

C.12 Noise

Introduction

This section describes effects associated with noise that would be caused by implementation of the VSSP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for the proposed Project, and recommends measures to reduce or avoid significant impacts anticipated from Project construction, operation, and maintenance. 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 the implementation of the proposed Project.

Scoping Issues Addressed

During the scoping period for the EIR (May 5 through June 8, 2015), written comments were received from agencies, organizations, and the public. These comments identified various substantive issues and concerns relevant to the EIR analysis. No issues related to noise were raised during scoping.

General Information on Noise

The assessment of noise utilizes specialized terminology; therefore, to assist in understanding the subsequent analysis, Table C.12-1 provides definitions for these technical terms.

Term	Definition
Decibel (dB)	A unit to measure the intensity of a sound or a degree of loudness. The ear can detect changes in pressure which displace the eardrum. The ear responds to pressure changes over a range of 10^{14} to 1. To deal with the extreme range of pressures the ear can detect, the amount of acoustical energy of a sound is expressed by comparing the measured sound pressure to a reference pressure, then taking the logarithm (base 10) of the square of that number.
A-Weighted Sound Level (dBA)	The sound level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Ambient Noise Level	The composite noise from all sources resulting in the existing normal level of environmental noise at a given location.
Equivalent Noise Level (Leq)	The average dBA level, on an equal energy basis, during the measurement period.
Maximum Noise Level (Lmax)	The maximum noise level during a sound measurement period.
Minimum Noise Level (Lmin)	The minimum noise level during a sound measurement period.
Percentile Noise Level (Ln)	The noise level exceeded during 'n' percent of the measurement period, where 'n' is a number between 0 and 100 (e.g., L_{90} refers to the dBA level occurring 90 % of the time during a sound measurement period)
Community Noise Equivalent Level (CNEL)	The average sound level over a 24-hour period, with a penalty of 5 dB added between 7 p.m. and 10 p.m. and a penalty of 10 dB added for the nighttime hours of 10 p.m. to 7 a.m.
Sound Exposure Level (SEL)	Measures the sound's change from moment to moment when the sound varies. This varied duration measurement combines the maximum sound level with the length of time during which the sound level is greater than a certain number of decibels below the maximum level.

Table C.12-1. Summary of Acoustical Terms	
Term	Definition
Corona Noise	<p>Corona is the ionization of air that occurs at the surface of 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 (characterized as a crackling, hissing, or humming noise), light, and production of ozone. The amount of corona produced is a function of the voltage of the transmission or power 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 noise is most noticeable during wet, rain or fog, conditions). Corona typically becomes a design concern for transmission lines at 345-kV and above and is less noticeable on lines operated at lower voltages.</p> <p>The electric field gradient that causes corona is directly related to the line voltage. The electric field gradient is greatest at the surface of the conductor, where large-diameter conductors have lower electric field gradients. Irregularities (such as nicks and scrapes on the conductor surface) or sharp edges on suspension hardware concentrate the electric field at these locations, increasing 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 of corona noise.</p>

The effects of noise on people can be grouped into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning; and
- Physiological effects such as startling and hearing loss.

In most cases, typical noise produces effects in the first two categories. No satisfactory way exists to measure the subjective effects of noise, or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard is due primarily to the wide variation in individual thresholds of annoyance and habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is by comparison with the ambient noise environment.

Noise levels are generally considered low when ambient levels are below 50 dBA, moderate in the 50 to 65 dBA range, and high above 65 dBA (FTA, 2006). Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, high noise levels are nevertheless considered to be an annoyance and may be adverse to public health. In general, the more the level or the tonal (frequency) variations of a noise exceed the existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual. When comparing sound levels from similar sources (for example, changes in traffic noise levels), a 3 dBA increase is considered to be a just-perceivable difference, 5 dBA is clearly perceivable, and 10 dBA is considered a doubling in perceived loudness.

General Information on Vibration

Vibration is a phenomenon related to noise, with common man-made sources being trains, large vehicles on rough roads, and construction activities such as blasting, pile-driving, and operating heavy earth-moving equipment (FTA, 2006, Chapter 7). Vibration is defined as the mechanical motion of earth or ground, building, or other type of structure, induced by the operation of any mechanical device or equipment located upon or affixed thereto. Vibration generally results in an oscillatory motion in terms of the displacement, velocity, or acceleration of the ground or structure(s) that causes a normal person to be aware of the vibration by means such as, but not limited to, sensation by touch or visual observation of moving objects.

The ground-borne energy of vibration has the potential to cause structural damage and annoyance. Vibration can be felt outdoors, but the perceived intensity of vibration effects are much greater indoors due to the shaking of structures. Several land uses are considered sensitive to vibrations, and include hospitals, libraries, residential areas, schools, and churches. Additionally, land uses such as research and manufacturing where vibration-sensitive equipment is used (e.g., electron microscopes and high resolution lithographic equipment), cultural and historic resources, and concert halls are sensitive to vibration.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal and is most frequently used to describe vibration impacts to buildings. The PPV velocity is normally described in inches per second (in/sec). California Department of Transportation (Caltrans) guidance states that for continuous vibration amplitudes of 0.10 in/sec PPV, vibrations begin to annoy people, but there is virtually no risk of “architectural” damage to normal buildings. A level of 0.20 in/sec PPV results in vibrations that would annoy people in buildings and is the point at which there is a risk of “architectural” damage to normal dwelling (i.e., houses with plastered walls and ceilings) (Caltrans, 2004 – Table 2). The vibration damage potential threshold is 0.1 in/sec PPV for fragile buildings, 0.25 in/sec PPV for historic and some old buildings, 0.3 in/sec PPV for older residential structures, and 0.5 in/sec for new residential structures and modern industrial/commercial buildings (Caltrans, 2004 – Table 19).

Although it is not universally accepted, decibel notation is in common use for vibration. Therefore, the abbreviation “VdB” is used in this document for vibration decibels to reduce the potential for confusion with sound decibels. 65 VdB defines the minimum threshold perception for humans (FTA, 2006, Chapter 7). Although the perceptibility threshold is 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB (FTA, 2006, Chapter 7). For most people, the approximate dividing line between barely perceptible and distinctly perceptible is a vibration velocity of 75 VdB and ground-borne noise level of 50 dBA, at which point many people find (transit) vibration annoying (FTA, 2006 – Table 7-1).

C.12.1 Environmental Setting

C.12.1.1 Existing Noise Sources

The Project area is typically rural in nature, with rural residential and commercial land uses, as well as notable transportation corridors, such as Interstate (I) 215, State Route (SR) 74 and SR-79/Winchester Road and other arterial roadways that contribute to transportation-related noise. Occasional aircraft noise is also characteristic of the Project area. The French Valley Airport is located approximately 0.5 mile west of Segment 2, Pine Airpark is located approximately 0.6 miles east of Segment 1, Perris Valley Airport is approximately 0.1 mile south of Staging Yard #3 (see Figure B-7), and one private helipad (SCE’s Menifee Service Center Helipad) is located approximately 0.2 mile east of the Valley Substation. Intermittent noise from general residential outdoor activities, such as people talking, landscaping/gardening, domestic animals, etc. also contribute to the ambient noise environment.

Short-term (15-minute) noise measurements were conducted on November 1, 2012 at five locations along Segment 1, and on April 24, 2014 at four locations along Segment 2, documenting the existing ambient noise conditions along the proposed Project route (see Figure C.12-1, Ambient Noise Monitoring Locations). The results of these measurements are summarized in Table C.12-2, Short-Term Ambient Noise Level Measurements (Proposed Project).

