

C.10 Noise

This section addresses noise issues and impacts related to the proposed Project. Section C.10.1 provides a description of the affected environment for the proposed Project. Applicable noise regulations are described in Section C.10.2. Significance criteria and Applicant-Proposed Measures (APMs) are presented in Sections C.10.3 and C.10.4, respectively. Analyses of the proposed Project impacts and proposed mitigation are presented in Sections C.10.5, including the impact and mitigation summary and the cumulative effects of the proposed Project.

C.10.1 Environmental Setting

C.10.1.1 General Characteristics of Community Noise

To describe environmental noise 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 C.10-1 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 (L_{dn}). 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 L_{dn} , 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 L_{dn} 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.

Community noise levels are usually closely related to the intensity of nearby human activity. Figure C.10-2 illustrates the typical noise levels of varying types of land use. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In pristine wilderness areas, the L_{dn} noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the L_{dn} 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.

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

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C.10-1	Typical Range of Common Sounds Heard in the Environment	C.10-2
C.10-2	Outdoor Day/Night Sounds Levels in Different Areas	C.10-3

onset of sleep interference effects. At 70 dBA, sleep interference effects become considerable (U.S. EPA, 1974).

C.10.1.2 Noise Environment

A wide range of noise sources occurs near the proposed Project route. The existing transmission lines, which create corona noise that sounds like crackling and hum, 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, depending on the locations, described below.

C.10.1.3 Noise-Sensitive Receptors

Noise-sensitive receptors are land uses or areas (e.g., residential areas, hospitals, schools, churches, and certain recreation areas) where excessive noise would conflict with the intended use, for example by conveying annoyance. Noise-sensitive areas encountered near the route and other work areas include homes, schools, and recreational/open space use areas described below. The geographic scope for determining potential noise impacts to sensitive uses is described below in Section C.10.2, Regulatory Framework.

C.10.1.4 Environmental Setting for the Proposed Project

Occupied noise-sensitive land uses are dispersed along the Project corridor as part of the rural residential development near the route. Notable noise-sensitive land uses along the route are educational facilities 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. Approximately 21 homes are located adjacent to proposed Segment 3, and approximately 194 homes are located adjacent to proposed Segment 2. The residential uses include trailer/mobile home parks, large-lot residential subdivisions, and small settlements. Numerous new residential developments are also planned along the Project route. In addition, both school uses and recreational uses are located along the route, as identified below.

Segment 3: Mile S3-0.0 (Substation Two) to Mile S3-35.2 (Antelope Substation)

Ambient Noise Levels. Extending from Mile S3-0.0 to Mile S3-35.2, Segment 3 begins at the proposed Substation 2 site in unincorporated Kern County and travels south to Antelope Substation in the City of Lancaster (Los Angeles County). Jurisdictions traversed by Segment 3 include unincorporated Kern County and the community of Willow Springs; the Antelope Valley area of unincorporated Los Angeles County, which includes the communities of Antelope Acres and Del Sur; and the City of Lancaster.

A wide range of noise sources occurs in the area of the proposed route, mainly due to the wide range of land uses that would be traversed. In open or rural land within this segment, existing noise levels are expected to be generally below 50 L_{dn} . Where existing transmission lines are located along the route, levels over 60 L_{dn} could occur depending on wet weather (from corona noise). In addition, wind turbine electrical generating facilities near the northern end of the segment can create noise levels over 65 L_{dn} . Noise levels in urban and suburban areas are mainly influenced by roadway traffic or aircraft. Ambient noise levels tend to be below 50 dBA in recreational and open areas. Noise levels in the region are the highest (over 80 dBA) adjacent to major

transportation facilities such as Highway 58 or near industrial land uses. Private airports and landing strips which can create substantial noise, are also located near this segment of the project route as described below.

The following private airstrips are near the project corridor: Fantasy Haven Airport (located on Harris Road approximately two miles west of Mile Marker S3-0.5); Lloyd’s Landing Airstrip (approximately 0.3 miles east of Mile Marker S3-19.4); and Bohunk’s Airpark (located on 85th Street West approximately 1.1 miles northeast of Antelope Substation). Because of their distance and infrequent activity, the airstrips do not notably affect ambient noise levels near the route.

Noise-Sensitive Receptors. Noise-sensitive receptors along Segment 3 are summarized below in Table C.10-1. Noise-sensitive uses encountered near the route and work areas along Segment 3 include educational uses, open space/recreational uses, and existing and planned residential uses.

Location*	Jurisdiction	Land Use Categories	Specific Land Uses
Eumatilla Street (0.6 miles north of proposed Substation 2)	Unincorporated Kern County	Educational Institution	Monroe Continuation High School
Mile S3-4.4 to Mile S3-4.9	Unincorporated Kern County	Open Space and Recreation	Pacific Crest National Scenic Trail
1.3 miles east of Mile S3-21.0	Unincorporated Kern County	Open Space and Recreation	Willow Springs Butte
Gaskell Road (0.2 miles west of Mile S3-24.6 to Mile S3-25.0)	Unincorporated Kern County	Planned Residential	Proposed Copa De Oro/ Kern Ross Estate
110 th Street West (0.2 miles west of Mile S3-25.3)	Unincorporated Kern County	Residential/ Agriculture	Approximately 3 single-family residences
Avenue A (0.4 miles east of Mile S3-25.5)	Unincorporated Kern County	Residential/ Agriculture	Single-family residence
105 th Street West (less than 0.1 miles east of Mile S3-26.4)	Unincorporated Los Angeles County	Residential/ Agriculture	Single-family residence
110 th Street West (0.5 miles west of Mile S3-26.8)	Unincorporated Los Angeles County	Residential/ Agriculture	Approximately 3 single-family residences
100 th Street West (0.5 miles east of Mile S3-27.0)	Unincorporated Los Angeles County	Open Space and Recreation	Little Buttes
Mile S3-27.0 to Mile S3-27.5 (approximately)	Unincorporated Los Angeles County	Open Space and Recreation	Proposed Little Buttes Trail
Avenue D (0.4 miles east of Mile S3-28.6)	Unincorporated Los Angeles County	Residential	Single-family residence
Avenue E-11 (0.2 miles west of Mile S3-30.1)	Unincorporated Los Angeles County	Residential/ Agriculture	Single-family residence
Lancaster Road (2.4 miles west of Mile S3-30.7)	California Department of Parks and Recreation	Open Space and Recreation	Antelope Valley California Poppy Preserve
110 th Street West (0.4 miles west of Mile S3-31.1)	Unincorporated Los Angeles County	Residential	Single-family residence
110 th Street West (0.4 miles west of Mile S3-31.6 to Mile S3-31.7)	Unincorporated Los Angeles County	Residential	Approximately 2 single-family residences
East of and adjacent to Project along 105 th Street West (Mile S3-31.6 to Mile S3-33.1)	City of Lancaster	Proposed Residential	Proposed Del Sur Ranch Development
West Avenue H (1.3 miles east of Mile S3-32.6)	City of Lancaster	Educational Institution	Del Sur School
Avenue I (0.2 miles east of Mile S3-33.7)	City of Lancaster	Educational Institution/ Agriculture	University of California Agricultural Experiment Station
Avenue J (0.2 miles west of Mile S3-34.5)	City of Lancaster	Residential	Approximately 4 single-family residences
Avenue J (0.2 miles east of Mile S3-34.8)	Unincorporated Los Angeles County	Residential	Single-family residence

