity 15 percent or less with sustained winds of 25 mph (for a duration of 8 hours or more). (National Weather Service, 2008)

years was the 1970 Clampitt Fire, which was a power line-ignited fire that burned 113,000 acres within the fireshed and the second largest was the 2003 Simi Fire, which burned 106,000 acres within the fireshed (Cal Fire, 2007). The source of ignition of the Simi Fire is under investigation. The human-ignited 2006 Day Fire was 163,000 acres in extent, but the area burned within the Tehachapi Fireshed was limited to 30,000 acres. In addition to these three fires, 12 other fires burned at least 25,000 acres within the Tehachapi Fireshed over a 50-year history (1957-2006). Table 3.16-3 summarizes these fires.

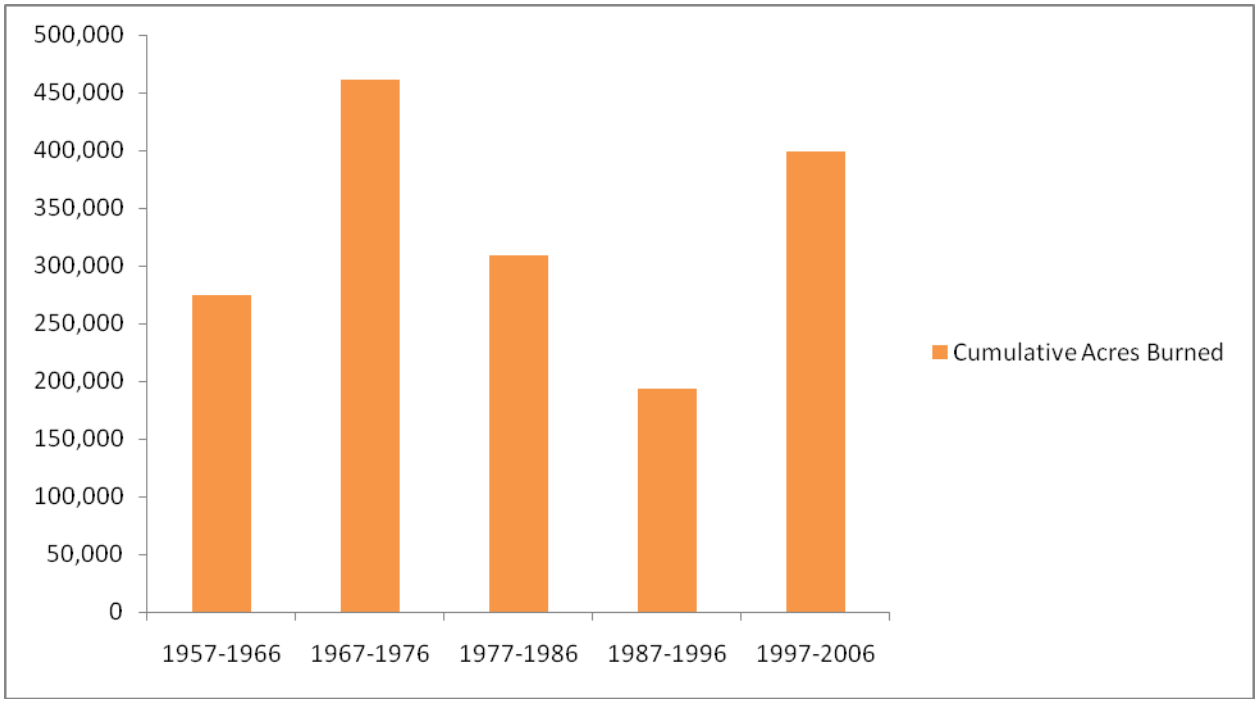
Table 3.16-3. Tehachapi Fireshed 50-year Fire History

Name	Year	Ignition Source	Acres Burned
Day Fire	2006	Debris	30,000
Piru Fire	2003	Unknown	59,000
Simi Fire	2003	Unknown	106,000
Green Meadows Fire	1993	Unknown	38,000
Dayton Canyon Fire	1982	Unknown	43,000
Sage Fire	1979	Unknown	29,000
Kanan Fire	1978	Unknown	25,000
Mill Fire	1975	Unknown	51,000
Wright Fire	1970	Unknown	28,000
Clampitt Fire	1970	Power line	113,000
Liebre Fire	1968	Unknown	48,000
Unnamed	1960	Unknown	28,000

Source: Cal Fire, 2008a

A cumulative total of between 200,000 acres and 450,000 acres have burned per decade throughout the Tehachapi Fireshed over the last 50 years, equivalent to between 20 percent and 45 percent of the fireshed area per decade. Figure 3.16-3 shows the cumulative acres burned per decade in the Tehachapi Fireshed for a 50-year period from 1957 to 2006. Fires that burned in the low-risk Project areas over the same 50-year period were limited to relatively small areas.

Figure 3.16-3. Tehachapi Fireshed: Cumulative Acres Burned per Decade, 1957-2006



Source: Cal Fire, 2008b

The ignition sources of these fires are largely unknown (92.2 percent). However, known ignition sources include lightning (3 ignitions), equipment use (23 ignitions), smoking (3 ignitions), campfire (3 ignitions), debris (1 ignition), arson (20 ignitions), playing with fire (8 ignitions), vehicle (3 ignitions), power lines (2 ignitions), non-firefighter training (1 ignition), aircraft (2 ignitions), and miscellaneous (59 ignitions).

Fires Caused by Power Lines

Fires can be started by power lines in the following ways:

- Vegetation contact with conductors
- Exploding hardware such as transformers and capacitors
- Floating or wind-blown debris contact with conductors or insulators
- Conductor-to-conductor contact
- Component failures as a result of corrosion or other weaknesses
- Accidents during maintenance
- Wood support poles being blown down in high winds
- Dust or dirt on power line insulators
- Bullet, airplane, and helicopter contact with conductors or support structures
- Other third-party contact, such as Mylar balloons, kites, and wildlife.

There is a public perception that all power lines can be a direct cause of wildfire ignitions, but power line-caused fires are much more prevalent for distribution and lower-voltage transmission lines compared with higher-voltage transmission lines such as the proposed Project. The energized conductors on distribution and lower-voltage transmission lines are much closer together (35 to 47 feet for 500 kV, depending on structure type; 16 to 23 feet for 220 kV, depending on structure type) (SCE, 2007). Fallen or wind-blown tree limbs and debris can more easily come into contact with and bridge two distribution conductor phases[4], which can cause electrical arcs[5] that can set fire to woody debris. Because higher voltage transmission line conductors are spaced much further apart, this phenomenon is extremely rare on 230- and 500-kV transmission lines. Arcing from a single conductor to ground through vegetation contact can also occur, but conductors are generally much further from the ground than they are from one another, and therefore arcing between conductor phases is more likely than between a conductor and the ground.

Power lines at voltages of 69 kV are subject to conductor-to-conductor contact, also known as “mid-line slap” hazard, which occurs when extremely high winds force two conductors on a single pole to oscillate so excessively that they contact one another. This can result in sparks that can ignite nearby vegetation. Transmission lines at this voltage are often supported by wood poles, which can typically withstand a lower level of wind loading compared with steel monopoles and lattice steel towers. Wood poles have a higher potential for structural failure during extreme wind events like Santa Ana events. Multiple wood pole failures on a single 69-kV line can result in conductors contacting the ground and igniting nearby vegetation or the wood poles themselves.

System component failures and accidents during maintenance activities can cause line faults that result in fires on transmission lines of any voltage, depending on system components. Examples are static line

[4] Multiple conducting wires on a single transmission or distribution line are clustered in groups of three wires that carry currents alternating at different phases. This arrangement has the safety effect of cancelling the electromagnetic field that would otherwise be created.

[5] Electrical arcing is an electric discharge that occurs when electrons are able to jump a gap in a circuit.

failure due to high winds and corrosion at the point of attachment, insulator flashovers during washing, guy wire failure and subsequent conductor contact, broken crossarms causing conductor-to-conductor contact, and pole or tower collapse. In addition, poor maintenance that allows dirt to build up on insulators can result in flashovers and ignitions.

Transmission line protection and control systems are designed to detect faults (such as arcing from debris contacting the line) and rapidly shut off power flow in 1/60 to 3/60 of a second. Distribution systems are designed to be more tolerant to line faults. In an effort to "keep the lights on," distribution line protection and control systems allow faults to last longer and are sometimes set to automatically re-energize a faulted line after a very brief delay (a second or so) in the event that the fault has cleared. If a fault is related to debris tangled in the conductors, immediate re-energizing can cause repeated sparks and ignite nearby vegetation. Because higher voltage lines are designed to be more sensitive to faults, they are typically mounted on very tall structures to provide adequate distance from vegetation. However, foreign objects such as balloons, kites, and aircraft may contact conductors and result in ignitions.

Distribution lines are mounted with devices, such as transformers and capacitors that may fail in an explosive manner resulting in an ignition of nearby vegetation. Transmission lines are not mounted with these devices because transmission lines are not used to directly serve customer loads.

Both distribution and transmission systems are designed to withstand high winds, and it is extremely rare for higher-voltage transmission structures to blow over. When this rare event does occur, the protection system on a transmission line is designed to shut off power flow in a fraction of a second. Distribution structure failures are also infrequent but due to their placement in narrower corridors in close proximity to trees and other tall vegetation they may be pushed down in storms by wind-blown trees. Assisted by high winds, distribution line ignitions have caused three of the 20 largest wildfires (measured by acreage burned) in California's history from 1932 to 2006 (CAL FIRE, 2008b). These fires were the Clampitt (1970), Laguna (1970), and Campbell Complex (1990) fires. In the case of the Clampitt Fire, high winds blew down a section of the distribution line, and the Laguna and Campbell Complex Fires were ignited when trees fell across the distribution lines.

Wildfires related to power lines can also be ignited by wildlife, primarily large birds. Bird-caused flashovers[6] are possible on low-voltage distribution and transmission lines where conductors are closely spaced. Birds perched on power poles or flying between poles can simultaneously contact two conductors, causing an electrical flashover. This electrocutes the bird and occasionally causes the feathers to catch fire. The bird may fall to the ground and ignite nearby vegetation. The primary ignition threats associated with higher-voltage transmission lines like the proposed Project are indirect, consisting of human-caused accidents during construction and maintenance activities and as a result of increased access to wildlands. Construction and maintenance activities that may ignite fires include blasting, welding, the use of equipment such as chainsaws, and the presence of personnel who may inadvertently ignite fires while smoking. The introduction of transmission line access roads can provide increased access to wildlands by members of the public, which may increase ignitions from smoking, campfires, and arson.

Failure to trim or remove trees located very close to transmission line conductors can result in wildfire ignitions when trees or branches are blown onto conductors. California law requires minimum clearances for high-voltage transmission lines; these clearance requirements are discussed in Section 3.16.3.2.

[6] A flashover is an unintended electric arc.

Environmental Effects of Large Wildfires

Although fires are a natural process in the chaparral ecosystems that occur within the Tehachapi Fireshed, wildfires can have damaging effects on natural resources including air quality, biological resources, and water quality.

Air Quality

Emissions from Fires. Smoke from a wildfire is made up of carbon dioxide (CO_2), water vapor, carbon monoxide, particulate matter, hydrocarbons and other organics, nitrogen oxides, ozone, and trace minerals. The composition of smoke varies with fuel type: different types of vegetation are composed of varying amounts of cellulose, lignin, tannins and other polyphenolics, oils, fats, resins, waxes, and starches that produce different compounds when burned. Hazardous air pollutants and toxic air contaminants are also present in smoke, the most common being acrolein, benzene, and formaldehyde. In general, particulate matter is the major pollutant of concern from wildfire smoke (Thierrault, 2001; USDA, 2002).

Particulate matter is a general term for a mixture of solid particles and liquid droplets found in the air. Particulate distribution from smoke tends to be highest at two diameters: around 10 microns (ash and partially burned plant matter) and around 0.3 microns (carbon, tar, and liquids). Emissions from wildfires depend on the quantity of wildland fuels, meteorological conditions, and topographic features that interact to modify the burning behavior as the fire spreads. Variability in fuel type, fuel loading, and moisture content affects the combustibility of fuels. Emission quantities are probably directly related to the intensity and direction (relative to the wind) of the wildfire and indirectly related to the rate at which the fire spreads; however, much of these data are obtained from laboratory experiments because of the difficulties in safely monitoring emissions close to a wildfire (U.S. EPA, 1996). It is not known whether these laboratory conditions correspond to field conditions.

Fires release large quantities of pollutants over very short time periods. Air quality during major events is often reduced to hazardous levels, and air quality can sometimes remain impaired for many days after an event.

Greenhouse Gases. In California, the annual averaged level of CO_2 emissions from fires is approximately 24 million metric tons CO_2 ($MMTCO_2$) per year or about six percent of the fossil fuel burning emission estimates for the State. This wildfire emission rate is subject to large seasonal variation, with the ratio of carbon dioxide emissions from wildfire to emissions from fossil fuel burning in September and October reaching 50 percent in many years (Wiedinmyer and Neff, 2007).

The large short-term release of CO_2 is offset over longer time scales (decades) by the uptake of atmospheric carbon associated with forest regrowth (Wiedinmyer and Neff, 2007). Fires and fossil fuel emissions therefore have entirely different effects on atmospheric CO_2 levels, as the short-term rise carbon dioxide levels from fires are counteracted by CO_2 sequestered by plants and trees over the long-term through post-fire forest regrowth. In contrast, carbon emissions from fossil fuels results in a net increase in atmospheric carbon over these time scales. Increased fire frequency, however, can postpone carbon sequestration by cutting short forest regrowth, resulting in a net increase in atmospheric carbon from fire over many decades.

Biological Resources

Chaparral shrublands that dominate the area within the Tehachapi Fireshed are acclimated to frequent large wildfires; however, increasingly frequent large fires have resulted in impacts to biological resources in recent decades.

Flora. Chaparral is highly tolerant to the disturbance fire provides, and will generally dominate a burned site several decades after a fire. Early successional plant species, including native and non-native grasses and herbs will generally dominate a burned site for the first several years after a fire. Therefore, increased fire frequency on the same site tends to favor vegetative type conversion to early successional species such as native and non-native grasses and herbs (Johnson et al., 2006). Changes in dominant vegetation communities dramatically affect habitats for plant and animal species, and may impact special status species. For example, the coastal California gnatcatcher is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the gnatcatcher.

Fauna. Despite the perception by the general public that wildland fire is devastating to animals, fires generally kill and injure a relatively small proportion of wild animal populations. The habitat changes caused by fire affect faunal populations and communities much more profoundly than fire itself. Fires often cause a short-term increase in productivity, availability, or nutrient content of forage and browse. These changes can contribute to substantial increases in herbivore populations, but potential increases are moderated by animals' ability to thrive in the altered, often simplified, structure of the post-fire environment. Large, high-intensity fires that denude a landscape of many shrubs and trees reduce habitat quality for species that require dense cover and improve it for species that prefer open sites. (USDA, 2000).

Desert Ecosystems. In many desert and semi-desert habitats where fire historically burned infrequently because of sparse fuels, invasion of weedy species has changed the vegetation so that burns occur much more frequently. Many animals in these ecosystems are poorly adapted to avoid fire or use resources in post-fire communities (USDA, 2000).

Water Quality

Water quality can be impacted as a result of the occurrence of fire through increased rates of erosion and sedimentation from denuded hillsides, increased water temperature from decreased vegetative stream shade, changes in water chemistry and increases in chemical pollutants, and impacts to aquatic biota as a result of the use of fire retardants in fire suppression. These impacts have become more severe as fire extent and frequency have increased.

Erosion and Sedimentation. Watersheds that have been severely denuded of vegetation by wildfire are vulnerable to accelerated rates of soil erosion and, therefore, can yield large amounts of post-fire sediment. Post-fire increases in suspended sediment concentrations and turbidity can result from erosion and overland flow, channel scouring because of the increased streamflow discharge, and creep accumulations in stream channels after a fire. Post-fire turbidity levels in stream water are affected by the steepness of the burned watershed, with steeper slopes depositing higher sediment levels (USDA, 2005).

Water Temperature. The removal of streambank vegetation by burning can cause water temperature to rise, causing thermal pollution to occur. When riparian (streamside) vegetation is removed by fire or other means, the stream surface is exposed to direct solar radiation, and stream temperatures increase (USFS, 2005).

Water Chemistry. The acidity of water can be increased by ash depositions immediately after a fire, sometimes to levels that violate water quality standards. Dissolved nitrogen can increase after fires due to accelerated mineralization and nitrification, but the level of nitrogen is generally low and does not generally violate water quality standards. Low but increased levels of dissolved phosphorus, sulfur, chloride, and total dissolved solids can also follow fires, but studies have shown no violations of water quality standards where standards exist (USFS, 2005).

Fire Retardant. The water quality impacts of fire retardant are not a direct result of fire, but the use of fire retardant to suppress wildfires in an effort to protect communities is commonplace in San Diego County. Ammonium-based fire retardants used in fire suppression efforts (diammonium phosphate, monoammonium phosphate, ammonium sulfate, or ammonium polyphosphate) can affect water quality and be toxic to aquatic biota (USFS, 2005).

Fire Prevention and Suppression

Fire Prevention

Fuelbreaks or fuel treatments break the continuity of dense fuels across the landscape in an effort to prevent damages during wildfire events. Fuel treatments can be effective in providing a firefighting advantage by reducing the rate of spread and intensity of a fire, particularly if fuelbreaks are placed at strategic topographical locations such as ridge tops and areas shielded by high winds. Fuelbreaks also provide strategic control points for fire suppression operations. Fuel treatments can include such methods of reducing surface fuel loading as mechanical slashing and chipping and prescribed burns. Treatments must be maintained over time to be effective, as chaparral vegetation can reach high fuel loading within 10 to 15 years after treatment. Fuel treatments can be particularly effective in assisting firefighters in protecting communities at the wildland-urban interface. It should be noted that fuelbreaks alone cannot stop the progression of large, wind-driven fires. They are a management tool that may be implemented in advance of the fire season to help prevent losses of life and property from a large wildfire.

