

D.11 Noise and Vibration

This section of the EIR addresses the potential noise impacts associated with construction and operation of the Project. It describes the existing conditions along the proposed subtransmission line route, the regulatory setting, the Project impacts, and feasible mitigation measures to reduce or avoid impacts.

Table D.11-1 lists and defines the acoustical terms used in this section to establish an environmental setting and analyzes the changes in noise that would be caused by the Project.

Table D.11-1 Definition of Acoustical Terms Used in this PEA

Terms	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure; the reference pressure for air is 20
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network; the A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period. The hourly Leq used for this report is denoted as dBA Leq [h]
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 PM to 10:00 PM and after addition of 10 decibels to sound levels in the night between 10:00 PM and 7:00 AM
Day/Night Noise Level, Ldn	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 PM and 7:00 AM
L01, L10, L50, L90	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location

Source: CALTRANS 1998.

D.11.1 Environmental Setting

D.11.1.1 Valley-Ivyglen 115 kV Subtransmission Line

The proposed subtransmission line would pass through the cities of Lake Elsinore and Perris and unincorporated Riverside County. The predominant noise sources in the Lake Elsinore, Perris, Newcomb, and Sun City areas are mobile sources, particularly motor vehicles, and occasionally aircraft. Interstates 15 (I-15) and 215 (I-215), State Highway 74, and several other arterial roadways are located in or adjacent to the proposed transmission line route. General aviation aircraft operations originating from the Perris Airport and Skylark Airport (a private airport in the southeast portion of the City of Lake Elsinore) also contribute to the noise environment. Other sources of noise along the proposed subtransmission line route are from non-transportation sources including industrial and commercial operations.

The proximity of the proposed subtransmission line route to sensitive receptors is described in Table D.11-2.¹ Almost all of the segments of the subtransmission line are within 300 feet of residences. Residential uses are considered sensitive noise receptors.

Table D.11-2 Proximity of Valley Ivyglen Subtransmission Line to Sensitive Receptors

Segment E-1	Less than 300 feet from residences in portions of unincorporated Riverside County east of I-15; within 300 feet of residences in portions of the City of Perris just west of Murrieta Road and east of Goetz Road before crossing State Highway 74
Segment C-1	Within 300 feet of residential areas within the City of Lake Elsinore near SR-74
Segment C-3	Within 100 feet of residences (including Warm Springs) in unincorporated Riverside County
Segment C-4	Within 200 feet of residences (including Warm Springs) in unincorporated Riverside County
Segment C-6	Crosses I-15, and no sensitive receptors within 1,000 feet
Segment W-1	Within 300 feet of residences at the western end of the segment
Segment W-4	Within 300 feet of residences at Horsethief Canyon Road, approximately 0.25 miles south of I-15
Segment W-10	Western end of the segment, where it terminates at the Ivyglen Substation, within 300 feet of several residences across Temescal Canyon to the north; a large wall separates the residential area from the roadway, and the area is raised substantially in comparison to the roadway and the substation

Source: SCE 2007

D.11.1.2 Telecommunications System

The telecommunications line would follow the path of the proposed subtransmission line route along its entire length and would be located near the same sensitive receptors.

D.11.1.3 Fogarty Substation

The Fogarty Substation site is situated in the northwestern part of the City of Lake Elsinore and occupies the southeastern corner of the intersection of Terra Cotta Road and Kings Highway. Terra Cotta road is a two-lane dirt road, and Kings Highway is an easement. Planned streets also border the southern side (Hoff Avenue) and western side (Dobbler Avenue) of the proposed substation site.

The Fogarty Substation would have a setback that would be effectively measured at 25 feet from the ROW for Terra Cotta Road (an existing improved dirt road to the west). To the substation's south the setback from the ROW Hoff Avenue (a non-existent street) would be 20 feet, and to the north the setback from the ROW for Kings Highway (also a non-existent street) would be 34 feet. Along the eastern, rear side of the substation a 58 foot wide easement would be maintained to accommodate the overhead access to the Valley-Elsinore-Ivyglen 115kV Subtransmission Line. A one acre property segment extending east of the substation would not be developed for substation purposes.