Location*	Jurisdiction	Land Use Categories	Specific Land Uses
Avenue J (0.1 miles northeast of Antelope Substation)	Unincorporated Los Angeles County	Residential	Single-family residence
Avenue J at 90 th Street West (0.5 miles east of Antelope Substation)	Unincorporated Los Angeles County	Residential; Commercial	Single-family residence; Mobile home park; Dobb's Derby Pub

Source: Aspen, 2006; Google Earth, 2005; Thomas Bros. Maps, 2004.

* The location column indicates the approximate distance from the receptor to each milepost. If the receptor is traversed by the project, then the column just identifies the milepost.

Segment 2: Mile S2-0.0 (Antelope Substation) to Mile S2-21.6 (Vincent Substation)

Ambient Noise Levels. Extending from Mile S2-0.0 to S2-21.6, Segment 2 begins at Antelope Substation in the City of Lancaster and travels south to Vincent Substation in unincorporated Los Angeles County. Jurisdictions traversed by Segment 2 include the City of Lancaster; the City of Palmdale, including the Ritter Ranch community; and the communities of Lakeview and Big Mountain Ridge in unincorporated Los Angeles County.

Ambient noise levels tend to be lowest (below 50 dBA) in the recreational and open space lands and away from the highways and urban and suburban areas. The unincorporated areas and communities through which this segment of the proposed transmission line would pass are predominantly open land or rural in nature. Where the proposed project route travels through and adjacent to the Cities of Palmdale and Lancaster, which consist of developed and developing suburban residential neighborhoods, noise levels are higher than those in the rural unincorporated areas (between 50 and 65 dBA). Noise levels along this segment are the highest near transportation facilities, such as Highway 14, and the one identified airplane landing strip on Avenue K (0.4 miles east of Mile Marker S2-0.9 in unincorporated Los Angeles County), averaging between 70 dBA to over 80 dBA.

Noise-Sensitive Receptors. Noise-sensitive receptors along Segment 2 are summarized below in Table C.10-2. Noise-sensitive uses encountered near the route and work areas along Segment 2 include existing and planned residential uses, and open space/recreational uses.

Location*	Jurisdiction	Land Use Categories	Specific Land Uses
90 th Street West (ranging from 0.6 miles east of Mile S2-5 to 0.4 miles east of Mile S2-9)	Unincorporated Los Angeles County	Residential	Approximately 3 single-family residences
Avenue K-8 (0.5 miles east of Mile S2-1.6)	City of Lancaster	Residential	Single-family residence
85 th Street (ranging from 0.2 miles east of Mile S2-1.9 to 0.1 miles east of Mile S2-2.1)	City of Lancaster	Residential	Approximately 3 single-family residences
Avenue L (traversed by ROW at Mile S2-2.1)	City of Lancaster	Residential/ Agriculture	Single-family residence
Avenue L (ranging from 0.2 miles to 0.3 miles west of Mile S2-2.1)	City of Lancaster	Residential	Approximately 4 single-family residences
Avenue L-8 and 75 th Street West (ranging from 0.6 miles east of Mile S2-2.9 to 0.2 miles east of Mile S2-3.8).	City of Lancaster; City of Palmdale	Residential	50+ single-family residences
70 th Street West (0.4 miles east of Mile S2-4.3)	City of Palmdale	Residential	30+ single-family residences
<u>Mile S2-6.5; also traversed by Option A at this location</u>	<u>Unincorporated Los Angeles County</u>	<u>Open Space and Recreation</u>	<u>Proposed North Side Trail</u>

Table C.10-2. Noise Sensitive Land Uses along Segment 2 (Mile S2-0.0 to Mile S2-21.6)			
Location*	Jurisdiction	Land Use Categories	Specific Land Uses
Godde Hill Road (0.2 miles west of proposed Project Mile S2-6.5; 0.3 miles west of Option A)	Unincorporated Los Angeles County	Residential	Approximately 2 single-family residences
0.6 miles east of proposed Project Mile S2-6.5; 0.5 miles east of Option A	Unincorporated Los Angeles County	Open Space and Recreation	Warnack Nature Park
Hacienda Ranch Road (0.2 miles east of proposed Project Mile S2-6.7; less than 0.1 mile east of Option A)	Unincorporated Los Angeles County	Residential	Approximately 2 single-family residences
Between Mile S2-6.8 and Mile S2-6.9; also traversed by Option A at approximately this location	Unincorporated Los Angeles County	Open Space and Recreation	Proposed North Side Trail
Cherry Tree Lane (ranging from 0 miles to 0.2 miles west of proposed Project Mile S2-7.4; ranging from 0.1 miles to 0.3 miles west of Option A)	Unincorporated Los Angeles County	Residential/ Agriculture	10+ single-family residences
Elizabeth Lake Road (0.3 miles west of S2-7.9)	Unincorporated Los Angeles County	Residential	Single-family residence
Proposed Project Mile S2-7.5 to Mile S2-9.3, Mile S2-9.5 to Mile S2-10, and Mile S2-10.6 to Mile S2-13.9 (Not traversed by Option B)	City of Palmdale	Open Space and Recreation	Ritter Ranch
Traversed by Option B	City of Palmdale	Planned Residential	Ritter Ranch
Proposed Project Mile S2-9.3 to Mile S2-9.5; 0.8 miles west of Option B	Antelope Valley Union High School District	Proposed Educational Institution	Proposed school site
Traversed by Option B	City of Palmdale	Planned Residential	Anaverde Ranch
0.1 miles northeast of Mile S2-15	City of Palmdale	Residential	30+ single-family residences (Anaverde Ranch Development)
Traversed by Option B in two locations	City of Palmdale	Open Space and Recreation	Proposed Northside Connector Trail
Mile S2-16.3 to Mile S2-16.8	Unincorporated Los Angeles County	Proposed Residential	Proposed Palmdale 1000 Development
Mile S2-17.2	Unincorporated Los Angeles County	Open Space and Recreation	Proposed Northside Connector Trail
Tuckerway Ranch Road (ranging from less than 0.1 miles east of Mile S2-18.1 to 0.2 miles east of Mile S2-18.5)	Unincorporated Los Angeles County	Residential; Open Space and Recreation	Approximately 6 single-family residences
Tuckerway Ranch Road (0.2 miles west of Mile S2-18.3)	Unincorporated Los Angeles County	Residential; Open Space and Recreation	Approximately 2 single-family residences
Mile S2-18.6	Unincorporated Los Angeles County	Open Space and Recreation	Proposed Vasquez Loop Trail
Peaceful Valley Road (ranging from 0.2 miles to 0.3 miles west of Mile S2-19.6)	Unincorporated Los Angeles County	Residential; Open Space and Recreation	Approximately 5 single-family residences
Peaceful Valley Road (less than 0.1 miles east of Mile S2-20.0)	Unincorporated Los Angeles County	Residential; Open Space and Recreation	Approximately 3 single-family residences
Mile S2-20.7	Unincorporated Los Angeles County	Open Space and Recreation	Proposed Acton Community Trail
Rockyford Road (less than 0.1 miles west of Mile S2-20.8)	Unincorporated Los Angeles County	Residential	Approximately 7 single-family residences
Rockyford Road (0.1 miles west of Vincent Substation)	Unincorporated Los Angeles County	Residential	Single-family residence
Rockyford Road (ranging from 0.2 miles to 0.5 miles west of Mile S2-21.2)	Unincorporated Los Angeles County	Residential	20+ single-family residences
Kentucky Springs Road (0.1 miles south of Mile S2-21.6)	Unincorporated Los Angeles County	Residential	5 single-family residences