Fire Suppression

Fire agencies in the Tehachapi Fireshed have the goal of containing all wildfires that threaten life and property. Depending on the biophysical characteristics of the landscape and the presence of Santa Ana winds, fires can be contained during several phases. The first attempt at control and suppression is called the initial attack. If fires are not controlled within the first 2 or 3 hours, additional firefighting resources are usually called in, beginning the extended attack phase. With the onset of evening, fire intensity is typically reduced, assisting firefighters in containing the fire within a single burning period. When extended attack fails and thousands of acres burn, the incident is classified as a major event.

Fires controlled during either the initial or extended attack phase almost always occur during moderate fire weather conditions, often during the summer. Major events that involve thousands of acres and do the most damage usually occur between October and January during severe weather conditions involving Santa Ana winds. Another peak in Santa Ana winds can occur in late February through early April. Wind-driven major events typically run their course until weather conditions change as they are so difficult to contain regardless of firefighting resources. Since wind-driven embers can travel a mile or more in front of the head of a fire, multiple spot fires ignite and increase the rate of spread dramatically in high winds. Fire suppression activities during this time are usually only effective along the flanks, or sides of the fire. An incident commander's highest priority is protection of firefighter safety, and therefore firefighters will not be deployed into indefensible landscapes or into an area under indefensible weather

conditions. Firefighting objectives during a major event often focus on evacuation efforts until wind conditions change.

Efficient wildfire suppression is dependent upon a quick and aggressive initial attack, which is ultimately dependent on the availability of firefighting resources, success in coordination among responding fire agencies, the existence of defensive fuel breaks across the landscape, and—most critically—weather conditions.

Wildland fire suppression operations are extremely complex and expensive. Fire suppression in the wildland-urban interface typically involves a multi-agency firefighting response that involves hundreds of firefighters participating in coordinated air and ground operations. The firefighting capabilities of the agencies that could be involved in firefighting in the area of the proposed Project and alternatives are described for each segment in the following section. During the fire season, the availability and response time for these resources may vary according to the number of other emergencies in the area and the availability of volunteer firefighters.

Helicopters and airplanes are often the fastest resources to reach a wildfire. Almost anywhere in California, a firefighting aircraft can reach a wildfire within 20 minutes, depending on wind conditions that can ground aircraft if too strong (CAL FIRE, 2008c). It can take an hour or more for fire engines to reach a wildland fire, especially in remote areas. Aerial attacks principally work in conjunction with firefighters on the ground. Aerial firefighting attacks are effective during initial attacks for extinguishing small fires and protecting homes (AHSAFA, 2007). On large fires, aerial attacks are used for specific tactical suppression objectives such as reinforcing an established fire line. Identifying and extinguishing spot fires outside the fire line is another critical job done by aircraft. Where overhead power lines are present, aerial and ground attacks are restricted. Aerial operations are complicated by the risk of aircrafts and/or water buckets colliding with towers or conductors during smoky, reduced-visibility conditions. Conditions are especially hazardous when transmission lines are placed on ridge tops, reducing the proximity of fire retardant and water drops that aerial firefighting crews can achieve safely.

During a wildland fire, it is recommended that ground attacks not be made within at least 500 feet of a power line conductor and ground-based firefighters maintain a clearance from downed, energized power lines equal to the distance between two towers (NIOSH, 2002). Wildland firefighters working around energized power lines are exposed to electrical shock hazards including: direct contact with downed power lines, contact with electrically charged materials and equipment due to broken lines, contact with smoke that can conduct electricity between lines, and the use of solid-stream water applications around energized lines. Between 1980 and 1999 in the U.S., there were 10 firefighter fatalities due to electrical structure contact during wildfire suppression (NFPA, 2001). Maintaining a minimum 500-foot safety buffer greatly reduces the risk of electrical structure contact, but it also reduces the effectiveness of ground-based frontal attacks.

3.16.2.2 Alternative 2: SCE's Proposed Project

Segment 4

Segment 4 would pass through areas of unincorporated Kern and Los Angeles Counties and the City of Lancaster. Fire protection in Kern County is the responsibility of the Kern County Fire Department. Fire protection in Los Angeles County and the City of Lancaster falls under the jurisdiction of the Los Angeles County Consolidated Fire Department (LACFD), which is composed of nine divisions and has fire protection jurisdiction over 57 incorporated and unincorporated communities throughout the county. The City of Lancaster is a federally listed community at risk of fire.

This segment would pass through the low risk Project area for its entire length of approximately 20 miles. Fuels in the low risk Project area are sparse and consist primarily of grasslands and urban and agricultural lands. The northernmost portion of Segment 4 passes through tall chaparral for approximately two miles.

Segment 5

Segment 5 would pass through unincorporated Los Angeles County and the Cities of Lancaster and Palmdale, all of which are under the fire protection jurisdiction of the LACFD. Both Lancaster and Palmdale are federally listed communities at risk of fire.

Approximately 4.1 miles of Segment 5 would pass through the low fire risk Project area. Fuels within the low fire risk area of this segment are sparse and consist primarily of grasses. The remaining 13.7 miles of Segment 5 would be located in the Tehachapi Fireshed. Fuels in this portion of the fireshed are primarily grasslands with conifer litter and low, dense chaparral (see Figure 3.16-2 at the end of this section).

Segment 6

Segment 6 would pass through unincorporated Los Angeles County, the City of Duarte, and the ANF. Los Angeles County and the City of Duarte are under the fire protection jurisdiction of LACFD, and ANF provides its own fire protection services. The City of Duarte is a federally listed community at risk of fire.

Segment 6 falls entirely within the Tehachapi Fireshed boundary, and fuels that occur along the Segment 6 alignment consist primarily of tall chaparral intermixed with small stands of low density conifers and oaks. The northern portion passes through a small grassland (see Figure 3.16-2 at the end of this section). Approximately 4 ANF-maintained fuelbreaks would be crossed roughly perpendicularly by the path of Segment 6 through the ANF.

Segment 6 would substantially increase the maximum height of transmission lines in the shared ROW through the Tehachapi Fireshed from S6 MP 0 to S6 MP 4.8 and from S6 MP 6.85 to S6 MP 9.5 by replacing single-circuit 220-kV structures with single-circuit 500-kV structures. This increase would be up to 113 feet taller based on a maximum single-circuit 500-kV structure height of 193 feet and a minimum single-circuit 220-kV structure height of 80 feet.

Segment 7

Segment 7 would pass through the community of Avocado Heights in unincorporated Los Angeles County, and the Cities of Baldwin Park, Duarte, Industry, Irwindale, Montebello, Monterey Park, Rosemead, and South El Monte. All of these fall under the jurisdiction of LACFD except for the City of Montebello, which is protected by the Montebello Fire Department, and the City of Monterey Park, which is protected by the Monterey Park Fire Department. The City of Duarte is a federally listed community at risk of fire.

The first 0.8 mile of Segment 7 would be located within the Tehachapi Fireshed and the rest of the 16-mile segment would be located within the low risk Project area. Fuels along the low risk Project area portion of the Segment 7 route are sparse and consist primarily of grasslands intermixed with urban areas. Fuels in the immediate vicinity of the Tehachapi Fireshed portion of Segment 7 consist primarily of low, dense brush (see Figure 3.16-2 at the end of this section). Segment 7 would substantially increase the maximum height of transmission lines in the shared ROW through the Tehachapi Fireshed from S7 MP 0 to S7 MP 0.8 by replacing double-circuit 220-kV structures with double-circuit 500-kV structures. This

increase would be up to 162 feet taller based on a maximum double-circuit 500-kV structure height of 262 feet and a minimum double-circuit 220-kV structure height of 100 feet.

Segment 8

Segment 8 would pass through areas of unincorporated Los Angeles County including the communities of Hacienda Heights and Rowland Heights and the Cities of Chino, Chino Hills, Industry, La Habra Heights, Montebello, Monterey Park, Ontario, Pico Rivera, Rosemead, and Whittier. All of these areas are under the jurisdiction of the LACFD except for the Cities of La Habra Heights, Montebello, Monterey Park, and Ontario, each of which is protected by a municipal fire department of the same name, and the Cities of Chino and Chino Hills, which are protected by the Chino Valley Independent Fire District Operations Division. Rowland Heights and the Cities of Chino, La Habra Heights, and Ontario are federally listed communities at risk of fire.

Approximately 18.8 miles of Segment 8A would be located in the Tehachapi Fireshed (MP 4.4 through MP 23.2), and 7.2 miles of the route would be located in the low risk Project area. Fuels in the immediate vicinity of the portions of this segment in the low risk Project area are sparse and consist primarily of low, dense brush and grasslands interspersed throughout primarily urban areas. Fuels that occur along the Segment 8A alignment through the Tehachapi fireshed are a mix of low, dense brush, tall chaparral, dormant brush, and grasslands with intermixed urban development (see Figure 3.16-2 at the end of this section). Segment 8A would substantially increase the maximum height of transmission lines in the shared ROW through the Tehachapi Fireshed from S8A MP 4.4 to S8A MP 23.2 by replacing single-circuit 220-kV structures with double-circuit 500-kV structures. This increase would be up to 182 feet taller based on a maximum double-circuit 500-kV structure height of 262 feet and a minimum single-circuit 220-kV structure height of 80 feet.

Segments 8B and 8C would be located entirely in the low risk Project area. Fuels in the immediate vicinity of these segments are extremely sparse, and consist entirely of urban fuels.

Segment 10

Segment 10 would pass through unincorporated Kern County, which is under the fire protection jurisdiction of the Kern County Fire Department. This segment would be located entirely in the low risk Project area. Fuels in the immediate vicinity of this segment are extremely sparse, and consist entirely of urban fuels.

Segment 11

Segment 11 would pass through areas of unincorporated Los Angeles County including the communities of Acton, Altadena, East Pasadena, East San Gabriel, and South San Gabriel, the Cities of La Canada Flintridge, Monterey Park, Pasadena, Rosemead, San Gabriel, and Temple City, and the ANF. The City of San Gabriel is under the fire protection jurisdiction of the San Gabriel Fire Department, the City of Pasadena and the community of East Pasadena are under the protection of the Pasadena Fire Department. The ANF provides its own fire protection services. The City of Monterey Park is served by the Monterey Park Fire Department. The communities of Acton, Altadena, East San Gabriel, and South San Gabriel, and the Cities of La Canada Flintridge, Monterey Park, Rosemead, and Temple City are served by the LACFD. Acton, Altadena, and the Cities of La Cañada Flintridge and Pasadena are federally listed communities at risk of fire.

Approximately 25.4 miles of Segment 11 would pass through the Tehachapi Fireshed before passing into the low risk Project area for 11.6 miles. Fuels in the immediate vicinity of the portion of this segment through the low risk Project area are sparse and consist of patchy brush and grasses through primarily urban areas. Fuels in the immediate vicinity of the portion of this segment through the Tehachapi Fireshed consist primarily of tall chaparral intermixed with small stands of low density conifers and oaks. The northern portion passes through a small grassland, and the southern portion passes through small stands of low, dense brush (see Figure 3.16-2 at the end of this section). Approximately 4 ANF-maintained fuelbreaks would be crossed roughly perpendicularly by the path of Segment 11 through the ANF. Segment 11 would increase the maximum height of transmission lines in the shared ROW through the Tehachapi Fireshed from S11 MP 1 to S11 MP 25 by an average of approximately 50 feet.

3.16.2.3 Alternative 3: West Lancaster Alternative

Alternative 3 is identical to the proposed Project, except for one deviation. It would re-route the new 500-kV T/L in Segment 4 along 115th Street West rather than 110th Street West. This alternative would deviate from the proposed route at approximately S4 MP 14.9,where the new 500-kV T/L would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route would increase the overall distance of Segment 4 by approximately 0.4 mile.

The rerouted portion of the West Lancaster Alternative would pass through unincorporated Los Angeles County, which is under the fire protection jurisdiction of the LACFD. The rerouted portion of this alternative would be located entirely in the low risk Project area, and fuels in the immediate vicinity of the alternative consist of open grassland at the foothills of the San Gabriel Mountains. However, the majority of the rerouted portion of this alternative passes through urban areas.

3.16.2.4 Alternative 4: Chino Hills Route Alternatives

Alternative 4, which includes routing Alternatives A, B, C, C Modified, and D, is identical to the proposed Project, except for a portion of Segment 8. The rerouted portions of all ~~four~~ five of the Chino Hills Route Alternatives would be located entirely within the Tehachapi Fireshed, through low chaparral for approximately three miles, at which point they would diverge in different directions all through grasslands with interspersed patches of oak woodland in and around Chino Hills State Park. Chino Hills State Park is a State Responsibility Area.

3.16.2.5 Alternative 5: Partial Underground Alternative

The environmental setting of this alternative would be similar to that of the proposed Project, as described in Section 3.16.2.2. The only difference would be that approximately 3.5 miles of the Alternative 5 route along Segment 8A would be installed underground, resulting in the removal of this portion of overhead transmission line through the low-risk Project area.

3.16.2.6 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

The environmental setting of this alternative is similar to the setting for the proposed Project. The only differences would be that marginally fewer miles of access roads would be constructed, fewer helicopter staging and landing sites would be graded and cleared of vegetation for the construction phase before being restored and revegetated post construction, and the bridge along Fall Creek Road would not be repaired. This bridge, which would provide for the crossing of Tujunga Creek and allow for dual access to Segment 11 under Alternative 2, would not be repaired under Alternative 6, which would therefore

result in only one point of ingress and egress for personnel and firefighting crews at this location in the event of a wildfire.

3.16.2.7 Alternative 7: 66-kV Subtransmission Alternative

Alternative 7 is identical to the proposed Project except that implementation of this alternative would result in:

- installing one mile of the 66-kV portion of Segment 7 underground (from S7- MP 8.9 – S7-MP 9.9)
- rerouting and undergrounding an approximately 0.8-mile portion of Segment 7 underground (from S7- MP ~~8.9~~ 11.4 – S7-MP ~~9.9~~ 12.025)
- rerouting the existing 66 kV subtransmission line in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing ROW, and
- rerouting the 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8.

The undergrounded and rerouted subtransmission lines would pass through the Cities of Montebello, Pico Rivera, South El Monte, and Industry. Each of these cities is located within the jurisdiction of LACFD except for the City of Montebello, which is protected by the Montebello Fire Department. Similar to the proposed Project, the rerouted and undergrounded portions of this alternative would pass through urban areas located entirely within the low risk Project area.

3.16.3 Applicable Laws, Regulations, and Standards

3.16.3.1 Federal

National Fire Plan

There are no specific directions in the National Fire Plan to permit holders on their responsibilities for power line clearance requirements or other forest management activities.

Angeles National Forest Fire Management Plan and Land Management Plan

The ANF Fire Management Plan provides a framework for the management of wildland fire, prescribed fire and hazard fuel reduction, as tools to safely accomplish the resource protection and management objectives of the ANF as described in the Land Management Plan. In addition, the FS would develop a Forest Service Fire Safety Plan as part of the permit that the FS issues for the Project on ANF lands.

Title 14 CFR Section 91.137, Temporary Flight Restrictions in the Vicinity of Disaster/Hazard Areas

14 CFR Section 91.137 allows an administrator to issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions (TFR) apply. When a NOTAM is issued, no person may operate an aircraft within the designated area unless that aircraft is participating in the hazard relief activities and is being operated under the direction of the official in charge of on-scene emergency response activities. During a wildfire, all helicopter construction and maintenance equipment would be prohibited from flying in the designated hazard area.

3.16.3.2 State

CPUC General Order 95: Rules for Overhead Electric Line Construction

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2006. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements. The latter, governed by rule 35, and inspection requirements, governed by Rule 31.2 are summarized here.

GO 95: Rule 35, Tree Trimming, defines minimum vegetation clearances around power lines. Rule 35 guidelines require:

- 10 feet radial clearances are required for any conductor of a line operating at 10,000 Volts or more, but less than 300,000 Volts (this would apply to the proposed 220-kV line segments)
- 15 feet radial clearances are required for any conductor of a line operating at 300,000 Volts or more (this would apply to the proposed 500-kV line segments).

GO 95: Rule 31.2, Inspection of Lines, requires that lines be inspected frequently and thoroughly for the purpose of insuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition as not to create a hazard.

PRC 4292, Powerline Hazard Reduction

PRC 4292 requires a 10-foot clearance of any tree branches or ground vegetation from around the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC 4296. Proposed Project structures would be primarily exempt due to their design specifications.

PRC 4293, Powerline Clearance Required

PRC 4293 presents guidelines for line clearance including a minimum of 10 feet of vegetation clearance from any conductor operating at 110,000 volts or higher.

California Code of Regulations (CCR) Title 14 Section 1254

CCR 14 Section 1254 presents guidelines for minimum clearance requirements on non-exempt utility poles. The proposed Project structures would be primarily exempted from the clearance requirements with the exception of cable poles and dead-end structures.

The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14, CCR, 1255 or PRC 4296. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level – remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire
- From 0 to 2.4 m (0 to 8 feet) above ground level remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 m (8 feet).
- From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment remove dead, diseased or dying limbs and foliage from living sound trees and any dead, diseased or dying trees in their entirety.

