Acentech

Project No. 624859

Report No. 4403

Mesa 500 Kilovolt (kV) Substation Project
Technical Noise Report

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1. Introduction

The purpose of this noise study is to evaluate the potential noise impacts from the Southern California Edison (SCE) Mesa 500 kV Substation Project (Proposed Project), in support of the Proponent's Environmental Assessment (PEA).

The Proposed Project would be replacing the existing 220/66/16 kV Mesa Substation by a 500/220/66/16 kilovolt (kV) facility and include the following:

- Mesa Substation would be a staffed, 3,360 megavolt-ampere (MVA) at 500/220 kV, 840 MVA at 220/66 kV, and 56 MVA at 66/16 kV, substation with a potential capacity of 4,480 MVA at 500/220 kV, 1,120 MVA at 220/66 kV, and 112 MVA at 66/16 kV at ultimate build out.

    - Construct a new 500 kV switchrack with three 500/220 kV transformer banks
    - Loop-in for the Mira Loma – Vincent 500 kV transmission line into the new 500 kV switchrack with new overhead getaways
    - Loop –in existing Laguna Bell – Rio Hondo 220 kV transmission line, and the existing Goodrich – Laguna Bell 220 kV transmission line into the new 220 kV switchrack with new overhead getaways
    - Replace the existing 220/66/16 kV switchracks, three existing 220/66 kV transformer banks and two existing 66/16 kV transformer banks
    - Relocate eight existing 220 kV transmission lines to new a 220 kV switchrack with new overhead getaways
    - Relocate 16 existing 66kV subtransmission lines to the new 66kV switchrack with new underground getaways.
    - Relocate five existing 16 kV distribution lines to a new 16 kV switchrack with new underground getaways
    - Construction of two Mechanical Electrical Equipment Rooms (MEER), Test & Maintenance Building, and an Operations Building
    - Relocate miscellaneous telecommunications cables
    - Remove and abandon a section of Metropolitan Water District 72-inch-diameter water line that currently runs through the middle of the proposed Mesa Substation property and adjacent northern transmission ROW and replace it with an 84-inch-diameter water line in a westerly alignment on the substation site and transmission ROW
    - Install new 16 kV distribution Station Light and Power supplies from the existing franchise areas adjacent to Mesa Substation to replace the existing supplies
    - Relocate two sets of third-party cellular telephone buildings, towers, and antennas to the north-east corner of the property

- Remove, relocate, and construct new transmission, subtransmission and distribution structures within existing SCE transmission and substation fee-owned properties, right-of-way (ROW) and franchise to accommodate the new Mesa substation configuration

    - Remove one and relocate two existing 500 kV overhead structures in the transmission right-of-way adjacent to Mesa substation and modify existing roads as needed
    - Replace 17 existing 220 kV overhead structures in transmission ROW adjacent to Mesa substation and modify existing roads as needed
    - Remove approximately 65 existing overhead 66 kV structures and and approximately 2,000 linear feet of underground cable. Install approximately 24 new overhead 66 kV structures, 17,000 linear feet of underground duct, and 15 vault structures within adjacent transmission ROW and franchise areas and modify existing access roads as needed
    - Construct 16 kV underground getaways to connect with existing underground facilities located within franchise areas
    - Replace existing tower M2-T1 with a taller lattice steel tower (LST) on the Laguna Bell-Mesa No. 1 220 kV Transmission Line
    - Reroute one existing fiber optic line to clear the Mesa Substation construction area
    - Install two new telecommunications lines into Mesa Substation to meet the increased circuit diversity needed to support protection requirements

- Install temporary steel pole structures and conductor to temporarily connect the Eagle Rock-Mesa 220 kV Transmission Line to Goodrich Substation and provide a second line of service to the City of Pasadena during the line outage required to loop-in the existing Goodrich-Laguna Bell 220 kV Transmission Line into Mesa Substation

- Minor internal modifications within the existing fenced perimeter of multiple existing substations

    - Replace various 220 kV line termination equipment, including, but not limited to, wave traps, circuit breakers, and disconnect switches at Laguna Bell Substation on the Laguna Bell-Mesa No. 1 220 kV Transmission Line and the future Laguna Bell-Mesa No. 2 220 kV Transmission Line
    - Replace various 220 kV line termination equipment, including, but not limited to, wave traps, circuit breakers, and disconnect switches at Lighthipe Substation on the Lighthipe-Mesa 220 kV Transmission Line

- Upgrade various 220 kV line protection relays and/or telecommunications equipment inside the existing MEERs at 11 satellite substations
- Upgrade various 66 kV line protection relays and/or telecommunications equipment inside the existing MEERs at 16 satellite substations
- Reroute existing telecommunications inside the perimeter fence lines of Vincent, Pardee, and Walnut substations to improve circuit diversity

o Convert three spans of existing streetlight conductors from overhead to underground below one span of the Lighthipe-Mesa 220 kV Transmission Line

1.1 Characteristics of Noise

When noise from a sound source reaches a receptor, whether it is a person outdoors or indoors, it combines with other sounds in the environment (the ambient noise level) and may or may not stand out in comparison. The distant sources may include traffic, aircraft, industrial activities, or sounds in nature. These distant sources create a background noise in which usually no particular source is identifiable and to which several sources may contribute but is fairly constant from moment to moment and varies slowly from hour to hour. Superimposed on this slowly varying background noise is a succession of identifiable noisy events of relatively brief duration. Examples include the passing of a train, the over flight of an airplane, the sound of a horn or siren, or the screeching of brakes. These single events may be loud enough to dominate the noise environment at a location for a short time, and, when added to everything else, can be an annoyance.

The fundamental measure of noise is the decibel, dB. Sound level is based on the ratio between two sound pressures—the sound pressure of the source of interest and the reference pressure (the quietest sound that a human can hear). Because the range of actual sound pressures is very large (a painful sound level can be over 1 million times the sound pressure of the faintest sound), the expression of sound is compressed to a smaller range with the use of logarithms. The resulting value is expressed in terms of dB. For example, instead of a sound pressure ratio of 1 million, the same ratio is 120 dB.

The human ear does not respond equally to high- and low- pitched sounds. In the 1930s, acoustical scientists determined how humans hear various sounds and developed response characteristics to represent the sensitivity of a typical ear. One of the characteristics, called the A-curve, represents the sensitivity of the ear at sound levels commonly found in the environment. The A-curve has been standardized. The unit dBA denotes that a measurement has been made with filters in accordance with that standard. The descriptors used in the measurement of noise environments are summarized below.

- Sound Pressure Level, (SPL), measured in dB (or dBA), is the ratio of the amplitude of pressure fluctuations to the human "Threshold of Audibility." Sound pressure is what our ears hear and what sound meters measure. This value is dependent upon the source energy, the distance from the sound generating source and the acoustic environment.

- Maximum Sound Level (L_{max}), measured in dB (or dBA), is the highest sound pressure level from an activity. The L_{max} value is dependent upon the source energy, the distance from the sound generating source, and the acoustic environment.