Location ID ²	Location Description ¹	Date/Time	Noise Sources	Sound Level (dBA)	
				Leq	Lmax
ST-01	About 30 feet to the west of 30061 Mount Menifee Street, Romoland, CA 92585 (unincorporated Riverside County)	11/1/2012 13:44 to 13:58	Distant traffic	52	64
ST-02	About 150 feet southwest of the corner of Leon Road and Simpson Road, east of 28550 Leon Road, Winchester, CA 92596	11/1/2012 14:11 to 14:25	Vehicle noise	62	71
ST-03	About 50 feet southwest of the corner of Leon Road and Holland Road, east of 30901 Holland Road, Winchester, CA 92596	11/1/2012 14:44 to 14:58	Vehicle noise	50	62
ST-04	About 200 feet southeast of the corner of Leon Road and Jean-Nicholas Road, west of 35077 Bola Court, Winchester, CA 92596	11/1/2012 15:13 to 15:27	Vehicle noise	57	64
ST-05	About 50 feet north of 35580 Hawkeye Street, Murrieta, CA 92563, on the sidewalk at the end of Hawkeye Street (cul-de-sac)	11/1/2012 15:41 to 15:55	Vehicle noise	52	63
ST-09	About 60 feet east and 5 feet north of the intersection of Leon Road and Van Gaale Road, along existing subtransmission line in unincorporated Riverside County	4/24/2014 16:03 to 16:18	Vehicle noise	46	80
ST-10	About 30 feet north of end of Promontory Parkway cul-de-sac at existing subtransmission line in unincorporated Riverside County	4/24/2014 16:42 to 16:57	Vehicle noise	48	82
ST-11	About 425 feet north of Murrieta Hot Springs Road and 75 feet south of Bow Bridge Drive along existing subtransmission line in unincorporated Riverside County	4/24/2014 17:07 to 17:22	Vehicle noise	53	85
ST-12	About 450 feet west of existing subtransmission line at the intersection of Jon's Place and Diego Drive, Temecula, CA	4/24/2014 17:30 to 17:46	Vehicle noise	54	79

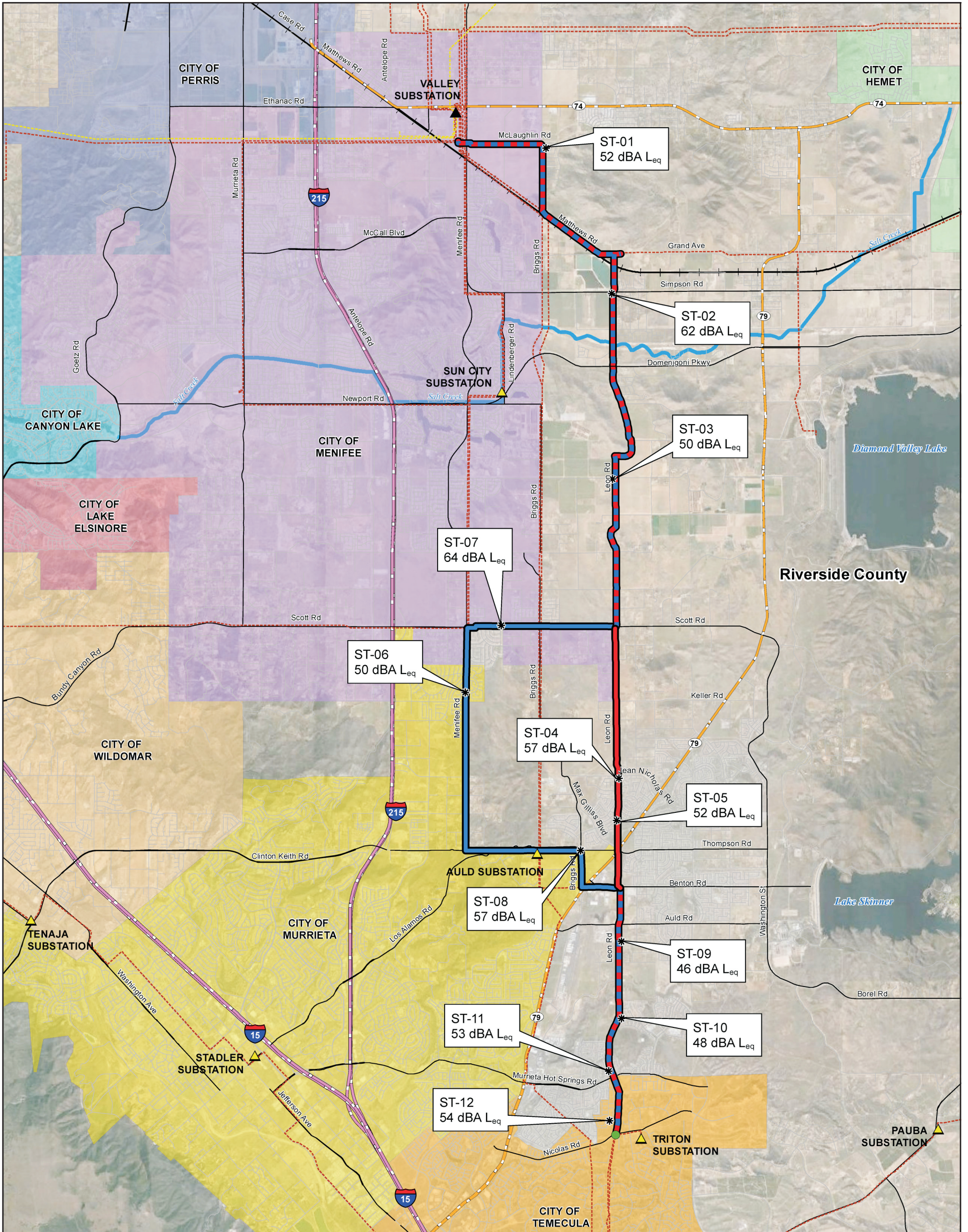
Source: SCE, 2014 (PEA Table 4.12-3).

Note(s):

¹ Noise measurements were taken in proximity to residential receptors located within 50 feet of the proposed subtransmission line.

² Locations ST-06 through ST-08 are associated with SCE's Alternative Project and are therefore presented in Section D.

As shown in Table C.12-2, average daytime noise levels in the Project area range from 46 to 62 dBA Leq, with maximum levels ranging from 62 to 85 dBA, which is generally attributed to vehicle traffic and local garbage collection. The monitored 15-minute Leq and Lmax noise levels can be considered representative of the hourly Leq and Lmax at the measurement locations.



Source: SCE, 2014.

<p>Proposed Project</p> <ul style="list-style-type: none"> ▬ Proposed 115 kV Subtransmission Line ▬ Common to Both <p>Alternative Project</p> <ul style="list-style-type: none"> ▬ Alternative 115 kV Subtransmission Line 	<p>Existing Facilities</p> <ul style="list-style-type: none"> ▲ 115 kV Substation ▲ 500 kV Substation ● Terminal TSP ▬ Transmission Line ▬ Subtransmission Line 	<p>Noise Monitoring</p> <ul style="list-style-type: none"> ✱ Measurement Sites <div style="text-align: right;"> <p>0 1 Miles 1:80,000</p> </div>
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Figure C.12-1
Ambient Noise Monitoring Locations

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C.12.1.2 Noise-Sensitive Receptors

An example of noise sensitive receptors would be schools, hospitals, libraries, rest homes, mental care facilities, places of worship, residences, and passive recreational facilities; places where peace and quiet is generally expected. The closest noise sensitive receptors to the proposed Project are residences, which are located within 50 feet of the proposed 115-kV subtransmission line, on Leon Road, Bow Bridge Drive, and Promontory Parkway in unincorporated Riverside County.

C.12.2 Regulatory Framework

C.12.2.1 Federal

Although no federal noise regulations exist, the United States Environmental Protection Agency (USEPA) has promulgated noise guidelines (USEPA, 1974). The USEPA guideline recommends a noise level of 55 dBA CNEL to protect the public from the effect of broadband environmental noise 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 (USEPA, 1974). Administrators of the USEPA determined in 1981 that subjective issues, such as noise, would be better addressed at lower levels of government. Consequently, in 1982, responsibilities for regulating noise control policies were transferred from the federal government to state and local governments. Noise control guidelines and regulations contained in rulings by the USEPA in prior years remain valid, but more individualized control for specific issues is allowed by designated state and local government agencies.

C.12.2.2 State

California Government Code Section 65302 encourages each local government entity to implement a noise element as part of its general plan. In addition, the California Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. These recommendations have been incorporated into the local plans and policies discussed below.

