4.12 Noise

This section evaluates potential noise impacts to areas surrounding the Proposed Project as a result of project-related construction and operation activities. This analysis focuses on the potential noise impacts from the construction and operation of the proposed Downs Substation expansion, installation of a new 115 kV subtransmission line adjacent to Downs Substation, the stringing of fiber optic telecommunication cable, and the installation of six replacement subtransmission poles.

4.12.1 General Noise Information

Sound is a physical disturbance in a medium, such as air, that is capable of being detected by the human ear. Sound waves in air are caused by variations in pressure above and below the static value of atmospheric pressure. Sound is measured in units of decibels (dB) on a logarithmic scale. The "pitch" (high or low) of the sound is a description of frequency, which is measured in hertz (Hz). Most common environmental sounds are composed of a composite of frequencies. A normal human ear can usually detect sounds within frequencies from 20 Hz to about 20,000 Hz. However, humans are most sensitive to frequencies from 500 Hz to 4000Hz.

Certain frequencies are given more "weight" during assessment because human hearing is not equally sensitive to all frequencies of sound. The dBA scale corresponds to the sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in dBA. A noise level change of 3 dBA or less is barely perceptible to average human hearing. A 5 dBA change in noise level is clearly noticeable. A 10 dBA change in noise level is perceived as a doubling or halving of noise loudness, while a 20 dBA change is considered a "dramatic change" in loudness. Table 4.12-1 provides typical instantaneous noise levels of common activities in dBA.

Table 4.12-1 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Concert
Jet Fly-over at 1,000 feet	100	
Gas Lawn Mower at 3 feet	90	
Diesel Truck at 50 feet, at 50 miles per hour (mph)	80	Food Blender at 3 feet Garbage Disposal at 3 feet
Noisy Urban Area, Daytime Gas Lawn Mower at 100 feet	70	Vacuum Cleaner at 10 feet

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Commercial Area Heavy Traffic at 300 feet	60	Normal Speech at 3 feet
Quiet Urban Daytime	50	Large Business Office, Dishwasher in Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night
	10	Broadcast/Recording Studio (background level)
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans Technical Noise Supplement, October 1998

An individual's sound exposure is valued based on a measurement of the noise that the individual experiences over a specified time interval. A sound level is a measurement of noise that occurs during a specified period of time. A continuous source of noise for long periods of time is rare and is typically not a characteristic of community noise. Community noise refers to outdoor noise in the vicinity of a community and most commonly originates from transportation vehicles or stationary mechanical equipment. A community noise environment varies continuously over time with respect to the contributing sources. Within a community, ambient noise levels gradually change throughout a typical day and the changes can often be correlated to the increase and decrease of transportation noise or to the daytime/nighttime operation of stationary mechanical equipment. The variation in community noise throughout a day is also due to the addition of short-duration single-event noise sources, such as aircraft and sirens as well as various natural sources.

The metrics for evaluating the community noise environment are based on measurements of the noise exposure over a period of time in order to characterize and evaluate the cumulative noise impacts. These metrics are time-varying and are defined as statistical noise descriptors. The most common metrics for evaluating community noise used in this report are as follows:

Leq: The equivalent sound level, or the time-integrated continuous sound level, that represents the same sound energy as the varying sound levels, logarithmically averaged over a specified monitoring period.

Ldn: The Day-Night Average Sound Level that represents a 24-hour A-weighted sound level average conducted from midnight to midnight, where sound levels during the nighttime hours

of 10:00 p.m. to 7:00 a.m. have an added 10 dB weighting, but no added weighting on the evening hours (7:00 to 10:00 p.m.).

In addition to noise, this section also evaluates ground vibration. Construction activities could result in varying degrees of ground vibration, depending on the kind of equipment and operations involved, and the distances between the construction activities and the nearest sensitive receptors. The effects of ground borne vibrations generated from construction activities are typically imperceptible to an average human outside of the project location. However, high magnitude vibrations can result in damage to nearby structures within the immediate vicinity of the source.

4.12.2 Environmental Setting

The lands surrounding the existing Downs Substation are mostly zoned for commercial and park use. There also exists an undeveloped area zoned residential adjacent to the southwestern corner of the Proposed Project boundary.