Location*	Jurisdiction	Land Use Categories	Specific Land Uses
Hillside Drive (ranging from 0.2 miles to 0.3 miles east of Vincent Substation)	Unincorporated Los Angeles County	Residential	Approximately 10 single-family residences

Source: Aspen, 2006; Google Earth, 2005; Thomas Bros. Maps, 2004.

* The location column indicates the approximate distance from the receptor to each milepost. If the receptor is traversed by the project, then the column just identifies the milepost.

C.10.2 Regulatory Framework

Regulating environmental noise is generally the responsibility of local governments. However, the U.S. Environmental Protection Agency (USEPA) once published guidelines on recommended maximum noise levels to protect public health and welfare (USEPA, 1974), and the State of California maintains recommendations for local jurisdictions in the General Plan Guidelines published by the Governor’s Office of Planning and Research (OPR, 2003). The following summarizes the federal and State recommendations and the local requirements related to noise levels.

C.10.2.1 Federal

There are no federal noise standards that directly regulate environmental noise. Table C.10-3 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).

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

C.10.2.2 State

The State of California requires each local government to perform noise surveys and implement a noise element as part of their general plan (OPR, 2003). Table C.10-4 shows the State guidelines for evaluating the compatibility of various land uses as a function of noise exposure.

C.10.2.3 Local

Each local government aims to protect its residents from intrusive noise. Many communities specifically restrict disturbing noises at night. The sections below summarize the applicable local rules and regulations that apply to the Project.

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE - L _{dn} or CNEL (db)							
	50	55	60	65	70	75	80	
Residential - Low Density Single Family, Duplex, Mobile Home	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Residential - Multi-Family	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Transient Lodging - Motels, Hotels	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Auditorium, Concert Hall, Amphitheaters	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Sports Arena, Outdoor Spectator Sports	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Playgrounds, Neighborhood Parks	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Office Buildings, Business Commercial and Professional	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Industrial, Manufacturing, Utilities, Agriculture	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable

	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.
	Clearly Unacceptable. New construction or development should generally not be undertaken.

Source: OPR, 2003

Kern County

The Noise Element of the Kern County General Plan provides guidance and polices to regulate noise within the County. The major purpose of the Noise Element is to: (1) establish reasonable standards for maximum desired noise levels in Kern County, and; (2) develop an implementation program which could effectively deal with the noise problem. The Kern County General Plan includes the following policies for managing noise:

- Require proposed commercial and industrial uses or operations to be designed or arranged 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} .

Construction noise is not regulated by ordinances in the Kern County Code. The Kern County Code includes development standards that restrict noise from certain land uses related to utilities. For example, wind energy systems that are located near the north end of the proposed Project are subject to noise control by the County, but there are no requirements in the Kern County Code that would be applicable to the proposed Project.

Los Angeles County

The Noise Element of the Los Angeles County General Plan provides background information regarding noise and general policy guidance, but does not contain any numerical standards for the compatibility between land uses and noise levels (Los Angeles County, 1974). The Noise Element of the General Plan designates residential noise impact management areas to all residential areas within the designated 60 dB CNEL contour.

The Los Angeles County Noise Control Ordinance is reflected in Chapter 12.08 of the County Code (Los Angeles County, 2005). The Ordinance identifies exterior noise standards for designated land use zones and time intervals (Section 12.08.390). The limits are derived from tabulated values that depend on the sensitivity of the land use, with adjustments to create a series of noise standards. The basic standards are presented in Table C.10-5.

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dB)
I	Noise sensitive area	Anytime	45
II	Residential properties	10:00 pm to 7:00 am (nighttime)	45
		7:00 am to 10:00 pm (daytime)	50
III	Commercial properties	10:00 pm to 7:00 am (nighttime)	55
		7:00 am to 10:00 pm (daytime)	60
IV	Industrial properties	Anytime	70

Source: Los Angeles County, 2005.

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. The Ordinance (Section 12.08.440, Part B) also identifies maximum noise levels for mobile and stationary construction equipment as identified in Table C.10-6. The Los Angeles County health officer would need to issue a variance to allow construction during the nighttime hours or in excess of the levels below.

Time	Equipment Type ^a	Single-family Residential	Multi-family Residential	Semi-Residential/ Commercial
Daily, except Sundays and legal holidays, 7:00 am to 8:00 pm	Mobile	75 dBA	80 dBA	85 dBA
	Stationary	60 dBA	65 dBA	70 dBA
Daily, 8:00 pm to 7:00 am and all day Sunday and legal holidays	Mobile	60 dBA	65 dBA	70 dBA
	Stationary	50 dBA	55 dBA	60 dBA

Source: Los Angeles County, 2005.