- Equivalent Sound Level (L_{eq}), measured in dBA, describes a receptor's cumulative noise exposure from all noise events (all sound sources) that occur in a specified period of time. The hourly L_{eq} is a measure of the accumulated sound exposure over an hour at a location.

- Day-Night Sound Level (L_{dn}), measured in dBA, describes a receptor's cumulative noise exposure from all noise events that occur in a 24-hour period, with events between 10 p.m. and 7 a.m. increased by 10 dB to account for greater nighttime sensitivity to noise. The L_{dn} is used to describe the general noise environment in a location, the so-called "noise climate." Its magnitude is related to the general noisiness of an area. U.S. Environmental Protection Agency (EPA) developed the L_{dn} descriptor, and now most federal agencies use it to evaluate potential noise impacts at a location. Typical L_{dn} values in the environment are shown in Figure 1-1.

- CNEL, measured in dBA, a variant of L_{dn}, is used in noise assessments in California. Rather than dividing the day into two periods, daytime and nighttime, CNEL adds a third to account for increased sensitivity to noise in the evening when people are likely to be engaged in outdoor activities around the home. An evening addition of 5 dB is applied to noise events between the 7 and 10 p.m. to reflect the additional annoyance noise causes at that time. In general, the difference between L_{dn} and CNEL is slight, and the two measures will be considered interchangeable for purposes of this noise analysis.

The units of dB and dBA are used interchangeably below when discussing noise; however, in all cases the values reflect A-weighted values.

The human perception of noise can vary greatly from person to person. In addition to the individual sensitivity to noise, factors that influence individual responses include the intensity, frequency, and time pattern of the noise; the amount of background noise present prior to the intruding noise; and the nature of human activity that is exposed to the noise. Community noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. It is widely accepted in the acoustical industry that the average person can perceive a change of 3 dBA in community noise and a change of 5 dBA is readily perceptible. A change of 10 dBA is perceived as twice as loud.

Individual sound sources are considered “point sources” when the distance from the source is large compared to the size of the source, such as transformer banks. Sound from a point source radiates hemispherical, which yields a 6 dB sound level reduction for each doubling of the distance from the source. If the sound source is quite long in one dimension, such as transmission lines, the source is considered a “line source”. Sound from a line source radiates cylindrically, which typically yields a 3 dB sound level reduction for each doubling of the distance from the source.

In addition to distance attenuation, the air absorbs a certain amount of sound energy, and atmospheric effects (wind, temperature, precipitation), and terrain/vegetation effects also influence the sound propagation and attenuation over large distances from the source.

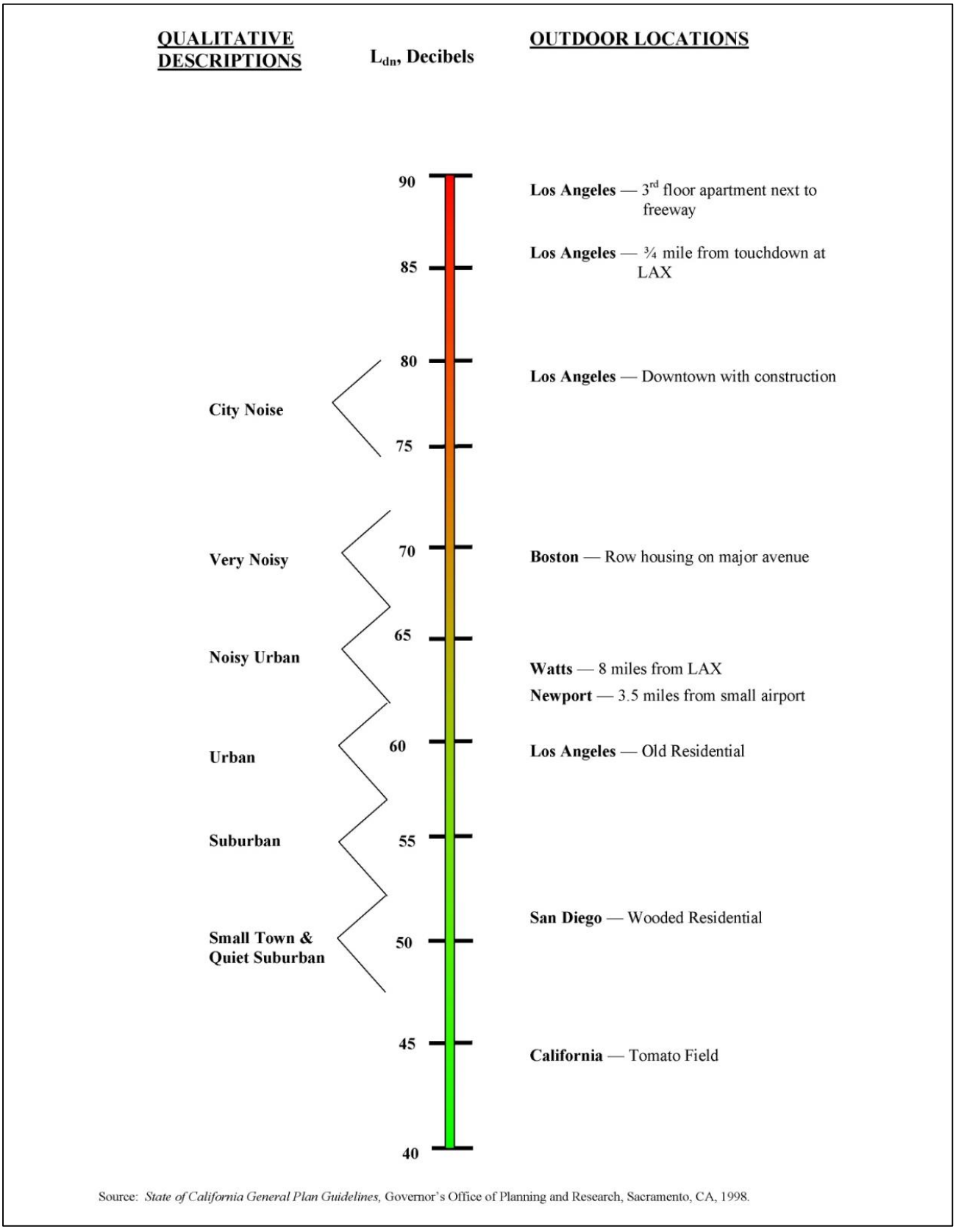
Sound levels can also be attenuated by man-made or natural barriers. Intervening noise barriers, such as sound walls, hills, solid walls, or earthen berms, can reduce noise levels up to 15 dBA at the receptor location.

Community noise is usually closely related to human activity. The normal or existing level of community noise at a given location is the composite of noise from all sources, near and far, and is called the “Ambient Noise Level” at that location. Typical Ldn noise levels for typical outdoor locations are shown in Figure 1-1.

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 receptors. The effects of construction vibration may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and damage to nearby structures at the highest levels.