The closest sensitive receptors would be located at nearby single-family residences. One single-family residence is north of the proposed Fogarty site on the northern side of the Kings Highway ROW, and a second single-family residence lies south of the proposed site on the southern side of the ROW for Hoff Avenue. The remainder of the Fogarty site abuts vacant land. A temporary electrical substation (Dryden Substation) is located west of Terra Cotta Road, directly opposite of the proposed site.

¹ For the purposes of this analysis, sensitive receptors are considered schools, hospitals, rest homes, long term care facilities, mental care facilities, residences, places of worship, libraries, and passive recreation areas that are most sensitive to noise intrusion, and therefore have more stringent noise exposure targets. Activities conducted in proximity to these facilities must consider the noise output and ensure that they do not create unacceptable noise levels that may unduly affect the noise-sensitive uses.

Table D.11-3 shows the typical noise levels at the proposed site of the Fogarty Substation. Measurements were taken on August 2, 2006, and sources of noise included vehicles passing the site via Terra Cotta Road, sound generated by construction sites, and birds.

Table D.11-3 Existing Noise Measurements at the Proposed Project Site*

Location of measurement	Avg. dB	Max. dB	50-percent
On-site near project driveway entrance	50	62	47
Closest residence (south of the Hoff Avenue ROW)	50	60	46
Closest residence (north of the Kings Highway ROW)	42	46	41

Source: SCE 2006

Note:

*Noise sources consisted of a few vehicles on Terra Cotta Road, distant construction, and birds.

D.11.1.4 Valley-Ivyglen Substation Improvements

The Valley Substation is located within an area of undeveloped land surrounded by light and heavy industrial development. No sensitive receptors are within 1,000 feet of the substation. The area is designated Light Industrial Use by the County of Riverside (County of Riverside 1990).

The Ivyglen Substation is located just south of Temescal Canyon Road, roughly 800 feet west of I-15 and about 300 feet from several residences. The area is designated Open-Space/Mineral by the County of Riverside (County of Riverside 1990).

D.11.2 Applicable Regulations, Plans, and Standards

To limit population exposure to physically and/or psychologically damaging, as well as intrusive noise levels, the federal government, the State of California, various County governments, and most municipalities in the State have established standards and ordinances to control noise. Pertinent regulatory standards are summarized below.

D.11.2.1 Federal Regulations

Occupational Health and Safety Administration

The federal government regulates occupational noise exposure common in the workplace through the Occupational Safety and Health Administration (OSHA) under the United States Environmental Protection Agency (EPA). There are no federal noise standards that directly regulate environmental noise or community noise.

D.11.2.2 State Regulations

The State of California requires each local government to perform noise surveys and implement a noise element as part of its general plan (OPR, 2003). Table D.11-4 shows the State guidelines for evaluating the compatibility of various land uses as a function of noise exposure. It identifies normally acceptable, conditionally acceptable, and clearly unacceptable noise levels for siting various new land uses. A conditionally acceptable designation requires new construction or development to be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made, and the needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements.

Table D.11-4 Community Noise Exposure by Land Use Category

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	Green	Green	Green					
			Yellow	Yellow	Yellow			
						Orange	Orange	
Residential - Multi-Family	Green	Green	Green	Green				
				Yellow	Yellow	Yellow		
						Orange	Orange	
Transient Lodging - Motels, Hotels	Green	Green	Green	Green				
				Yellow	Yellow	Yellow		
						Orange	Orange	Orange
Schools, Libraries, Churches, Hospitals, Nursing Homes	Green	Green	Green	Green	Green			
				Yellow	Yellow	Yellow		
						Orange	Orange	Orange
Auditorium, Concert Hall, Amphitheaters								
	Yellow	Yellow	Yellow	Yellow	Yellow			
					Orange	Orange	Orange	Orange
Sports Arena, Outdoor Spectator Sports								
	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow		
						Orange	Orange	Orange
Playgrounds, Neighborhood Parks	Green	Green	Green	Green	Green			
						Orange	Orange	
							Orange	Orange
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Green	Green	Green	Green	Green	Green		
						Orange	Orange	Orange
Office Buildings, Business Commercial and Professional	Green	Green	Green	Green	Green			
						Orange	Orange	Orange
Industrial Manufacturing, Utilities, Agriculture	Green	Green	Green	Green	Green	Green		
						Orange	Orange	Orange

Source: State of California General Plan Guidelines, Office of Planning and Research (OPR), October 2008.