The nearest existing sensitive receptors are located approximately 1,600 feet to the southwest, 1,300 feet to the southeast, 2,000 feet to the northeast, and 900 feet to the northwest.

The dominant existing ambient noise sources in the vicinity of the existing Downs Substation location include automobile, bus, and truck traffic noise from Downs Street and Ridgecrest Boulevard. Additional noise source contributions include equipment at the existing Downs Substation. The China Lake Naval Air Weapons Station (CLNAWS) airfield is located approximately four miles north from the existing Downs Substation. The aircraft operations associated with CLNAWS were noted to contribute to the background noise at Downs Substation location. The Inyokern Public Airport is located approximately eight miles northwest from the existing Downs Substation. The aircraft operations associated with this airport are generally inaudible at the Downs Substation location. No other existing noise sources in the vicinity of the existing Downs Substation are considered to be significant.

The existing Downs Substation contains three (3) transformer banks that are the primary noise sources of the facility. The noise generated from the transformer banks is primarily due to the fans associated with each bank's cooling system. The existing equipment and the measured noise emission levels are summarized in Table 4.12-2.

Table 4.12-2 Measured Transformer Noise Levels at Existing Downs Substation Site Location*

Bank	Manufacturer	Phase	Serial Number	Fan Orientation	Noise Measurement Distance (feet from transformer)	Measured Noise Level (dBA)
East	Delta-Star	3	281702	Vertical	5	82.2
West	Kuhlman	3	282507-1	Horizontal	3	76.2
Spare	Westinghouse	3	PFP 9305 2	Vertical	3	80.2

* The noise levels shown in Table 4.12-2 represent a worst case situation for each transformer bank, with all cooling fans turned on during the noise level measurements.

4.12.2.1 Existing Background Ambient Noise Levels

To document the existing ambient noise conditions within the vicinity of the proposed Downs Substation expansion location, a mechanized environmental noise monitor was placed along the southeastern edge of the existing Downs Substation fence line nearest Ridgecrest Boulevard to record the existing daily ambient vehicle traffic background noise levels in and around the substation. The 24-hour noise monitor was programmed to record continuously throughout a typical weekday on Wednesday, July 14, 2010; the results of this monitoring are shown in Table 4.12-3 below. For more information please refer to Figure 4.12-1.

Table 4.12-3 Measured Existing 1 hour Ambient Noise Levels at Existing Southwestern Fence Line on July 14, 2010

Monitor Start Time	Measured 1 Hour Noise Level (dBA Leq)
0:00:00 (12 a.m. midnight)	56.3
1:00:00	54.8
2:00:00	55.2
3:00:00	54.6
4:00:00	55.6
5:00:00	58.9
6:00:00	61.1
7:00:00	60.9
8:00:00	68.1

Monitor Start Time	Measured 1 Hour Noise Level (dBA Leq)
9:00:00	62.6
10:00:00	60.1
11:00:00	64.5
12:00:00	64.4
13:00:00	66.0
14:00:00	64.3
15:00:00	64.5
16:00:00	64.8
17:00:00	65.0
18:00:00	65.0
19:00:00	64.4
20:00:00	65.3
21:00:00	64.6
22:00:00	64.4
23:00:00 (11 p.m.)	64.3

Measured Ambient Noise Levels at Substation Site

Location	Date	Daytime Noise Level (dBA Leq)	Nighttime Noise Level (dBA Leq)	Ldn (dBA)
Southeastern Fence Line	7-14-2010	64.5	58.8	66.5

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Global Image Showing Ambient Noise Measurement Locations and Data Results