3.16.3.3 Local

Los Angeles County General Plan

The Safety Element (December 1990), one of the required elements in the County of Los Angeles General Plan, is the policy document that outlines fire protection standards. Specific fire protection standards are set forth in the County Fire Code, which is the mechanism that implements the policies and goals outlined in the Safety Element. Applicable to the proposed Project would be the County of Los Angeles Fire Department Transmission Line Guidelines, which set forth minimum clearance requirements around transmission line structures identical to those set forth in CCR 14 Section 1254.

Los Angeles County Code, Title 32—Fire Code

Title 32 of the Los Angeles County Code relevant to powerline clearance Sections 317.1.1 and 317.1.2 are identical to PRC Sections 4292 and 4293, respectively.

Kern County General Plan

The Safety Element (March, 2007) requires that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access and fire protection facilities. According to the Safety Element, all fuel and firebreaks are required to meet the minimum design standards of the Kern County Fire Chief, and the Fire Chief may require a fire plan for development that would occur during the critical fire season. This plan should reflect the proposed course of action for fire prevention and suppression.

San Bernardino County General Plan

There are no specific fire safety requirements related to installation and maintenance of transmission lines through San Bernardino County contained in the General Plan.

Orange County General Plan

There are no specific fire safety requirements related to installation and maintenance of transmission lines through Orange County contained in the General Plan.

3.16.3.4 Project Applicant

Southern California Edison's Fire Management Plan (Specification E-2005-104: Transmission Line Project Fire Plan, dated February 21, 2006) outlines guidance for prevention, control, and extinguishment of fires during transmission line construction and maintenance. It is an overall technical reference that serves as an accompanying document to individual Project Specifications. Each Project Specification defines specific project job requirements and serves as the master document; in all cases where the Fire Management Plan is in conflict with the Project Specification, the Project Specification would apply. The Project Specification for the proposed Project (or Alternatives, should any of them be approved) would be

prepared prior to the commencement of construction activities. The Fire Management Plan, to which SCE has committed in APM HAZ-4, outlines SCE's policy for the prevention and suppression of fire during construction activities. The Plan outlines fire safeguards and precautions, including the provision of portable firefighting equipment, assignment of a fire patrolperson, documenting activities in a daily log, and specific measures in compliance with Forest Service requirements for construction carried out on Forest Service lands. The Plan does not cover project maintenance activities, and does not set forth specific restrictions for activities carried out on non-Forest Service lands. However, in addition to SCE's Fire Management Plan, the FS would develop a Forest Service Fire Safety Plan as part of the permit that the FS issues for the project on ANF lands.

3.16.4 Impact Analysis Approach

3.16.4.1 Criteria for Determining Impact Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that would result from the proposed Project and alternatives. Appropriate criteria have been identified and utilized to make these significance conclusions. The following significance criteria for wildfire prevention and suppression were derived from previous environmental impact assessments and from the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section IX). A significant impact would result if any of the following were to occur.

- Criterion FIRE1: Activities associated with the Project adversely affect fire prevention and suppression activities.
- Criterion FIRE2: Project-related activities or the presence of the Project expose communities, firefighters, personnel, and/or natural resources to an increased risk of wildfire.
- Criterion FIRE3: Activities associated with Project construction or maintenance result in a fuel vegetation matrix with an increased ignition potential and rate of fire spread.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.16.4.2 Applicant-Proposed Measures (APMs)

APMs were identified by SCE in the PEA. Table 3.16-4 presents the APMs that are relevant to the issue area of Wildfire Prevention and Suppression. APMs are a commitment by the Applicant (SCE) and are considered part of the proposed Project. Therefore, the following discussions of impact analysis assume that all APMs will be implemented as defined in the table. Additional mitigation measures are recommended in this section if it is determined that APMs do not fully mitigate the impacts for which they are presented.

Table 3.16-4. Applicant-Proposed Measures – Wildfire Prevention and Suppression

APM HAZ-4	Fire Management Plan. The Fire Management Plan, developed by SCE and presented in the PEA as Appendix D, would be implemented.

3.16.4.3 Impact Assessment Methodology

This analysis first established baseline conditions for the affected environment, presented above in Section 3.16.2, which included a description of wildland fuels, climate, topography, wildfire history, fire prevention and suppression resources, and characteristics of existing transmission lines. Two distinct areas, the Tehachapi Fireshed and the low risk Project area were defined based on biophysical, historical,

and management characteristics in relation to the location of the proposed Project and alternatives. Construction, operation, and maintenance activities, plus structure design specifications, were identified based on information provided in SCE's PEA. The two Project areas were then evaluated based on their potential to be affected by design features or construction, operation, and maintenance activities related to the proposed Project and alternatives. Impacts related to wildfire prevention and suppression were identified based on the expected interaction between the biophysical characteristics of the Project areas and the design specifications, construction activities, maintenance activities, and operational expectations of the proposed Project and alternatives.

For the purposes of satisfying CEQA requirements, the significance of each impact is also identified according to the following classifications: Class I: Significant impact; cannot be mitigated to a level that is less than significant; Class II: Significant impact; can be mitigated to a level that is less than significant; Class III: Adverse impact; less than significant; and Class IV: Beneficial impact.

3.16.5 Alternative 1: No Project/Action

Selection of the No Project/Action Alternative would mean that the proposed TRTP would not be implemented. As such, none of the associated Project activities would occur and the environmental impacts associated with the proposed Project would not occur. Specifically, the interference with firefighting operations from construction activities and from new or taller transmission lines across the landscape, the new transmission line-related wildfire ignitions, and the non-native plant introductions from the Project that would contribute to a change in fuel conditions would not occur.

However, under the No Project/Action Alternative, some currently unknown plan would need to be developed to provide the transmission upgrades necessary to interconnect renewable generation projects in the Tehachapi area and to also address the existing transmission problems south of Lugo Substation. Similarly, other yet unspecified transmission upgrades would presumably be proposed in the future to provide the needed capacity and reliability to serve growing electrical load in the Antelope Valley. To interconnect wind projects in the Tehachapi area, it is possible that other electrical utilities with transmission facilities in the area, such as LADWP, might purchase some of the power from Tehachapi wind developers and integrate it into their system. Another possibility is the development of a private transmission line that could connect wind projects to the electrical grid. Any of these projects, which would occur as a result of the unfulfilled electrical transmission need in the absence of TRTP, are likely to have similar impacts as those identified for the proposed Project. However, if a transmission line were to be constructed in the absence of TRTP that was located in a new ROW through dense wildland fuels, construction of the new line in the new ROW would have the effect of introducing a substantially greater linear obstacle to firefighting across the landscape compared with the proposed Project and would involve substantially more intensive clearing and grading activities that could result in wildfire ignitions compared with the proposed Project.

Additionally, numerous potential developments throughout the proposed Project area that are completely unrelated to electrical transmission could ignite wildfires, such as residential development projects at the wildland-urban interface. Not only will these developments contribute to ignitions and obstructions during the construction phase, but once dwellings are occupied they will be a new source of long-term ignitions.

3.16.6 Alternative 2: SCE's Proposed Project

3.16.6.1 Direct and Indirect Effects Analysis

Adverse effects on fire prevention and suppression activities (Criterion FIRE1)

Impact F-1: Construction and/or maintenance activities would reduce the effectiveness of firefighting.

Project construction and maintenance activities have the potential to interfere with fire engine access to wildfires in remote, wildland areas, which would reduce the effectiveness of firefighting.

Low Fire Risk Project Area

Due to a low risk of fire, flat terrain, and the presence of sufficient paved roads for emergency vehicle access during a wildfire, construction and maintenance of the Project segments through the low fire risk Project area do not have the potential to interfere with firefighting operations.

Tehachapi Fireshed Area

The proposed Project would be accessed by several narrow, unpaved roads in the ANF and Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA) lands, and construction activities could limit emergency vehicle access. If adequate road access cannot be maintained in remote areas of the ANF due to construction and maintenance activities, or due to the presence of parked vehicles and large equipment on narrow single-lane roads, the access restriction could directly result in delay or disruption of firefighting response in the event of fire. Such delays or disruptions would result in reduced effectiveness of firefighting efforts. APM HAZ-4 (Fire Management Plan, Specification E-2005-104; February 21, 2006) requires SCE to follow its Fire Management Plan during construction of the proposed Project. The Fire Management Plan covers fire safety provisions, equipment, communication, and reporting during construction; however, it makes no commitments to ensure emergency vehicle access to wildlands in the event of fire. Should construction or maintenance activities require the use of helicopters, Project helicopters would be restricted by FAA rules on temporary flight restrictions from flying in designated areas, eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project. Delays in, or prevention of, ground-based emergency vehicle access to wildfires can result in a larger number of acres burned and a larger number of homes at risk at the wildland-urban interface. Therefore, despite implementation of APM HAZ 4, the restriction of emergency vehicle access during Project construction and maintenance activities would reduce the effectiveness of firefighting activities on ANF and PHLNHPA lands. Construction and maintenance activities for the proposed Project would not interfere with firefighting operations in the Tehachapi Fireshed outside of the ANF and PHLNHPA lands due to sufficient paved roadways throughout the remainder of the fireshed.

Mitigation Measure for Impact F-1

F-1 **Prepare wildland traffic control plans.** SCE shall develop wildland traffic control plans as part of the Traffic Control Plans required by Mitigation Measure T-1a (Prepare Traffic Control Plans) in consultation with the FS (ANF), California Department of Parks and Recreation (CHSP) [Alternative 4 only], and Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA), as appropriate. The wildland traffic control plans shall stipulate mechanisms through which narrow roads shall be kept passable for emergency service providers in a wildfire-related or other emergency situation. SCE shall appoint a Road Master, who shall administer the wildland traffic control plans and facilitate emergency vehicle access in the event

of a wildfire-related or other emergency. The wildland traffic control plans shall identify strategic locations for adequate construction and maintenance vehicle parking, as necessary, in consultation with the land management agency, and alternate routes for large equipment and vehicle evacuation shall be identified to the extent possible. Wildland traffic control plans shall be prepared in consultation with the land management agencies for both construction and maintenance activities and shall be submitted to the FS, California Department of Parks and Recreation [Alternative 4 only], and PHLNHPA at least 30 days prior to construction in areas managed by these agencies.

~~Environmental Effects of Mitigation Measure F-1~~

~~While Mitigation Measure F-1 is recommended to avoid Project interference with firefighting operations, it may adversely affect other resources. The widening of roads associated with this measure would result in greater land disturbance, which would create several additional impacts. Vegetation removal that would occur from road widening activities would affect the flora and fauna in these areas. Greater land disturbance would contribute to increased soil erosion, which would potentially affect water quality. Cultural resources that would be located in the areas of road widening may be damaged by earthmoving activities. In addition, geology related impacts may be associated with road widening activities if they are located in the presence of unstable slopes. These potential impacts are similar to the effects of other Project activities, which are discussed in Sections 3.4 (Biological Resources), 3.5 (Cultural Resources), 3.8 (Hydrology and Water Quality), and 3.7 (Geology, Soils, and Paleontology).~~

CEQA Significance Conclusion

Interruption of ground-based firefighting operations as a result of Project construction and maintenance would be a significant impact. To reduce the significance of this potential impact, the following mitigation measure has been identified: Mitigation Measure F-1 (Prepare wildland traffic control plans). Mitigation Measure F-1 would ensure that emergency vehicles would have adequate access to wildland areas during Project construction and maintenance activities on NFS and PHLNHPA lands. Implementation of the mitigation measure described above would reduce Impact F-1 to a less-than-significant level (Class II).

Impact F-2: Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting.

Large wildfires are fought at strategic locations in wildland-urban interface communities such as ridge tops and natural and manmade fuelbreaks. Fires are also fought at locations where there is ground-based access to wildlands by road and by aerial access to wildlands where obstacles such as transmission lines do not exist. In the locations where the proposed Project would introduce a new or substantially higher linear overhead electrical element to the landscape of the Tehachapi Fireshed in the vicinity of one or more of the strategic firefighting elements presented above, firefighting effectiveness would be reduced.

Low Fire Risk Project Area

Although Segment 10 and Segment 4 would require new and expanded ROW, these segments occur in the low-risk Project areas and would not be expected to affect firefighting effectiveness. Segment 5 would not require new ROW, would not increase the maximum height of transmission lines in the shared ROW, and would therefore not have the potential to reduce the effectiveness of aerial firefighting activities.

Tehachapi Fireshed Area

As described in Section 3.16.2.2, portions of Segment 6, Segment 7, Segment 8A, and Segment 11 would increase the maximum height of transmission lines in the shared ROW through the Tehachapi Fireshed. The height increase would be approximately 50 feet on average along these segments. The increased height of transmission lines in these areas would decrease the effectiveness of aerial firefighting activities because firefighting aircraft would have to fly at higher altitudes to avoid conflicts with the transmission lines and towers. Flying at higher altitudes can reduce the accuracy of targeted drops of water and flame retardant used to suppress and contain wildfires. However, because there are existing transmission lines in the shared ROW, aerial firefighting crews avoid making drops near the ROW under existing conditions, and the addition of the proposed Project would present only a marginal increase in the required altitude of aerial vehicles working through the shared ROW.

CEQA Significance Conclusion

The increased heights of transmission lines in Segments 6, 7, 8A, and 11 would create a less-than-significant impact on aerial firefighting effectiveness (Class III). No mitigation is required.

Exposure of communities, firefighters, personnel, and/or natural resources to an increased risk of wildfire (Criterion FIRE2)

Impact F-3: Construction and/or maintenance activities would increase the risk of wildfire.

Construction activities associated with the proposed Project would include excavation, grading, blasting, and the use of vehicles and heavy equipment. The use of heavy equipment along with the personnel required to construct, repair, and maintain the transmission line would introduce a variety of potential wildfire ignition sources to surrounding vegetation fuels. Construction activities would also introduce additional combustible materials to the construction areas, such as diesel fuel and herbicides.

Low Fire Risk Project Area

Due to a lack of fuels and flat terrain, Project-related construction activities that occur in the low fire risk Project areas do not have the potential to increase the risk of wildfire that would put communities, firefighters, or natural resources at risk of sustaining damages.

Tehachapi Fireshed Area

An ignition that escapes containment at the top of the fireshed could spread to the limits of the fireshed under extreme weather conditions. Project-related ignitions within the proposed Project corridor in the Tehachapi Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heaviest fuel loads, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape. Construction- and maintenance-related ignitions that occur during extreme weather conditions would be at high risk to escape containment and burn large areas throughout the Tehachapi Fireshed, potentially spreading south and west through Acton, La Cañada Flintridge, Santa Clarita, and other communities at the wildland-urban interface, including private inholdings within the ANF. Ignition of a large fire as a result of Project construction or maintenance would threaten firefighter safety above the existing level of hazard that exists for area firefighters. Finally, ignition of a large fire as a result of Project construction or maintenance could adversely affect natural resources including biological resources and air and water quality.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the Project, resulting in a recurring source of ignitions for 50 years or more. Therefore, construction and maintenance activities would create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the highly volatile Tehachapi Fireshed.

APM HAZ-4 (Fire Management Plan, Specification E-2005-104; February 21, 2006) requires SCE to follow its Fire Management Plan during construction of the proposed Project. The Plan is discussed in detail in Section 3.16.3.4. The Plan covers fire safety provisions, equipment, communication, and reporting during construction, however it is not applicable to Project maintenance activities, it does not detail SCE's commitments on non-Forest Service lands, nor does it relate to personnel training for fire preparedness. The Fire Management Plan referenced in Mitigation Measure F-3a below is the same plan referenced in Mitigation Measure PSU-1a (Revise SCE's Fire Management Plan) in Section 3.11.6.1 (Public Services and Utilities). On NFS lands, provisions for the cessation of activities during times of high fire risk are included in SCE's Fire Management Plan per APM HAZ-4, and would also be included in the Forest Service Fire Safety Plan developed as a part of the permit that the FS would issue for the Project.

Mitigation Measures for Impact F-3

F-3a **Revise SCE's Fire Management Plan for maintenance activities.** SCE's Fire Management Plan shall be revised to be applicable to Project maintenance activities located off NFS lands. All provisions of the Plan that are applicable to construction crews and activities shall be made applicable to maintenance crews and activities. The revised Plan shall be submitted to the CPUC for review at least 60 days prior to construction.

F-3b **Cease work during Red Flag Warning events.** During Red Flag Warning events, as issued daily by the National Weather Service in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA), all non-emergency construction and maintenance activities shall cease in affected areas. An exception shall be made for transmission line testing where a transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages.

F-3c **Ensure open communication pathways.** All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the Project area immediately upon ignition.

Each crew member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all construction crewmembers, as needed, prior to the initiation of construction activities and on the day the information change goes into effect. Outdated cards shall be destroyed.

F-3d **Remove hazards from the work area.** SCE shall clear dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission ROW, construction laydown areas, pull sites, access roads, parking

pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.

F-3e **Comply with non-smoking policy on PHLNHPA lands.** SCE and contractor personnel shall comply with the non-smoking policy on Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA) lands during construction and maintenance activities, and this commitment shall be written into SCE's Fire Management Plan for construction and maintenance (see Mitigation Measure F-3a, Revise SCE's Fire Management Plan for maintenance activities).

F-3f **Share costs for ANF fuelbreak maintenance.** SCE shall enter into a cost-sharing agreement with the FS for maintenance of the existing system of fuelbreaks. Cost-sharing for fuelbreak maintenance shall be required for backbone fuelbreaks in close proximity to the Project or that transect the path of the Project. A backbone fuelbreak is an identified key ridge or other linear geographical feature that has a high level of effectiveness in slowing or containing a wildfire. Backbone fuelbreaks in the vicinity of the Project include: Santa Clara Divide, Mill Creek, Flintridge, Clear Creek, Millard, Brown Mountain, Clamshell, Santa Anita Dam, Chantry and Monrovia (a.k.a. Redbox/Rincon). SCE's responsibility under the cost-sharing agreement would be proportional to the Project's potential impacts on wildfire prevention and suppression.