Green	Normally Acceptable. Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Yellow	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.
Orange	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.
Dark Red	Clearly Unacceptable. New construction or development should generally not be undertaken.

D.11.2.3 Regional and Local

Local governments aim to protect the population from intrusive noise. Many communities specifically restrict disturbing noises at night. Typically, local ordinances stipulate that sources should not cause more than 55 to 65 dBA at receiving residential property lines or sensitive areas during daytime hours (7 a.m. to 10 p.m.) or 45 to 55 dBA during nighttime hours (10 p.m. to 7 a.m.). A day-night standard set at these levels would be roughly equivalent to an upper limit of 65 dBA Ldn or CNEL. Daytime construction activities are usually exempt from such limits.

County of Riverside

Most of the Project would be located in areas under the jurisdiction of Riverside County. Both substations are located in Riverside County, and all proposed subtransmission line segments have portions that traverse Riverside County lands with the exception of Segment C-6, which is entirely within the City of Lake Elsinore.

The County regulates noise through the County Ordinance 847. The code does not set construction noise limits but does restrict construction activities within 0.25 miles of an occupied residence (property line) to the hours of 6:00 a.m. to 6:00 p.m. during the months of June through September, and from 7:00 a.m. to 6:00 p.m. during the months of October through May.

The Riverside County Department of Industrial Hygiene regulates operational noise levels, limiting the level of noise from industrial and other stationary source operations. Worst-case scenario levels for stationary noise sources projected to the property line of a “habitable dwelling, hospital, school, library or nursing home” are to remain below 45 dBA during nighttime hours (10:00 p.m. to 7:00 a.m.) and are not to exceed 65 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) (Office of Industrial Hygiene).

Sensitive receptors are defined in the Riverside County General Plan as rest homes, schools, hospitals, long-term care facilities, mental care facilities, places of worship, passive recreation uses, and libraries. Noise levels greater than 65 CNEL are discouraged near these areas of increased sensitivity.

City of Perris

The City of Perris limits maximum noise levels due to construction and hours of construction activity in its General Plan. Section 7.34.060 restricts construction noise to 80 dBA in residential zones, restricts construction to the hours of 7 a.m. to 7 p.m., and prohibits construction on holidays with the exception of Columbus Day, Washington’s birthday, and Sundays. Table D.11-5 lists the limits for noise levels in the cities of Perris and Lake Elsinore (discussed below) according to type of equipment, Land Use designation, and time.

Noise levels will vary with the type of equipment and size of the active construction zone. Assuming that construction was to occur for 8 hours a day, the CNEL is calculated at 84 dBA at 50 feet (83 dBA CNEL for residential construction). The 65-dBA CNEL contour would fall at a distance of about 446 feet (397 feet for residential construction). The City recognizes that construction noise is difficult to control and has established allowable hours for this intrusion. Section 18-63 of the Municipal Code, “Enumeration of Prohibited Noises,” provides an exemption for noise from construction and repair work as long as these activities are limited to between the hours of 7:00 AM and 6:00 PM on weekdays. Because construction activities are typically limited to weekdays, during daylight hours, this noise impact is considered a nuisance or annoying, rather than a significant impact. Continued compliance with these restrictions will reduce construction noise impacts to a level considered less than significant (Perris GP).