The California Environmental Quality Act (CEQA) states that exposure of persons to or generation of excessive vibration must be analyzed; however, CEQA does not define the term "excessive" with respect to ground-borne vibration and ground-borne noise. Federal, state, and local governments have not established specific, quantifiable, ground-borne noise and vibration standards. However, the Federal Transit Administration (FTA) and Caltrans have developed vibration guidelines. Caltrans vibration damage potential threshold criteria for continuous/frequent intermittent sources is 0.3 in/sec PPV for older residential structures, 0.5 in/sec PPV for new residential structures and modern industrial/commercial buildings, and 0.1 in/sec PPV for fragile buildings (Caltrans, 2004 – Table 19). For infrequent events, which are defined as fewer than 30 vibration events of the same kind per day, the FTA recommends a maximum ground-borne vibration level of 80 VdB, and a maximum ground-borne noise level of 43 dBA, to limit impacts to residential uses (e.g., annoyance, sleep disruption) (FTA, 2006 – Table 8-1).

C.12.2.3 Local

The CPUC General Order (GO) No. 131-D, Section XIV B, clarifies that "[l]ocal 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 CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters."

Due to this GO, the public utilities are directed to consider local regulations and consult with local agencies, but the regulations and general plans of the counties and cities are not applicable, as the counties and cities do not have jurisdiction over the proposed Project. While the CPUC does not need to comply with the local regulations discussed below, the analysis of noise (Section C.12.4, below) utilizes applicable local performance standards as thresholds for determining potential noise impacts.

The Project would be located within Riverside County, the cities of Perris, Menifee, Murrieta, and Temecula (north to south). The applicable noise-related plans and policies from each of these jurisdictions are provided below.

County of Riverside General Plan, Noise Element

The Noise Element of the County of Riverside General Plan contains specific goals and policies to protect noise-sensitive land uses (e.g., schools, hospitals, rest homes, long-term care facilities, mental care facilities, residential uses, libraries, passive recreation uses, and places of worship) from noise emitted by stationary noise sources, and to prevent new projects from generating adverse noise levels on adjacent properties. (County of Riverside, 2014)

- Policy N 4.1: Prohibit facility-related noise, received by any sensitive use, from exceeding the following worst-case noise levels:
 - 45 dBA-10-minute Leq between 10:00 p.m. and 7:00 a.m.
 - 65 dBA-10-minute Leq between 7:00 a.m. and 10:00 p.m.
- Policy N 4.2: Develop measures to control non-transportation noise impacts.
- Policy N 4.3: Ensure any use determined to be a potential generator of significant stationary noise impacts to be properly analyzed, and ensure that the recommended mitigation measures are implemented.
- Policy N 4.4: Require that detailed and independent acoustical studies be conducted for any new or renovated land use or structures determined to be potential major stationary noise sources.
- Policy N 12.1: Minimize the impacts of construction noise on adjacent uses within acceptable practices.
- Policy N 12.2: Ensure that construction activities are regulated to established hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.
- Policy N 12.4: Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- Policy N 18.5: Require new developments that have the potential to generate significant noise impacts to inform impacted users on the effects of these impacts during the environmental review process.

County of Riverside Municipal Code, Noise Ordinance

County of Riverside Municipal Code Chapter 9.52, Noise Regulation, provides the regulations/ordinances related to noise. Sensitive receptors are defined as a land use sensitive to noise in the noise element of the County of Riverside General Plan, including but not limited to, residences, schools, hospitals, churches, rest homes, cemeteries, or public libraries.

Municipal Code Section 9.52.040 limits the exterior sound level at the property line of a sensitive receptor (medium density residential and medium high density residential in the Project area) to a maximum of 55 dBA between 7:00 a.m. and 10:00 p.m., and 45 dBA between 10:00 p.m. and 7:00 a.m. (County of Riverside, 2006 – Table 1). Special sound sources are also subject to additional standards (Section 9.52.060). For example, off-highway vehicles must be equipped with a US Department of Agriculture-qualified spark arrester and a constantly operating and properly maintained muffler (i.e. no cutout, bypass or similar device) (Section 9.52.060A). Additionally, power tools and equipment shall not be operated

between 10:00 p.m. and 8:00 a.m. if audible to the human ear inside any inhabited dwelling, other than the dwelling in which the power tools or equipment may be located. No power tools or equipment may be operated at any other time such that the noise would be audible to the human ear at a distance greater than 100 feet from the power tool or equipment (Section 9.52.060B).

Exemptions to the regulations (Section 9.52.020) include private construction projects located one-quarter mile or more from an inhabited dwelling, and private construction projects within one-quarter mile of an inhabited dwelling provided that construction does not occur between 6:00 p.m. and 6:00 a.m. June through September, or between 6:00 p.m. and 7:00 a.m. between October through May. Additionally, property maintenance, including operation of lawnmowers, leaf blowers, etc., is exempt provided it occurs between 7:00 a.m. and 8:00 p.m. Safety, warning, and alarm devices designed to protect the public health, safety, and welfare are also exempt.

City of Perris General Plan, Noise Element

Within the City of Perris, the proposed Project would include use of a temporary staging yard (Staging Yard #3). The City of Perris General Plan Noise Element (2005) does not contain any goals or policies that would be applicable to the proposed Project.

City of Perris Municipal Code, Noise Ordinance

The City of Perris Municipal Code, Noise Ordinance (2000), establishes the following general prohibition (7.34.050):

- A. It is unlawful for any person to willfully make, cause or suffer, or permit to be made or caused, any loud excessive or offensive noises or sounds which unreasonably disturb the peace and quiet of any residential neighborhood or which are physically annoying to persons of ordinary sensitivity or which are so harsh, prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to the inhabitants of the city, or any section thereof.

The standards for dBA noise levels in Section 7.34.040 apply, which limit noise levels to 60 dBA from 10:01 p.m. to 7:00 a.m. and 80 dBA from 7:01 a.m. to 10:00 p.m. To the extent that the noise created causes the noise level at the property line to exceed the ambient noise level by more than 1.0 decibels, it shall be presumed that the noise being created also is in violation of this section. (City of Perris, 2000)

As stated in Section 7.34.050(B), the characteristics and conditions that would be considered in determining whether a violation of the provisions of Section 7.34.050(A) exist should include, but not be limited to the following: the level of the noise; whether the nature or origin of the noise is usual or unusual; the ambient noise level; proximity of the noise to sleeping quarters; the nature and zoning of the area from which the noise emanates versus the area where it is received; the time of day or night the noise occurs; the duration of noise; and whether the noise is recurrent, intermittent, or constant (City of Perris, 2000).

Section 7.34.060, Construction Noise, limits the erection, construction, demolition, excavation, alteration or repair of any building or structure that may create disturbing, excessive or offensive noise to the hours of 7:00 a.m. to 7:00 p.m., with a maximum noise level of 80 dBA in residential zones in the city. Construction activities are not allowed on national holidays, with the exception of Columbus Day and Washington's Birthday, or on Sundays.

City of Menifee General Plan, Noise Element

The City of Menifee General Plan, Noise Element (2013), includes goals and policies for limiting noise generated from future projects and to limit noise spillover from existing noise sources. The following goals and policies are relevant to the proposed Project:

- Policy N-1.1: Assess the compatibility of proposed land uses with the noise environment when preparing, revising, or reviewing development project applications.
- Policy N-1.6: Coordinate with the County of Riverside and adjacent jurisdictions to minimize noise impacts from adjacent land uses along the city's boundaries, especially its rural edges.
- Policy N-1.7: Mitigate exterior and interior noise levels to the extent feasible for stationary sources adjacent to sensitive receptors to the following: Interior – 55 dBA Leq (10-minute), Exterior – 65 dBA Leq (10-minute) between 7:00 a.m. and 10:00 p.m.; Interior – 40 dBA Leq (10-minute); Exterior – 45 dBA Leq (10-minute) between 10:00 p.m. and 7:00 a.m.
- Policy N-1.9: Limit the development of new noise-producing uses adjacent to noise-sensitive receptors and require that new noise-producing land uses be designed with adequate noise abatement measures.
- Policy N-1.13: Require new development to minimize vibration impacts to adjacent uses during demolition and construction.