F-3g **Provide transmission line safety training to ANF staff.** SCE shall provide transmission line safety training to FS (ANF) staff prior to the start of the official fire season on an annual basis.

Environmental Effects of Mitigation Measure F-3d

While Mitigation Measure F-3d is recommended to decrease the risk of wildfire from Project activities, it may result in additional impacts to other resources. Native vegetation or other biological resources may be adversely affected by this measure if they are located under or adjacent to piles of chipped vegetation. This potential impact is similar to the effects of other Project activities, which are fully discussed in Section 3.4 (Biological Resources).

Mitigation Measure F-3d would also contribute to increased construction noise from operation of the chippers, which may impact noise sensitive receptors in the Project area. The use of chippers in order to clear dead/decaying vegetation from Project work areas is included in the construction noise analysis presented in Section 3.10 (Noise) for the proposed Project. As described in Table 3.10-10 (Noise Policy Compliance Table – Construction), although construction noise would be temporary and would be reduced by implementation of APMs NOI-1, NOI-3, and NOI-4, and Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use), the level of construction noise would violate several local noise ordinances and standards.

Environmental Effects of Mitigation Measure F-3f

Mitigation Measure F-3f would require SCE to contribute its fair share for maintenance of the existing system of fuelbreaks on ANF, an ongoing project for which separate environmental reviews under NEPA are periodically undertaken by the Forest Service. Therefore, Mitigation Measure F-3f would not result in impacts associated with the Project.

CEQA Significance Conclusion

Construction and maintenance activities would increase the risk of wildfire, resulting in a significant impact. To reduce the significance of these potential impacts, the following mitigation measures have been

identified: Mitigation Measures F-3a (Revise SCE's Fire Management Plan for maintenance activities), F-3b (Cease work during Red Flag Warning events), F-3c (Ensure open communication pathways), F-3d (Remove hazards from the work area), and F-3e (Comply with non-smoking policy on PHLNHPA lands).

Mitigation Measure F-3a would require the incorporation of fire safe practices during Project maintenance in addition to Project construction. Mitigation Measure F-3b would reduce the potential impact to communities, firefighters, and natural resources by prohibiting Project construction and maintenance activities during Red Flag Warning events, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned, the number of communities at risk, and the hazard to firefighting crews. This measure would be applicable to non-Forest Service lands (similar provisions for ANF lands are contained in HAZ-4). This measure would reduce the risk of homes sustaining damage in a Project construction- or maintenance-related fire.

Mitigation Measure F-3c would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources. Mitigation Measure F-3d (Remove hazards from the work area) would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing volatile fuel loads within the corridor. Mitigation Measure F-3e would ensure compliance with PHLNHPA's non-smoking policy. The implementation of these mitigation measures would reduce Impact F-3 to a less-than-significant level (Class II).

Impact F-4: Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire

Construction and maintenance personnel would be exposed to an increased risk of injury or death in the event of a fire in the vicinity of construction areas if sufficient emergency evacuation routes were not available, or if safe emergency evacuation routes were not known to personnel prior to an incident.

Low Fire Risk Project Area

The risk of an uncontrolled fire is sufficiently low throughout the low fire risk Project area. However, in the unlikely event of an uncontrolled fire, sufficient paved roadways are available for emergency evacuation of personnel.

Tehachapi Fireshed Area

Portions of the Tehachapi Fireshed area within ANF, on PHLNHPA lands, and in CHSP are accessible by narrow, unpaved roadways through wildland areas that are highly susceptible to wildfires. Critical to personnel safety in the event of fire are the availability of safe evacuation routes and personnel awareness of these routes. Air-lifting of personnel in the event of fire is unlikely to be feasible due to flight restriction orders that are issued during wildfire events. Segment 11 through ANF is the most access-restricted of all proposed Project segments. Under existing conditions, the bridge along Fall Creek Road (along Segment 11) that would provide for the crossing of Tujunga Creek is out of service, providing only a single point of ingress and egress for personnel and firefighting crews in the event of a wildfire. Under Alternative 2 this bridge would be repaired to ensure an adequate number of emergency evacuation routes in the event of an uncontrolled fire in the vicinity of Segment 11.

APM HAZ-4 (Fire Management Plan, Specification E-2005-104; February 21, 2006) requires SCE to follow its Fire Management Plan during construction of the proposed Project. The Plan is discussed in detail in Section 3.16.3.4. Among other commitments, the Plan commits to restricting project activities in

compliance with ANF Project Activity Levels, as issued daily by ANF, for example, during periods of extreme fire hazard due to critical weather conditions. Because Project construction activities would be restricted relative to the severity of weather conditions, the presence of construction workers in ANF would be limited during extreme fire weather thereby reducing the risk of personnel injury and death as a result of a Santa-Ana driven wildfire event.

The Plan covers fire safety provisions, equipment, communication, and reporting during construction, however it does not detail SCE's commitments on non-Forest Service lands, it does not ensure emergency evacuation of personnel from wildland areas in the event of fire, and it does not address the emergency evacuation constraint of the out-of-service Tujunga Creek Bridge. As a result, personnel engaged in Project construction or maintenance activities on non-Forest Service lands would be at risk of being engaged in work activities during extreme weather conditions. In addition, personnel working in wildland areas would be at risk of not being evacuated in the event of fire during normal weather conditions due to a lack of evacuation planning effort despite implementation of APM HAZ-4. Finally, personnel working on ANF lands in the vicinity of Tujunga Creek would be at risk in the event of a fire during normal weather conditions despite implementation of APM HAZ-4 due to the emergency access constraint of the area.

Mitigation Measures for Impact F-4

F-3b Cease work during Red Flag Warning events.

F-4 Prepare and implement Emergency Evacuation Plan. SCE shall prepare an Emergency Evacuation Plan to ensure the safe and expedient ground-based evacuation of personnel in the event of an uncontrolled fire in the Project area, including addressing the Tujunga Creek bridge area. The Plan shall make explicit the following elements: a schedule of the locations of all personnel during the fire season, conditions under which to evacuate, chain of command, communications with ANF Emergency Operations Center, and identification of evacuation routes. An emergency evacuation officer shall be appointed to educate personnel about emergency evacuation routes prior to each day's construction activities, to carry out the Plan in the event that an evacuation order is issued or that a nearby uncontrolled fire threatens personnel safety, and to update the plan should access conditions change. The Emergency Evacuation Plan shall be submitted to FS, PHLNHPA, and California Department of Parks and Recreation [Alternative 4 only], as appropriate, for review and comment at least 30 days prior to Project construction.

CEQA Significance Conclusion

Construction and maintenance activities would increase the risk of personnel injury or death in the event of an uncontrolled wildfire, resulting in a significant impact. To reduce the significance of this potential impact, the following mitigation measures have been identified: Mitigation Measure F-3b (Cease work during Red Flag Warning events) and, F-4 (Prepare and implement Emergency Evacuation Plan).

Mitigation Measure F-3b would reduce the risk to construction and maintenance personnel by prohibiting Project construction and maintenance activities during Red Flag Warning events, which would eliminate work during extreme fire weather. This measure would be applicable to non-Forest Service lands (similar provisions for ANF lands are contained in HAZ-4). This measure would reduce the risk of personnel injury and death as a result of a Santa Ana driven wildfire by restricting the presence of personnel in wildland areas during the most extreme fire weather.

Mitigation Measure F-4 would ensure identification of emergency access routes prior to Project construction activities, require education of personnel about these access routes prior to each day's construction or maintenance activities, and require appointment of an Emergency Evacuation Plan officer to administer the plan in the event of fire. The implementation of these mitigation measures would reduce Impact F-4 to a less-than-significant level (Class II).

Impact F-5: Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety.

The presence of an overhead transmission line in areas where a transmission line does not currently exist would create a new source of potential wildfire ignitions for the life of the Project. Component failures can result in wildfire ignitions if maintenance or inspections are inadequate. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these latter events are rare but would be unavoidable. In addition, the presence of a transmission line in areas susceptible to wildfires compromises firefighter safety by creating an electrical shock hazard for ground-based firefighters.

Low Fire Risk Project Area

Due to a lack of fuels and flat terrain, unpredictable ignitions related to Project operation that occur in the low fire risk Project areas do not have the potential to increase the risk of wildfire that would put communities, firefighters, or natural resources at risk of sustaining damages.

Tehachapi Fireshed Area

The Tehachapi Fireshed is a high-risk fireshed based on its wildfire history, fuels present, and wildland-urban interface communities at risk. Any line faults that create sparks or ignite nearby vegetation in the Tehachapi Fireshed could result in a large and catastrophic wildfire, which would put large areas and potentially many households at risk. The potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather increases the likelihood of a catastrophic wildfire. The risk of ignitions and the risk of damage from a Project-related ignition would be substantially reduced through implementation of adequate line clearances in compliance with GO95 Rule 35, and by performing adequate inspections to detect imminent component failures in compliance with GO 95 Rule 31.2.

The portions of Alternative 2 that would be located within the Tehachapi Fireshed would replace existing transmission lines. Therefore, the existing transmission lines within the Tehachapi Fireshed that Alternative 2 would replace represent an ongoing source of potential wildfire ignitions. Once operational, the potential for wildfire ignitions as a result of the presence of a transmission line would persist, but would not be increased.

CEQA Significance Conclusion

The presence of the Project would not increase the likelihood of a catastrophic wildfire. The transmission lines constructed within the Tehachapi Fireshed would have the same potential for igniting a wildfire as the existing transmission lines the project would replace. Therefore, Impact F-5 would be less than significant (Class III).

Increased ignition potential and rate of fire spread (Criterion FIRE3)

Impact F-6: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.

Project construction and maintenance activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. Construction and maintenance of the proposed Project would contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses, extending the length of the fire season and creating fine fuels that are easily ignited. These fine fuels increase the likelihood that the background sources of ignition in the environment would result in a wildfire ignition, resulting in ~~contribute to~~ wildfire ignitions earlier in the year and an increased level of fire recurrence. While the introduction of non-native plants would not increase the background rate of ignition sources, it would increase the ignition potential, or the likelihood that an ignition source would result in an actual wildfire ignition. In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (Wiedinmyer and Neff, 2007). The introduction and spread of specific invasive plants within the proposed Project ROW would adversely influence fire behavior by increasing the fuel load, fire frequency and fire spread.

CEQA Significance Conclusion

Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread. To reduce the significance of this potential impact, the following mitigation measure has been identified: Mitigation Measure B-3a (Prepare and implement a Weed Control Plan) (see full description in Section 3.4, Biological Resources). Implementation of the Weed Control Plan would prevent or substantially reduce the potential for ignition potential or increased fire spread as a result of non-native, invasive plants introduced during to the Project area during construction or maintenance activities. Implementation of this mitigation measure would reduce Impact F-6 to a less-than-significant level (Class II).

3.16.6.2 Cumulative Effects Analysis

Geographic Extent

The geographic extent of the cumulative effects analysis includes the area within the Tehachapi Fireshed boundary, as defined in Section 3.16.2, and shown on Figure 3.16-1 (at the end of this section). The Tehachapi Fireshed is defined as the areas that have experienced multiple, large fires (at least 300 acres in extent) over a 50-year history (up to and including 2006), are generally categorized as being located in high or very high Fire Hazard Severity Zones as defined by Cal Fire, contain surface fuels capable of carrying a large wildfire, and are within the Santa Ana wind influence area in relation to potential ignitions from the proposed Project. Firesheds are conceptually analogous to watersheds. An ignition that escapes containment at the top of the fireshed could spread to the limits of the fireshed under extreme weather conditions. Furthermore, an individual fireshed encompasses areas with similar fire risk and where a similar prevention and response strategy could influence the wildfire outcome. Cumulative effects

are therefore evaluated to the geographic extent of the high-risk Tehachapi Fireshed boundary due to similar wildfire risks across the fireshed. The Tehachapi Fireshed includes portions of Los Angeles, San Bernardino, Orange, and Ventura Counties. Wildfires are not expected to occur in the low fire risk areas due to a lack of the biophysical conditions necessary to carry wildfires, including dense fuels and steep topography.

Existing Cumulative Conditions

The TRTP corridor currently contains several other high-voltage transmission lines~~, which have contributed to an unknown number of wildfires since installation~~. The proposed Project would be constructed primarily within existing ROW adjacent to these existing structures, which create an ongoing source of potential wildfire ignitions.

Numerous wildland-urban interface communities exist throughout the Tehachapi Fireshed. These communities are situated in harm's way when a large fire sweeps through the area. Furthermore, the presence of humans in the fuel-laden Tehachapi Fireshed has increased the number of human-related wildfire ignitions in recent decades, which has resulted in shorter intervals between large fires. Human activities have altered natural fire regimes relative to their historic range of variability (Syphard et al., 2007). California chaparral shrublands have experienced such substantial human population growth and urban expansion that the increase in ignitions, coupled with the most severe fire weather in the country (Schroeder et al., 1964), have increased fire frequency above the historic range of variability (Keely et al., 1999). Impacts to ecosystems, communities, and species are possible if a disturbance regime, like wildfire, exceeds its natural range of variability (Landres et al., 1999; Dale et al., 2000). For example, too-frequent fire can result in habitat loss and fragmentation, shifting plant community composition, reduction of small-mammal populations, and accompanying loss of predator species (Barro and Conard, 1991; DellaSalla et al., 2004).

These land-use changes and fire frequency increases have lead to vegetation type conversion of the native shrubland systems into primarily non-native grasslands in many areas of San Diego County. These non-native grassland systems dry out earlier in the season and are more easily ignited than native shrublands, thus their presence increases the potential for fire occurrence and fire frequency even as they may locally reduce fire intensity by replacing hot, woody fuels with cool, fast-burning fuels.

More frequent fires also increase the total number of homes and businesses lost to wildfires over time, as most structures are rebuilt after being damaged or destroyed in a wildfire.

Reasonably Foreseeable Future Projects and Changes

Future subdivision of wildlands and residential development at the wildland-urban interface, consistent with the Los Angeles, San Bernardino, Orange, and Ventura County General Plans, are expected to increase the number of human-caused fires throughout the Tehachapi Fireshed over the life of the proposed Project and beyond. Future development is also expected to contribute to non-native species spread. Reasonably foreseeable projects that would contribute to increased ignitions and non native species spread include the Tejon Mountain Village development (3,450 dwelling units), and existing transmission line maintenance activities.

Cumulative Impact Analysis

- **Construction and/or maintenance activities would reduce the effectiveness of firefighting (Impact F-1).** Construction activities related to the proposed Project in the ANF, residential development near the ANF (such as the Tejon Mountain Village), and maintenance of existing transmission lines in the shared ROW

through the ANF could limit emergency vehicle access in the forest. If adequate road access cannot be maintained in remote areas of the ANF due to construction and maintenance activities, the access restriction could delay firefighting response. Existing transmission line maintenance activities that block roads within the ANF could combine to seriously delay firefighting operations during the fire season in the event of a fire in the ANF. However, Mitigation Measure F-1 (Prepare wildland traffic control plans) would reduce this impact of the Project and ensure access for emergency response vehicles. Therefore, the Project would not be cumulatively considerable and no cumulative effect would occur (Class III).

- **The presence of new or higher overhead transmission line would reduce the effectiveness of firefighting (Impact F-2).** The addition of the aboveground transmission lines on towers of substantially higher maximum height than existing towers through the Tehachapi Fireshed would only marginally reduce the effectiveness of firefighting activities within the Fireshed by limiting aerial operations and would therefore not combine with other past, present, and reasonably foreseeable projects in the area to result in a cumulative impact. The cumulative effect would be less than significant (Class III).~~. The proposed Project would combine with existing transmission lines that serve as barriers to firefighting operations, resulting in a cumulatively considerable impact. Mitigation Measure F-3f (Share costs for ANF fuelbreak maintenance) would increase the likelihood of successful fire suppression by increasing the strategic firefighting locations for firefighters in the ANF, but it would not be able to reduce the impact on the effectiveness of firefighting to a less-than-significant level. Therefore, this impact would be cumulatively significant and unavoidable (Class I).~~
- **Construction and/or maintenance activities would increase the risk of wildfire (Impact F-3).** Numerous construction activities, particularly increased residential development, adjacent to wildland areas throughout the Tehachapi Fireshed are reasonably foreseeable in the near future. This type of construction increases the level of human influence and activity adjacent to wildlands, thereby increasing human-caused wildfire ignitions. Other phenomena, such as increased travel on wildland-adjacent roadways also contribute to wildfire ignitions that result in widespread damages. Construction of the proposed Project would also increase wildfire ignitions in fuel-laden wildlands, and these can have especially devastating consequences during severe fire weather conditions. Mitigation Measures F-3a (Revise SCE's Fire Management Plan for maintenance activities), F-3b (Cease work during Red Flag Warning events), F-3c (Ensure open communication pathways), F-3d (Remove hazards from the work area), and F-3e (Comply with non-smoking policy on PHLNHPA lands) would reduce the severity of Project-level impacts from wildfire ignition as a result of construction and maintenance to a less-than-significant level. ~~However, although these measures would restrict Project related activities to times during which Santa Ana winds are not blowing, which would limit the severity of construction or maintenance ignited fires, these mitigation measures cannot completely eliminate the possibility of a wildfire ignition that could result in the loss of life, property, and natural resources. Therefore, the proposed Project would combine with other reasonably foreseeable residential development projects to create a cumulatively considerable increase in wildfire ignitions from construction and maintenance activities across the Tehachapi Fireshed. Mitigation measures cannot reduce the risk of a damaging wildfire to zero, and therefore this impact would be cumulatively significant and unavoidable (Class I).~~These mitigation measures would substantially reduce the risk of Project-related wildfire ignition, and this effect would therefore not combine with other construction projects in the area to result in a cumulative impact. The cumulative effect would be less than significant with mitigation incorporated (Class II).
- **Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire (Impact F-4).** The proposed Project would increase the risk of construction and maintenance personnel injury or death in the event of an uncontrolled wildland fire to a less-than-significant level after mitigation. However, this effect would not combine with other past, present, nor reasonably foreseeable projects to result in a cumulative impact to personnel. Therefore this impact would not be cumulatively significant (No Impact).
- **Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety (Impact F-5).** The proposed Project would not result in a new ongoing source of potential wildfire ignitions within a fireshed. However, the existing transmission lines within the Tehachapi Fireshed that Alternative 2 would replace represent an ongoing source of potential wildfire ignitions. Once operational, the potential for wildfire ignitions as a result of the presence of a transmission line would persist, but would not increase. Past, present, and reasonably foreseeable projects that have been/would be constructed near fuel-laden wildlands would also increase the probability of igniting a wildfire that would

result in widespread damages. Even a single ignition that escapes containment in the highly fire-prone Tehachapi Fireshed could have devastating effects on communities, firefighter health and safety, and natural resources, and these mitigation measures would not ensure prevention or containment of all ignitions. ~~Therefore, this impact of the proposed Project would be expected to combine with similar impacts from existing and reasonably foreseeable transmission lines and would be cumulatively considerable. A number of past, present, and reasonably foreseeable fuel reduction projects that have been/would be carried out on ANF lands would reduce the severity of potential wildfires ignited by the proposed Project and other transmission lines in the ANF. Fuel reduction projects cannot reduce the risks of a catastrophic wildfire to zero, however, and the impact would remain cumulatively considerable. Therefore, this impact would be cumulatively significant and unavoidable (Class I).~~Because the risk of wildfire ignition would not increase as a result of the proposed Project, this effect would not combine with other past, present, and reasonably foreseeable projects to result in a cumulative impact. Therefore this impact would not be cumulatively significant (No Impact).