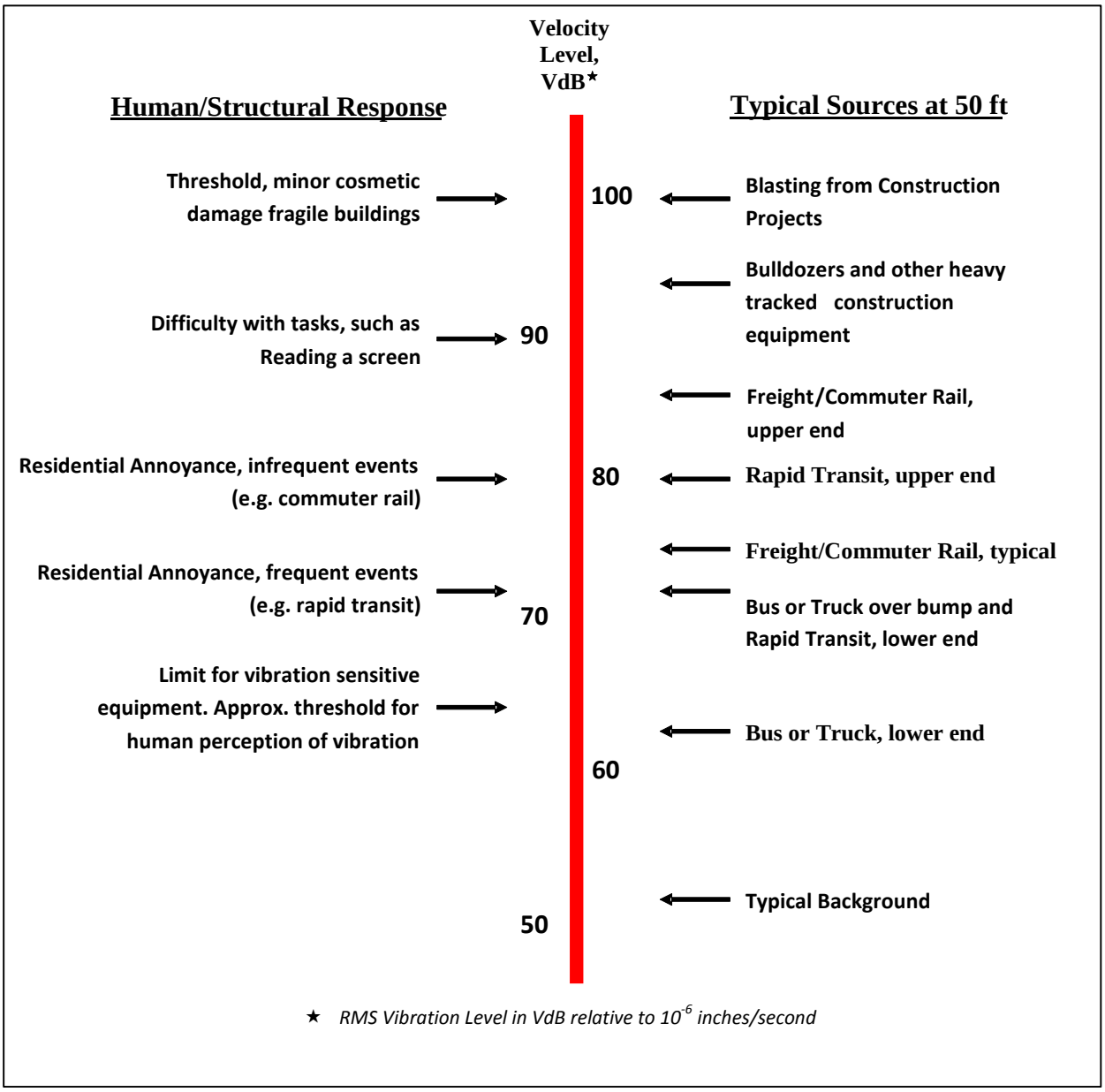
When assessing damage potential, vibration is often measured and reported in terms of peak particle velocity (PPV). For evaluating human response, the accepted manner to measure and report vibration is in terms of the root mean square (rms) amplitude. Like noise, vibration is normally expressed in terms of decibels with a reference velocity of $1x10^{-6}$ inches/second in the U.S. The abbreviation "VdB" is often used for vibration decibels to reduce the potential for confusion with sound decibels. Figure 1-2 illustrates common vibration sources and the human and structural response to ground-borne vibration.

Figure 1-1 Typical Noise Environments



Source: *State of California General Plan Guidelines,* Governor's Office of Planning and Research, Sacramento, CA, 1998.

Figure 1-2 Typical Vibration Levels and Human/Structural Responses



2. Regulatory Background

The CPUC (California Public Utility Commission) has the exclusive authority over the design and construction of a utility's electrical infrastructure. The CPUC requires project proponents to follow the California Environmental Quality Act (CEQA) guidelines to evaluate the significance of a noise impact. According to the CEQA guidelines, a significant noise impact would occur if the project would result in:

1. 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.
2. Exposure of persons to or generation of excessive Groundborne vibration or Groundborne noise levels.
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
5. 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.
6. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

CEQA does not specify any thresholds for the terms "substantial" or "excessive", but refers to the local jurisdictions general plan or noise ordinance, or applicable standards of other agencies to evaluate the significance of the proposed project's potential noise and vibration impacts.

The regulatory framework that is discussed below identifies standards established in the local general plans or noise ordinances, or applicable standards of other agencies.

2.1 Federal

There are no federal noise or vibration standards that directly regulate noise from operation of electrical transmission lines and substation facilities. The U.S. EPA, Office of Noise Abatement and Control federal Noise Control Act of 1972 provides programs and guidelines to identify and address the effects of noise on public health and welfare and the environment. However, the EPA transferred responsibilities for regulating noise control policies to state and local government level in 1982.

The Federal Transit Administration (FTA) has recommended the following guidance on construction noise limits when local agencies have not established limits:

Table 2-1 Construction Noise Limits

Land Use	8 hour L_{eq}		L_{dn} (30 Day Average)
	Day	Night	
Residential	80	70	75
Commercial	85	85	80
Industrial	90	90	85
Source: (FTA, 2006)			

2.2 State

The State of California adopted noise standards in areas of regulation not pre-empted by the federal government. State standards primarily regulate motor vehicles noise levels, land use/noise compatibility for non-stationary noise sources, sound transmission through buildings, and occupational noise control. The California Public Utilities Commission (CPUC) has sole and exclusive State jurisdiction over the siting and design of the Proposed Project. Pursuant to CPUC General Order 131-D, Section XIV.B, "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 CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. However, the CPUC requires project proponents to follow the California Environmental Quality Act (CEQA) guidelines to evaluate the significance of a noise impact and the following discussion of local regulations is provided for that purpose.

2.2.1 Caltrans Transportation- and Construction-Induced Vibration Guidance

There are no State regulations that place vibration limits on the proposed project. However, the California Department of Transportation (Caltrans) has published Transportation- and Construction- Induced Vibration Guidance Manual which offers guidance for assessing vibration (Caltrans, 2004). This document provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. Table 2-2 and Table 2-3 summarize their guidance.