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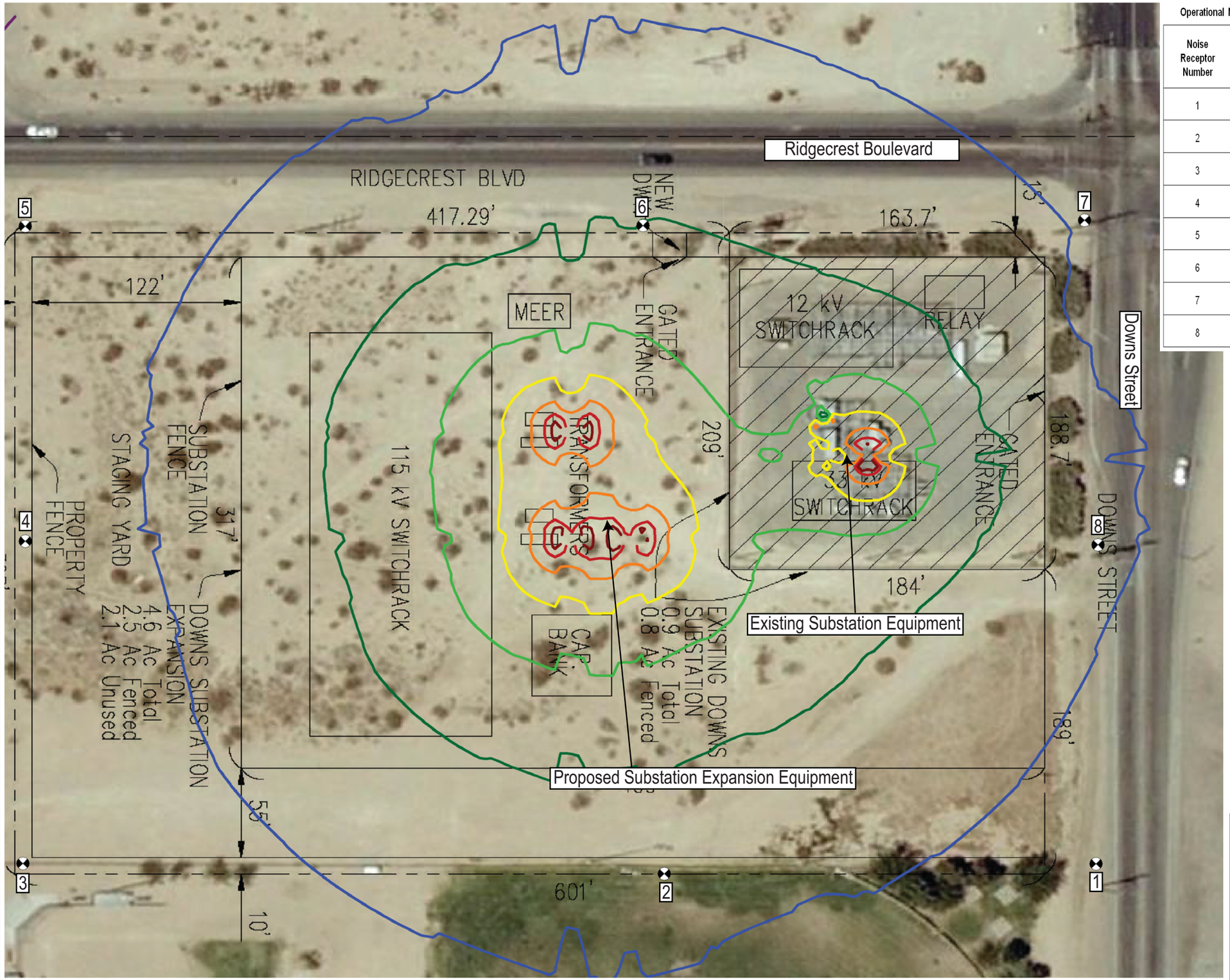
FIGURE
4.12-1



Operational Noise Levels for the Proposed Expanded Facility at the Project Property Lines

Noise Receptor Number	Noise Receptor Location	Operational Daytime Noise Levels (dBA Leq)	Operational Nighttime Noise Levels (dBA Leq)	Operational Noise Levels (dBA Ldn)
1	Southeastern Property Line	57.3	53.6	60.9
2	Southern Property Line	61.2	57.2	64.6
3	Southwestern Property Line	55.7	51.6	59.1
4	Western Property Line	57.4	53.4	60.8
5	Northwestern Property Line	56.8	52.6	60.1
6	Northern Property Line	65.2	61.2	68.6
7	Northeastern Property Line	59.2	55.9	63.2
8	Eastern Property Line	60.8	57.7	64.9

55 dBA Ldn
60 dBA Ldn
65 dBA Ldn
70 dBA Ldn
75 dBA Ldn
80 dBA Ldn
85 dBA Ldn
90 dBA Ldn

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Aerial Image Showing Noise Impact Contours from Proposed Facility Operations

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FIGURE
4.12-2

The data in Table 4.12-3 indicate existing hourly Leq ambient noise levels at the monitored location to range between 54.6 and 68.1 dB. The measured 24 hour ambient noise level for this location is 63.3 dBA Leq. The calculated 24-hour Ldn is 66.5 dBA at this location.