- **Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Impact F-6).** Mitigation measures targeted at the prevention and management of invasive plants can reduce Project-level impacts on the spread of invasive species across the Tehachapi Fireshed, which in turn reduces the effect of non-native plant cover on exacerbating wildfire behavior. Similar mitigation measures would be expected to be implemented for many of the reasonably foreseeable housing development and fuel reduction projects in the Tehachapi Fireshed that have the potential to introduce and spread non-native species, reducing the cumulative impact of invasive plant cover on wildfire behavior to a less than significant level. However, not all activities that result in non-native plant introductions and spread are regulated, nor can they be easily regulated due to their dispersed nature. These activities include such things as human travel on roadways and recreational hiking in wildland areas, both of which can transport non-native plant seeds in soils compacted in tire treads and on the soles of hiking boots. Because invasive plant introductions to wildland areas is reasonably foreseeable despite best efforts at mitigation, and because Mitigation Measure B-3a (Prepare and implement a Weed Control Plan) would not completely eliminate the risk of non-native species introduction, the incremental effects of the proposed Project on non-native species introduction that adversely affect wildfire behavior are considered cumulatively considerable. This impact would be cumulatively significant and unavoidable (Class I).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

No additional mitigation is available to reduce the Project's contribution to significant cumulative effects on wildfire prevention and suppression.

3.16.7 Alternative 3: West Lancaster Alternative

3.16.7.1 Direct and Indirect Effects Analysis

Adverse effects on fire prevention and suppression activities (Criterion FIRE1)

Impacts associated with Criterion FIRE1 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 3 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the rerouted portion of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with fire prevention and suppression activities.

Impact F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) would require implementation of the following mitigation measure: F-1 (Prepare wildland traffic control plans). With implementation of the mitigation measure listed above and described in detail in Section 3.16.6.1, Impact F-1 for Alternative 3 would be less than significant (Class II).

Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting) would be less than significant (Class III).

Exposure of communities, firefighters, personnel, and/or natural resources to an increased risk of wildfire (Criterion FIRE2)

Impacts associated with Criterion FIRE2 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 3 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the rerouted portion of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with increased wildfire risk, nor would it unduly restrict emergency evacuation routes.

Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire) would require implementation of the following mitigation measures: F-3a (Revise SCE's Fire Management Plan for maintenance activities), F-3b (Cease work during Red Flag Warning events), F-3c (Ensure open communication pathways), F-3d (Remove hazards from the work area), F-3e (Comply with non-smoking policy on PHLNHPA lands), F-3f (Share costs for ANF fuelbreak maintenance),and F-3g (Provide transmission line safety training to ANF staff). With implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-3 for Alternative 3 would be less than significant (Class II).

Impact F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would require implementation of the following mitigation measures: F-3b (Cease work during Red Flag Warning events), and F-4 (Prepare and implement Emergency Evacuation Plan). With implementation of these mitigation measures described in detail in Section 3.16.6.1, Impact F-4 would be less than significant (Class II).

Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety) would be less than significant (Class III).

Increased ignition potential and rate of fire spread (Criterion FIRE3)

Impacts associated with Criterion FIRE3 for Alternative 3 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 3 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the rerouted portion of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with increased wildfire risk.

Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would require implementation of the following mitigation measure: B-3a (Prepare and implement a Weed Control Plan). With implementation of this mitigation measure, which is described in detail in Section 3.4 (Biological Resources), Impact F-6 for Alternative 3 would be less than significant (Class II).

3.16.7.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 3 (West Lancaster Alternative). This alternative consists of a brief re-route of the proposed transmission line just north of Antelope Substation, which would add approximately 0.4 mile to the length of the route in the low fire risk Project area. The remainder of this alternative route (south of Antelope Substation) would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. The rerouted portion of the Alternative 3 route generally parallels the

proposed Project route to the west. As a result, this alternative traverses similarly low fire risk areas as the portion of the proposed Project route it is proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 3 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Alternative 3 only differs from the proposed Project for a very small portion of the proposed route in the City of Lancaster, near Antelope Substation. This area is encompassed by the same geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.16.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 3 is exactly the same as that for Alternative 2 and would include both the low fire risk Project areas and the Tehachapi Fireshed.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 3 are exactly the same as for Alternative 2, as described in Section 3.16.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 3 would be exactly the same as Alternative 2, described in Section 3.16.6.2.

Cumulative Impact Analysis

As described in Section 3.16.6.2, impacts associated with Alternative 3 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The minor re-route of the proposed Project transmission line associated with Alternative 3 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 3 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.16.6.2 and described below.

Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting), Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), ~~and~~ F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire), and Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety) would not be cumulatively considerable (Class III, Class III, Class II, No Impact, and No Impact, respectively).

~~The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety), and~~ Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

No mitigation is available to reduce the Project's contribution to significant cumulative effects on wildfire prevention and suppression.

3.16.8 Alternative 4: Chino Hills Route Alternatives

3.16.8.1 Direct and Indirect Effects Analysis

Adverse effects on fire prevention and suppression activities (Criterion FIRE1)

Impacts associated with Criterion FIRE1 for Alternative 4 would be more severe than impacts associated with this criterion for the proposed Project. As described in Section 3.16.2.4 (Affected Environment: Alternative 4), this alternative would follow the same route as the proposed Project through the low risk Project area along Segments 10 and 4 and part of Segments 5, 7, and 11. This alternative would also follow the same route as the proposed Project through the Tehachapi Fireshed for the remainder of Segments 5, 7, and 11, and Segment 6. Alternative 4 would continue to follow the proposed Project route along Segment 8A in the Tehachapi Fireshed, diverging from the proposed Project route at S8A MP 19.2. All ~~four~~ five of the Alternative 4 route options would diverge in various directions in and around CHSP. Alternative 4 would not introduce new impacts to Wildfire Prevention and Suppression; however, it would increase the severity of impacts associated with Criterion FIRE1.

In addition to being located through ANF and PHLNHPA lands, all of the Alternative 4 routes would pass through CHSP, and would be accessed by narrow, unpaved roads that could be similarly obstructed by construction and maintenance vehicles and obstruct emergency fire vehicle access. The ~~four~~ five optional routes of Alternative 4 would each introduce varying lengths of new transmission ROW through an area containing high-risk fuels and steep topography in CHSP. The introduction of a new linear element across the landscape would introduce a new obstruction to aerial and ground-based firefighting operations. This would occur for 5.3 miles along Route D, which would introduce a new transmission corridor that, in combination with existing transmission lines, would create an area of indefensible space of approximately 2,000 acres in CHSP. The creation of indefensible spaces allows fires to build in intensity unchecked by firefighters until the fire burns through the area.

Impact F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) would require implementation of the following mitigation measure: F-1 (Prepare wildland traffic control plans). Even though additional wildland road obstruction would potentially occur during construction and maintenance activities for Alternative 4 as compared to the proposed Project, with implementation of the mitigation measure listed above and described in detail in Section 3.16.6.1, Impact F-1 for Alternative 4 would be less than significant (Class II).

Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting) for Alternative 4 would be significant and unavoidable, and no mitigation is available (Class I).

Exposure of communities, firefighters, personnel, and/or natural resources to an increased risk of wildfire (Criterion FIRE2)

Impacts associated with Criterion FIRE2 for Alternative 4 would be similar to impacts associated with this criterion for the proposed Project described above in Section 3.16.2. However, Alternative 4 would require substantially more intensive construction activities for the creation of new and expanded ROW

that would be required along all ~~four~~ five of the routes for Alternative 4. Impact F-3 in the low fire risk Project area would be identical to the proposed Project, and would not have the potential to increase the risk of wildfire. Impact F-3 in the Tehachapi Fireshed area would be similar to the proposed Project. However, since substantially more intensive construction activities would be required for the creation of new and expanded ROW, Impact F-3 would present a greater risk of wildfire ignition during construction activities. Impacts would be proportional to the lengths of new and expanded ROW within the Tehachapi Fireshed boundary (with greater impacts resulting from longer distances), defined here:

- Route A would require ~~8.5~~ 6.2 miles of new and expanded ROW
- Route B would require ~~13~~ 9.7 miles of new and expanded ROW
- Route C would require ~~9.5~~ 9.3 miles of new and expanded ROW
- Route C Modified would require 8.3 miles of new and expanded ROW
- Route D would require ~~9.2~~ 9.8 miles of new and expanded ROW

Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire) would require implementation of the following mitigation measures: F-3a (Revise SCE's Fire Management Plan for maintenance activities), F-3b (Cease work during Red Flag Warning events), F-3c (Ensure open communication pathways), F-3d (Remove hazards from the work area), F-3e (Comply with non-smoking policy on PHLNHPA lands), F-3f (Share costs for ANF fuelbreak maintenance),and F-3g (Provide transmission line safety training to ANF staff). Although the magnitude of construction activities would be greater for Alternative 4, with implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-3 would be less than significant (Class II).

Impact F-4 through the low risk Project areas along Alternative 4 would be identical to the low risk Project areas for the proposed Project, and would not have the potential to increase the risk of personnel injury or death in the event of fire. Although Alternative 4 would reroute portions of Segment 8A through the Tehachapi Fireshed, this would not unduly restrict emergency evacuation routes, and Impact F-4 in the Tehachapi Fireshed area would be identical to that of the proposed Project.

Impact F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would require implementation of the following mitigation measures: F-3b (Cease work during Red Flag Warning events), and F-4 (Prepare and implement Emergency Evacuation Plan). With implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-4 would be less than significant (Class II).

Impact F-5 through the low risk Project areas along Alternative 4 would be identical to the low risk Project areas for the proposed Project, and would not have the potential to increase the risk of wildfire that would put communities, firefighters, or natural resources at risk of sustaining damages.

Impact F-5 in the Tehachapi Fireshed area would be similar to the proposed Project for most of the project alignment, except for the re-routed portion of Alternative 4. The re-routed portion of this alternative would result in a new or expanded transmission line alignment within CHSP and the area immediately north of CHSP. Each route of Alternative 4 would be constructed either directly adjacent, or in close proximity, to existing transmission lines within and immediately north of CHSP, where the risk of fire ignition due to presence of a transmission line already exists. Despite this existing risk, the additional infrastructure associated with any of the Alternative 4 routes would incrementally increase the amount of equipment in the area that could fail or be interfered with, thereby incrementally increasing the risk of a wildfire.

As discussed above for Alternative 2, the risk of ignitions and the risk of damage from a Project-related ignition would be substantially reduced through implementation of adequate line clearances in compliance with GO95 Rule 35, and by performing adequate inspections to detect imminent component failures in compliance with GO 95 Rule 31.2. Nonetheless, presence of any of the Alternative 4 transmission line routes would result in an incremental increased risk of wildfire ignition, resulting in a significant impact.

To reduce the significance of this potential impact, the following mitigation measures have been identified: F-5 (Share costs for fuelbreak maintenance). Mitigation Measure F-5 would increase the level of fuelbreak maintenance in the area of Alternative 4, providing an increased number of strategic firefighting locations for firefighters to fight a Project-ignited fire. Nonetheless, the long-term potential for the Project to ignite a fire and cause damage to homes and natural resources would still exist. Therefore, Impact F-5 would remain significant and unavoidable (Class I).

Mitigation Measure for Impact F-5

F-5 **Share costs for fuelbreak maintenance.** SCE shall enter into cost-sharing agreements with the City of Chino Hills and Chino Hills State Park for maintenance of the existing system of fuelbreaks on and surrounding State Parks lands. Cost-sharing for fuelbreak maintenance shall be required for backbone fuelbreaks in close proximity to the Project or that transect the path of the project. A backbone fuelbreak is an identified key ridge or other linear geographical feature that has a high level of effectiveness in slowing or containing a wildfire. An agreement on cost sharing with each the City of Chino Hills and Chino Hills State Park shall be reached prior to the start of Project construction. SCE's responsibility under the cost-sharing agreement would be proportional to the Project's potential impacts on wildfire prevention and suppression.

Increased ignition potential and rate of fire spread (Criterion FIRE3)

Impacts associated with Criterion FIRE3 for Alternative 4 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2, with the exception of a greater development of wildland areas associated with all four Route options for Alternative 4 as a result of the requirement for new and expanded ROW.

Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would require implementation of the following mitigation measure: B-3a (Prepare and implement a Weed Control Plan). Although the magnitude of construction activities would be greater for Alternative 4, with implementation of this mitigation measure, which is described in detail in Section 3.4 (Biological Resources), Impact F-6 would be less than significant (Class II).

3.16.8.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 4 (Chino Hills Route Alternatives). This alternative consists of four different routing options which would diverge from the proposed Project route in the City of Chino Hills. The route for Alternative 4 would be exactly the same as that of the proposed Project for all segments except Segment 8, where the Alternative 4 routing options (Routes A through D and Route C Modified) would diverge from the proposed Project alignment at S8A MP 19.2. Furthermore, Alternative 4 would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 4 to the proposed Project, this alternative's contribution to cumulative impacts would be similar or identical to that of the proposed Project. However, when

compared to the proposed Project, each alternative's contribution to certain cumulative impacts may be incrementally increased or decreased as a result of the rerouted portion of the alternative. With regard to Alternative 4, any incremental increases or decreases in the Project's contribution to the cumulative scenario would result from the location of the alternative alignments associated with Routes A, B, C, C Modified, and D.

Geographic Extent

Alternative 4 differs from the proposed Project in the southwestern portion of the proposed route within the boundary of the Tehachapi Fireshed, near the cities of Chino, Chino Hills, and Ontario. This area is encompassed by the same geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.16.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 4 is exactly the same as that for Alternative 2 and would include the low fire risk Project areas and the Tehachapi Fireshed areas.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 4 are exactly the same as for Alternative 2, as described in Section 3.16.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 4 would be exactly the same as Alternative 2, described in Section 3.16.6.2.

Cumulative Impact Analysis

As described in Section 3.16.6.2, impacts associated with Alternative 4 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. As discussed in Section 3.16.8.1, Alternative 4 would increase the magnitude of Project-level impacts to Wildfire Prevention and Suppression due to more intensive construction activities and the introduction of new linear obstructions to the landscape. Therefore, Alternative 4 would incrementally increase the Project's contribution to significant cumulative Impact~~s F-2, F-3, F-5, and~~ F-6.

In addition, Alternative 4 would result in significant and unavoidable impacts, including Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting) and F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety). Alternative 4 would require new and expanded ROW in a high-risk landscape and would therefore significantly interfere with aerial and ground-based firefighting operations. This effect would combine with the effect of the existing SCE transmission lines to result in a significant cumulative impact (Class I). Alternative 4 would introduce transmission infrastructure to a new high-risk landscape and would therefore result in an increased risk of wildfire ignition from the new infrastructure. This effect would combine with the effect of the existing SCE transmission lines to result in a significant cumulative impact (Class I). As stated above, Alternative 4 would result in a significant cumulative Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) as described in Section 3.16.6.2 for Alternative 2. However, Alternative 4 would incrementally increase the Project's contribution to this cumulative impact relative to Alternative 2.

Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting), F-3 (Construction and/or maintenance activities would increase the risk of wildfire), and F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would not be cumulatively considerable (Class III, Class II, and No Impact, respectively).