Table 2-2 Vibration Damage Threshold Guidance

Structure Type/Condition	Maximum PPV [a] (inches per second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, and ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Table Notes

a) Transient sources create a single, isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans, 2004

Table 2-3 Vibration Annoyance Threshold Guidance

Human Response	Maximum PPV (inches per second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.40

Table Notes Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans, 2004

2.2.1 Caltrans Substantial Increase Guidance

In California a substantial noise increase is considered to occur when the project's predicted worst-hour design-year noise level exceeds the existing worst hour noise level by 12 dBA or more. The use of 12 dB was established in California many years ago and is based on the concept that a 10 dB increase generally is perceived as a doubling of loudness. A collective decision by Caltrans staff, which was approved by FHWA, was made to use 12 dB. (Caltrans 2011) Caltrans' guidance will be used to evaluate significant increase in noise where local guidance is not available for construction noise.

2.3 Local

Each local government outlines requirements for noise abatement and control in their general plan and municipal code. The general plans typically set overall goals and objectives, while the municipal codes set specific sound limits. The project is located in or adjacent to the cities of Montebello, Monterey Park and Pasadena. Modifications to fiber optic cable will also be located in or adjacent to unincorporated areas of the County of Los Angeles, City of Rosemead, City of South El Monte, City of Commerce, and City of Bell Gardens.

2.3.1 County of Los Angeles

2.3.1.1 Los Angeles County General Plan

The Noise Element in the Los Angeles County General Plan contains specific goals and policies focused on reducing noise to a level consistent with health and quality of life goals. The following policy related to noise is relevant to the Proposed Project:

- Policy 3: Establish acceptable noise standards consistent with health and quality of life goals and employ effective techniques of noise abatement through such means as building code, noise, subdivision, and zoning ordinances

Noise-sensitive receptors referenced in the Los Angeles County General Plan include residences, hospitals, rest homes, long-term medial or mental care, and outdoor recreation areas.

2.3.1.2 Los Angeles County Municipal Code

Title 12, Chapter 12.08 of the Los Angeles County Municipal Code contains the following policy, which is relevant to the Proposed Project:

- Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real-property line, except for emergency work of public service utilities or by variance issued by the health officer is prohibited

- Creating or causing the creation of any noise disturbance within any noise-sensitive zone, as designated by the health officer, is prohibited, provided that conspicuous signs are displayed indicating the presence of the zone

Title 12, Chapter 12.08 of the Los Angeles County Municipal Code also contains regulations related to noise, including construction noise, which are provided in Table 2-5 Los Angeles County Construction Noise Restrictions. The county divides land uses into noise sensitive zones I through IV, with Noise Zone I categorized as noise-

sensitive areas, and Noise Zone II categorized as residential areas. The exterior noise standards for these zones are provided in Table 2-4. Table 2-5 presents the County's restriction on construction noise.

Table 2-4 Los Angeles County Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dB)
I	Noise-Sensitive Area	Anytime	45
II	Residential Properties	10:00 pm to 7:00 am	45
		7:00 am to 10:00 pm	50
III	Commercial Properties	10:00 pm to 7:00 am	55
		7:00 am to 10:00 pm	60
IV	Industrial Properties	Anytime	70

Source: Los Angeles County (1975)

Table 2-5 Los Angeles County Construction Noise Restrictions

Restriction	Affected Structures			
	Single-Family Residential	Multi-Family Residential	Semi-Residential /Commercial	Business
Maximum Noise Levels (dBA) for Mobile Equipment (for nonscheduled, intermittent, short-term operation - less than 10 days)				
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75	80	85	85
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60	64	70	85
Maximum Noise Levels (dBA) for Stationary Equipment (for repetitively scheduled and relatively long-term operation - 10 days or more)				
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60	65	70	85
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50	66	60	85

Source: Los Angeles County (1975)

Title 12, Chapter 12.08.560 of the Los Angeles County Municipal Code contains the following policy on vibration, which is relevant to the Proposed Project:

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property

boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

2.3.2 City of Montebello

2.3.2.1 City of Montebello General Plan

Policies set forth in the Noise Element of the City's General Plan (1974) focus policies, such as:

- Pursuing legislation that would reduce transportation noise and other noise sources.
- Enforcing noise control regulations
- Developing an enforceable Noise Ordinance
- Planning to minimize adverse noise impacts in the community
- Promote public awareness of adverse effects of noise.
- Encouraging voluntary noise reduction.
- Promoting noise minimization in all City activities.

2.3.2.2 City of Montebello Municipal Code

Montebello Municipal Code, Title 9 Public Peace, Morals, and Welfare, Chapter 9.08 Offenses Against Public Peace contains the noise ordinance for the City of Montebello, which prohibits the following:

- Blowing of any mechanical whistle attached to a stationary location except to give notice of the time to begin or stop work, or as a warning of fire danger or upon the request of proper city authorities.
- Noise sources associated with construction, demolition, grading repair, or remodeling of any real property other than between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and the hours of 9:00 a.m. and 6:00 p.m. on Saturdays, Sundays, and legal holidays
- Creation of noise adjacent to any school, institution of learning, church or court while the same are in use, or adjacent to any medical facility, including but not limited to, a hospital, medical office, clinic, or any location where medical treatment is rendered, which unreasonably interferes with the workings of such an institution, or which unreasonably disturbs the occupants of or visitors to these structures
- Any pile driver, pneumatic hammer, bulldozer, or other construction vehicles, motorized hoists, or other devices operated between the hours of 8:00 p.m. and 7:00 a.m.

Noise-sensitive receptors referenced in the City of Montebello Municipal Code include residential areas, medical facilities, schools, institutions of learning, churches, courts, and city or county buildings. The City of Montebello does not have noise level regulations for operational noise applicable to the Proposed Project.

2.3.3 City of Monterey Park

2.3.3.1 City of Monterey Park General Plan

The City's Noise Element states that "primary goal with regard to community noise is to minimize the exposure of residential neighborhoods, schools, and hospitals to excessive or unhealthy noise levels, to the extent possible due to the city's built out condition. Toward this end, this element establishes noise / land use compatibility guidelines. These guidelines are based upon cumulative noise criteria for outdoor noise."

Noise-sensitive receptors referenced in the City of Monterey Park General Plan include residents, hospitals, schools, and churches.

2.3.3.2 City of Monterey Park Municipal Code

Monterey Park Municipal Code, Title 9 Peace, Safety And Morals, Chapter 9.53 Noise contains the noise limits presented in Table 2-6.

Table 2-6 City of Monterey Park Noise Standards

Noise Zone	Time	Allowable Noise Level, dBA [a), b)]
I. Residential	7 a.m.—10 p.m.	55
	10 p.m.—7 a.m.	50
II. Commercial	7 a.m.—10 p.m.	65
	10 p.m.—7 a.m.	55
III. Industrial	Anytime	70

Notes:

a) Actual measured medium noise level measured or the presumed ambient noise level at receiving property.

b) Construction or demolition work conducted between the hours of 7 a.m. and 7 p.m. on weekdays and the hours of 9 a.m. and 6 p.m. on Saturdays, Sundays and holidays are exempt.