During the characterization of noise at the existing Downs Substation, noise measurement start and end times were recorded as were any significant and background noise sources in the area, such as motor vehicle traffic traveling along nearby adjacent roadways and noise from the existing substation. The 24-hour sound level measurement ran from midnight to midnight, integrating and logging data every 30 minutes. Other relevant field data was gathered at the location during the noise survey, including distances to receptors, angles-of-view, slopes, and elevations. This information was subsequently cross-checked with available maps and records. All sound level meters used during field exercises were field-calibrated prior to and following the noise measurements to ensure accuracy. All sound level measurements conducted and presented in this report are in accordance with, and were made using a sound level meter that conforms to, the American National Standards Institute (ANSI SI.4-1983 - R2001) specifications for sound level meters. All instruments are maintained with the National Bureau of Standards traceable calibrations.

4.12.3 Regulatory Setting

The Proposed Project is subject to a variety of applicable laws, ordinances, regulations, and standards related to noise quality during and following construction. This section provides a summary of excerpts regarding the applicable regulatory criteria.

4.12.3.1 Federal

Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety—The U.S. Environmental Protection Agency (USEPA 1974) developed and published criteria for environmental noise levels with a directive to protect public health and welfare with an adequate margin of safety. This USEPA criterion (Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety) was developed to be used as an acceptable guideline when no other local, county, or state standard has been established. However, the USEPA criterion is not meant to substitute for agency regulations or standards in cases where states and localities have developed criteria according to their individual needs and situations.

4.12.3.2 State

The California Public Utilities Commission General Order 131-D—The California Public Utilities Commission (CPUC) General Order 131-D, (GO 131-D), Section XIV. B states:

> "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However in locating such projects, the public utilities shall consult with local agencies regarding land use matters."

Therefore, public utilities are directed to consider local regulations and consult with local agencies, although county and city regulations are not binding and do not have jurisdiction over the Proposed Project.

In addition, the CPUC uses the CEQA guidelines to determine the significance of the Proposed Project's noise impacts. CEQA guidelines refer to standards established in the local general plan or noise ordinance, or applicable standards of other agencies, to determine the significance of noise impacts.

Thus, although county and city regulations are not binding and do not have jurisdiction over projects covered by CPUC GO131-D, CEQA stipulates that standards established in the local general plan or noise ordinance, or applicable standards of other agencies, should be used to determine the significance of noise impacts.

4.12.3.3 Local

<u>Kern County</u>

Municipal Code Section 8.36.020, Prohibited Sounds—This Section regulates construction operations. These regulations are designed to limit noise associated with construction equipment by limiting construction to the hours between 6:00 a.m. and 9:00 p.m. on weekdays.

General Plan, Noise Element—The Noise Element provides regulations for stationary equipment associated with commercial or industrial sources. With respect to the Proposed Project, the goals of the Noise Element are to protect residents from excessive noise and to maintain moderate levels of noise. The Noise element requires proposed commercial and industrial uses or operations to be designed or arranged so that they would not subject residential or other noise

sensitive land uses to exterior noise levels in excess of 65 dB Ldn and interior noise levels in excess of 45 dB Ldn.

San Bernardino County

The two regulatory documents relating to noise in San Bernardino County are the Noise Element of the General Plan and the San Bernardino Code of Ordinances (Title 8). The General Plan policies are primarily related to compatibility standards for various land uses as compared to the noise environment and do not apply to an unmanned substation or subtransmission lines.

Code of Ordinances, Title 8—Title 8 governs noise. Section 83.01.080(c) provides daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise standards for stationary sources affecting various land uses. Since portions of the proposed fiber optic telecommunication cable would be located within unincorporated San Bernardino County in a residential area, the noise limits for industrial land uses (55 dBA during daytime and 45 dBA during nighttime) would be applicable. Section 83.01.080(g) exempts temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and federal holidays.