~~The proposed Project would result in an incrementally increased ongoing source of potential wildfire ignitions through line faults that can be caused by unpredictable events such as conductor contact by floating debris, gun shots, and helicopter collisions; these are rare but would be unavoidable. Past, present, and reasonably foreseeable projects that have been/would be constructed near fuel-laden wildlands would also increase the probability of igniting a wildfire that would result in widespread damages. Even a single ignition that escapes containment in the highly fire-prone Tehachapi Fireshed could have devastating effects on communities, firefighter health and safety, and natural resources, and these mitigation measures would not ensure prevention or containment of all ignitions. Therefore, this impact of the proposed Project would be expected to combine with similar impacts from existing and reasonably foreseeable transmission lines and would be cumulatively considerable. A number of past, present, and reasonably foreseeable fuel reduction projects that have been/would be carried out on ANF lands would reduce the severity of potential wildfires ignited by the proposed Project and other transmission lines in the ANF. In addition, Mitigation Measure F-5 (Share costs for fuelbreak maintenance) would increase the maintenance of existing fuelbreaks in the area of Alternative 4. Fuel reduction projects cannot reduce the risks of a catastrophic wildfire to zero, however, and the impact would remain cumulatively considerable. Therefore, this impact would be cumulatively significant and unavoidable (Class I).The following impacts would also be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), and Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread).~~

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures introduced for Alternative 4 in Section 3.16.8.1 would help to reduce this alternative's incremental contribution to cumulative impacts.

3.16.9 Alternative 5: Partial Underground Alternative

3.16.9.1 Direct and Indirect Effects Analysis

Adverse effects on fire prevention and suppression activities (Criterion FIRE1)

The segments of Alternative 5 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the underground portion of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with fire prevention and suppression activities.

Impact F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) would require implementation of the following mitigation measure: F-1 (Prepare wildland traffic control plans). With implementation of the mitigation measure listed above and described in detail in Section 3.16.6.1, Impact F-1 for Alternative 5 would be less than significant (Class II).

Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting) would be less than significant (Class III).

Exposure of communities, firefighters, personnel, and/or natural resources to an increased risk of wildfire (Criterion FIRE2)

Impacts associated with Criterion FIRE2 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 5 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the underground portion of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with increased wildfire risk.

Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire) would require implementation of the following mitigation measures: F-3a (Revise SCE's Fire Management Plan for maintenance activities), F-3b (Cease work during Red Flag Warning events), F-3c (Ensure open communication pathways), F-3d (Remove hazards from the work area), F-3e (Comply with non-smoking policy on PHLNHPA lands), F-3f (Share costs for ANF fuelbreak maintenance),and F-3g (Provide transmission line safety training to ANF staff). With implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-3 for Alternative 5 would be less than significant (Class II).

Impact F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would require implementation of the following mitigation measures: F-3b (Cease work during Red Flag Warning events), and F-4 (Prepare and implement Emergency Evacuation Plan). With implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-4 would be less than significant (Class II).

Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire) would be less than significant (Class III).

Increased ignition potential and rate of fire spread (Criterion FIRE3)

Impacts associated with Criterion FIRE3 for Alternative 5 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 5 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the underground portion of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with increased wildfire risk.

Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would require implementation of the following mitigation measure: B-3a (Prepare and implement a Weed Control Plan). With implementation of this mitigation measure, which is described in detail in Section 3.16.6.1, Impact F-6 for Alternative 5 would be less than significant (Class II).

3.16.9.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 5 (Partial Underground Alternative). This alternative consists of all of the components of the proposed Project except for a four-mile underground portion of Segment 8A in the low fire risk Project area. The remainder of this alternative route would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. The underground portion of the Alternative

5 route follows the same route as the proposed Project through Chino Hills. As a result, this alternative would be underground through low fire risk areas. Based on the substantial similarity of Alternative 5 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Alternative 5 only differs from the proposed Project for a four-mile underground portion of the proposed route along Segment 8A through the low fire risk Project area. This area is encompassed by the geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.16.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 5 is exactly the same as that for Alternative 2 and would include both the low fire risk Project areas and the Tehachapi Fireshed.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 5 are exactly the same as for Alternative 2, as described in Section 3.16.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 5 would be exactly the same as Alternative 2, described in Section 3.16.6.2.

Cumulative Impact Analysis

As described in Section 3.16.6.2, impacts associated with Alternative 5 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The underground portion of the proposed Project transmission line associated with Alternative 5 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 5 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.16.6.2 and described below.

Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting), Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire), and Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety) would not be cumulatively considerable (Class III, Class III, Class II, No Impact, and No Impact, respectively).

Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I).~~Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) and F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would not be cumulatively considerable (Class III and No Impact, respectively).~~

~~The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), Impact F-5~~

~~(Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety), and Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread).~~

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures identified for the proposed Project in Sections 3.16.6.1 and 3.16.6.2 would help reduce the contribution made by Alternative 5. No additional mitigation is available to reduce the Project's contribution to significant cumulative effects on wildfire prevention and suppression.

3.16.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

3.16.10.1 Direct and Indirect Effects Analysis

Adverse effects on fire prevention and suppression activities (Criterion FIRE1)

Impacts associated with Criterion FIRE1 for Alternative 6 would be similar to impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 6 that pass through the Tehachapi Fireshed would be identical to the proposed Project, however substantially more helicopter use would be required for construction of Segments 6 and 11 throughout the ANF. The increased use of helicopters could interfere with aerial firefighting operations if construction aircraft were unable to communicate with firefighting air control or if construction aircraft were to remain in use in the event of a fire within the ANF.

Impact F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) would require implementation of the following mitigation measure: F-1 (Prepare wildland traffic control plans). With implementation of the mitigation measure listed above and described in detail in Section 3.16.6.1, Impact F-1 for Alternative 6 would be less than significant (Class II).

Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting) would be less than significant (Class III).

Exposure of communities, firefighters, personnel, and/or natural resources to an increased risk of wildfire (Criterion FIRE2)

Impacts associated with Criterion FIRE2 for Alternative 6 would be similar to impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 6 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the increased use of helicopter construction would incrementally decrease the impacts associated with increased wildfire risk during the construction phase of the Project as the use of heavy equipment and grading would be required to a lesser degree as a result of fewer roads being constructed. However, emergency access routes would be unduly constrained under Alternative 6. As described above in Section 3.16.6.1, the bridge along Fall Creek Road (along Segment 11) that would provide for the crossing of Tujunga Creek and allow for dual access to Segment 11, is out of service, resulting in only a single point of ground-based ingress and egress for personnel and firefighting crews at this location in the event of a wildfire. Under Alternative 6, this bridge would not be repaired, resulting in an inadequate number of emergency evacuation routes in the event of an uncontrolled fire in the vicinity of Segment 11.

Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire) would require implementation of the following mitigation measures: F-3a (Revise SCE's Fire Management Plan for maintenance activities), F-3b (Cease work during Red Flag Warning events), F-3c (Ensure open communication pathways), F-3d (Remove hazards from the work area), F-3e (Comply with non-smoking policy on PHLNHPA lands), F-3f (Share costs for ANF fuelbreak maintenance), and F-3g (Provide transmission line safety training to ANF staff). With implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-3 for Alternative 6 would be less than significant (Class II).

Impact F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would require implementation of the following mitigation measures: F-3b (Cease work during Red Flag Warning events) and F-4 (Prepare and implement Emergency Evacuation Plan). Mitigation Measure F-4 would ensure the safe and expedient evacuation of personnel working in the vicinity of the access-limited portion of Segment 11 nearby the washed-out Tujunga Creek Bridge. With implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-4 would be less than significant (Class II).

Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire) would be less than significant (Class III).

Increased ignition potential and rate of fire spread (Criterion FIRE3)

Impacts associated with Criterion FIRE3 for Alternative 6 would be incrementally reduced compared with impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. Although the segments of Alternative 6 that pass through the Tehachapi Fireshed would be identical to the proposed Project, fewer roads would be required to be constructed under Alternative 6, resulting in a reduced potential for invasive weed introductions, and thereby a smaller increase in the ignition potential of wildland fuels and a smaller increase in the rate of fire spread through wildland fuels.

Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would require implementation of the following mitigation measure: B-3a (Prepare and implement a Weed Control Plan). With implementation of this mitigation measure, which is described in detail in Section 3.4 (Biological Resources), Impact F-6 for Alternative 6 would be less than significant (Class II).

3.16.10.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 6 (Maximum Helicopter Construction Alternative). This alternative consists of all of the elements of the proposed Project save for the creation of new access roads in the ANF and the increased use of helicopters during the construction phase of the Project. This alternative traverses identical high-risk fuels as the proposed Project route, would require the use of heavy equipment and grading during construction even though it would make use of a different construction technique along Segments 6 and 11, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 6 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

The geographic extent of the cumulative analysis for Alternative 6 is exactly the same as that for Alternative 2 and would include both the low fire risk Project areas and the Tehachapi Fireshed.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 6 are exactly the same as for Alternative 2, as described in Section 3.16.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 6 would be exactly the same as Alternative 2, described in Section 3.16.6.2.

Cumulative Impact Analysis

The change in construction technique would not substantially change the contribution that Alternative 6 would make to cumulative effects. Therefore, cumulative impacts for Alternative 6 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.16.6.2 and described below.

Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting), Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire), and Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety) would not be cumulatively considerable (Class III, Class III, Class II, No Impact, and No Impact, respectively).

Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I).~~Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) and F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would not be cumulatively considerable (Class III and No Impact, respectively).~~

~~The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety), and Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread).~~

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures identified for the proposed Project in Sections 3.16.6.1 and 3.16.6.2 would help reduce the contribution made by Alternative 6. No additional mitigation is available to reduce the Project's contribution to significant cumulative effects on wildfire prevention and suppression.

3.16.11 Alternative 7: 66-kV Subtransmission Alternative

3.16.11.1 Direct and Indirect Effects Analysis

Adverse effects on fire prevention and suppression activities (Criterion FIRE1)

Impacts associated with Criterion FIRE1 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 7 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the rerouted and undergrounded portions of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with fire prevention and suppression activities.

Impact F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) would require implementation of the following mitigation measure: F-1 (Prepare wildland traffic control plans). With implementation of the mitigation measure listed above and described in detail in Section 3.16.6.1, Impact F-1 for Alternative 7 would be less than significant (Class II).

Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting) would be less than significant (Class III).

Exposure of communities, firefighters, personnel, and/or natural resources to an increased risk of wildfire (Criterion FIRE2)

Impacts associated with Criterion FIRE2 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section 3.16.2. The segments of Alternative 7 that pass through the Tehachapi Fireshed would be identical to the proposed Project, and the rerouted and undergrounded portion of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with increased wildfire risk.

Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire) would require implementation of the following mitigation measures: F-3a (Revise SCE's Fire Management Plan for maintenance activities), F-3b (Cease work during Red Flag Warning events), F-3c (Ensure open communication pathways), F-3d (Remove hazards from the work area), F-3e (Comply with non-smoking policy on PHLNHPA lands), F-3f (Share costs for ANF fuelbreak maintenance), and F-3g (Provide transmission line safety training to ANF staff). With implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-3 for Alternative 7 would be less than significant (Class II).

Impact F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would require implementation of the following mitigation measures: F-3b (Cease work during Red Flag Warning events), and F-4 (Prepare and implement Emergency Evacuation Plan). With implementation of the mitigation measures listed above and described in detail in Section 3.16.6.1, Impact F-4 would be less than significant (Class II).

Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety) would be less than significant (Class III).

Increased ignition potential and rate of fire spread (Criterion FIRE3)

Impacts associated with Criterion FIRE3 for Alternative 7 would be the same as impacts associated with this criterion for the proposed Project, as described above in Section. The segments of Alternative 7 that

pass through the Tehachapi Fireshed would be identical to the proposed Project, and the rerouted and undergrounded portion of this alternative would be located entirely within the low fire risk Project areas, and would not change the impacts associated with increased wildfire risk.

Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would require implementation of the following mitigation measure: B-3a (Prepare and implement a Weed Control Plan). With implementation of this mitigation measure, which is described in detail in Section 3.4 (Biological Resources), Impact F-6 for Alternative 7 would be less than significant (Class II).

3.16.11.2 Cumulative Effects Analysis

This section addresses potential cumulative effects that would occur as a result of implementation of Alternative 7 (66-kV Subtransmission Alternative). This alternative consists of undergrounding and rerouting short segments of 66-kV subtransmission lines, which would be located entirely in the low fire risk Project area. The remainder of this alternative route would be identical to that of the proposed Project and would, therefore, result in identical impacts as the proposed Project. The rerouted and undergrounded portions of Alternative 7 traverse similarly low fire risk areas as the portion of the proposed Project route they are proposed to replace, would require the same types of construction activities to build, and would result in the same operational capacity as the proposed Project. Based on the substantial similarity of Alternative 7 to the proposed Project, this alternative's contribution to cumulative impacts would be identical to that of the proposed Project.

Geographic Extent

Alternative 7 only differs from the proposed Project for a very small portion of the proposed subtransmission routes in the Cities of Montebello, Pico Rivera, South El Monte, and Industry. These areas are encompassed by same the geographic extent of the cumulative analysis defined for Alternative 2 in Section 3.16.6.2. Therefore, the geographic extent of the cumulative analysis for Alternative 7 is exactly the same as that for Alternative 2 and would include both the low fire risk Project areas and the Tehachapi Fireshed.

Existing Cumulative Conditions

The existing cumulative conditions for Alternative 7 are exactly the same as for Alternative 2, as described in Section 3.16.6.2.

Reasonably Foreseeable Future Projects and Changes

Reasonably foreseeable future projects and changes to the cumulative scenario for Alternative 7 would be exactly the same as Alternative 2, described in Section 3.16.6.2.

Cumulative Impact Analysis

As described in Section 3.16.6.2, impacts associated with Alternative 7 would ~~be cumulatively considerable~~contribute to cumulative impacts if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. The minor re-route of the proposed Project transmission line associated with Alternative 7 would not affect the proposed Project's contribution to cumulative impacts and therefore, cumulative impacts of Alternative 7 would be exactly the same as cumulative impacts for Alternative 2, as detailed in Section 3.16.6.2 and described below.

Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting), Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire), and Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety) would not be cumulatively considerable (Class III, Class III, Class II, No Impact, and No Impact, respectively).

Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I).~~Impacts F-1 (Construction and/or maintenance activities would reduce the effectiveness of firefighting) and F-4 (Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire) would not be cumulatively considerable (Class III and No Impact, respectively).~~

~~The following impacts would be cumulatively considerable and would combine with similar impacts of other projects to result in impacts that would be significant and unavoidable (Class I): Impact F-2 (Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting), Impact F-3 (Construction and/or maintenance activities would increase the risk of wildfire), Impact F-5 (Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety), and Impact F-6 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread).~~

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

Mitigation measures identified for the proposed Project in Sections 3.16.6.1 and 3.16.6.2 would help reduce the contribution made by Alternative 7. No additional mitigation is available to reduce the Project's contribution to significant cumulative effects on wildfire prevention and suppression.

3.16.12 Impact Significance Summary

Table 3.16-5 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on wildfire prevention and suppression. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.16.6 through 3.16.11 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.16.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Table 3.16-5. Summary of Impacts and Mitigation Measures – Wildfire Prevention and Suppression

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
F-1: Construction and/or maintenance activities would reduce the effectiveness of firefighting.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	F-1: Prepare wildland traffic control plans
F-2: Presence of new or taller overhead transmission line would reduce the effectiveness of firefighting.	N/A	Class III	Class III	Class I	Class III	Class III	Class III	Yes	None recommended.

Table 3.16-5. Summary of Impacts and Mitigation Measures – Wildfire Prevention and Suppression

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
F-3: Construction and/or maintenance activities would increase the risk of wildfire.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	F-3a: Revise SCE's Fire Management Plan for maintenance activities F-3b: Cease work during Red Flag Warning events F-3c: Ensure open communication pathways F-3d: Remove hazards from the work area F-3e: Comply with non-smoking policy on PHLNHPA lands F-3f: Share costs for ANF fuelbreak maintenance F-3g: Provide transmission line safety training to ANF staff
F-4: Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	F-3b: Cease work during Red Flag Warning events F-4: Prepare and implement Emergency Evacuation Plan
F-5: Presence of the overhead transmission line would increase the risk of wildfire.	N/A	Class III	Class III	Class I	Class III	Class III	Class III	Yes	F-5: Share costs for fuelbreak maintenance (Alt 4 Only)
F-6: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	B-3a: Prepare and implement a Weed Control Plan

N/A = Not Available.

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.