^a Mobile equipment maximum noise levels are for nonscheduled, intermittent, short-term operations (less than 10 days); Stationary equipment maximum noise levels for repetitively scheduled and relatively long-term operations (periods of 10 days or more).

City of Lancaster

The City of Lancaster has noise compatibility land use objectives that are in the Public Health and Safety Element of the Lancaster General Plan Policy Document (Lancaster, 1994). These objectives are presented in Table C.10-7. The City of Lancaster also has ordinances that regulate noise levels. The Health and Safety Ordinance identifies noise regulations in Chapter 8.24 of the City’s Municipal Code (Lancaster, 2005). The code includes a general prohibition against loud, unnecessary, and unusual noises (Section 8.24.030), and a general 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.

Land Use	Maximum Exterior CNEL	Maximum Interior CNEL
Rural, Single-Family, Multiple-Family Residential	65 dBA	45 dBA
Schools:		
Classrooms	65 dBA	45 dBA
Playgrounds	70 dBA	---
Libraries	---	50 dBA
Hospitals/Convalescent Facilities:		
Living Areas	---	50 dBA
Sleeping Areas	---	40 dBA
Commercial and Industrial	70 dBA	
Office Areas	---	50 dBA

Source: Lancaster, 1994.

City of Palmdale

The City of Palmdale has noise compatibility land use objectives that are presented in the Noise Element of the Palmdale General Plan (Palmdale, 1993). These objectives present the maximum acceptable noise levels for the exterior of land uses within the City. These acceptable levels are presented in Table C.10-8. The City of Palmdale Municipal Code, Chapter 8.28 Building Construction Hours and Operation and Noise Control contains provisions that restrict construction between the hours of 8:00 pm and 6:30 am. This noise ordinance is directed at controlling noise from stationary sources and its intrusion on to adjacent properties.

Land Use	Maximum Exterior	Maximum Interior
Single-Family and Multiple-Family Residential	65 dBA	45 dBA
Commercial: Retail Services Office	A noise level which does not jeopardize health, safety, and welfare of visitors	55 L _{eq} 55 L _{eq} 55 L _{eq}
Institutional: Schools Hospitals Nursing Homes	A noise level which does not jeopardize health, safety, and welfare of visitors	45 L _{eq} 45 L _{eq} 45 L _{eq}
Industrial: Industrial Park Business Park Quarry	A noise level which does not jeopardize health, safety, and welfare of visitors. Maximum 65 Leq at the interface with residentially designated land	65 L _{eq} 65 L _{eq} N/A

Source: Palmdale, 1993.

C.10.3 Applicant-Proposed Measures (APMs)

SCE has committed to implementing the three Applicant-Proposed Measures (APMs) presented in Table C.10-9 to reduce noise impacts associated with construction. APM NOI-1 would be implemented in the portions of the Project in the City of Lancaster, APM NOI-2 would be implemented in the portions of the Project in City of Palmdale, and APM NOI-3 would be implemented within Project areas occurring in unincorporated Los Angeles County. These APMs are considered part of the proposed Project and implementation of these measures will be monitored by the CPUC during construction, if the Project is approved.

APM NOI-1	Consistent with Section 8.24 of the City of Lancaster Municipal Code, within 500 feet of any occupied dwelling no construction would occur on Sundays, and no construction would occur between the hours of 8:00 p.m. and sunrise on all other days of the week. In the event that construction needed to occur outside of the specified hours, a variance would need to be obtained.
APM NOI-2	Consistent with Section 8.28 of the Palmdale City Municipal Code, building construction hours are prohibited from 8:00 p.m. to 6:30 a.m. and on weekends. In the event that construction needed to occur outside of the specified hours, a variance would need to be obtained.
APM NOI-3	Consistent with Los Angeles County Code (Section 12.08.440) no construction activities would occur in a residential area between 7:00 p.m. and 7:00 a.m. on weekdays and Saturdays, and all day on Sundays and holidays. In the event that construction needed to occur outside of the specified hours, a variance would need to be obtained.

C.10.4 Environmental Impacts and Mitigation Measures

This section explains how impacts are assessed including the presentation of the significance criteria in Section C.10.4.1 on which impact determinations are based, and Section C.10.4.2 lists all impacts identified for the proposed Project.

C.10.4.1 Criteria for Determining Significance

Significance of noise impacts depends on whether the project would increase noise levels above the existing ambient levels by introducing new sources of noise. Noise impacts would be considered significant if:

- Criterion NOI-1: Noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies.
- Criterion NOI-2: A substantial temporary or periodic increase in ambient noise levels in the vicinity of sensitive receptors above levels existing without the Project.
- Criterion NOI-3: Sensitive receptors being exposed to excessive ground-borne vibration.
- Criterion NOI-4: A permanent and substantially higher level of ambient noise (an increase of more than five dBA) in the vicinity of sensitive receptors.

C.10.4.2 Impact Analysis

The following presents the expected noise impacts associated with construction and operation of the proposed Project, and presents mitigation to reduce significant impacts.

C.10.4.2.1 Impact and Mitigation Summary

This section summarizes the conclusions of the impact analysis and associated mitigation measures presented in Section C.10.4.2.2. Table C.10-10 lists each impact identified for the proposed Project, along with the significance of each impact. Impacts are classified as Class I (significant, cannot be mitigated to a level that is less than significant), Class II (significant, can be mitigated to a level that is less than significant), Class III (adverse, but less than significant), or Class IV (beneficial). Detailed discussions of each impact and the specific locations where each is identified are presented in the following sections.

Impact	Impact Significance	Mitigation Measures*
N-1: Construction noise levels would violate local standards.	Class II	N-1
N-2: Operational noise levels would violate local standards.	Class I	None identified
N-3: Construction noise could substantially disturb sensitive receptors.	Class II	N-3a, N-3b
N-4: Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines.	Class I	None identified
N-5: Maintenance activities during transmission line operation would increase ambient noise levels.	Class III	None required
N-6: Operation of modified and new substations would result in increased ambient noise levels.	Class III	None required

* Applicable to significant impacts only (i.e., Class I and Class II).

C.10.4.2.2 Project Impacts and Mitigation Measures

Noise Levels in Excess of Applicable Standards (Criterion NOI 1)

The proposed Project would be located within several local jurisdictions that regulate construction and long-term land use noise. These jurisdictions (i.e., City of Lancaster, City of Palmdale, Los Angeles County, and Kern County) have land use objectives or standards that apply to the proposed Project. Impacts related to potential conflicts with local standards are described below.