City of Ridgecrest

The City of Ridgecrest does not regulate noise associated with industrial or construction equipment, but defers to Kern County regulations.

4.12.4 Significance Criteria

The California Public Utilities Commission (CPUC) will evaluate the Proposed Project's noise impacts based on the California Environmental Quality Act (CEQA) significance criteria. According to the California Environmental Quality Act (CEQA) Appendix G guidelines, a significant noise impact would occur if the project would result in:

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

- 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, would the project expose people residing or working in the project area to excessive noise levels;

- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

CEQA does not specify any thresholds for a "substantial increase" or "excessive" ground-borne vibration or ground-borne noise level, but refers to the local jurisdictions' general plan or noise ordinance criteria, or applicable standards of other agencies to evaluate the significance of the Proposed Project's potential noise and vibration impacts.

4.12.5 Impact Assessment

Construction and operation of the Proposed Project would result in no or less than significant impacts for the following defined CEQA criteria:

Would the Proposed Project expose persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact. Construction activities associated with the proposed Downs Substation expansion, 115 kV subtransmission line construction, and fiber optic telecommunication cable installation would occur in the City of Ridgecrest, within Kern County, California. The installation of the fiber optic telecommunication cable would also occur in San Bernardino County. The project construction operations are subject to regulations of the City of Ridgecrest, Kern County, and San Bernardino County as discussed in Section 4.12.2, Regulatory Setting.

As discussed above (Section 4.12.3.3), the City of Ridgecrest does not regulate noise associated with industrial or construction equipment, but defers to the Kern County regulations. Hence, construction activities associated with the Proposed Project within the City of Ridgecrest would be required to comply with the Kern County Municipal Code. Kern County restricts construction activities to occur between 6:00 a.m. and 9:00 p.m. on weekdays. If work is required outside the allowed hours, Southern California Edison Company (SCE) would obtain a noise variance.

Therefore, noise impacts generated during construction of the Proposed Project within the City of Ridgecrest would comply with standards established in the Kern County Municipal Code.

Construction efforts for the Proposed Project would occur in accordance with accepted construction industry standards. Construction activities would generally adhere to the noise ordinance of the local jurisdiction. In the event construction activities are necessary on days or hours outside of what is specified by ordinance (for example, if existing lines must be taken out of service for the work to be performed safely and the line outage must be taken at night for system reliability reasons), SCE would obtain variances as necessary from appropriate jurisdictions where the work would take place.

Because noise associated with construction activities for the Proposed Project would occur in accordance with restrictions and standards established by the codes of the City of Ridgecrest and Kern and San Bernardino Counties, the impact would be less than significant.

Operation of the Proposed Project would consist of routine maintenance activities and occasional emergency repairs. These activities would not occur on a continuous basis and would likely not involve the creation of substantial noise.

The mechanical operations-related noise levels shown in Table 4.12-4 are used in this impact assessment. The eight property line noise receptor results are based on a 'realistic worst-case' noise model calculation combining all six existing and proposed transformer bank cooling systems operating at 100% full capacity during the daytime period and at 50% operational capacity during the nighttime period. For a graphical representation showing the described operational noise contours please refer to Figure 4.12-2.

Table 4.12-4 Modeled Operational Noise Levels for the Proposed Downs Substation Expansion

Noise Receptor Number	Noise Receptor Location	Operational Daytime Noise Levels (dBA Leq)	Operational Nighttime Noise Levels (dBA Leq)	Operational Noise Levels (dBA Ldn)
1	Southeastern Property Line	57.3	53.6	60.9
2	Southern Property Line	61.2	57.2	64.6
3	Southwestern Property Line	55.7	51.6	59.1
4	Western Property Line	57.4	53.4	60.8
5	Northwestern Property Line	56.8	52.6	60.1
6	Northern Property Line	65.2	61.2	68.6

Noise Receptor Number	Noise Receptor Location	Operational Daytime Noise Levels (dBA Leq)	Operational Nighttime Noise Levels (dBA Leq)	Operational Noise Levels (dBA Ldn)
7	Northeastern Property Line	59.2	55.9	63.2
8	Eastern Property Line	60.8	57.7	64.9

The calculated property line noise levels from the operation of the proposed Downs Substation expansion would be below the Kern County noise regulation threshold of 65 dBA Ldn at the nearest existing residence and identified residential land use zone immediately adjacent to the Proposed Project location. The lands located directly to the north and to the east are zoned for commercial use and not residential use.