City of Menifee Municipal Code, Noise Ordinance

The City of Menifee Municipal Code Section 8.01.010, Hours of Construction (City of Menifee, 2010), permits construction within the city within one-fourth mile of an occupied residence Monday through Saturday between 6:30 a.m. and 7:00 p.m., except on nationally recognized holidays. Construction on national holidays and Sundays is not allowed unless approval is obtained from the City Building Official or City Engineer.

The City of Menifee Municipal Code Section 9.09.050, General Sound Level Standards (City of Menifee, 2010), limits stationary source noise levels on any other occupied residential property to the following: Interior – 55 dBA Leq (10-minute), Exterior – 65 dBA Leq (10-minute) between 7:00 a.m. and 10:00 p.m.; Interior – 40 dBA Leq (10-minute); Exterior – 45 dBA Leq (10-minute) between 10:00 p.m. and 7:00 a.m. Exceptions are detailed in Section 9.09.020, General Exemptions, and include property maintenance provided such maintenance occurs between 7:00 a.m. and 8:00 p.m.; on-road motor vehicles; and safety, warning, and alarm devices designed to protect public health, safety, and welfare. Construction-related exemptions (Section 9.09.030) include, private construction projects, with or without a building permit, located within one-quarter mile or more from an inhabited dwelling; as well as construction projects within one-quarter mile from an inhabited dwelling, provided that construction does not occur between 6:00 p.m. and 6:00 a.m. June through September and 6:00 p.m. and 7:00 a.m. October through May.

City of Murrieta General Plan, Noise Element

The Murrieta General Plan 2035, Chapter 11: Noise Element (City of Murrieta, 2011) defines sensitive noise receptors by land use based on the State of California and includes schools, playgrounds, athletic facilities, hospitals, rest homes, rehabilitation centers, long-term care and mental care facilities, as well as day care centers, single-family dwellings, mobile home parks, churches, and libraries. Current land uses located within the city that are sensitive to intrusive noise include residential uses, schools, hospitals, churches, and parks. The city of Murrieta's regulations with respect to noise are included in Chapter 16.30 of the Development Code, also known as the Noise Ordinance (discussed below).

City of Murrieta Municipal Code, Noise Ordinance

Construction. The City of Murrieta Noise Ordinance Section 16.30.130, Acts Deemed Violations of Chapter, Part A, Construction Noise, prohibits noise generated by construction activities between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays if the sound creates a noise disturbance across a residential or commercial property line, except for emergency work of public service utilities. Construction activities are to be conducted in a manner such that the maximum noise levels (Lmax) at the affected structure does not exceed the standards set forth in Table C.12-3.

Equipment Type	Single-Family Residential	Multi-Family Residential	Commercial
Mobile Equipment ¹			
Daily, except Sundays and holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, except Sundays and holidays, 8:00 p.m. to 7:00 a.m.	60 dBA	64 dBA	70 dBA
Stationary Equipment ²			
Daily, except Sundays and holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, except Sundays and holidays, 8:00 p.m. to 7:00 a.m.	50 dBA	55 dBA	60 dBA

Source: City of Murrieta, 1997 – Section 16.30.130(A)(2).

Note(s):

- ¹ Maximum noise levels for nonscheduled, intermittent, short-term operations (less than 10 days) of mobile equipment.
- ² Maximum noise levels for repetitively scheduled and relatively long-term operation periods (3 days or more) of stationary equipment.

Operation. The City of Murrieta Noise Ordinance Section 16.30.090(A), Exterior Noise Standards, establishes exterior noise standards based on “noise zones”, as shown in Table C.12-4. These standards apply at the property line of the receiving property. Interior noise standards for multi-family residential units are provided in Section 16.30.100, Interior Noise Standards for Multi-Family Residential, and are also provided in Table C.12-4.

Noise Zone	Designated Land Use (Receptor Property)	Time Interval	Allowed Noise Level
Exterior Noise Limits			
I	Noise-sensitive area	Anytime	45 dBA
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime)	45 dBA
	Residential properties within 500 feet of a kennel(s)	7:00 a.m. to 10:00 p.m. (daytime) 7:00 a.m. to 10:00 p.m.	50 dBA 70 dBA
III	Commercial properties	10:00 p.m. to 7:00 a.m. (nighttime)	55 dBA
		7:00 a.m. to 10:00 p.m. (daytime)	60 dBA
IV	Industrial properties	Anytime	70 dBA
Interior Noise Limits			
All	Multi-Family Residential	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 a.m. to 10:00 p.m. (daytime)	40 dBA 45 dBA

Source: City of Murrieta, 1997 – Sections 16.30.90 and 16.30.100.

Section 16.30.090(B), Noise Standards, further states that no person shall operate, or cause to be operated, any source of sound at any location within the city or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by a person that causes the noise level, when measured on any other property to exceed the following exterior noise standards:

1. Standard No.1 shall be the exterior noise level which shall not be exceeded for a cumulative period of more than 30 minutes in any hour, and may be the applicable noise level from Table C.12-4, above

(e.g., 50 dBA at residential properties during daytime hours). This level is represented by the L50 noise level descriptor.

2. Standard No. 2 shall be the exterior noise level which shall not be exceeded for a cumulative period of more than 15 minutes in any hour, and shall be the applicable noise level from Table C.12-4, above, plus 5 dB (e.g., 55 dBA L25 at residential properties during daytime hours).
3. Standard No. 3 shall be the exterior noise level which shall not be exceeded for a cumulative period of more than 5 minutes in any hour, and shall be the applicable noise level from Table C.12-4, above, plus 10 dB (e.g., 60 dBA L8 at residential properties during daytime hours).
4. Standard No. 4 shall be the exterior noise level which shall not be exceeded for a cumulative period of more than 1 minute in any hour, and shall be the applicable noise level from Table C.12-4, above, plus 15 dB (e.g., 65 dBA L2 at residential properties during daytime hours).
5. Standard No. 5 shall be the exterior noise level which shall not be exceeded for any period of time, and shall be the applicable noise level from Table C.12-4, above, plus 20 dB (e.g., 70 dBA Lmax at residential properties during daytime hours).

Section 16.30.100(A), Noise Standards for Residential Units, states that no person shall operate or cause to be operated within a residential unit any source of sound, or allow the creation of any noise, that causes the noise level when measured inside a neighboring receiving residential unit to exceed the following standards:

1. Standard No.1 shall be the applicable interior noise level from Table C.12-4 for a cumulative period of more than 5 minutes in any hour.
2. Standard No.2 shall be the applicable interior noise level from Table C.12-4 plus 5 dB for a cumulative period of more than 1 minute in any hour.
3. Standard No.1 shall be the applicable interior noise level from Table C.12-4 plus 10 dB for any period of time.

Vibration. The City of Murrieta Noise Municipal Code Section 16.30.130(K), Vibration, also prohibits the operation of any device that creates vibration that is above the vibration perception threshold of an individual 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 right-of-way. The perception threshold is established at 0.01 in/sec over the range of 1 to 100 Hertz. (City of Murrieta, 1997)

City of Temecula General Plan, Noise Element

The Noise Element of the City of Temecula General Plan includes goals and policies for limiting noise from one property on another or between adjacent land uses (City of Temecula, 2005). To ensure noise producers do not adversely affect sensitive receptors, the City uses land use compatibility standards, as shown in Table C.12-5. These standards represent the maximum acceptable exterior noise level, as measured at the property boundary.

Property Receiving Noise		Maximum Noise Level (Ldn or CNEL, dBA)	
Type of Use	Land Use Designation	Interior	Exterior
Residential	Hillside, Rural, Very Low, Low, Low Medium	45	65
	Medium	45	65 / 70 ¹
	High	45	70 ¹
Commercial and Office	Neighborhood, Community, Highway Tourist, Service	---	70
	Professional Office	50	70
Industrial	Industrial Park	55	75
Public/Institutional	Schools	50	65
	All Others	50	70
Open Space	Vineyards/Agriculture	---	70
	Open Space	---	70 / 65 ²

Source: City of Temecula, 2005 – Table N-1.