Table D.11-5 Cities of Lake Elsinore and Perris Construction Noise Standards

Type of Equipment	Maximum Noise Levels at Affected Properties (dBA)				
	City of Perris		City of Lake Elsinore		
	All Residential	Single-Family	Multi-Family	Semi-Residential/ Commercial	Business Properties
	Daily, except Sundays and legal holidays, 7 a.m. to 7 p.m.				All days, all hours
Mobile Equipment- Non-scheduled, short- term operation (less than 10 days) of mobile equipment	80	75	80	55	85
Stationary Equipment- Repetitively scheduled and relatively long term operation (periods of 10 days or more) of stationary equipment	80	60	65	70	75

Source: City of Lake Elsinore 1990 and City of Perris 2005

City of Lake Elsinore

In its General Plan, the City of Lake Elsinore outlines policies and goals regarding noise regulations and goals. The following noise goals and policies are relevant to the Project:

Goal 8

Maintain an environment for all City residents and visitors free of unhealthy, obtrusive, or otherwise excessive noise conditions.

Policies

- 8.4 Strive to reduce transportation noise on the I-15 through coordination with Caltrans.
- 8.6 Periodically review noise conditions along public roadways and, where necessary and feasible, construct noise barriers to reduce noise levels received by affected land uses.
- 8.11 Limit the hours of construction activities in residential areas, to those hours consistent with, or stronger than the City's noise ordinance.
- 8.13 Encourage the incorporation of noise reduction technology such as mufflers and temporary noise walls that further minimize construction and stationary noise received within residential and commercial uses.

Allowable noise levels are governed by City of Lake Elsinore Municipal Code. Code Section 17.78.060 regulates noise levels produced by permanent structures. Table D.11-6 shows the allowable noise levels generated by stationary sources such as a substation or power line for residential properties.

Table D.11-6 Allowable Noise Levels for Single Family Residential Properties

No more than:	10 p.m. – 7 a.m.	7 a.m. – 10 p.m.
30 minutes	40 dB	50 dB
15 minutes	45 dB	55 dB
5 minutes	50 dB	60 dB
1 minute	55 dB	65 dB
0 minutes	60 dB	70 dB

Construction noise is governed by ordinance limits on allowable times of equipment operations and allowable durations of equipment use. Zoning Code Chapter 17.78, “Noise Control,” prohibits construction on weekdays between the hours of 7 p.m. and 7 a.m. or at any time on weekends or holidays. The code also states that “where technically and economically feasible,” construction activities shall be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed above in Table D.11-5. Section 17.78.080(F)(2) regulates construction activity noise levels as depicted in the following tables. Table D.11-7 shows decibel limits for mobile equipment, defined as non-schedule, intermittent, and short-term (less than ten days) of operation, and Table D.11-8 shows decibel limits for stationary equipment, defined as repetitively scheduled and relatively long-term (ten days or more) of operation.

Table D.11-7 Maximum Noise Levels for Mobile Equipment

Time of Operation	Single-family Residential (dBA)	Multi-family Residential (dBA)	Semi-residential/ Commercial (dBA)
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75	80	85
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays.	60	65	70

Table D.11-8 Maximum Noise Levels for Stationary Equipment

Time of Operation	Single-family Residential (dBA)	Multi-family Residential (dBA)	Semi-residential/ Commercial (dBA)
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60	65	70
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays.	50	55	60

D.11.3 Project Impacts and Mitigation

D.11.3.1 Significance Criteria

For the purposes of the following evaluation, the Project would cause a significant impact on the existing noise environment:

- Expose persons to or cause generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Expose persons to or cause generation of excessive ground-borne vibration or groundborne noise levels
- Create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project

- Create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project Area to excessive noise levels
- For a project within the vicinity of a private airstrip, expose people residing or working in the Project Area to excessive noise levels

Potential impacts are discussed according to the significance criteria above. Each impact is categorized according to the following classifications:

Class III – Less than significant impact without mitigation measures

Class II – Less than significant impact after mitigation measures are implemented

Class I – Significant impact and no feasible mitigation measures are available

D.11.3.2 Applicant Proposed Measures

NOISE-SCE-1: All construction and general maintenance activities, except in an emergency, shall be limited to the hours of 7:00 a.m. to 7:00 p.m. and prohibited on Sundays and all legally proclaimed holidays.

NOISE-SCE-2: 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.

NOISE-SCE-3: Construction traffic shall be routed away from residences and schools where feasible.