Modeling receptor number 6, located along the northern property line, is the only modeled receptor location in the immediate vicinity of the proposed Downs Substation expansion shown to exceed 65 dBA Ldn. However, this modeling receptor location is immediately adjacent to Ridgecrest Boulevard; a busy roadway with high traffic volumes that contribute to a significant increase in the overall ambient noise level within this area (66.5 dBA Ldn, see Section 4.12.2.1). The land located nearest to this receiver is zoned for commercial use, and is not considered a noise sensitive land use receptor according to Section 3.2 of the County Noise Element.

The nearest existing residential noise receptor is located approximately 900 feet to the northwest. The Proposed Project's operational noise level at the northern property line shall continue to propagate across this busy roadway corridor, ultimately reaching the nearest worst-case noise sensitive residential location with a noise level not to exceed the Kern County residential noise threshold limit of 65 dBA Ldn. Due to the distance to the existing residential receptor along with the continual masking noise from vehicle traffic traveling along Ridgecrest Boulevard, the operational noise from the Proposed Project would not create additional noise impacts to the already existing ambient conditions at the nearest residential receptor. Therefore, based on the location-specific noise impact analysis, in combination with the distance to the nearest identified residential noise receptor, the overall operational noise impacts from the proposed Downs Substation expansion are considered to be less than significant.

Noise generated by the operation of the proposed 115 kV subtransmission line directly adjacent to the proposed Downs Substation expansion would be inaudible, as would noise from operation of the fiber optic telecommunication cable and equipment. Consequently, all activities associated with operation of all components of the Proposed Project would comply with noise standards and

regulations established by the City of Ridgecrest and the Counties of Kern and San Bernardino. Therefore, less than significant impacts would occur under this criterion

Would the Proposed Project expose persons to, or generate, excessive ground-borne vibration or ground borne-noise levels?

Less than Significant Impact. The construction of the proposed Downs Substation expansion, installation of the new 115 kV subtransmission line adjacent to the Downs Substation, replacement of six poles near Trona and the installation of the fiber optic telecommunication cable along the 115 kV subtransmission line routes would all include the use of equipment that would generate ground-borne vibration. Possible sources of vibration may include graders, dump trucks, backhoes, compactors, and other equipment that produces vibration.

A review of the anticipated vibration impacts from the Proposed Project indicates that this impact would be considered less than significant due to the distance between the location of the construction activity and the nearest existing sensitive residential receptors. According to the Federal Transit Administration (FTA) guidelines, a vibration level of 65 VdB[24] is the threshold of perceptibility for humans. For a significant impact to occur, vibration levels must exceed 80 VdB during infrequent events (Federal Transit Administration 1995). Based on the levels published by the FTA (Federal Transit Administration 2006) and the type of equipment proposed for use at the Proposed Project, coupled with the distance to the existing identified noise sensitive receptors, analysis shows that all identified sensitive receptors would be below the maximum vibration level of 65 VdB. This vibration level is defined as the minimum threshold of human perception and is, therefore, considered to be a less than significant impact. Less than significant impacts would occur under this criterion as a result of the Proposed Project.

Operation of the Proposed Project would consist of routine maintenance activities and emergency repairs. These activities would be unlikely to produce groundborne vibration. Operation of transformers at the proposed Downs Substation expansion could produce groundborne vibration; however, groundborne vibrations would be perceptible only in the immediate vicinity (i.e., within 25 feet) of the transformer pad, if at all. No other component of the Proposed Project would generate vibrations during operation. Thus, impacts resulting from the generation of excessive groundborne vibration during operation of the Proposed Project (including all components) would be less than significant.

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[24] VdB-unit that denotes 20 times the logarithm of the ratio of the measured particle velocity to a reference particle velocity (usually 10^{-8} m/s).

Would the project cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The permanent noise sources that would occur as a result of the Proposed Project are limited to operations activities of the proposed 115 kV subtransmission lines and transformer operation at the proposed Downs Substation expansion. Operation of the proposed fiber optic telecommunication cable and associated equipment would not generate noise.