Note(s):

¹ Maximum exterior noise levels up to 70 dB CNEL are allowed for Multiple-Family Housing.

² Where quiet is the basis required for the land use.

³ Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dB CNEL.

The City’s primary goal with regard to community noise is to minimize the exposure of residents to unhealthful or excessive noise levels to the extent possible. As such, the Noise Element establishes noise/land use compatibility guidelines base on cumulative noise criteria for outdoor noise, as presented in Table C.12-6.

The following goals and policies of the Noise Element are relevant to the VSSP (City of Temecula, 2005):

- Goal 1: Separate significant noise generators from sensitive receptors.
 - Policy 1.2 – Limit the hours of construction activity next to residential areas to reduce noise intrusion in the early morning, late evening, weekends, and holidays.
- Goal 2: Minimize transfer of noise impacts between adjacent land uses.
 - Policy 2.1 – Limit the maximum permitted noise levels crossing property lines and impacting adjacent land uses.
 - Policy 2.2 – Establish criteria for placement and operation of stationary outdoor equipment.
- Goal 3: Minimize the impact of noise levels throughout the community through land use planning.
 - Policy 3.4 – Evaluate potential noise conflicts for individual sites and projects, and require mitigation of all significant noise impacts as a condition of project approval.

City of Temecula Municipal Code, Noise Ordinance

Construction. The City of Temecula Municipal Code, Chapter 9.20, Noise, Section 9.20.060, Special Sound Sources Standards (City of Temecula, 2014), prohibits construction activity, when the construction site is within one-quarter mile of an occupied residence, between the hours of 6:30 p.m. and 7:00 a.m., Monday through Friday. Construction activities are only allowed between 7:00 a.m. and 6:30 p.m. on Saturdays. No construction activity shall be undertaken on Sunday or nationally recognized holidays unless exempted by Section 9.20.070 of the Temecula Municipal Code. The city council may, by formal action, exempt projects from the provisions of this chapter.

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE – Ldn or CNEL (dBA)					
	55	60	65	70	75	80
Residential ¹						
Transient Lodging - Motel, Hotel						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditorium, Concert Halls, Amphitheaters ²						
Sports Arena, Outdoor Spectator Sports ²						
Playgrounds, Parks						
Golf Course, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Business Commercial, and Professional						
Industrial, Manufacturing, Utilities, Agriculture						

	Normally Acceptable. Specified land use is satisfactory, based upon the assumption that any buildings involved meet conventional Title 24 construction standards. No special noise insulation requirements.
	Conditionally Acceptable. New construction or development should be undertaken only after a detailed noise analysis is made and noise reduction measures are identified and included in the project design.
	Normally Unacceptable. New construction or development is discouraged. If new construction is proposed, a detailed analysis is required, noise reduction measures must be identified, and noise insulation features included in the design.
	Clearly Unacceptable. New construction or development clearly should not be undertaken.

Source: City of Temecula, 2005 – Table N-2 (modified from 1998 State of California General Plan Guidelines).

Note(s):

¹ Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dB CNEL.

² No normally acceptable condition is defined for these uses. Noise studies are required prior to approval.

Operation. City of Temecula Municipal Code Section 9.20.040, General Sound Level Standards (City of Temecula, 2014), states that no person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table C.12-5 and C.12-6 (Temecula General Plan and Municipal Code Tables N-1 and N-2). Maximum exterior noise level for residences (hillside, rural, very low, low, and low medium) is 65 dBA.

C.12.3 Applicant-Proposed Measures

In its Preliminary Proponent's Environmental Assessment (PEA), SCE has listed a number of Applicant-Proposed Measures (APMs) that are designed to reduce impacts from the proposed Project. None of these APMs are specifically applicable to noise or vibration. The impact discussion in Section C.12.4, below, introduces mitigation measures, where appropriate, to reduce significant adverse impacts.

C.12.4 Environmental Impacts and Mitigation Measures

This section explains how impacts are assessed including the presentation of significance criteria in Section C.12.4.1, which are the basis of the impact determinations. Section C.12.4.2 lists all impacts identified for the proposed Project.

The methodology used to evaluate potential noise and vibration impacts includes an evaluation of existing noise conditions, noise sources, and sensitive receptor distance compared to applicable local standards and significance criteria.

Construction noise levels were evaluated based on the number and type of equipment operating, the level of operation, and the distance between the source and the receiving receptor. Construction and installation of wood poles and tubular steel poles (TSPs) along the proposed Project would occur within 50 feet of residences. Generally, daily equipment use would range from two to eight hours per day. SCE modeled the following eight scenarios based on anticipated equipment use and the pole installation process utilizing the FTA Roadway Noise Construction Model (SCE, 2014):

- Wood Pole Installation Scenario 1: one 210 horsepower (HP) auger truck and one 315 HP material handling truck,
- Wood Pole Installation Scenario 2: one 250 HP man lift, one 350 HP boom/crane truck, and one 315 HP material handling truck,
- TSP Installation Scenario 1: one 210 HP auger truck,
- TSP Installation Scenario 2: one 125 HP backhoe/front loader,
- TSP Installation Scenario 3: three 350 HP concrete mixers,
- TSP Installation Scenario 4: one 315 HP material handling truck,
- TSP Installation Scenario 5: one 350 HP dump truck, one 125 HP backhoe/front loader, and
- TSP Installation Scenario 6: one 350 HP boom/crane truck, one 315 HP material handling truck.

To evaluate O&M, noise impacts include an evaluation of corona noise and electrical field effects resulting from the proposed 115-kV subtransmission line. Corona noise levels are based on the Electric Power Research Institute (EPRI) studies of corona effects and the typical noise levels for power lines with wet conductors.

C.12.4.1 Criteria for Determining Significance

The proposed Project would result in significant impacts to Noise if it would result in:

- Criterion NOI1: Noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies.
- Criterion NOI2: A substantial temporary or periodic increase in ambient noise levels in the vicinity of sensitive receptors above levels existing without the Project.
- Criterion NOI3: A permanent and substantially higher level of ambient noise in the vicinity of sensitive receptors.
- Criterion NOI4: Exposure of people residing or working in the Project area to excessive noise levels resulting from the Project being located within an airport land use plan, or within two miles of a public airport, public use airport, or private airstrip.
- Criterion NOI5: Sensitive receptors being exposed to excessive ground-borne vibration or ground-borne noise levels.

Consistent with significance Criterion NOI2 and NOI3, 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 3 dBA is the minimum change that is perceptible and recognizable by the human ear. An increase in day-night environmental noise of more than 5 dBA (Ldn or CNEL) is considered to be a substantial increase.

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, places of worship, and medical facilities, as well as 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 5 dBA Ldn or CNEL) but no sensitive noise receptors are present, the identified impact would not be considered significant.

Vibration Threshold. As stated above, human response to vibration is not usually significant unless the vibration exceeds 70 VdB (FTA, 2006, Chapter 7). Per Caltrans guidelines a vibration amplitude of 0.10 in/sec PPV is the point at which vibrations begin to annoy people, but there is virtually no risk of “architectural” damage to normal buildings. Vibration damage threshold is 0.3 in/sec PPV for older residential structures and 0.5 in/sec for new residential structures and modern industrial/commercial buildings.

C.12.4.2 Impact Analysis – Direct and Indirect Effects

This section describes the direct and indirect impacts of the proposed Project. Cumulative impacts are discussed separately in Section C.12.4.3.

Impact NOI-1 (Criterion NOI1): Project-related construction noise could violate local standards. (Class II)

Construction activities would occur within unincorporated areas of Riverside County, as well as the cities of Perris, Menifee, Murrieta, and Temecula (north to south). The applicable general plan and municipal codes of these jurisdictions are discussed in detail in Section C.12.2.3 (Local Regulatory Framework). As stated in Section B.4.13 (Construction Schedule), noise-generating construction activities would be

conducted generally during daytime hours (6:00 a.m. to 6:00 p.m.), Monday through Saturday (SCE, 2015, Q#3-12).