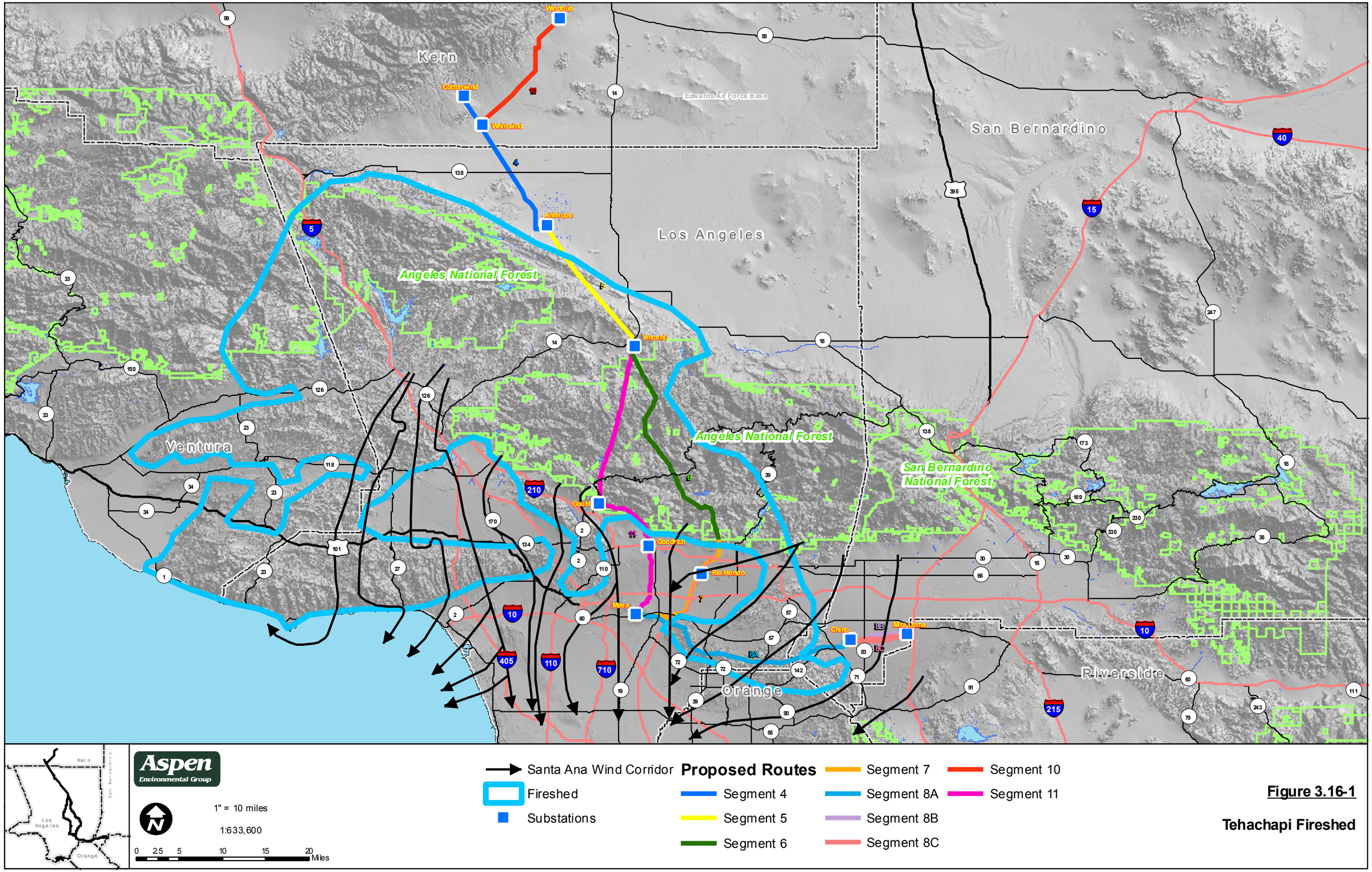


Figure 3.16-1

Tehachapi Fireshed

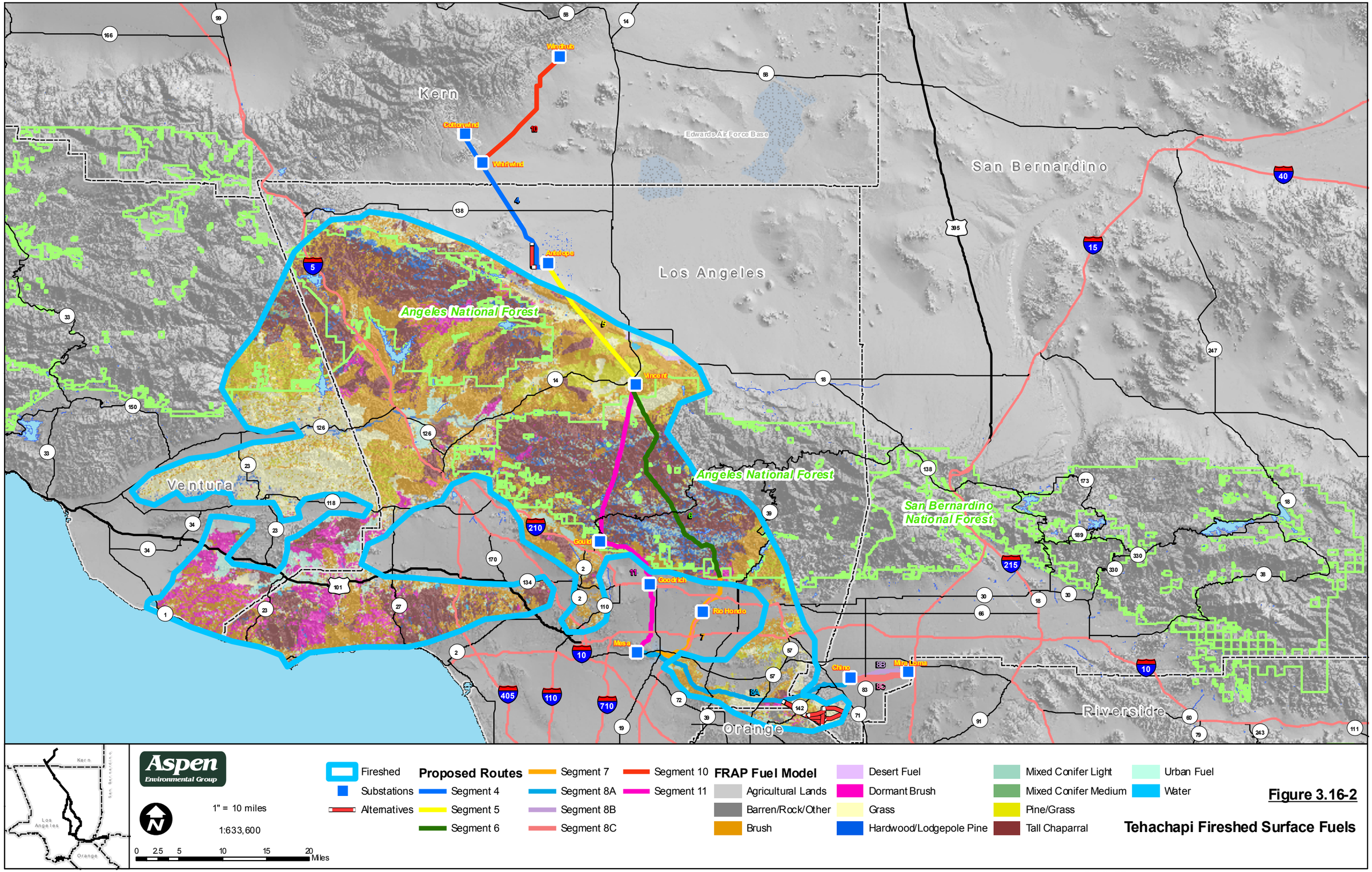


Figure 3.16-2

Tehachapi Fireshed Surface Fuels

3.17 Electrical Interference and Hazards

3.17.1 Introduction

This section describes existing environmental conditions and analyzes environmental impacts related to electrical interference and electrical hazards that are expected to result from the implementation of the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to electrical interference and electrical hazards are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

~~The information and analysis that is presented in this section has been derived from the *Tehachapi Renewable Transmission Project Electric and Magnetic Fields Specialist Report*, prepared by R.W. Beck (2008). While this section presents the findings of the *Electric and Magnetic Fields Specialist Report*, please refer to that report for more detailed information on Project effects on electrical interference and electrical hazards.~~

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following issues related to electrical interference and electrical hazards that were raised during scoping are addressed in this section:

- Power line fields generated by the Project will interfere with radio, television, communication or electronic equipment.
- Power line fields generated by the Project will result in induced currents or shock hazards to the public.
- Power line fields generated by the Project will interfere with cardiac pacemakers.
- Project structures would be affected by wind and earthquakes.

Issues and concerns related to potential public health impacts due to electric and magnetic fields (EMF) generated by the Project were also raised at the scoping meetings. This section does not consider potential health risks associated with EMF exposure, specifically exposure to magnetic fields, as there is no consensus in the scientific community regarding health risks associated with EMF exposure and, therefore, conclusions regarding this concern cannot be reached in this analysis. However, information regarding research on EMF associated with utility facilities is presented in Section 5.3.1 (Magnetic Field Concerns) to allow an understanding of the issue by the public and decision-makers.

Summary and Comparison of Alternatives

Table 3.17-1 on the following page presents some key factors related to electrical interference and electrical hazards for each alternative. It is important to note that the "Environmental Issues" indicated in Table 3.17-1 are not impact statements, but rather selected information items that provide a comparison between the alternatives. Specific impact statements that have been identified for the Project and alternatives, in accordance with the significance criteria introduced in Section 3.17.4.1 (Criteria for Determining Impact Significance), are described in Sections 3.17.5 through 3.17.7.

Table 3.17-1. Summary Comparison of Environmental Issues – Electrical Interference and Hazards

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Heli. Construction in ANF)	Alternative 7 (66-kV Subtransmission)
Interferes with radio/television/communications/ electronic equipment (Impact EIH-1)	Interference would be generated by building or upgrading other transmission infrastructure in lieu of the Project.	No substantial interference with implementation of mitigation.	Interference would occur over a slightly longer line route than Alternative 2.	Interference would occur over a shorter line route than Alternative 2.	Same as Alternative 2. except underground portion would not generate interference.	Same as Alternative 2.	Same as Alternative 2 except underground portion would not generate interference.
Causes induced currents or shock hazards (Impact EIH-2)	Induced currents or shock hazards would be generated by building or upgrading other transmission infrastructure in lieu of the Project.	No substantial induced currents or shock hazards would occur with implementation of mitigation.	Induced currents or shock hazards would occur over a slightly longer line route than Alternative 2.	Induced currents or shock hazards would occur over a shorter line route than Alternative 2.	Same as Alternative 2 except underground portion would not result in induced currents or shock hazards.	Same as Alternative 2.	Same Alternative 2 except underground portion would not result in induced currents or shock hazards.
Interferes with cardiac pacemakers (Impact EIH-3)	Interference would be generated by building or upgrading other transmission infrastructure in lieu of the Project.	~~EMF m~~May ~~impact~~ interfere with operation of some older model pacemakers; however, the interference is of short duration and is not considered harmful.	Same as Alternative 2.	Interference with cardiac pacemakers would occur over a shorter line route than Alternative 2.	Same as Alternative 2 except underground portion would not result in cardiac pacemaker interference.	Same as Alternative 2.	Same as Alternative 2 except underground portion would not result in cardiac pacemaker interference.
Introduces hazards related to wind or earthquake (Impact EIH-4)	Hazards would be introduced by building or upgrading other transmission infrastructure in lieu of the Project.	No substantial hazards related to wind or earthquake would occur, as structures would be designed such that failure related to wind conditions would be highly unlikely and with dynamic loading under variable wind conditions that generally exceed earthquake loads.	Same as Alternative 2.	Same as Alternative 2 except that hazards would occur over a shorter line route.	Same as Alternative 2 except underground portion would not result in wind or earthquake hazards.	Same as Alternative 2.	Same as Alternative 2 except underground portion would not result in wind or earthquake hazards.

Note: In Decision D.06-01-042, dated January 26, 2006, the CPUC was "unable to determine whether there is a significant verifiable relationship between EMF exposure and negative health consequences". In the absence of any defined standards for determining health risks from EMF, a comparison of health impacts between the alternatives cannot be made and is not presented in this table.

3.17.2 Affected Environment

Corona, gap discharges, and audible noise from transmission lines consist of high frequency energy; however, they are transmitted at a low power level as compared to radio and television broadcasts. Therefore, these transmissions attenuate within a short distance from the transmission line. The affected environment is along the entire length of the transmission line but for a narrow width.

3.17.2.1 Radio/Television/Communication/Electronic Equipment Interference

Corona discharges form at the surface of a transmission line conductor when the electric field intensity on the conductor surface exceeds the breakdown strength of air. The breakdown of air generates light, audible noise, radio noise, ozone, conductor vibration and causes a dissipation of energy (EPRI, 1982). The Institute of Electrical and Electronic Engineers (IEEE) has published a design guide (Radio Noise Subcommittee, 1971) that is used to limit conductor surface gradients so as to avoid corona levels which would cause electronic interference.

Gap discharges occur when an arc forms across a gap in loose or worn line hardware and can also be a source of high frequency energy. It is estimated that over 90 percent of radio and television interference problems for electric transmission lines are due to gap discharges. Line hardware is designed to be problem-free, but wind motion, corrosion, and other factors can create a gap discharge condition. When identified, gap discharges can be located and remedied by utilities by tightening loose fittings or replacing worn hardware.

Electric fields from power lines do not typically pose interference problems for electronic equipment in businesses since the equipment is shielded by buildings and walls. However, magnetic fields can penetrate buildings and walls, thereby interacting with electronic equipment. Depending upon the sensitivity of equipment, the magnetic fields have been found to interfere with electric equipment operation. Review of this phenomenon in regard to the sensitivity of electrical equipment identifies a number of thresholds for magnetic field interference. Interference with cathode ray tube (CRT) type computer monitors can be detected at magnetic field levels of 10 mG and above, while large screen or high-resolution CRT monitors can be susceptible to interference at levels as low as 5 mG. Other specialized equipment, such as medical equipment or testing equipment can be sensitive at levels below 5 mG. Equipment that may be susceptible to very low magnetic field strengths is typically installed in specialized and controlled environments, since even building wiring, lights, and other equipment can generate magnetic fields of 5 mG or higher.

The most common electronic equipment that can be susceptible to magnetic field interference is old CRT computer monitors. Magnetic field interference results in disturbances to the image displayed on the monitor, often described as screen distortion, “jitter,” or other visual defects. In most cases it is annoying, and at its worst, it can prevent use of the monitor. This type of interference is a recognized problem in the video monitor industry. As a result, there are manufacturers who specialize in monitor interference solutions and shielding equipment. Possible solutions to this problem include: relocation of the monitor, use of magnetic shield enclosures, software programs, and replacement of CRT monitors with current technology liquid crystal displays that are not susceptible to magnetic field interference.

3.17.2.2 Induced Currents and Shock Hazards

Power line fields can induce voltages and currents on conductive objects, such as metal roofs or buildings, fences, and vehicles. Transmission lines are designed to limit the short circuit current, from conductive items beneath the line, to a safe level (less than 5 milliampere). When a person or animal comes in contact

with a conductive object, a perceptible current or small electric shock may occur. These small electric shocks cause no physiological harm; however, they may present a nuisance.

3.17.2.3 Cardiac Pacemakers

An area of concern related to electric fields from transmission lines has been the possibility of interference with cardiac pacemakers. There are two general types of pacemakers: asynchronous and synchronous. The asynchronous pacemaker pulses at a predetermined rate. It is generally immune to interference because it has no sensing circuitry and is not exceptionally complex. The synchronous pacemaker, however, pulses only when its sensing circuitry determines that pacing is necessary. Interference from transmission line electric field may cause a spurious signal on the pacemaker's sensing circuitry. However, when these pacemakers detect a spurious signal, such as a 60 Hz signal, they are programmed to revert to an asynchronous or fixed pacing mode of operation, returning to synchronous operation within a specified time after the signal is no longer detected. Cardiovascular specialists do not consider prolonged asynchronous pacing a problem, since some pacemakers are designed to operate that way. Periods of operation in this mode are commonly induced by cardiologists to check pacemaker performance. So, while transmission line electric fields may interfere with the normal operation of some of the older model pacemakers, the result of the interference is not harmful, and is of short duration (EPRI, 1985 and 1979).

3.17.2.4 Wind and Earthquake Hazards

Transmission line structures used to support overhead transmission lines must meet the requirements of the California Public Utilities Commission, General Order No. 95, Rules for Overhead Electric Line Construction. This design code and the National Electrical Safety Code (NESC) include loading requirements related to wind conditions. Transmission support structures are designed to withstand different combinations of loading conditions including extreme winds. These design requirements include use of safety factors that consider the type of loading as well as the type of material used, e.g., wood, steel or concrete. Failures of transmission line support structures are extremely rare and are typically the result of anomalous loading conditions such as tornadoes or ice-storms.

Overhead transmission lines consist of a system of support structures and interconnecting wire that is inherently flexible. Industry experience has demonstrated that under earthquake conditions structure and member vibrations generally do not occur or cause design problems. Overhead transmission lines are designed for dynamic loading under variable wind conditions that generally exceed earthquake loads. Earthquake conditions could result in damage or faults to underground transmission lines.

3.17.3 Applicable Laws, Regulations, and Standards

A number of counties, states, and local governments have adopted or considered regulations or policies related to power line field exposure. Following is a brief summary of the guidelines and regulatory activity regarding electrical interference and electrical hazards.

3.17.3.2 Federal Guidelines

Radio/TV/Communications/Electronic Equipment Interference

There are no federal regulations with specific numerical limits on high frequency emissions from electric power facilities. Federal Communication Commission (FCC) regulations require that transmission lines be

operated so that no harmful communication systems interference is produced (FCC regulations, Section 15.25).

Induced Currents and Shock Hazards

The NESC specifies that transmission lines be designed to limit the power line field strength at ground level such that the short circuit current from vehicles or large objects near the line will be no more than 5 milliampere (mA). This requirement serves to limit the magnitude of electrical shock that the public could encounter from induced currents on large ungrounded metal objects in the vicinity of transmission lines. Although the NESC is titled as a "National" code it is intended as a guide standard and does not constitute a regulation unless it is adopted and codified by state or municipal governments. In the case of California, the CPUC has issued General Order No. 95 (G.O. 95), Rules for Overhead Electric Line Construction, as the relevant standard for transmission lines.

3.17.3.3 State Guidelines

California Public Utility Commission Guidelines

Induced Currents and Shock Hazards

Overhead transmission lines must meet the requirements of the CPUC, General Order No. 95, Rules for Overhead Electric Line Construction. This design code addresses shock hazards to the public by providing guidelines on minimum clearances to be maintained for practical safeguarding of persons during the installation, operation, or maintenance of overhead transmission lines and their associated equipment.

Wind and Earthquake Hazards

Transmission line structures used to support overhead transmission lines must meet the requirements of the CPUC, General Order No. 95, Rules for Overhead Electric Line Construction. This design code and the NESC include loading requirements related to wind conditions.

3.17.3.4 Local Guidelines

No local regulations have been identified pertaining to electrical interference and electrical hazards.