New 115 kV Subtransmission Line Operations

Less than Significant Impact. When a transmission or subtransmission line is in operation, an electric field is generated in the air surrounding the conductors forming a "corona." The corona is an event that results from the partial breakdown of the electrical insulating properties of the air surrounding the conductors. When the intensity of the electric field at the surface of the conductor exceeds the insulating strength of the surrounding air, a corona discharge occurs at the conductor surface, representing a small dissipation of heat and energy. Some of the energy may dissipate in the form of small local pressure changes that result in audible noise or in radio or television interference. Audible noise generated by corona discharge is characterized as a hissing or crackling sound that may be accompanied by a 120 Hz hum.

Slight irregularities or water droplets on the conductor and/or insulator surface accentuate the electric field strength near the conductor surface, thereby making corona discharge and the associated audible noise more likely. Therefore, audible noise from transmission lines is generally a foul weather (wet conductor) phenomenon. However, during fair weather, insects and dust on the conductors can also serve as sources of corona discharge.

The Electric Power Research Institute (EPRI) has conducted several studies of corona effects (EPRI, 1978 and 1987). The typical noise levels for transmission lines with wet conductors are shown in Table 4.12-5, Transmission Line Voltage and Audible Noise Level.

Table 4.12-5 Transmission Line Voltage and Audible Noise Level

Line Voltage (kV)	Audible Noise Level Directly Below the Conductor (dBA)
138	33.5
240	40.4
356	51.0

kV = kilovolt dBA = A-weighted decibels

As the proposed subtransmission lines would be 115 kV, operation of the lines can be predicted to generate less than 33.5 dBA based on the noise levels in Table 4.12-5. A noise level of this magnitude would generally be indistinguishable from background ambient noise within the existing environment, even during the nighttime hours. Therefore, operation of the proposed 115 kV subtransmission lines would have a less than significant effect on existing noise in the area.

Substation Noise

Less than Significant Impact. Substations typically generate steady noise from operation of transformers, along with cooling fans and oil pumps needed to cool the transformers during periods of high electrical demand. Field measurements show that the worst-case noise levels from an individual transformer bank with all auxiliary cooling fans operating under full load capacity is predicted to be no more than 76 to 82 dBA at a distance of 3 feet from the front and center of the equipment.

The transformer banks would be located near the center of the proposed Downs Substation expansion footprint, with the nearest transformer bank being approximately 300 feet from the western boundary of the proposed substation. The current existing ambient noise level within the immediate vicinity of the proposed Downs Substation expansion location is 63.3 dBA Leq (see Section 4.12.2.1). Calculations show that the worst-case noise impacts to the Proposed Project's boundary lines is 65.2 dBA Leq as shown in Table 4.12-4. Therefore, the increase to the existing ambient conditions is less than 2 dB. A 5 dB or more change in the existing ambient noise level is considered to be "substantial" and could potentially have a significant impact to sensitive receptors within the immediate vicinity of the proposed Downs Substation expansion location. Since the increase to the existing ambient noise level in the immediate vicinity of the proposed Downs Substation expansion location is shown to be less than 5 dB, it is determined that this increase represents a less than significant impact at the Proposed Project's boundary lines.

The nearest existing residential noise sensitive receptor is located approximately 900 feet from the proposed Downs Substation expansion location. At this distance, noise levels generated by the transformers would be 44.5 dBA Leq or less. Based on the increase of 2 dB to the existing ambient noise level within the immediate vicinity the proposed Downs Substation expansion location, increases to the existing ambient noise level to the nearest residential receptor would also be 2 dB or less. It is previously noted that a 5 dB or more change in the existing ambient noise level is considered to be "substantial" and could potentially result in a significant impact to the nearest residential receptors. As shown by the results of the noise impact calculations, the Proposed Project would not cause a substantial permanent increase in the existing ambient noise levels at the nearest existing residential location. Therefore, less than significant impacts would occur under this criterion as a result of the Proposed Project.

Would the project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. Construction of the Proposed Project would require a variety of equipment. Typical maximum noise levels for construction equipment at 50 feet from the source are shown in Table 4.12-6, Typical Construction Equipment Noise Levels.