County of Riverside. Per the County of Riverside Municipal Code, noise from private construction is exempt from the provisions of the noise regulations provided that the construction activities occur one-quarter mile or more from an inhabited dwelling, or if activities occur within one-quarter mile of an inhabited dwelling between 6:00 a.m. and 6:00 p.m. June through September and 7:00 a.m. and 6:00 p.m. October through May. Regular construction hours for the proposed Project of 6:00 a.m. to 6:00 p.m., Monday through Saturday would conflict with the County Municipal Code. To ensure compliance, Mitigation Measure NOI-1 (*Construction Work Hours*) is recommended to reduce this impact to a less-than-significant level (Class II).

City of Perris. The closest residence in the City of Perris is approximately 3,600 feet from the proposed Staging Yard #3 (see Figure B-8). As described in Section B.4.1 (Staging Areas), preparation of a material staging yard would include installation of temporary chain link perimeter fencing, and depending on existing ground conditions at the site, grubbing and/or grading to provide a plane and dense surface for the application of gravel or crushed rock. Construction equipment anticipated for material staging yard preparation may include a forklift and water truck, which would generate noise levels between 85 and 88 dBA at 50 feet, respectively (FTA, 2006 – Table 12-1). Noise levels would attenuate based on the distance between the source and the receiver (3,600 feet) to approximately 48.3 and 51.3 dBA, respectively. These noise levels would not exceed the City's maximum construction noise level of 80 dBA in residential zones. However, construction may occur outside of the allowed construction hours of 7:00 a.m. to 7:00 p.m.; therefore, Mitigation Measure NOI-1 (*Construction Work Hours*) is recommended to reduce this impact to a less-than-significant level (Class II).

City of Menifee. Per the City of Menifee Municipal Code, Section 8.01.010, Hours of Construction, construction is limited within one-quarter mile from an occupied residence Monday through Saturday from 6:30 a.m. to 7:00 p.m., and not allowed on nationally recognized holidays or Sundays unless approval is obtained from the City Building Official or City Engineer. Construction-related exemptions (Section 9.09.030) include, private construction projects, with or without a building permit, located within one-quarter mile or more from an inhabited dwelling; as well as construction projects within one-quarter mile from an inhabited dwelling, provided that construction does not occur between 6:00 p.m. and 6:00 a.m. June through September and 6:00 p.m. and 7:00 a.m. October through May. Construction may occur outside of the allowed construction hours; therefore, Mitigation Measure NOI-1 (*Construction Work Hours*) is recommended to reduce this impact to a less-than-significant level (Class II).

City of Murrieta. The closest residence to the proposed Project in the City of Murrieta is located west of SR-79, approximately 2,800 feet west of the Terminal TSP. As shown in Tables C.12-6 and C.12-7, the maximum estimated noise level during construction of the proposed Project would be 86 dBA Leq at 50 feet (Scenario 6 – TSP Installation), which would attenuate based on the distance between the source and the receiver (2,800 feet) to approximately 51.5 dBA Leq. This is below the City's maximum construction noise level of 75 dBA Lmax for residences shown in Table C.12-3 (for mobile equipment; single-family residential). Therefore, impacts would be less than significant (Class III).

City of Temecula. The closest residence to the proposed Project (Segment 2) in the City of Temecula is approximately 175 feet. Construction noise is exempt if construction occurs one-quarter mile or more from an inhabited dwelling, or if the activities occur between 7:00 a.m. and 6:30 p.m., Monday through Friday. Construction activities are only allowed between 7:00 a.m. and 6:30 p.m. on Saturdays. No

construction activities are allowed on Sunday or nationally recognized holidays. However, construction may occur outside of the allowed construction hours; therefore, Mitigation Measure NOI-1 (*Construction Work Hours*) would be implemented to reduce this impact to a less-than-significant level (Class II).

Mitigation Measures for Impact NOI-1

NOI-1 Construction Work Hours. No construction activities shall occur outside the following hours and days ~~without prior written approval from the California Public Utilities Commission (CPUC), unless Southern California Edison (SCE) shall provides~~ a minimum of five days advanced notification to the California Public Utilities Commission (CPUC), the local jurisdiction, and residences within 300 feet of the anticipated work, including a general description of the work to be performed, location, and hours of construction anticipated. SCE shall also route all construction traffic away from residences, schools, and recreational facilities to the maximum extent feasible.

- County of Riverside. If activities occur within one-quarter mile of an inhabited dwelling, construction shall occur between 6:00 a.m. and 6:00 p.m. from June through September and 7:00 a.m. and 6:00 p.m. from October through May.
- City of Perris. Between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No construction is allowed on Sundays or legal holidays, with the exception of Columbus Day and Washington's Birthday.
- City of Menifee. If activities occur within one-quarter mile of an inhabited dwelling, construction shall occur between 6:30 a.m. and 6:00 p.m., Monday through Saturday, from June through September and 7:00 a.m. and 6:00 p.m., Monday through Saturday, from October through May. No construction is allowed on Sundays or nationally recognized holidays.
- City of Temecula. If the activities occur within one-quarter mile of an inhabited dwelling, construction shall occur between 7:00 a.m. and 6:30 p.m., Monday through Friday. Construction activities are only allowed between 7:00 a.m. and 6:30 p.m. on Saturdays. No construction activities are allowed on Sunday or nationally recognized holidays.

Impact NOI-2 (Criterion NOI1): Project-related operational noise could violate local standards. (Class III)

O&M of the proposed Project would generally be limited to operation of the 115-kV subtransmission line. Equipment upgrades at the existing Valley Substation would not increase the current capacity of the substation, and therefore would not increase noise generated by the substation. Routine maintenance activities and occasional emergency repairs are not anticipated to substantially contribute to current operational noise levels.

Noise from operation of the 115-kV subtransmission line would include corona noise (see definition in Table C.12-1), which would result in a crackling or hissing sound. As described in Table C.12-1, corona discharge is generally associated with high voltage lines (345-kV and above), and is not usually a design issue for subtransmission lines because the conductor size is of sufficient diameter to lower the localized electrical stress on the air at the conductor surface and reduce already low conductor surface gradients, such that little or no corona activity would exist under most operating conditions. EPRI conducted several studies of corona effects and the typical noise levels for power lines with wet conductors. The audible noise level directly below the conductor was found to be 33.5 dBA for a line voltage of 138-kV (SCE, 2014 – Table 4.12-9). As the proposed Project involves installation of a 115-kV subtransmission line, audible noise would be less than 33.5 dBA; therefore, the noise associated with corona discharge would be minor

and would not result in the generation of noise levels in excess of local standards or regulations. Impacts would be less than significant (Class III).

Routine inspection and maintenance activities would cause short-term increases in noise along the proposed 115-kV subtransmission line route and within existing substation boundaries. However, the majority of the proposed 115-kV subtransmission line would be located along an existing subtransmission line route, where inspection and maintenance activities would not differ from current requirements. Noise associated with routine inspection and maintenance activities would be temporary and short-term in nature, and would be conducted in accordance with all applicable noise regulations. Therefore, noise impacts from routine inspection and maintenance activities would be less than significant (Class III).

Impact NOI-3 (Criterion NOI2): Temporary or periodic Project-related construction noise could substantially disturb sensitive receptors. (Class II)

Construction of the proposed Project would involve the operation of a variety of construction equipment. As described in the introduction to Section C.12.4 (Environmental Impacts and Mitigation Measures), noise levels were modeled based on the installation of wood poles and TSPs. Modeled noise levels for construction equipment at 50 feet from the source are presented in Table C.12-7 for wood pole installation, and Table C.12-8 for TSP installation.

Scenario	Equipment	HP	Quantity	Hours/Day ¹	Noise Level at 50 feet, Leq
Scenario 1	Auger Truck	210	1	1	78.5 dBA
	Material Handling Truck	315	1	2	
Scenario 2	Manlift/Bucket Truck	250	1	1.5	82.6 dBA
	Boom/Crane Truck	350	1	1.5	
	Material Handling Truck	315	1	2	

Source: SCE, 2014 – Table 4.12-11.