Impact N-1: Construction Noise levels would violate local standards (Class II)

As described above in Section C.10.2.3, the City of Lancaster and Los Angeles County have ordinances that specifically restrict construction activities during night-time hours. As described in Section B of this EIR, Description of proposed Project, Table B.1-1. Summary of Proposed Project Components, the proposed daily construction schedule is 7:00 a.m. to 5:00 p.m. Monday through Saturday with no work on Sunday. SCE has also committed to implementing APMs NOI-1 through NOI-3 (see Table C.10-9), which would require the

Project to comply with the City of Lancaster, City of Palmdale, and County of Los Angeles construction restrictions. Therefore, the proposed project would not violate construction time standards established by the local jurisdictions affected by the proposed Project.

In addition to construction timing restrictions, Los Angeles County has established maximum levels for noise sources on adjacent land uses. Los Angeles County has defined maximum construction noise levels for mobile and stationary construction equipment as 75 dBA at single-family residences, 80 dBA at multi-family residences, and 85 dBA at commercial uses.

Mobile equipment activities are defined by Los Angeles County as nonscheduled, intermittent, short-term operations (Los Angeles County, 2005). Based on this limitation, mobile construction equipment use within 600 feet of single-family residences, 300 feet of multi-family residences, and approximately 170 feet of commercial uses may, depending on the equipment in use, generate noise levels temporarily or intermittently in excess of the maximum levels defined by the County. Construction noise at closer distances to sensitive receptors, which would occur in several areas along the proposed route (see Tabled C.10-1 and C.10-2), would violate the Los Angeles County standard. This impact is considered significant.

Use of stationary construction equipment, such as an air compressor (see Project Description Table B.33), could also cause potentially significant impacts by violating the standard. Maximum stationary equipment noise levels are defined by Los Angeles County as 60 dBA at single-family residences, 65 dBA at multi-family residences, and 70 dBA at commercial uses (see Table C.10-6). An air compressor can be expected to generate a noise level of approximately 81 dBA at 50 feet (FTA, 1995). Therefore, stationary construction equipment operations within 600 feet of single-family residences, 350 feet of multi-family residences, and approximately 200 feet of commercial uses may, depending on the equipment in use, generate noise levels in excess of the maximum levels defined by the County. Construction activities within these distances would result in a significant impact.

However, Mitigation Measure N-1 (below) would reduce both the mobile construction equipment and stationary construction equipment noise violations in unincorporated Los Angeles areas of the Project ROW by requiring the use of noise shields to reduce stationary equipment noise near sensitive uses during construction and to require a variance for mobile equipment use near residential or commercial uses. With this measure, impacts from construction equipment would be reduced to less-than-significant levels (**Class II**).

Mitigation Measure for Impact N-1

N-1 Provide Shields for Stationary Construction Equipment. During construction, SCE or its construction contractor shall install temporary shields or curtains to reduce noise from construction equipment or obtain variances to operate equipment in a manner consistent with Los Angeles County goals for noise protection. In unincorporated areas of Los Angeles County when using equipment within 600 feet of single-family residences, within 350 feet of multi-family residences, and within approximately 200 feet of commercial uses, temporary shields shall be used to reduce noise levels from stationary construction equipment to within the Los Angeles County maximum allowable construction noise levels. The maximum allowable noise levels for single-family residences are 60 dBA between 7:00 a.m. and 8:00 p.m. and 50 dBA between 8:00 p.m. and 7:00 a.m., for multi-family residences are 65 dBA between 7:00 a.m. and 8:00 p.m. and 55 dBA between 8:00 p.m. and 7:00 a.m., and for semi-residential/commercial uses are 70 dBA between 7:00 a.m. and 8:00 p.m. and 60 dBA between 8:00 pm and 7:00 a.m.

Option A

Option A is identical to the proposed Project except between Mile S2-5.7 and Mile S2-7.7, where the alignment deviates from the proposed ROW to avoid three existing homes located north of Elizabeth Lake Road. Therefore, construction activities would be the same for Option A as compared to the proposed Project.

While Option A would reduce the total number of residential receptors immediately adjacent to the route, the full transmission line route would still require construction activities within close proximity of sensitive receptors. Therefore, while Option A would reduce the total noise impacts to sensitive receptors by reducing the number of receptors along the route, the impact would still be significant and require Mitigation Measure N-1 (Provide Shields for Stationary Construction Equipment) to reduce temporary and short-term construction noise to sensitive receptors (**Class II**).

Option B

Option B deviates from the proposed Project at Mile S2-8.1 by continuing in a southeasterly direction parallel to the existing Antelope-Vincent corridor through the Ritter Ranch and Avaverde community development areas, rejoining the proposed Project route at Mile S2-11.2 (proposed Project Mile S2-14.9). The remainder of the route would be identical to the proposed Project route. Therefore, construction activities would be the same for Option B as compared to the proposed Project. Option B would be sited across the planned residential communities of Ritter Ranch and Anaverde, in areas that have been graded for housing development. Existing residences would be located east of and immediately adjacent to the Option B route within Ritter Ranch and Anaverde. Therefore, Option B would likely increase the number of sensitive receptors along the route. Regardless, noise impacts associated with Option B would be significant and require Mitigation Measure N-1 (Provide Shields for Stationary Construction Equipment) to reduce temporary and short-term construction noise to sensitive receptors (**Class II**).

Impact N-2: Operational Noise levels would violate local standards (Class I)

Operational Impacts. As described above in Tables C.10-1 and C.10-2, sensitive noise receptors are located along the proposed Project route, immediately adjacent to the proposed transmission ROW (within 0.2 miles). As presented above in Section C.10.2.3, the most stringent land use noise standards of all the local jurisdictions in the Project area are included within the Los Angeles County Noise Ordinance, which contains a noise standard of 45 dBA for noise-sensitive areas such as residential land uses along the route within Los Angeles County. The level of worst-case wet weather and heavy load noise would likely be between 55 and 65 dBA along the corridor (as further described below in Impact N-4). Therefore, operational corona noise levels at these locations would exceed Los Angeles County Ordinance Standards and would therefore result in a significant and unavoidable impact (**Class I**). No mitigation measures have been identified to reduce this impact. However, audible noise from the corona effect above 50 dBA for the proposed 500-kV line would not exceed exterior noise standards for sensitive receptors established by the Cities of Lancaster and Palmdale, as well as Kern County.

Option A

The 2.1-mile portion of Option A that deviates from the proposed Project traverses unincorporated Los Angeles County and the Ritter Ranch community of the City of Palmdale. As such, the applicable noise policies from the County of Los Angeles General Plan and the City of Palmdale General Plan (as presented above in Section C.10.2.3) would be applicable to Option A. Therefore, conflict with the operational noise standards presented within the County of Los Angeles General Plan would be identical for Option A as the proposed Project route, resulting in significant unavoidable impacts (**Class I**).