NOISE-SCE-4: 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 should be shut off. *Note: certain equipment, such as large diesel-powered vehicles require extended idling for warm-up and repetitive construction tasks.*

NOISE-SCE-5: The Applicant will notify all receptors within 500 feet of construction of the potential to experience significant noise levels during construction.

NOISE-SCE-6: During construction, the Applicant will use sound walls, noise-reduction blankets, or other noise reduction measures prior to developing the project site in areas where sensitive receptors would be subjected to significant noise impacts.

D.11.3.3 Impact Analysis

Overview of Project Noise Sources

The Project would generate noise during both the construction and operation phases. During construction, noise sources would include work vehicles and traffic, grading, excavation, installation, and other construction activities and equipment. Once the proposed subtransmission line poles are erected and the conductors installed, noise generation would come from two sources: electrical and related equipment at the substations and corona discharge and similar phenomena associated with the proposed

subtransmission line. There would be no operational noise impacts associated with the telecommunications line.

Construction of the Fogarty Substation would take place over a 12 month period overlapping with the 18 month subtransmission line/telecommunications system construction period. Substation construction would occur Monday through Friday. No work would be conducted on weekends or holidays, unless necessary. Upgrades at the existing substations would take about four months during the overall project construction schedule and occur during the same hours, on the same days of the week as the Fogarty Substation.

Construction of the subtransmission line and its tie-ins and telecommunication upgrades at the new Fogarty Substation would occur between the hours of 7:00 am to 7:00 pm on Monday through Saturday. The Fogarty Substation property would be used as a lay down area for equipment and materials for the Applicant’s crews as well as contract crews.

Impact NOISE-1: Noise Levels that Exceed Standards

Construction

Valley-Ivyglen Subtransmission Line. The potential for and degree of noise impacts are related to the proximity of sensitive receptors as well as land uses. Each segment and portion of the proposed subtransmission line route would be subject to the use of heavy equipment to transport material to construction sites. Table D.11-2 above shows the segments of the subtransmission line that are within 300 feet of sensitive receptors. This table includes a reference to the residential community within and nearby Warm Springs where the subtransmission line is adjacent to residential property lines (Segments C-3 and C-4). Residents along the subtransmission line could be subjected to intermittent construction noise levels that exceed General Plan noise policies in the Cities of Perris and Riverside County (Table D.11-5).

Equipment operation would be the primary source of noise associated with construction activities of the proposed subtransmission line and telecommunications line. The transport and installation of subtransmission line poles, conductors, and electrical tie-ins would require the use of heavy equipment. Grading would also be required for creating staging areas, foundation pads, conductor pull areas, spur roads, and for improving access along roads and trails that have not been maintained. Noise levels resulting from construction are dependent on several factors including the number and type of equipment operating, the level of operation, and the distance between sources and sound and vibration receptors. Heavy construction equipment typically generates noise levels up to approximately 95 dBA at 50 feet. This noise level is common with heavy construction.

Noise intensity is dissipated with distance. Generally, air borne noise decreases by 6 dBA with each doubling of distance (Bolt et al 1971-SCE). Noise levels at the closest sensitive receptors (100 feet) would be approximately 89 dBA and would be within the maximum daily noise levels for all jurisdictions at a distance of approximately 500 feet. Noise level estimates for typical subtransmission line construction equipment are provided in Table D.11-9. The specific noise and vibration impacts caused by construction activities are discussed further below.

Table D.11-9 Estimated dBA from Typical Transmission Construction Equipment

Construction Equipment	Typical Estimated Sound Level dBA at 100 feet (Closest Sensitive Receptor)
Crane, Derrick	82
Ford F-550 Flatbed Truck	82
Backhoe	79
Crane, Mobile	77

Table D.11-9 Estimated dBA from Typical Transmission Construction Equipment

Construction Equipment	Typical Estimated Sound Level dBA at 100 feet (Closest Sensitive Receptor)
15-Ton Crane	77
Concrete Pump	76
623 Scraper	75
CAT 14 Blade	75
Ditch Witch R-40 Trencher	75
Air Compressor	75
Bulldozer	74
Concrete Mix Truck	73
CAT 300 Excavator	72
Concrete Vibrator	70
CAT TH-105 Forklift	69
New Holland 545 Skip Loader	69
JD 310 Skip Loader	69
Excavator w/ Pulverizer	68
10-Wheel Dump Truck	68
CAT 950 Loader	65
185-CFM Compressor	64
CAT 973 Track Loader	63
25 KW Generator	63
150-Ton Mobile Crane	61
Pickup Truck	49

Source: Bolt, Beranek and Newman 1971

Grading would be required at and around the sites of pole installation for the entirety of the proposed subtransmission line. Cranes and other heavy equipment would be used to erect poles and install conductors. Table D.11-10 shows typical noise levels at construction sites.