Source: City of Monterey Park (2014b)

Noise-sensitive receptors referenced in the City of Monterey Park Municipal Code include residential, commercial, and industrial zones.

2.3.4 City of Rosemead

2.3.4.1 City of Rosemead General Plan

The Noise Element in the City of Rosemead General Plan contains specific goals and policies focused on limiting the exposure of the community to excessive noise levels. The following goal and policies related to noise are relevant to the Proposed Project:

- Goal 3: Effective implementation of measures to control non-transportation noise impacts
- Policy 3.1: Enforce provisions of the Community Noise Ordinance to mitigate noise conflicts
- Policy 3.3: Evaluate noise generated by construction activities to ensure compliance with the Community Noise Ordinance

Noise-sensitive receptors referenced in the City of South El Monte General Plan include residential neighborhoods, schools, libraries, offices, hospitals, churches, hotels, motels, and outdoor recreational areas.

2.3.4.2 City of Rosemead Municipal Code

Title 8, Chapter 8.36 of the City of Rosemead Municipal Code contains the following noise exemptions, which are relevant to the Proposed Project:

- Noise sources associated by construction, repair, remodeling or grading of any real property or during authorized seismic surveys, provided such activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday, and provided the noise level created by such activities does not exceed the noise standards in Table 2-7 and does not endanger the public health, welfare, and safety[1]

- The provisions of Chapter 8.36 shall not preclude the construction, operation, maintenance and repairs of equipment, apparatus or facilities of park and recreation departments, public work projects, or public utilities subject to the regulatory jurisdiction of the CPUC. (¶G.5)

[1] Section 8.36.060(B) specifies that the interior noise level for residential receptors be limited to 45 dBA. This noise level shall not be exceeded for a cumulative period of more than 5 minutes in any hour, more than 5 dBA for a cumulative period of more than 1 minute in any hour, nor more than 10 dBA for any period of time. In the event that the ambient noise level exceeds these noise limits, the cumulative period or maximum allowable noise level shall be increased to reflect the ambient noise level.

Table 2-7 City of Rosemead Noise Standards

Type of Land Use (Receptor Property)	Time Interval	Allowable Exterior Noise Level, (dBA)[2]
Single-, Double-, or Multiple-Family Residential	7:00 a.m. – 10:00 p.m.	60
	10:00 p.m. – 7:00 a.m.	45
Commercial	7:00 a.m. – 10:00 p.m.	65
	10:00 p.m. – 7:00 a.m.	60
Industrial or Manufacturing	Any time	70

Source: City of Rosemead (2014)

2.3.5 City of South El Monte

2.3.5.1 City of South El Monte General Plan

The Public Safety Element in the City of South El Monte General Plan contains specific goals and policies focused on reducing impacts of noise on city residents. The following goal and policy related to noise are relevant to the Proposed Project:

- Goal 3.0: Minimize the adverse effects of excessive or unusual noise on the city's residential and business populations
- Policy 3.1: Use the noise/land use compatibility standards as a guide for future planning and development decisions

Noise-sensitive receptors referenced in the City of South El Monte General Plan include residential neighborhoods, hotels, motels, businesses, hospitals, churches, libraries, and schools.

2.3.5.2 City of South El Monte Municipal Code

The City of South El Monte Municipal Code Section 8.36.040 provides the following ambient noise standards that shall apply to all property within their assigned zoning districts and said standards shall constitute the permissible noise level:

Table 2-8 City of South El Monte Noise Standards

Zone	Day 7:00 a.m. to 10:00 p.m.	Night 10:00 p.m. to 7:00 a.m.
Single-family	50 dBA	45 dBA
Multifamily	55 dBA	50 dBA

[2] These values are the actual medium noise level measured or the presumed ambient noise level at a receiving property.

Commercial	65 dBA	60 dBA
Industrial	70 dBA	70 dBA

The City of El Monte Municipal Code Section 8.36.050 contains the following noise exemptions, which are relevant to the Proposed Project:

- Except as otherwise permitted under subsections (C)(2) or (G) of this section, it is unlawful for any person within the city to operate power construction tools or equipment in the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area, except between the hours of 6 a.m. and 7 p.m. Monday through Friday or between the hours of 8 a.m. and 7 p.m. on Saturday and Sunday (¶8.36.05 C.1).
- The provisions of this regulation shall not preclude the construction, operation, maintenance, and repairs of equipment, apparatus, or facilities of park and recreation departments, public work projects, or essential public services and facilities, including those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission (¶8.36.05 G.5).
- Section 8.20.020 prohibits the operation of any device or machine that creates a vibration above the vibration perception threshold when measured at or beyond the property boundary of the source. The vibration perception threshold is considered to be 0.01 inch per second over the range of 1 to 100 Hertz.

2.3.6 City of Commerce

2.3.6.1 City of Commerce General Plan

The Safety Element in the City of Commerce General Plan contains specific goals and policies focused on protecting residents from excessive noise. The following policies related to noise are relevant to the Proposed Project:

- Policy 6.1: The City of Commerce will ensure that residents are protected from harmful and irritating noise sources to the greatest extent possible
- Safety Policy 6.2: The City of Commerce will work with businesses in the city and other public agencies to identify ways to reduce noise impacts throughout the city

Noise-sensitive receptors referenced in the City of Commerce General Plan include residential areas, schools, convalescent homes, and properties in the vicinity of railroads and freeways.

2.3.6.2 City of Commerce Municipal Code

Chapter 19.19.160 of the City of Commerce Municipal Code contains the following policies, which are relevant to the Proposed Project:

- It is the policy of the city to prohibit unnecessary, excessive, and annoying noises from all sources subject to its police power, as certain noise levels are detrimental to the health and welfare of individuals. Therefore, any individual or organization that creates, maintains, causes, or allows to be created, caused, or maintained, any noise or vibration in a manner prohibited by or not in conformity with the provisions of this subsection, shall be considered to be creating a public nuisance and shall be punishable as such
- No person or organization within any residential zone, or within a radius of 500 feet of a residential zone, shall operate equipment or perform any outside construction or repair work on buildings, structures, or projects, or operate any pile driver, steam shovel, pneumatic hammer, derrick, steam, electric hoist, or other construction type device between the hours of 10:00 p.m. and 7:00 a.m., unless a permit has been obtained from the city.
- No person shall, at any location within the city, create nor allow the creation of noise on property owned, leased, occupied, or otherwise controlled by such person, that causes the noise level when measured on any property to exceed the ambient noise level or the noise standards included in Table 2-9 City of Commerce Noise Standards.