Option B

The 3.1-mile portion of Option B that deviates from the proposed Project traverses the Ritter Ranch and Anaverde communities of the City of Palmdale, within Los Angeles County. Consequently, the applicable noise policies from the County of Los Angeles General Plan and the City of Palmdale General Plan (as presented above in Section C.10.2.3) would be applicable to Option B. Therefore, conflict with the operational noise standards presented within the County of Los Angeles General Plan would be identical for Option B as the proposed Project route, resulting in significant unavoidable impacts (**Class I**).

A substantial temporary or periodic increase in ambient noise levels in the vicinity of sensitive receptors above levels existing without the Project. (Criterion NOI 2)

Construction noise would temporarily, but substantially, increase ambient noise levels in the vicinity of the new overhead line work, along the project route, and along all construction access routes.

Impact N-3: Construction noise would substantially disturb sensitive receptors (Class II)

Construction of the proposed Project would involve the short-term use of heavy equipment such as cranes, drill rigs, dozers, excavators, compressors, generators, and trucks. Helicopters would also be needed to transport construction materials and to string the conductors for the overhead line. Construction of foundations for new towers and poles would require use of a drill rig or large auger for the cast-in-place piles at each tower location. Pile driving would not be needed. Spur roads and access roads would require use of graders, dozers, and trucks.

Noise levels associated with individual pieces of equipment would generally range between 70 and 90 dBA (U.S. DOT, 1995). Noise levels for typical pieces of construction equipment (at 50 feet) are listed in Table D.10-11.

Construction noise is usually made up of intermittent peaks and continuous lower levels of noise from active equipment. At any one location, a combination of multiple pieces of equipment may be present, and aggregated peak noise levels of up to about 100 dBA could occur within 50 feet from the construction activity (SCE, 2005). At 100 feet, the distance would attenuate these peak levels to about 94 dBA, and at 200 feet, 88 dBA. These short peaks would attenuate further to about 76 dBA for locations at 800 feet with an unobstructed line of sight. Over a typical day, average noise levels from construction would be lower than the intermittent peaks because most equipment would not be operated steadily or continuously at peak levels. At 50 feet, continuously steady construction noise levels would average approximately 77 dBA. At 100 feet, these average levels would attenuate to 71 dBA, and to 65 dBA at 200 feet. These noise levels would diminish over additional distance and would be reduced further by any intervening structures. At distances over one-quarter mile, steady construction noise would be under 50 dBA, which would begin to fade into quiet backgrounds.

Table C.10-11. Typical Noise Levels for Construction Equipment

Equipment	Typical Noise Levels (dBA, at 50 feet)
Front loaders	85
Backhoes, excavators	80-85
Tractors, dozers	83-89
Graders, scrapers	85-89
Trucks	88
Concrete pumps, mixers	82-85
Cranes (movable)	83
Cranes (derrick)	88
Forklifts	76-82
Pumps	76
Generators	81
Compressors	83
Pneumatic tools	85
Jack hammers, rock drills	98
Pavers	89
Compactors	82
Drill rigs	70-85

Sources: Adapted from U.S. DOT, 1995

Focused locations of construction noise would occur along the project route, at substation sites, at staging areas, and along transport access routes, for example from commuting workers and from trucks bringing materials to the work sites. Haul trucks would make trips to bring the lattice tower pieces, conductor line, and other materials to the construction sites and remove demolished tower debris and excavated material and wastes from the route right-of-way (ROW). The peak noise levels associated with passing trucks and commuting worker vehicles along access routes would be approximately 75 dBA at 50 feet.

Helicopters may be required to erect towers and to string conductors. Heavy duty helicopters used for sensitive locations would generate noise levels of approximately 89 dBA at 200 feet, while light-duty helicopters for stringing activities would cause less noise. The light-duty helicopters for stringing activities would generate noise levels of approximately 80 dBA at 200 feet along the entire transmission line ROW and in the area of helicopter staging areas.

Because the proposed Project is linear, the frequency and duration of noise events would be short term and temporary at any one location as construction of the ROW progresses. However, these noise events are considered significant as noise sensitive receptors are located within one-quarter mile of the ROW, as identified above in Tables C.10-1 and C.10-2.

Ability of Local Noise Ordinances to Minimize Impacts. Noise ordinances usually provide exemptions for construction activities occurring during normal daytime, weekday hours. Where local noise ordinances fail to exempt construction activity, SCE would need to obtain approval from the jurisdiction before commencing work within those localities. There may be a need to work outside of the daytime, weekday hours provided by the local ordinances in order to take advantage of low electrical draw periods that occur during the nighttime hours or to cross major roads and highways. SCE would be required to comply with variance procedures established by local authorities if a variance to local ordinances is needed.

SCE proposes to avoid the potential impact of violating local rules, standards, and/or ordinances during construction by implementing APM NOI-1 through NOI-3, shown in Table C.10-9 above. With implementation of SCE's measure, the construction activities would either comply with local noise ordinances, or SCE would request a variance from each affected jurisdiction, if there is a need to work outside of normal daytime, weekday hours. In some locations, additional measures may be necessary to avoid a significant impact.

To provide advance notice of the construction schedule to nearby residents and provide a public liaison, Mitigation Measure N-3a (Provide Advanced Notification of Construction) would require SCE to post notices along the project ROW and at work sites to ensure that all surrounding uses are made aware of the proposed construction in sufficient advance. Implementation of Mitigation Measure N-3b (Implement Best Management Practices for Construction Noise) would reduce the likelihood of substantially disturbing receptors within one-quarter mile of construction, as identified above in Tables C.10-1 and C.10-2. Because construction noise would be short-term and temporary in nature, Mitigation Measures N-3a and N-3b, and adherence to local regulations governing construction noise (see discussion of Impact N-1 above and APMs NOI-1 through NOI-3) would further reduce construction noise impact to a less-than-significant level (**Class II**).

Mitigation Measures for Impact N-3

N-3a Provide Advanced Notification of Construction. During construction, SCE or its construction contractor shall provide advance notice, between two and four weeks prior to construction, by mail to all single-family residences that would be within 600 feet of project construction, multi-family residences within 300 feet of construction, and commercial uses within 170 feet of construction. The announcement shall state specifically where and when construction would occur in the area. If

construction delays of more than seven days occur, an additional notice shall be made, either in person or by mail. Notices shall provide tips on reducing noise intrusion, for example, by closing windows facing the planned construction. SCE shall also publish a notice of impending construction in local newspapers, stating when and where construction would occur.