Table D.11-10 Typical Noise Levels at Construction Sites

Construction Phase	Average Noise Level at 50 Feet	
	Minimum Required Off-road Equipment	All Pertinent Equipment On-site
Clearing	84 dBA	84 dBA
Excavation	78 dBA	88 dBA
Paving	78 dBA	79 dBA

Source: Bolt, Beranek and Newman, 1971 and MHA 2006

Construction at any pole site would not be sustained for more than a few days and would last no more than ten hours per day. Average construction noise levels would cause significant noise impacts at distances less than 200 feet. Residents and sensitive receptors located at a distance greater than 200 feet would not experience significant impacts during typical construction activities. Heavy construction equipment typically does not operate continuously in one position all day long, which would reduce the impacts to sensitive receptors.

Residences located directly adjacent to the construction would experience significant noise impacts from subtransmission line construction. The Project would exceed the maximum levels of construction noise given in the local jurisdictions' general plans. In addition, the Applicant's stated construction hours would be in conformance with the Cities of Perris and Elsinore's requirements but the County requires construction activities to end at 6:00 pm and the Applicant is proposing to stop work at 7:00 pm. However, the general plan policies are stated as goals. With the implementation of Mitigation Measure

(MM) NOISE-1a, which limits construction hours in Riverside County, the construction noise impacts are considered less than significant (Class II).

Telecommunications System. Construction would require large trucks, but would not use equipment that produces noise levels substantially above those deemed acceptable by the local city noise standards defined for construction. Most construction would be accomplished with a bucket truck and several crew trucks. The telecommunications line would be installed on the new subtransmission line poles once erected. Some sections of the telecommunications system would be buried using a backhoe, which would create noise levels of 85 dBA at 50 feet. Residences would be located approximately 300 feet from the underground construction activities at the Ivyglen Substation where noise levels would be approximately 70 dBA. The construction activities for the telecommunications system would be less than significant (Class III).

Fogarty Substation. The Construction time limits and the performance standards in the Lake Elsinore Municipal Code are designed to maintain noise impacts at acceptable levels. The allowable average hourly daytime noise exposure at the nearest single-family residence is 75 dB. The reference noise level for one or two pieces of heavy equipment operating during any hour is 85 dB at 50 feet with variable duty cycles and equipment mobility. A sufficient set-back to achieve -10 dB of geometrical spreading losses is needed to maintain a less-than-significant impact. In order to reach the allowable noise level of 75 dBA during construction hours, all single-family residences would have to be 160 feet or greater from the construction site. Because all of the residences around the Fogarty Substation site are greater than 160 feet away, the Project would not result in significant noise impacts due to substation construction activities (Class III).

Valley-Ivyglen Substation Improvements. The Valley Substation is not located in proximity to any sensitive receptors. There would be no significant noise impacts associated with the modifications at the Valley Substation. All noise from work done at the substation would be sufficiently attenuated by distance, and no work would be conducted at night. The noise impacts from construction activities at the Valley Substation would not be significant.

The Ivyglen Substation is located 300 feet south of a residential area. This is the closest sensitive receptor. The residential area is surrounded by a large wall that extends above the level of the substation. Noise levels for construction at the substation are expected to be around 85 dBA at 50 feet, and would be around 70 dBA at 300 feet. The Ivyglen Substation is located in unincorporated Riverside County, which does not specify construction noise standards. Noise levels from installing equipment would be temporary and would not be considered significant.