Table 2-9 City of Commerce Noise Standards

Type of Land Use	Time Interval	Allowable Exterior Noise Level (dBA)
Residential	7:00 a.m. – 7:00 p.m.	55
	7:00 p.m. – 10:00 p.m.	50
	10:00 p.m. – 7:00 a.m.	45
Commercial	7:00 a.m. – 10:00 p.m.	65
	10:00 p.m. – 7:00 a.m.	55
Industrial	Any time	70

Source: City of Commerce (2014)

2.3.7 City of Bell Gardens

2.3.7.1 City of Bell Gardens General Plan

The Noise Element in the City of Bell Gardens' General Plan contains specific goals and policies focused on minimizing the potential for noise exposure. The following policy related to noise is relevant to the Proposed Project:

- Policy 2: The City of Bell Gardens shall ensure that the noise caused by sources other than traffic (construction, etc.) are at acceptable levels

Noise-sensitive receptors referenced in the City of Bell Gardens General Plan include residential areas, convalescent homes, schools, hospitals, churches, and libraries.

2.3.7.2 City of Bell Gardens Municipal Code

Chapter 16.24 of the City of Commerce Municipal Code contains the following policies, which are relevant to the Proposed Project:

- Between the hours of 7:00 p.m. of one day and 8:00 a.m. of the next day, it is unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment, or perform any outside construction or repair work on buildings, structures, or projects, or operate any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist, or other construction device in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance, unless beforehand a permit therefore has been duly obtained from the officer or body of the city having the function to issue permits of this kind. No permit shall be required to perform emergency work as defined in BGMC 16.24.020. (Ord. 276, 1971; prior code § 5410).

2.3.8 City of Pasadena

2.3.8.1 City of Pasadena General Plan

The Noise Element in the City of Pasadena General Plan contains specific goals and policies focused on minimizing the exposure of residents, workers, and visitors to excessive noise levels, while maximizing the Land Use Element's objectives to encourage mixed-use development in the Central District and other Specific Plan areas, as well as to promote economic vitality.

The following policies related to noise are relevant to the Proposed Project:

- Policy 7b: The City will encourage limitations on construction activities adjacent to sensitive noise receptors.
- Policy 7c: The City will encourage construction and landscaping activities that employ techniques to minimize noise.
- Policy 7d: The City will enforce noise level restrictions contained in the City of Pasadena Noise Regulations (Chapter 9.36 of the Municipal Code), except during federal, State, or local emergencies (such as power generators required for energy emergencies).

Noise-sensitive receptors referenced in the City of Pasadena General Plan include residences, schools, libraries, hospitals, churches, office, hotels, motels, and outdoor recreational areas.

2.3.8.2 City of Pasadena Municipal Code

The City of Pasadena Municipal Code contains the following policies, which are relevant to the Proposed Project:

- Construction within 500 feet of a residential area is limited to the hours from 7:00 a.m. to 7:00 p.m. Monday through Friday; from 8:00 a.m. to 5:00 p.m. on Saturday and is prohibited on Sundays and holidays (New Year's Day, Martin Luther King Jr. Day, Lincoln's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving, and Christmas). Furthermore, noise levels of construction equipment are limited to 85 dBA measured 100 feet from the equipment.
- The City of Pasadena Code of Ordinance, Title 9 -Public Peace, Morals And Welfare, Article IV. Offenses Against Public Peace, Chapter 9.36 Noise Restrictions limits noise to no more than 5 decibels above the ambient averaged over 15 minutes (Pasadena, 2008).

3. Environmental Setting

The Mesa Substation is located between SR 60 to the south and Potrero Grande Drive to the North. To the south are residential and industrial land uses that overlook the SR-60 freeway and the Mesa Substation. There is a planned commercial development toward the east (Monterey Park Market Place) between the Mesa Substation and SR-60. There are residential and business park land uses on the North side of Potrero Grande Drive. The Resurrection Cemetery and Mausoleum is located approximately 750 feet northeast of the Mesa Substation and on the south side of Potrero Grande Drive.

The Goodrich Substation is located just north of I-210 freeway in the City of Pasadena. There are residences west of the substation and a parking lot and SCE ROW on the east and north sides of the substation.

3.1 Noise Sensitive Receptors

The noise sensitive land uses include residential, school, and hospital use.

Noise/vibration-sensitive land uses near Mesa Substation include single- and multifamily residences in the cities of Montebello and Monterey Park that surround the site. The nearest residential land uses are approximately 280 feet north of the Mesa Substation and 350 feet south of the Mesa Substation. The nearest school is the Shurr High School located approximately 1,400 feet south of the Mesa Substation in the City of Montebello.

Noise/vibration-sensitive land uses near the fiber optic work, which in many cases are on residential streets, include residential and school land uses.

Noise sensitive land uses near the Goodrich Substation include single family residences approximately 100 feet west of the edge of the Goodrich Substation and the Pasadena City College located approximately 300 feet east of the edge of the Goodrich Substation. A parking lot and street separates the substation from the college. North of the college are residences.

A detailed list of the nearest noise sensitive-land uses in the vicinity of the Proposed Project area include:

- Occupied residential dwellings located approximately 280 feet from the Mesa Substation site (Monterey Park)
- Occupied residential dwellings located adjacent to transmission line rights-of-way (ROWs) near Mesa Substation (Monterey Park and Montebello)
- Schurr High School located adjacent to the 220 kV transmission line ROW and telecommunications line reroute between Mesa and Harding substations, southwest of the Mesa Substation site (Montebello)

- Occupied residential dwellings located adjacent to the new telecommunications line from transmission tower M38-T5 to Mesa Substation (Montebello)
- La Merced Intermediate School located adjacent to the new telecommunications line from transmission tower M38-T5 to Mesa Substation (Montebello)
- Occupied residential dwellings located adjacent to the telecommunications line reroute between Mesa and Harding substations (Montebello)
- Occupied residential dwellings located adjacent to the new telecommunications line from transmission tower M40-T3 to Mesa Substation (Rosemead and unincorporated Los Angeles County)
- Whittier Narrows Recreation Area crossed by the new telecommunications line from transmission tower M38-T5 to Mesa Substation (unincorporated Los Angeles County)
- Bosque del Rio Hondo (Park) located adjacent to the new telecommunications line from transmission tower M40-T3 to Mesa Substation and the new telecommunications line from transmission tower M38-T5 to Mesa Substation (unincorporated Los Angeles County)
- Triangle Park located approximately 100 feet from the new telecommunications line from transmission tower M40-T3 to Mesa Substation (Rosemead)
- Don Bosco Technical Institute located adjacent to the new telecommunications line from transmission tower M40-T3 to Mesa Substation (Rosemead)
- Three convalescent homes located approximately 150, 180, and 270 feet from the new telecommunications line from transmission tower M40-T3 to Mesa Substation (Rosemead)

- Occupied residential dwellings located approximately 1,000 feet from the proposed replacement of an existing lattice steel tower on the Goodrich-Laguna Bell 220 kV Transmission Line (Commerce)
- Occupied residential dwellings located approximately 75 feet from the street light source line conversion from overhead to underground configuration within Loveland Street (Bell Gardens)
- Occupied residential dwellings located approximately 350 feet from construction areas at Goodrich Substation (Pasadena)
- Pasadena City College Community Education Center located approximately 300 feet east of the edge of Goodrich Substation (Pasadena)

- Vina Vieja Park and Alice Frost Kennedy Off-Leash Dog Area located are approximately 1,200 feet north of Goodrich Substation (Pasadena)

3.2 Existing Noise Environment

The existing noise environment around the Mesa Substation is dominated by traffic noise from California State Route (SR-) 60 and Potrero Grande Drive. The existing noise environment around the Goodrich Substation is dominated by traffic noise from Interstate (I-) 210 and E Foothill Blvd.