Note(s):

¹ Equipment use based on the total hours of operation per day, as presented in Table B-11 (Subtransmission Construction Equipment and Workforce Estimates), and has been divided by four based on anticipated installation of four poles per day. Therefore, only a quarter of the daily use would occur at any one location at a time.

Scenario	Equipment	HP	Quantity	Hours/Day ¹	Noise Level at 50 feet, Leq
Scenario 1	Auger Truck	210	1	6	83.8 dBA
Scenario 2	Backhoe/Front Loader	125	1	6	78.8 dBA
Scenario 3	Concrete Mixer Truck	350	3	2	83.8 dBA
Scenario 4	Material Handling Truck	315	1	8	84.0 dBA
Scenario 5	Dump Truck	350	1	4	83.0 dBA Leq
	Backhoe/Front Loader	125	1	6	
Scenario 6	Boom/Crane Truck	350	1	4	86.1 dBA Leq
	Material Handling Truck	315	1	8	

Source: SCE, 2014 – Table 4.12-12.

Note(s):

¹ Equipment use based on the total hours of operation per day, as presented in Table B-11 (Subtransmission Construction Equipment and Workforce Estimates).

As shown in Tables C.12-7 and C.12-8, the highest modeled noise level for construction of the proposed 115-kV subtransmission line would be approximately 86 dBA Leq at 50 feet (for TSP installation). The closest noise sensitive receptors to the proposed Project are residences located within 50 feet of the proposed 115-kV subtransmission line, on Leon Road, Bow Bridge Drive, and Promontory Parkway in unincorporated Riverside County. As such, construction noise would exceed, at some locations near the

construction sites, the existing 46 dBA to 62 dBA Leq daytime ambient noise levels monitored within the Project area (see Table C.12-2), which could disturb sensitive receptors. However, heavy construction equipment typically does not operate continuously in one position all day long. Project construction would occur over a 16-month period along a 15.4-mile alignment. As such, the overall daily noise levels (Ldn, CNEL) would not increase substantially. Furthermore, the Cities of Perris, Menifee, and Temecula and the County of Riverside allow for construction activities within limited timeframes in their noise ordinances. Those local ordinances limit the generation of construction noise to the least sensitive hours of the day and days of the week. Mitigation Measure NOI-1 (*Construction Work Hours*) would be implemented to limit the hours in which construction would occur to be consistent with the local noise regulations. Furthermore, Mitigation Measure NOI-2 (*Implement Best Management Practices for Construction Noise*) would be implemented to reduce construction noise levels ensuring that temporary or periodic noise would not substantially disturb sensitive receptors. With incorporation of these measures, this impact would be reduced to a less-than-significant level (Class II).

Mitigation Measure for Impact NOI-3

NOI-1 Construction Work Hours.

NOI-2 Implement Best Management Practices for Construction Noise. Southern California Edison (SCE) shall implement the following noise-suppression techniques, at a minimum, to reduce construction noise levels to the extent feasible:

- 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.
- Minimize unnecessary construction vehicle idling time [see also Mitigation Measure AQ-2 (*Off-Road Equipment Emissions Control*)]. 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.)
- Electric-powered equipment shall be used instead of pneumatic or internal combustion power equipment, where feasible.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be limited to safety warning purposes only.
- Provide a Project hotline where residents can call with questions or issues. All calls shall be returned by the Applicant and/or its contractor within 24 hours to answer noise questions and handle complaints. Documentation of the complaint and resolution shall be submitted to the California Public Utilities Commission (CPUC) monthly. A clear appeal process with the CPUC shall be established prior to construction commencement that allows for resolution of noise problems that cannot be immediately solved.
- Where feasible, construction traffic shall be routed away from residences, schools, and recreational facilities.

Impact NOI-4 (Criterion NOI2): Temporary or periodic Project-related operations noise could substantially disturb sensitive receptors. (Class III)

During O&M, temporary or periodic activities would include routine, short-term inspection and maintenance of the 115-kV subtransmission line, which would include travel by passenger vehicles. A

standard construction-grade pickup truck produces noise levels of 75 dBA Lmax at 50 feet (FHWA, 2006). Use of maintenance trucks to inspect the subtransmission line or perform routine maintenance activities would be of short duration, only occur intermittently, and would move along the length of the route. Therefore, these activities would not result in substantial increases to ambient noise levels in the Project area. Impacts would be less than significant (Class III).

Impact NOI-5 (Criterion NOI3): Permanent Project-related operations noise could substantially disturb sensitive receptors. (Class III)

Permanent noise associated with the proposed Project would be limited to the operation of the 115-kV subtransmission line. Equipment upgrades at the existing Valley Substation would not increase the current capacity of the substation, and therefore would not increase noise generated by the substation. As discussed above for Impact NOI-2, noise from operation of the 115-kV subtransmission line would include corona noise (see definition in Table C.12-1), which would result in audible noise levels directly below the conductor of less than 33.5 dBA. Therefore, permanent noise levels would not substantially disturb sensitive receptors and impacts would be less than significant (Class III).

Impact NOI-6 (Criterion NOI4): The Project could expose workers to excessive airport-related noise levels. (Class III)

The French Valley Airport (public) is located in unincorporated Riverside County approximately 0.5 mile west of Segment 2 (Leon Road). The southern portions of the proposed Project fall within the Airport Land Use Compatibility Plan Zones C, D, and E for French Valley Airport, and generally outside the 55 dBA CNEL noise contour (County of Riverside, 2010 – Maps FV-1 and FV-3).

The acceptable level of aircraft noise for sensitive receptors living in the vicinity of an airport is specified in Title 21 of the California Code of Regulations, Section 5012 as 65 dBA CNEL. The proposed Project is located outside of the 65 dBA CNEL noise contour associated with the French Valley Airport, and therefore would not expose construction and O&M personnel to excessive airport-related noise levels. A less-than-significant impact would occur (Class III).

Two private airstrips and one private helipad are located within two miles of the proposed Project: Pines Airpark (approximately 0.5 miles east of Segment 1) and Perris Valley Airport (approximately 0.1 mile south of Staging Yard #3), and SCE's Menifee Service Center Helipad (approximately 0.2 miles east of the Valley Substation). Only small recreational aircraft use these airstrips and helipads intermittently. As such construction and O&M personnel would not be exposed to excessive noise from private airstrips and helipads in the Project vicinity. Less-than-significant impacts would occur (Class III).

Impact NOI-7 (Criterion NOI5): Project construction activity could temporarily cause excessive ground-borne vibration or noise. (Class III)

Vibration-sensitive land uses include high-precision manufacturing facilities or research facilities with optical and electron microscopes. None of these occur in the Project area. Therefore, the significance threshold for "excessive ground-borne vibration" depends on whether a nuisance, annoyance, or physical damage to any structure could occur. As stated in Section C.12.4.1 (Criteria for Determining Significance), human response to vibration is not usually significant unless the vibration exceeds 70 VdB or 0.10 in/sec PPV.

As presented in Table B-11 (Subtransmission Construction Equipment and Workforce Estimates), typical equipment used during construction would include haul trucks, material handling trucks, forklifts, loaders, dozers, graders, compactors, sock line pullers, and cranes. Operation of large trucks and construction equipment, specifically haul trucks and dozers, could result in ground-borne vibration not only due to

general operations but also due to travel on cracked or faulting roadway surfaces (Caltrans, 2004). Truck traveling over pavement discontinuities often rattle and make noise, which tend to make the event more noticeable when the ground vibration generated may only be barely noticeable (Caltrans, 2004). Vehicles traveling on a smooth roadway are rarely, if ever, the source of perceptible ground vibration (Caltrans, 2004). Paved roads in the Project area along the proposed 115-kV subtransmission alignment are maintained and relatively smooth, such that ground-borne vibration is not anticipated to occur from the use of haul or material delivery trucks. Additionally, vehicle speeds would be limited to 15 miles per hour on non-public unpaved roadways per APM AIR-1.