Although the noise levels from project construction would constitute a nuisance during the 18 month construction period, they would not result in significant impacts after the implementation of MM NOISE-1a (Class III).

Mitigation Measures for Impact NOISE-1

MM NOISE-1a: The Applicant shall stop all construction work within 300 feet of sensitive receptors within Riverside County at 6:00 pm.

Operation

Subtransmission Line. During operations the subtransmission line would be the source of noise from what is termed corona discharge. The noise from corona discharge and similar electrical phenomena associated with high voltage lines is heard as a crackling or hissing sound, which commonly varies with

humidity. While distinctive, this noise is typically only about 40 to 50 dBA, or less, near the edge of 500 kV lines (SCE 2005). The proposed subtransmission lines would be 115 kV and would create substantially less noise. In accordance with the stated standards and policies of the local jurisdictions these levels of noise would be considered less than significant (Class III).

Maintenance on the lines may create short-term increases in noise to sensitive receptors located in the immediate vicinity. The noise sources would be vehicles and construction equipment. However, maintenance would be rare, intermittent, and short-term. Noise impacts from maintenance on the lines would not be significant (Class III).

Telecommunications System. Operation and maintenance of the telecommunications line would not create noise or vibration. Maintenance would likely require the use of one or two trucks and noise levels would not be significant (Class III).

Fogarty and other Substations. Substation power transformers typically generate a noise level ranging from 60 to 80 dBA. Transformer noise will “transmit” and attenuate at different rates depending on the transformer size, voltage rating, and design. Few complaints from nearby residents are typically received concerning substations with transformers of less than 10 MVA capacity, except in urban areas with little or no buffers. Complaints are more common at substations with transformer sizes of 20-150MVA, especially within 500-600 feet of the substation. However, in very quiet rural areas where the nighttime ambient can reach 20-25 dBA, the noise from the transformers of this size can be audible at distances of 1000 feet or more.

Typical noise limits at the substation property line used within the industry are:

- Industrial zone <75 dBA
- Commercial zone <65 dBA
- Residential zone <55 dBA

Noise from the Valley and Ivyglen Substations would come almost exclusively from transformer “hum” and cooling fans. Project-related traffic will be negligible except for occasional preventive maintenance. Transformer noise is the only source considered for impact analysis.

Operation of the Fogarty Substation would increase ambient noise levels as a result of transformer “hum” and fan noise which is semi-continuous (more than 30 minutes). Additionally, the Substation would operate at night. Therefore, the most stringent noise standard of 40 dB is applicable. The reference noise level from two 28 MVA (115/12 kv) transformers is 66 dBA or less at 3 feet from the equipment or approximately 10 feet from the transformer core. Noise decays at 6 dB per doubling of distance. The calculated distance to the 40 dB City nocturnal noise standard under clear line of sight conditions is 200 feet. The transformers will be located more than 200 feet from any residence.

The eight-foot high masonry block wall surrounding the transformer and switching equipment will additionally attenuate noise. The noise reduction effectiveness of the wall is at least -10 dB.

With the planned perimeter wall, the noise impact zone is reduced to 63 feet from the center of equipment noise generation. There are no noise-sensitive uses within the project noise impact envelope. The equipment source strengths, the planned 8 foot high block wall barriers, and the 20 foot by 34 foot setbacks from adjacent street ROWs—when coupled with the 80 foot and 90 foot ROW widths of the adjacent streets and subsequent set back distances of the two existing residences nearest the project site—

combine to create conditions that are more than adequate to maintain a less than significant operational noise impact (Class III).

Operation of the Project would not create excessive vibration. Substations do not generate perceptible vibration because vibration would damage substation equipment. Therefore, operation of the Project would not create any impacts related to excessive vibration (Class III).

Impact NOISE-2: Excessive Ground-borne Vibrations or Ground-borne Noise Levels

Several land uses are especially sensitive to vibration and therefore have a lower vibration threshold. These uses include but are not limited to concert halls, hospitals, libraries, vibration sensitive research operations, residential areas, schools, and offices.