A 25-hour noise surveys were conducted from June 24 through 25, 2014 and January 5 through January 6, 2015 to determine the existing background noise levels at noise sensitive receptor locations in the Proposed Project area. Larson Davis 870 (ANSI Type-1) integrating sound level meters were used to measures the noise. The sound level meters were field calibrated before and after the measurements and have annual calibration record traceable to NIST (National Institute of Standards and Technology). The microphones were located 5 feet above the ground on tripods, and wind screens were placed on the microphones. The weather was mild with no high winds during the monitoring period.

The noise measurements were taken at three noise sensitive receptor locations in the City of Monterey Park and two locations in the City of Montebello near the Mesa Substation (Figure 3-1), and at one location in the City of Pasadena, near the Goodrich Substation near noise sensitive land uses (Figure 3-2).

Figure 3-1 Mesa Substation Noise Measurement Locations

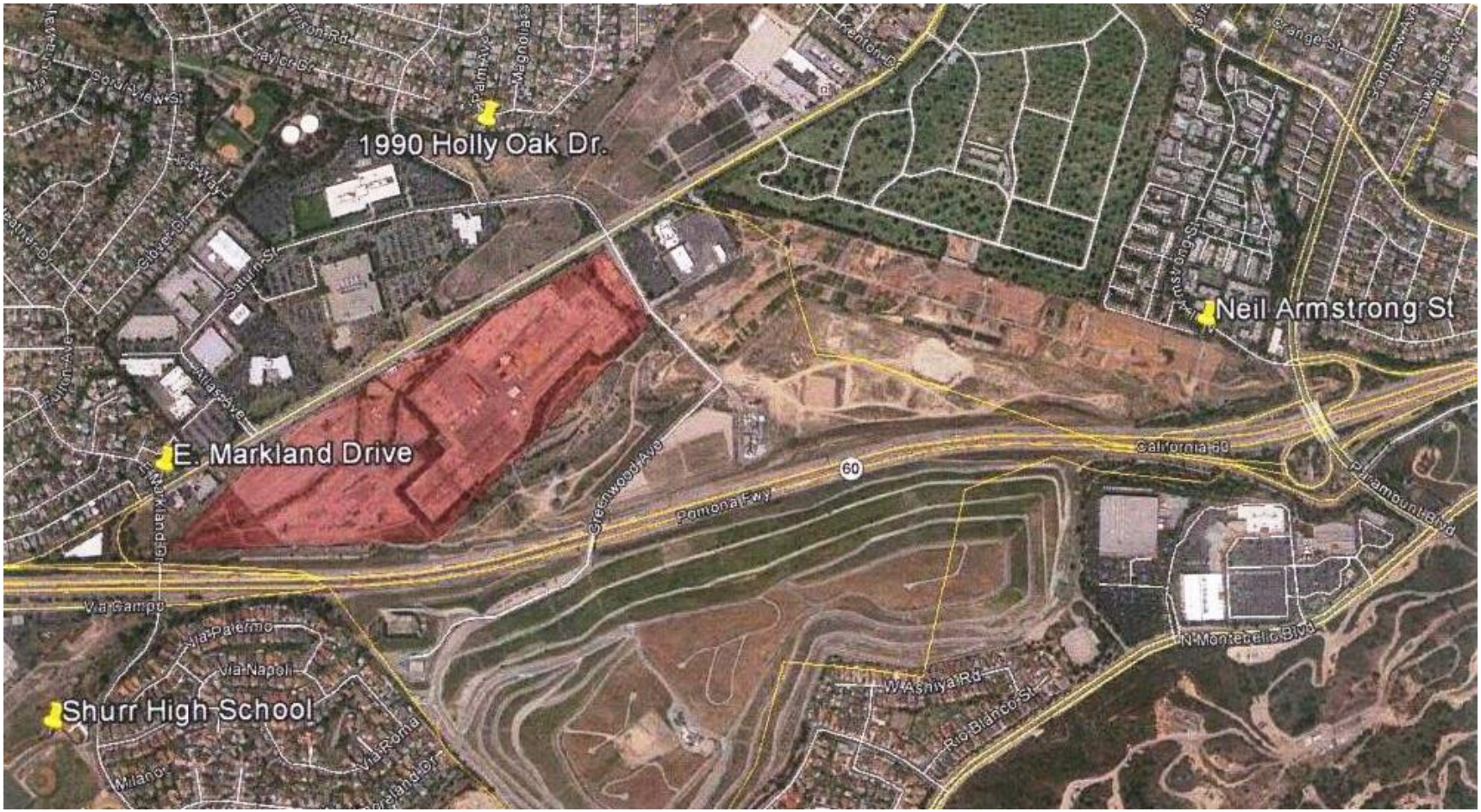
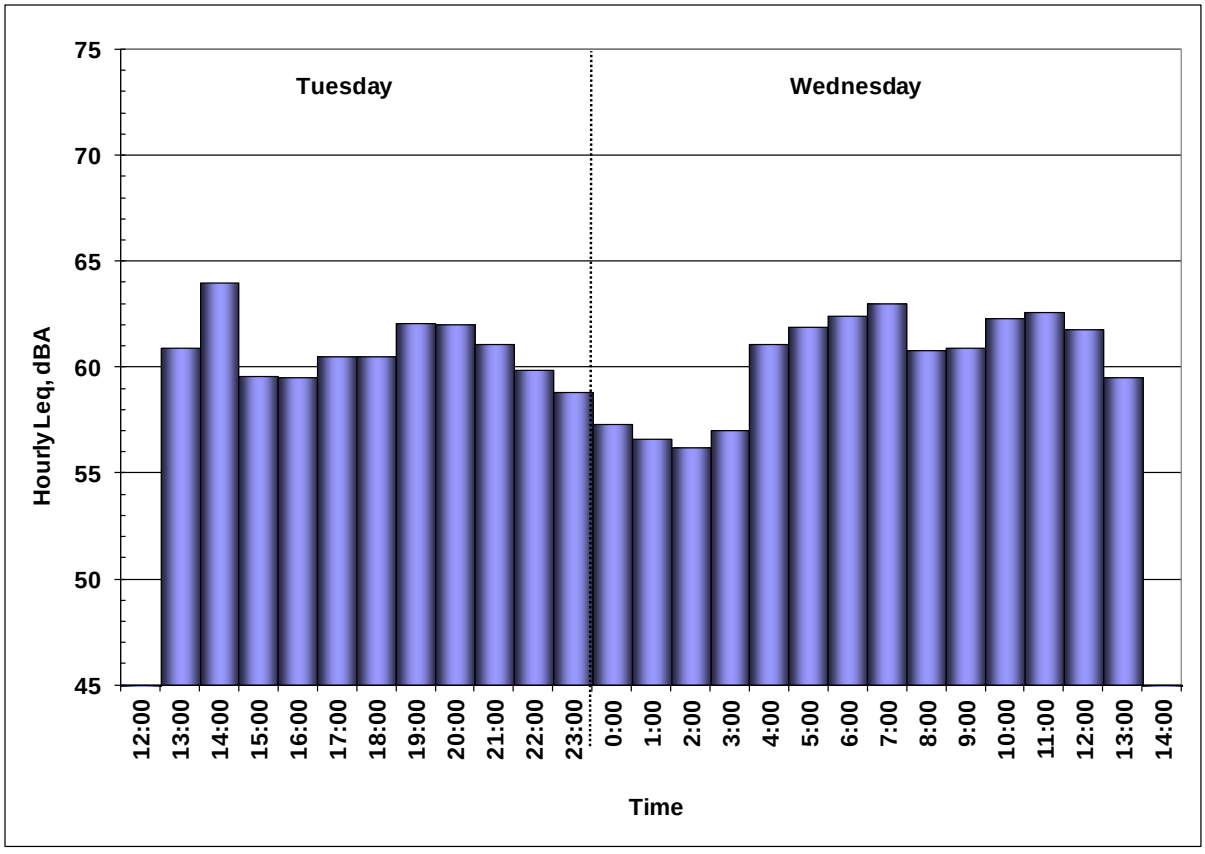