Operation of the proposed 150 HP track type dozer (see Table B-11, roads and landing work) is roughly equivalent to a small bulldozer, where construction vibration levels are estimated at 0.003 in/sec PPV at 25 feet and approximately 58 VdB at 25 feet (FTA, 2006 – Table 12-2). Such ground-borne noise or vibration would attenuate rapidly (i.e., 200 feet or less) from the source and would not be perceptible outside of the construction areas (FTA, 2006). Furthermore, these levels are well below the 70 VdB and 0.10 in/sec PPV significance criteria established in Section C.12.4.1, as well as being below the perception threshold of 0.01 in/sec established in the City of Murrieta (City of Murrieta, 1997 – Municipal Code Section 16.30.130(K)). Vibrations would not be enough to annoy people or cause “architectural” damage to normal buildings. Impacts would be less than significant (Class III).

C.12.4.3 Cumulative Impacts

Geographic Extent/Context

The geographic area of analysis for cumulative noise impacts is generally limited to areas within approximately 0.5 mile of the proposed Project alignment or work areas, including immediate truck routes accessing work areas. This maximum area is defined because noise from temporary construction and truck activities would generate the greatest noise levels. At distances greater than 0.5 mile, impulse noise and steady construction noise would not combine with other similar cumulative noise sources and would attenuate to blend in with background noise levels. Ground vibrations dissipate more rapidly than noise levels, limiting the geographic extent of ground vibration cumulative impacts to the immediate vicinity of the vibration source. No cumulative permanent noise impacts would occur as the noise levels from the 115-kV subtransmission line (corona noise) would be below ambient noise levels, and the modifications to the substations would not change the output of the facilities and therefore would not change current noise levels.

Existing Cumulative Conditions

The character of the area along the proposed Project route varies from undeveloped to rural (generally in the northern portions of the alignment) with pockets of urbanized areas (mostly in the southern portions of the alignment). The area appears to be under development, with new housing developments recently constructed and others planned or currently under construction, as indicated in Table C.1-1. The trend of additional housing cumulatively will increase the ambient noise conditions of the Project area through additional traffic noise and general residential noise (e.g., landscaping/gardening, domestic animals, etc.).

Cumulative Impact Analysis

The potential for noise impacts of the proposed Project (described in Section C.12.4.2) to combine with the effects of other proposed, planned, and reasonably foreseeable future projects, as listed in Table C.1-1, that are within the geographic extent of the cumulative analysis are described below for each significance criterion.

Criterion NOI1: Noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies.

Proposed Project construction, with implementation of Mitigation Measure NOI-1 (*Construction Work Hours*), would not conflict with the applicable standards of each jurisdiction through which the alignment traverses (Impact NOI-1). Construction activities associated with other projects in close proximity to the proposed Project could potentially occur at the same time as the proposed Project, but would also need to adhere to the local noise standards. Adherence to these noise standards are based on the individual project and the existing ambient noise conditions at the time of construction, and are therefore not cumulatively additive (No Impact). Project operation associated with the 115-kV subtransmission line would result in low noise levels (Impact NOI-2) that would not be cumulative considerable. Maintenance activities would occur infrequently, be of short duration, and would result in generally low noise levels, such that impacts would be unlikely to combine with other cumulative projects. Therefore, Project maintenance noise would not be cumulatively considerable (Class III).

Criterion NOI2: A substantial temporary or periodic increase in ambient noise levels in the vicinity of sensitive receptors above levels existing without the Project.

Proposed Project construction, with implementation of Mitigation Measures NOI-1 (*Construction Work Hours*) and NOI-2 (*Implement Best Management Practices for Construction Noise*), would not result in temporary or periodic increases in ambient noise levels in the vicinity of the Project alignment that would substantially disturb sensitive receptors (Impact NOI-3). Construction activities associated with other projects in close proximity to the proposed Project could potentially occur at the same time as the proposed Project, which may result in additional disturbance to nearby sensitive receptors. The combined effect of construction noise could be cumulatively significant. However, with implementation of Mitigation Measures NOI-1 and NOI-2 the proposed Project's contribution would not be cumulative considerable. Project O&M activities would occur infrequently, be of short duration, and result in generally low noise levels that would not substantially increase ambient noise levels in the Project vicinity (Impact NOI-4). Impacts would be unlikely to combine with other cumulative projects. Therefore, Project O&M noise would not be cumulatively considerable (Class III).

Criterion NOI3: A permanent and substantially higher level of ambient noise in the vicinity of sensitive receptors.

Project operation associated with the 115-kV subtransmission line would result in low noise levels (Impact NOI-5) that would not be cumulatively considerable.

Criterion NOI4: Exposure of people residing or working in the Project area to excessive noise levels resulting from the Project being located within an airport land use plan, or within two miles of a public airport, public use airport, or private airstrip.

The proposed Project is located outside of the 65 dBA CNEL noise contour associated with the French Valley Airport, and therefore would not expose construction and O&M personnel to excessive airport-related noise levels (Impact NOI-6). Impacts from exposure to airport noise is an external effect of the environment on each individual project and therefore is not a project-related cumulative impact.

Criterion NOI5: Sensitive receptors being exposed to excessive ground-borne vibration or ground-borne noise levels.

Temporary vibration impacts would be limited during the construction period. As discussed above, the geographic extent of potentially significant ground vibrations seldom extends beyond the immediate vicinity

of the vibration source. Cumulative projects identified within the immediate area of the proposed Project include those at Valley Substation; Perris Union High School No. 4; French Valley Specific Plan; Ranch Bella Vista Specific Plan; Seraphina (residential development); and the TSP replacement and reconfiguration of the Auld-Moraga #2, Valley-Triton, and Pauba-Triton Subtransmission lines. In the event construction activities of any of these projects were to occur concurrently with construction of the proposed Project, there is the potential for cumulative vibration impacts. However, the proposed Project’s cumulative contribution would be less-than-significant (Impact NOI-7), as Project-generated construction vibration levels would be well below the threshold of perception or architectural damage (Class III).

C.12.4.4 Impact and Mitigation Summary

This section summarizes the conclusions of the impact analysis and associated mitigation measures presented in Section C.12.4.2 for the proposed Project. Table C.12-9 lists each impact identified for the proposed Project, along with the significance of each impact.

Impact	Significance Conclusion	Reason for Conclusion
NOI-1: Project-related construction noise could violate local standards.	Class II	Project construction, with implementation of Mitigation Measure NOI-1 (<i>Construction Work Hours</i>), would not conflict with the applicable standards of each jurisdiction through which the Project alignment traverses.
NOI-2: Project-related operational noise could violate local standards.	Class III	Project operation associated with the 115-kV subtransmission line would result in low noise levels that would not violate local standards.
NOI-3: Temporary or periodic Project-related construction noise could substantially disturb sensitive receptors.	Class II	Project construction, with implementation of Mitigation Measures NOI-1 (<i>Construction Work Hours</i>) and NOI-2 (<i>Implement Best Management Practices for Construction Noise</i>), would not result in temporary or periodic noise levels that would substantially disturb sensitive receptors.
NOI-4: Temporary or periodic Project-related operations noise could substantially disturb sensitive receptors.	Class III	O&M activities would occur infrequently, be of short duration, and result in generally low noise levels that would not substantially increase ambient noise levels in the Project vicinity.
NOI-5: Permanent Project-related operations noise could substantially disturb sensitive receptors.	Class III	Project operation associated with the 115-kV subtransmission line would result in low noise levels that would not substantially disturb sensitive receptors.
NOI-6: The Project could expose workers to excessive airport-related noise levels.	Class III	The Project is located outside of the 65 dBA CNEL noise contour associated with the French Valley Airport, and therefore would not expose construction and O&M personnel to excessive airport-related noise levels.
NOI-7: Project construction activity could temporarily cause excessive ground-borne vibration or noise.	Class III	Project-generated vibration levels during construction would be well below the threshold of perception or architectural damage.

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