N-3b Implement Best Management Practices for Construction Noise. SCE shall employ the following noise-suppression techniques to minimize the impact of temporary construction noise and avoid possible violations of local rules, standards, and ordinances:

- Construction noise shall be confined to daytime, weekday hours (e.g., 7:00 a.m. to 7:00 p.m.) or an alternative schedule established by the local jurisdiction;
- Construction equipment shall use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer;
- Construction traffic shall be routed away from residences and schools, where feasible;
- Unnecessary construction vehicle use and idling time shall be minimized to the extent feasible. 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.)

Option A

Option A would be sited less than 0.2 miles (approximately 1,000 feet) from residences located along Hacienda Ranch Road and Cherry Tree Lane in unincorporated Los Angeles County. As described for the proposed Project, residences within close proximity to the Option A route would be impacted by temporary noise generated during construction. Construction noise impacts to residential receptors as a result of Option A would be significant. Implementation of Mitigation Measures N-3a (Provide Advanced Notification of Construction) and N-3b (Implement Best Management Practices for Construction Noise) would be required to reduce construction noise impacts on sensitive receptors along the Option A route to a less-than-significant level. **(Class II)**

Option B

Option B would be sited across the planned residential communities of Ritter Ranch and Anaverde, in areas that have been graded for housing development. Existing residences would be located east of and immediately adjacent to the Option B route within Ritter Ranch and Anaverde. As such, the residences located directly along the Option B route would be exposed to the construction noise. Construction noise impacts to residential receptors as a result of Option A would be significant. Implementation of Mitigation Measures N-3a (Provide Advanced Notification of Construction) and N-3b (Implement Best Management Practices for Construction Noise) would be required to reduce construction noise impacts to sensitive receptors along the Option B route to a less-than-significant level **(Class II)**.

Sensitive receptors being exposed to excessive ground-borne vibration. (Criterion NOI 3)

The proposed Project would not result in excessive exposure of persons to or generation of ground-borne vibration or noise levels. The construction of the proposed Project would not result in blasting or impact-pile

driving which could cause vibration impacts at close distances. Construction activities would result in some minor amounts of ground-borne vibration; however, such ground-borne noise or vibration would attenuate rapidly from the source and would not be perceptible outside of the construction areas. As such, no sources of ground-borne vibration would be expected to affect receptors outside of the work areas, and there would not be any potential for excessive exposure of persons to or generation of ground-borne vibration levels. No impacts related to excessive ground-borne vibration or noise would occur as a result of the proposed Project.

Option A

Option A would be sited less than 0.2 miles (approximately 1,000 feet) from residences located along Hacienda Ranch Road and Cherry Tree Lane in unincorporated Los Angeles County. As described for the proposed Project, construction activities would result in some minor amounts of ground-borne vibration; however, such ground-borne noise or vibration would attenuate rapidly from the source and would not be perceptible outside of the construction areas. As such, no sources of ground-borne vibration would be expected to affect receptors outside of the work areas, and there would not be any potential for excessive exposure of persons to or generation of ground-borne vibration levels. No impacts related to excessive ground-borne vibration or noise would occur to receptors along the Option A route.

Option B

Option B would be sited across the planned residential communities of Ritter Ranch and Anaverde, in areas that have been graded for housing development. Existing residences would be located east of and immediately adjacent to the Option B route within Ritter Ranch and Anaverde. As described for the proposed Project, construction activities would result in some minor amounts of ground-borne vibration; however, such ground-borne noise or vibration would attenuate rapidly from the source and would not be perceptible outside of the construction areas. As such, no sources of ground-borne vibration would be expected to affect receptors outside of the work areas, and there would not be any potential for excessive exposure of persons to or generation of ground-borne vibration levels. No impacts related to excessive ground-borne vibration or noise would occur to receptors along the Option B route.

A permanent and substantially higher level of ambient noise (an increase of more than five dBA) in the vicinity of sensitive receptors. (Criterion NOI 4)

The long-term impacts that would occur as a result of the proposed Project would be associated with three types of noise: the corona effect of the transmission lines, noise from activities for routine inspection and maintenance of the new facilities, and noise from the new substation facilities. The impacts caused by these permanent noise sources are described below.

Impact N-4: Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines (Class I)

Corona discharge associated with high-voltage power transmission lines is heard near an energized line as a crackling or hissing sound. SCE did not forecast a specific level of audible corona noise for the proposed transmission line. According to SCE, the wet-conductor generated acoustic power (dB) of a single circuit 500 kV transmission line (baseline) is calculated to be 55.9 dB, at the edge of the ROW. The dB level with the addition of another parallel 500 kV transmission line is calculated to be 57.0 dB, at the edge of the ROW. The heavy-rain generated acoustic power (dB) of a single circuit 500 kV transmission line (baseline) is calculated to be 62.0 dB, at the edge of the ROW, with an increase to 63.1 dB at the edge of the ROW with the addition of another parallel 500 kV transmission line (SCE, 2006).

While the heavy-rain condition has higher values than the wet-conductor condition, other factors that may create noise levels greater than corona noise levels during the heavy rain condition need to be considered, such as the actual rain generated noise on nearby surfaces such as concrete, asphalt or roofing materials. Therefore, the wet-conductor condition may be a better real-world single source generated value.

The precise location of highest possible corona noise is not known at this stage of project design and may not be known until after commencing operation. This is because conductor surface defects, damage, and inconsistencies can influence the corona effect. Practicable measures for eliminating or reducing the wet weather audible noise levels are generally limited to carefully handling the conductor during construction to avoid damaging the surface and altering the conductor size and bundling configuration. SCE can be expected to treat the conductor with care during construction to avoid creating irregularities (e.g., nicks, scrapes, and burrs) on the conductor surface, which can cause localized increases in corona and audible noise. SCE takes precautions to avoid damaging the line in this way as a regular course of business in order to preserve the physical strength of the line and its ability to transmit power.