Table 4.12-6 Typical Construction Equipment Noise Levels

Equipment	Noise Level (dBA) at 50 feet
Backhoe	80
Concrete mixer	85
Pump truck	82
Crane, Mobile	85
Dozer	85
Excavator	85
Generator	82
Grader	85
Man lift	85
Loader	80
Paver	85
Roller	85
Scraper	85
Trucks	80-84

Source: FHWA, 2009

For the purpose of this analysis, construction noise impacts are evaluated for a 'worst-case' grading scenario and for a single wood pole installation for the 115 kV subtransmission line. The specified equipment and its use durations were evaluated for each scenario and were based on the information provided in Chapter 3 of this document. The assessment assumed that construction equipment would operate between the hours of 6:00 a.m. and 9:00 p.m., Monday through Friday.

As shown in Table 4.12-6, the maximum intermittent construction equipment noise levels are expected to range between 80 and 85 dBA at approximately 50 feet. Based on construction noise

modeling, the highest combined predicted noise level for construction equipment associated with the Proposed Project would be 75.6 dBA at 50 feet from the grading operations at the proposed Downs Substation expansion location and 84.0 dBA at 50 feet during the installation of Wood Poles, Light Weight Steel Poles, and Tubular Steel Poles.

The removal of poles and other activities would be less intensive and would generate lower noise levels than the previously identified activities. Noise levels would be further attenuated due to the distance of existing residential noise sensitive receptors and by additional attenuation from structures and/or vegetation.

Noise impacts associated with construction operations would primarily affect those persons located closest to the proposed Downs Substation expansion location and staging areas. There are no existing residences located within the vicinity of the existing Downs Substation. Calculations show that noise traveling 900 feet to the nearest existing residential structure from the proposed Downs Substation expansion location would be attenuated to a noise impact of 58.2 dBA.

Installation of new poles along the existing 115 kV subtransmission line routes may occur as close as 100 feet from residences; however, calculations show that distance would attenuate the noise impact level to approximately 78.5 dBA. Noise levels associated with pole installation would be short in duration, as it typically takes one to three days to erect poles depending on the type of pole selected. Due to the short duration of these temporary construction activities and the distances of the nearest existing noise sensitive residential areas, these land uses would not be significantly impacted during installation or removal of poles.

While construction noise would be noticeable, the noise levels identified in this analysis are typically considered acceptable for weekday daytime construction activities. In addition, noise associated with construction would occur in accordance with the restrictions of construction hours and standards established by the Counties of Kern and San Bernardino. Therefore, less than significant impacts would occur under this criterion as a result of the Proposed Project.

Operation of the Proposed Project would consist of routine, short-term inspection and maintenance of the facilities. Although the proposed Downs Substation expansion would be unmanned and remotely monitored, routine maintenance activities would occur three to four times per month and would consist of testing, monitoring, and repairing equipment. Maintenance of the 115 kV subtransmission line would occur on an as-needed basis, and activities would include repairing conductors, replacing insulators, replacing poles, and maintaining the access roads. Because operations would involve limited amounts of activities, the Proposed Project would not

contribute to a substantial temporary increase in ambient noise in the area. Therefore, less than significant impacts would occur under this criterion as a result of the Proposed Project.

If the Proposed Project would be 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, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. No component of the Proposed Downs is located within an airport land use plan, or is within two miles of a public airport or public use airport. Consequently, the Proposed Project would not expose people working during construction or operation to excessive noise levels attributable to a public airport or public use airport. Therefore, no impact would occur under this criterion as a result of the Proposed Project.

If the Proposed Project would be located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Less than Significant Impact. There are no private airstrips located within the vicinity of the Downs Substation expansion. Therefore, the Proposed Project would not expose people working during construction or operation to excessive noise levels attributable to a private airstrip. A private ultralight field is located along the fiber optic telecommunication cable installation route. Due to the small size of the aircraft operating from this field, and the short time that crews would be in the vicinity installing fiber optic telecommunication cable, the potential impacts to people working during construction or operation are not considered excessive. Therefore, less than significant impacts would occur under this criterion as a result of the Proposed Project.

4.12.6 Applicant Proposed Measures

Because the Proposed Project would not result in significant noise impacts, no Applicant Proposed Measures are offered.

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