Valley Ivyglen Subtransmission Line. Construction of the subtransmission line would require the use of an air tamp to compact the ground around the poles after they are erected. Vibration created from the air tamp would dissipate quickly and would not have an impact on receptors further than 50 feet from the compacted area. Pole sites would not be located within 50 feet of any sensitive receptors; therefore, this portion of construction would not have significant vibration impacts (Class III).

Telecommunications System. Underground construction of the telecommunications system would cause small amounts of ground-borne vibration due to the use of equipment such as an air tamp. Telecommunications system construction would not be located within 50 feet of sensitive receptors at underground locations. Therefore, construction of the telecommunications system would not result in significant impacts (Class III).

Fogarty Substation. Construction activities related to the Fogarty Substation would cause very minor vibration and would not be noticeable beyond the substation boundaries. There would not be significant vibration impacts (Class III).

Valley-Ivyglen Substation Improvements. Modifications at both substations would cause only very minor vibration and would not be noticeable beyond the substation boundaries. Therefore, this portion of construction would not have any impacts (Class III).

Impact NOISE-3: Permanently Increase Ambient Noise Levels in the Project Vicinity

As discussed above in Impact NOISE-1, operation of the Project would result in an increase of ambient noise due to corona noise. However, the levels of noise emitted would not exceed noise standards or policies and therefore would not be significant (Class III).

Impact NOISE-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity

Construction noise is discussed under Impact NOISE-1. There would be no other source of periodic or temporary increases in noise levels (Class III).

Impact NOISE-5: Impacts to Construction Workers from Airports and Airstrips Noise

The Project is not located within an airport land use plan or where such a plan has been adopted. The only nearby airports support recreational or other small-scale activities generating comparatively low levels of noise.

The airports in the area are the Perris Valley Airport which is a privately owned, public-use airport located near the corner of Ethanac Road and Goetz Road in Perris and the Skylark Field Airport which is a private airport, providing glider and skydiving opportunities for the community. The Project is not located within the vicinity of a private airstrip. Therefore, the Project would not be close enough to any large-scale, frequently used airstrips that would subject workers to significant levels of noise or vibration from air traffic or airport related noise (Class III).

Impact NOISE-6: Impacts to Residents in the Vicinity of a Private Airstrip

The Project would not be within the vicinity of a private airstrip as discussed above in Impact NOISE-5 (Class III).

D.11.4 Cumulative Impacts

The County of Riverside is expected to undergo rapid population growth as well as substantial residential and commercial development in the next twenty years. Such development will involve many large-scale construction projects that would result in varying amounts of construction noise and the introduction of new permanent noise sources.

The Project traverses a number of different types of land uses. Local ordinances and County regulations outline acceptable levels of noise that differ depending on land use designation. Construction equipment is the primary source of noise. Construction activities are temporary and localized, and the amount of noise generated by construction activity varies depending primarily on the machine. Therefore, the geographic scope for the analysis of the Project's contribution to cumulative noise impacts varies depending on the type of activity and the land use designation at the specific location of the activity. The Project would contribute to cumulative noise impacts if it exceeded construction noise limits as outline in local policies and ordinances or if it resulted in a permanent source of noise that exceeded the limits set by local policies and ordinances.

The Applicant has proposed a number of measures to reduce noise impacts due to construction. APMs NOISE-SCE-1 through -6 mandate that the Applicant limit construction hours, is mindful of potentially affected residents and schools in the vicinity, and use sound reduction features including mufflers, engine shrouds, sound walls, and noise blankets. MM NOISE-1a requires the Applicant's construction activities to comply with County as well as City regulations. With these measures in place and given the primarily remote locations of construction sites, construction of the Project will not generate noise in excess of local policies and ordinances. Therefore, construction of the Project would not substantially contribute to cumulative noise impacts (Class II).

Operation of the Project would not create noise or vibration levels in excess of standards. The noise and vibrations generated by the operation of the subtransmission line, the telecommunication system, Fogarty Substation, or the Valley or Ivyglen Substations are below City and County standards, often at negligible or non-existent levels. Additionally, the remote location of many of the subtransmission line poles and of Fogarty Substation ensure that no residences are located close enough to be affected by noise. Operation of the Project would not substantially contribute to cumulative noise impacts (Class III).