3.17.4 Impact Analysis Approach

There remains a lack of consensus in the scientific community regarding possible public health effects resulting from EMF exposure at the levels expected from electric power facilities. There are also no federal or State standards limiting human exposure to EMFs from transmission lines or substation facilities in California. For those reasons, no impact significance determinations are presented for EMF-related concerns. Information is provided in Section 5.3.1 (Magnetic Field Concerns) to allow understanding of the issue by the public and decision-makers.

For electrical interference and electrical hazards, criteria for determining impact significance are provided in Section 3.17.4.1, Applicant-proposed measures are presented in Section 3.17.4.2, and the impact assessment methodology is presented in Section 3.17.4.3. The assessment of potential impacts is provided in Sections 3.17.6 and 3.17.7.

3.17.4.1 Criteria for Determining Impact Significance

Electrical interference and electrical hazards identified during Project scoping are both safety and nuisance issues. The significance criteria for these issues consider the regulatory framework discussed above in Section 3.17.3, and are summarized below.

- Criterion EIH1: Action results in harmful interference with radio, television, communications, or electronic equipment (Federal Communication Commission regulations, Section 15.25).
- Criterion EIH2: Action results in induced currents or shock hazards to the public which would not be in compliance with applicable regulations, including: CPUC General Order 95, which provides guidelines on minimum clearances to be maintained for practical safeguarding of persons during the installation, operation, or maintenance of overhead transmission lines and their associated equipment.
- Criterion EIH3: Action interferes with cardiac pacemakers.
- Criterion EIH4: Action introduces hazards related to wind or earthquakes, or fails to comply with applicable guidelines including: CPUC General Order No. 95 (Rules for Overhead Electric Line Construction) and NESC requirements.

Significance conclusions for individual impacts are not required for compliance with NEPA. Therefore, conclusions presented in the following analysis regarding the significance of identified impacts are provided for the purposes of CEQA only.

3.17.4.2 Applicant-Proposed Measures (APMs)

SCE has not identified any ~~non-EMF~~ mitigation measures related to electrical interference and electrical hazards. For a discussion of “no-cost” or “low-cost” magnetic field reduction measures, please refer to the discussion in Section 5.3.1 (Magnetic Field Concerns).

3.17.4.3 Impact Assessment Methodology

The impact assessment for electrical interference and electrical hazards was conducted through a review of the change in magnetic field level in the environment that would occur due to the construction and operation of the proposed Project. Within the ROW, the proposed transmission line would be the predominant source of ~~EMF and associated~~ electrical interference and hazards. Further, the area within the transmission line ROW is within the control of SCE with regard to development land use restrictions and public access. In areas outside of the ROW, and as the distance from the transmission line increases, there may be other sources of ~~EMF and associated~~ electrical interference and hazards not associated with the Project which affect the level of public exposure to magnetic fields. Therefore, the edge of the transmission line ROW was adopted as the point of reference for characterizing the change in magnetic field strength and assessing Project impacts with respect to electrical interference and hazards.

3.17.5 Alternative 1: No Project/Action

Under the No Project/Action Alternative, the proposed Project would not be implemented and, therefore, the impacts associated with the proposed Project and alternatives described in Sections 3.17.6 and 3.17.7 below would not occur. The existing magnetic field due to existing transmission lines would remain unaltered. Impacts related to electronic interference, induced current and shock hazards, cardiac pacemakers, and other hazards would remain as they are with the existing transmission lines in the corridors.

However, in the absence of the Project, other actions would occur. Some wind projects in the Antelope Valley and Tehachapi areas would be postponed or cancelled, or alternatives would be developed to meet

the RPS goal by 2010. SCE would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment. Operation and construction methods, resulting impacts, and regulatory requirements associated with other transmission projects would be similar to those identified for the Project. In the circumstance of the No Project/Action Alternative, it is expected that actions with similar impacts as the proposed Project would take place.

3.17.6 Alternative 2: SCE's Proposed Project

3.17.6.1 Direct and Indirect Effects Analysis

Harmful interference with radio/television/communications/electronic equipment (Criterion EIH1)

Impact EIH-1: The Project would cause radio, television, communications, or electronic equipment interference.

Electric and magnetic fields from power lines occur at a frequency level that is substantially below the frequency range of communications systems and do not typically pose interference problems for communication equipment as can be seen from the proliferation of cell phone arrays that are mounted directly on transmission line structures.

Corona or gap discharges related to high frequency radio and television interference impacts are dependent upon several factors, including the strength of broadcast signals and are anticipated to be very localized if it occurs. Individual sources of adverse radio/television interference impacts can be located and corrected on the power lines. Conversely, magnetic field interference with electronic equipment such as computer monitors can be corrected through the use of software, shielding, or changes at the monitor location. Mitigation Measures EIH-1a and EIH-1b are recommended to reduce the potential impacts of interference.

Mitigation Measures for Impact EIH-1

EIH-1a Limit the conductor surface electric gradient. As part of the design and construction process for the Project, SCE shall limit the conductor surface electric gradient in accordance with the Institute of Electrical and Electronic Engineers Radio Noise Design Guide.

EIH-1b Document and resolve electronic interference complaints. After energizing the transmission line, SCE shall respond to, document, and resolve radio/television/electronic equipment interference complaints received. These records shall be made available to the CPUC for review upon request. All unresolved disputes shall be referred by SCE to the CPUC for resolution.

CEQA Significance Conclusion

Mitigation Measures EIH-1a and EIH-1b would limit the conductor surface gradient so the electric field intensity on the conductor does not exceed the breakdown strength of air, which would avoid generation of corona noise at levels that cause electronic interference, and would resolve and document all interference complaints. As such impacts related to radio, television, communications, and electronic equipment interference would be less than significant (Class II).

Induced currents or shock hazards to the public (Criterion EIH2)

Impact EIH-2: The Project would cause induced currents and shock hazards in joint use corridors.

Induced currents and voltages on conducting objects near the proposed transmission lines represent a potential significant impact that can be mitigated. These impacts do not pose a threat in the environment if the conducting objects are properly grounded. Mitigation Measure EIH-2 would ensure conducting objects are properly grounded.

Mitigation Measure for Impact EIH-2

EIH-2 **Implement grounding measures.** As part of the siting and construction process for the Project, SCE shall identify objects (such as fences, metal buildings, and pipelines) within and near the ROW that have the potential for induced voltages and shall implement electrical grounding of metallic objects in accordance with SCE's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary. SCE shall install all necessary grounding measures prior to energizing the transmission lines. Thirty days prior to energizing the lines, SCE shall notify in writing, subject to the review and approval of the CPUC, all property owners within and adjacent to the Project ROW of the date the line is to be energized. The written notice shall provide a contact person and telephone number for answering questions regarding the line and guidelines on what activities should be limited or restricted within the ROW. SCE shall respond to and document complaints received and the responsive action taken. These records shall be made available to the CPUC for review upon request. All unresolved disputes shall be deferred by SCE to the CPUC for resolution.

The written notice shall describe the nature and operation of the lines, and SCE's responsibilities with respect to grounding all conducting objects. In addition, the notice shall describe the property owner's responsibilities with respect to notification for any new objects, which may require grounding and guidelines for maintaining the safety of the ROW.

CEQA Significance Conclusion

Mitigation Measure EIH-2 would ensure that objects with the potential for induced voltages, such as fences, metal buildings, and pipelines, near the proposed rights-of-way would be properly grounded and property owners would be properly notified. As such impacts related to induced currents and shock hazards would be less than significant (Class II).

Interference with cardiac pacemakers (Criterion EIH3)

Impact EIH-3: Project operation would result in electric fields that would affect cardiac pacemakers.

The electric fields associated with the proposed Project's transmission lines may be of sufficient magnitude to impact operation of a few older model pacemakers resulting in them reverting to an asynchronous pacing. Cardiovascular specialists do not consider prolonged asynchronous pacing to be a problem; periods of operation in this mode are commonly induced by cardiologists to check pacemaker performance. However, with the more recent dual-chamber pacemakers, inappropriate pacing has been documented before unit reversion to asynchronous mode (EPRI, 1997).

Depending on the manufacturer and design, the magnetic field threshold for pacemaker interference, including the possibility of inappropriate pacing, is in the range of 2 to 12 Gauss (G), and the electric field threshold is in the range of 1.5 kV/meter for some of the newer and more sensitive dual-chamber units, and above 2 kV/meter for current and older ventricular units (EPRI, 1997).

The function of some pacemakers could be altered by exposure to electric fields that would be generated in the immediate vicinity of the Project (i.e., adjacent to the transmission line ROW), potentially resulting in inaccurate detections by the pacemaker of normal cardiac signals or resulting in inappropriate behavior, until the field strength would be reduced by the individual leaving the immediate area. However, the biological consequences of transient, reversible pacemaker malfunction are mostly benign because, as stated above, most modern units revert to a fixed-rate pacing mode, which is life-sustaining (EPRI, 1997). There are, however, exceptions, which include: individuals that are completely dependent on their pacemakers for maintaining all cardiac rhythms; individuals whose pacemakers function in inhibited modes, where field interference could severely compromise cardiovascular function; and individuals with compromised coronary circulation who are prone to episodes of reduced cardiac blood flow (EPRI, 1997).

Such episodes that would occur at the same time that the pacing becomes fixed-rate or irregular are dangerous, because these individuals would be more easily triggered into ventricular fibrillation (EPRI, 1997). The precise coincidence of an individual being exposed to high electric fields within a transmission line ROW and a biological need of that individual for the full function of his/her pacemaker would appear, in general, to be a rare event (EPRI, 1997). However, given the data available, the probability of such a coincidence to occur cannot be estimated. Clear exceptions to this conclusion are individuals who are completely dependent on a pacemaker for all cardiac rhythms (EPRI, 1997).

Given the rarity of an exposure event to occur simultaneously with a biological need for full function pacemakers, it would be unlikely that the transmission line's electric field would cause harmful interference to the operations of cardiac pacemakers. ~~Therefore, while the transmission line's electric field may impact operation of some older model pacemakers, the result of the interference is of short duration and is not considered harmful.~~ No mitigation measures are required or recommended.

CEQA Significance Conclusion

While the proposed transmission lines would generate electric fields that may impact operation of some older model pacemakers, the resulting interference would be of short duration and is not considered significant or harmful (Class III).

Introduction of hazards related to wind or earthquakes (Criterion EIH4)

Impact EIH-4: Project structures would be affected by wind and earthquakes.

Wind. Transmission line structures used to support overhead transmission lines must meet the requirements of the California Public Utilities Commission, General Order No. 95, Rules for Overhead Electric Line Construction. This design code and the NESC include loading requirements related to wind conditions. Transmission support structures are designed to withstand different combinations of loading conditions including extreme winds. These design requirements include use of safety factors that consider the type of loading as well as the type of material used (e.g., wood, steel or concrete). Failures of transmission line support structures are extremely rare and are typically the result of anomalous loading

conditions such as tornadoes or ice storms. The proposed Project would be constructed on steel lattice towers or tubular steel poles, and failure would be extremely unlikely.

Earthquake. Overhead transmission lines consist of a system of support structures and interconnecting wire that is inherently flexible. Industry experience has demonstrated that under earthquake conditions structure and member vibrations generally do not occur or cause design problems. Overhead transmission lines are designed for dynamic loading under variable wind conditions that generally exceed earthquake loads.

CEQA Significance Conclusion

The proposed Project would be constructed on steel lattice towers or tubular steel poles, where failure as a result of extreme wind conditions would be highly unlikely. Overhead transmission lines are designed for dynamic loading under variable wind conditions that generally exceed earthquake loads. Consequently, the risk that high winds or an earthquake would cause transmission line structures to threaten public safety is less than significant (Class III).

3.17.6.2 Cumulative Effects Analysis

The approach to analysis of the cumulative effects of electrical interference and electrical hazards entailed first determining the geographic extent of ~~EMF~~ electrical interference and electrical hazards associated with transmission lines and their impacts. Next, the existing cumulative conditions related to electrical interference and electrical hazards were reviewed in order to describe how the Project's impacts would change the cumulative conditions in the area of the new transmission lines.

Geographic Extent

Electric and magnetic fields and their associated impacts occur only within a narrow corridor along the energized conductors of a transmission line and decrease in strength rapidly as distance from the transmission line conductors increases. From the perspective of electrical interference and electrical hazards, the geographic extent of Project impacts is directly along the entire length of the transmission line for the width of the ROW. The areas where there could be cumulative impacts are where the Project is adjacent to other transmission lines.

Existing Cumulative Conditions

Along the majority of the Project alignment, new transmission lines are being routed adjacent to existing transmission lines. Immediately along these existing corridors there is a potential for field-related impacts including electronic interference, induced currents and shock hazards, interference with cardiac pacemakers, and structural hazards related to wind or earthquakes.

Reasonably Foreseeable Future Projects and Changes

Routing of new transmission lines along existing corridors is a common approach used when siting new facilities. In the future, it is likely that transmission line upgrades or additions will occur along the corridors where the Project would be located. These activities would be expected to have electrical interference and hazards similar to existing transmission lines and the Project. However, as these impacts are similar and mitigable it is anticipated that the foreseeable projects would not result in additional cumulative impacts.

Cumulative Impact Analysis

The electrical interference and hazards associated with the Project occur in the immediate vicinity of the transmission line ROW. These impacts would be similar to the impacts of the existing transmission lines which the Project is adjacent to and would not be additive (No Impact). Alternatively, magnetic fields from the Project and other future projects, which entail construction and operation of a new transmission lines adjacent to existing lines, would be additive. In this instance, the magnetic field from the two facilities would interact in a manner such that the cumulative impact would be a change in the magnetic field at the edge of the Project ROW. Depending upon a number of variables, this magnetic field change could result in either an increase or decrease in the field strength.

3.17.7 Alternatives 3, 4, 5, 6, and 7

3.17.7.1 Direct and Indirect Effects Analysis

Harmful interference with radio/television/communications/electronic equipment (Criterion EIH1)

For the routing alternatives or the alternatives using different structure types or construction methods (helicopter construction) the impacts associated with electronic interference would be the same as for the proposed Project. For the underground portion of Alternative 5 (Partial Underground Alternative) and Alternative 7 (66-kV Subtransmission), the technology employed for an underground line is significantly different than for an overhead line. Underground transmission systems do not generate corona and audible noise so there would not be any field-related interference in areas where the line is placed underground. Mitigation Measures EIH-1a and EIH-1b are recommended to reduce the potential impacts of interference for all alternatives (Class II).

Induced currents or shock hazards to the public (Criterion EIH2)

For the routing alternatives or the alternatives using different structure types or construction methods (helicopter construction) the impacts associated with induced currents and shock hazards would be the same as for the proposed Project. For the underground portion of Alternative 5 (Partial Underground Alternative) and Alternative 7 (66-kV Subtransmission), the transmission cables or enclosures are effectively grounded, meaning that there would not be induced current or shock hazard impacts where the line is placed underground. Mitigation Measure EIH-2 would ensure conducting objects are properly grounded for all alternatives (Class II).

Interference with cardiac pacemakers (Criterion EIH3)

For the routing alternatives or the alternatives using different structure types or construction methods (helicopter construction) the impacts associated with interference with cardiac pacemakers would be the same as for the proposed Project. For the underground portion of Alternative 5 (Partial Underground Alternative) and Alternative 7 (66-kV Subtransmission), the electric field from the transmission line is effectively blocked. Lacking any above ground electric field there would not be any impacts related to interference with cardiac pacemakers where the line is placed underground. As discussed for the proposed Project, the interference is of short duration and is not considered significant or harmful (Class III).

Introduction of hazards related to wind or earthquakes (Criterion EIH4)

For the routing alternatives or the alternatives using different structure types or construction methods (helicopter construction) the impacts associated with wind or earthquake hazards would be the same as for the proposed Project. For the underground portion of Alternative 5 (Partial Underground Alternative) and Alternative 7 (66-kV Subtransmission), there would not be any overhead structures and no impacts related to wind. In addition, there would not be earthquake hazards for the public where the line is placed underground. As discussed for the proposed Project, overhead transmission lines would be constructed on steel lattice towers or tubular steel poles designed for dynamic loading under variable wind conditions that generally exceed earthquake loads and where failure as a result of extreme wind conditions would be highly unlikely. Consequently, the risk that high winds or an earthquake would cause transmission line structures to threaten public safety is less than significant (Class III).

3.17.7.2 Cumulative Effects Analysis

The electrical interference and hazards of the routing alternatives or the alternatives using different structure types or construction methods (helicopter construction) are the same type impacts as for the proposed Project and occur in the immediate vicinity of the transmission line ROW and subtransmission line ROW (in the case of Alternative 7). The field-related impacts of the alternatives would not be additive to the field-related impacts of the existing transmission lines which the alternatives are adjacent to so this would not result in cumulative impacts (No Impact).

3.17.8 Impact Significance Summary

Table 3.17-2 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on electrical interference and electrical hazards. The direct and indirect effects of the Project and alternatives have been fully described in Sections 3.17.6 and 3.17.7 above. Alternative 1 (No Project/No Action) impacts are fully described in Section 3.17.5; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Table 3.17-2. Summary of Impacts and Mitigation Measures – Electrical Interference and Hazards

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
EIH-1: The Project would cause radio, television, communications, or electronic equipment interference.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	EIH-1a: Limit conductor surface electric gradient. EIH-1b: Document and resolve electronic interference complaints.
EIH-2: The Project would cause induced currents and shock hazards in joint use corridors.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	EIH-2: Implement grounding measures.
EIH-3: Project operation would result in electric fields that would affect cardiac pacemakers.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended.
EIH-4: Project structures would be affected by wind and earthquakes.	N/A	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended.

N/A = Not Available
* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.
+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.