Corona noise would occur along the entire corridor of the proposed Project, which is in close proximity to sensitive receptors (as identified in Tables C.10-1 and C.10-2), and it would create ambient noise levels greater than the noise occurring under existing conditions. This would cause significant operational noise impacts to adjacent sensitive uses. The level of worst-case wet weather and heavy load noise would likely be between 55 and 65 dBA along the corridor, meaning that introduction of new corona noise could result in a substantial (more than five dBA) increase to the ambient noise levels of nearby receptors. For any homes or other sensitive receptor within about 200 feet of the ROW, this would violate local standards or policies identified. The following specific receptors, as identified above in Tables C.10-1 and C.10-2, could be impacted:

Segment 3

- Single family residence. 105th Street West (less than 0.1 miles east of Mile S3-26.4). Unincorporated Los Angeles County
- Single family residence. Avenue J (less than 0.1 miles northeast of Antelope Substation). Unincorporated Los Angeles County

Segment 2

- 10+ single family residences. Cherry Tree Lane (ranging from 0 miles to 0.2 miles west of Mile S2-7.4). Unincorporated Los Angeles County
- Approximately 6 single family residences. Tuckerway Ranch Road (ranging from less than 0.1 miles east of Mile S2-18.1 to 0.2 miles east of Mile S2-18.5). Unincorporated Los Angeles County
- Approximately 3 single family residences. Peaceful Valley Road (less than 0.1 miles east of Mile S2-20.0). Unincorporated Los Angeles County
- Approximately 7 single family residences. Rockyford Road (less than 0.1 miles west of Mile S2-20.8). Unincorporated Los Angeles County

This increase in ambient noise levels to sensitive receptors immediately adjacent to the proposed ROW would be significant and unavoidable (**Class I**).

Option A

Option A is identical to the proposed Project except between Mile S2-5.7 and Mile S2-7.7, where the alignment deviates from the proposed ROW to avoid three existing homes located north of Elizabeth Lake Road. However, Option A would continue to be sited less than 0.2 miles (approximately 1,000 feet) from

residences located along the remainder of the route in unincorporated Los Angeles County (as described above for the proposed Project). Identical to that described above for the proposed Project, corona noise would occur along the entire Option A corridor and would create ambient noise levels greater than the noise occurring under existing conditions. These receptors within close proximity to the Option A route ~~could introduction of new corona noise~~ could experience a substantial (more than five dBA) increase to the ambient noise levels due to the introduction of new corona noise. This increase in ambient noise levels to sensitive receptors immediately adjacent to the proposed Option A route would be significant and unavoidable (**Class I**).

Option B

Option B deviates from the proposed Project at Mile S2-8.1 by continuing in a southeasterly direction parallel to the existing Antelope-Vincent corridor through the Ritter Ranch and Avaverde community development areas, rejoining the proposed Project route at Mile S2-11.2 (proposed Project Mile S2-14.9). The remainder of the route would be identical to the proposed Project route. Therefore, Option B would likely increase the total number of receptors within proximity to the route. In addition to existing residences located east of and immediately adjacent to the Option B route within Ritter Ranch and Anaverde, Option B would continue to be sited less than 0.2 miles (approximately 1,000 feet) from residences located along the remainder of the route in unincorporated Los Angeles County (as described above for the proposed Project). As such, identical to that described above for the proposed Project, corona noise would occur along the entire Option B corridor and would create ambient noise levels greater than the noise occurring under existing conditions. Residences within close proximity to the Option B route ~~could introduction of new corona noise~~ could experience a substantial (more than five dBA) increase to the ambient noise levels due to the introduction of new corona noise. This increase in ambient noise levels to sensitive receptors immediately adjacent to the proposed Option B route would be significant and unavoidable (**Class I**).

Impact N-5: Maintenance activities during transmission line operation would increase ambient noise levels (Class III)

As described in Section B, Description of the proposed Project, B.4 Facilities Operation and Maintenance, operation and maintenance of the proposed transmission lines would involve periodic inspection approximately once per year via helicopter and truck. Maintenance of the proposed facilities would be performed on an as-needed basis, including maintenance of the access roads and erosion/drainage control structures. After construction, both Substation Two and Substation One would be unmanned. There would be no change in manning for the existing Antelope Substation or Vincent Substation. All telecommunications equipment would be operated and maintained by SCE technicians. Preventative maintenance would be scheduled approximately every six months to ensure system reliability and performance.

The light-duty helicopters and trucks that would be used during inspection activities would generate noise levels of approximately 80 dBA at 200 feet and approximately 75 dBA at 50 feet, respectively. These periodic inspection would occur approximately once per year via helicopter and truck. Visits to substations as a result of the proposed Project would normally involve crews in light utility trucks. Because the visits would be infrequent and would not involve heavy-duty equipment, no notable noise increase would occur as a result of this activity, and the noise impact would be less than significant for all locations along the transmission line ROW (**Class III**).

Option A

Maintenance requirements for Option A would be identical to those described above for the proposed Project. While periodic maintenance activities would occur along the route and expose nearby receptors to noise

generated during these activities, these activities would be infrequent and would not result in a long-term notable noise increase. The noise impact resulting from maintenance activities associated with Option A would be less than significant (**Class III**).

Option B

Maintenance requirements for Option B would be identical to those described above for the proposed Project. While periodic maintenance activities would occur along the route and expose nearby receptors to noise generated during these activities, these activities would be infrequent and would not result in a long-term notable noise increase. The noise impact resulting from maintenance activities associated with Option B would be less than significant (**Class III**).

Impact N-6: Operation of modified and new substations would result in increased ambient noise levels (Class III)

Substations include transformer banks and circuit breakers that create “hum” normally around 60 dBA and occasional instantaneous sounds in the range of 70 to 90 dBA during activation of circuit breakers. The tonal quality of transformer “hum” is typically the most offensive characteristic of transformer noise. The U.S. EPA recommends adding a 5 dB penalty to pure-tone noise levels to account for the increased sensitivity of people to noise containing pure tones (U.S. EPA, 1974). This penalty “normalizes” the predicted noise level for its offensive nature. The noise levels surrounding any substation would likely be close to 60 dBA near the substation fence. As identified in Tables C.10-1 and C.10-2, only one home is located within 500 feet of the Antelope substation, and no homes are located within proximity of Substation One or Substation Two. Because of the relatively low level noise sources and the lack of sensitive receptors immediately adjacent to project-related substations, the operational noise impact would be adverse but less than significant (**Class III**).

Option A

The location of substations for Option A is identical to that described above for the proposed Project. As identified in Tables C.10-1 and C.10-2, only one home is located within 500 feet of the Antelope substation, and no receptors are located within proximity of Substation One or Substation Two. Because of the relatively low level noise sources and the lack of sensitive receptors immediately adjacent to project-related substations, the operational noise impact would be adverse but less than significant (**Class III**).

Option B

The location of substations for Option B is identical to that described above for the proposed Project. As identified in Tables C.10-1 and C.10-2, only one home is located within 500 feet of the Antelope substation, and no receptors are located within proximity of Substation One or Substation Two. Because of the relatively low level noise sources and the lack of sensitive receptors immediately adjacent to project-related substations, the operational noise impact would be adverse but less than significant (**Class III**).