Figure 3-2 Goodrich Substation Noise Measurement Location

The *Shurr High School* measurement location is at an elevation of approximately 345 feet and overlooks SR-60 and the Mesa Substation which is located approximately 1,400 feet NNE. The location was in line with the backyards of residences on the west side of N. Vail Avenue in the City of Montebello. The measurement results at this location represent the existing ambient noise levels at the nearest residences south of the Pomona Freeway. Traffic on SR-60 was the dominate noise source. Figure 3-3 shows the measured hourly ambient L_{eq} values for daytime, evening and nighttime hours. The average daytime noise level was 62 dBA. The lowest L_{eq} levels during the 25 hours monitor period were 56 dBA during nighttime hours (10:00 p.m. – 7:00 a.m.) and 59 dBA during daytime hours (7:00 a.m. – 7:00 p.m.).

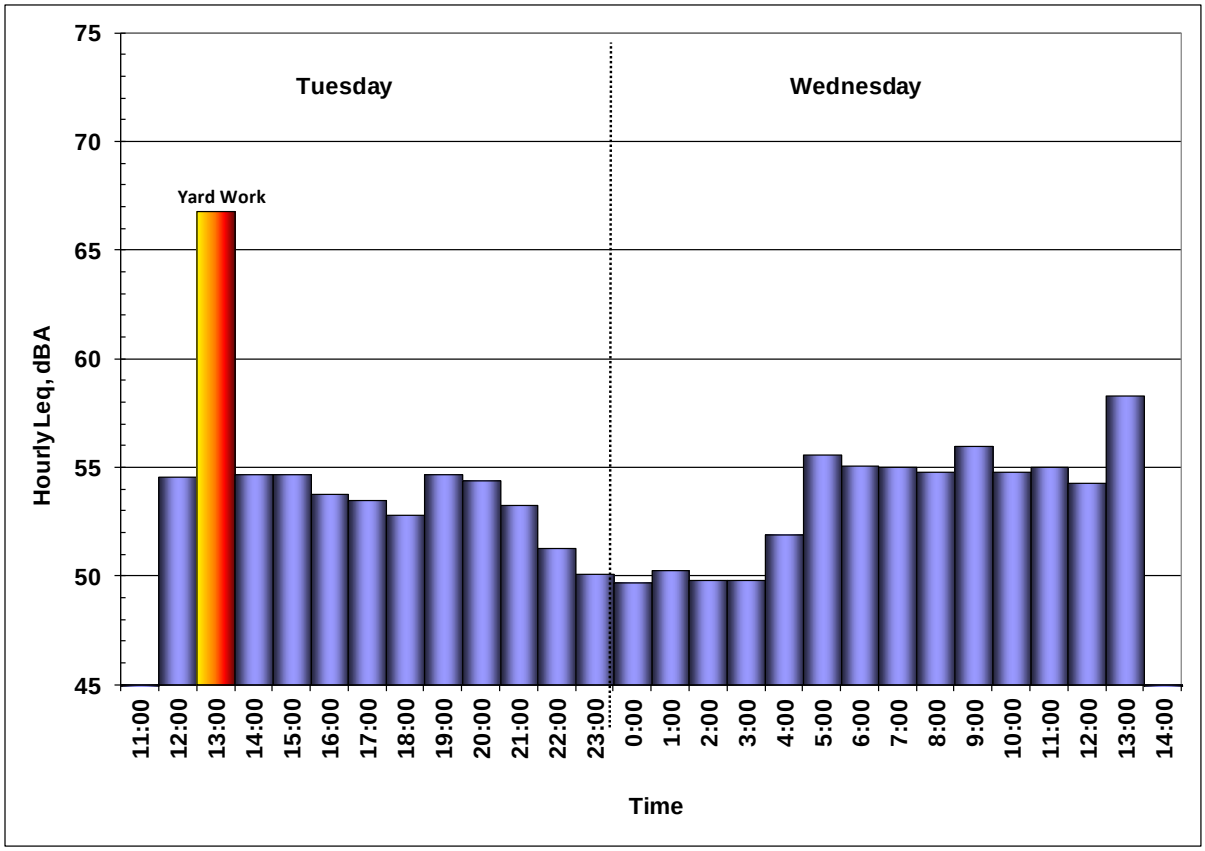
Figure 3-3 Ambient Noise Measurements – Shurr High School at Appian Way, Montebello, CA



The *Neil Armstrong St, Montebello* measurement location is at an elevation of approximately 435 feet and Mesa Substation is located at approximately 3,650 feet to the west. The monitor location was at the edge of a multi-family residential area in the City of Montebello. The measurement results at this location represent the ambient noise levels for the noise sensitive residential land uses east of substation. Local traffic, distant

traffic on SR-60 located approximately 700 feet south over a 435-foot high hill was the dominant noise source during the measurements. Figure 3-4 shows the measured hourly ambient L_{eq} values for daytime, evening and nighttime hours. The average daytime noise level was 55 dBA. The lowest L_{eq} levels during the 25 hours monitor period were 49 dBA during nighttime hours (10:00 p.m. – 7:00 a.m.) and 53 dBA during daytime hours (7:00 a.m. – 7:00 p.m.). The hour where yard work occurred was not included in the above average and lowest noise level determinations.

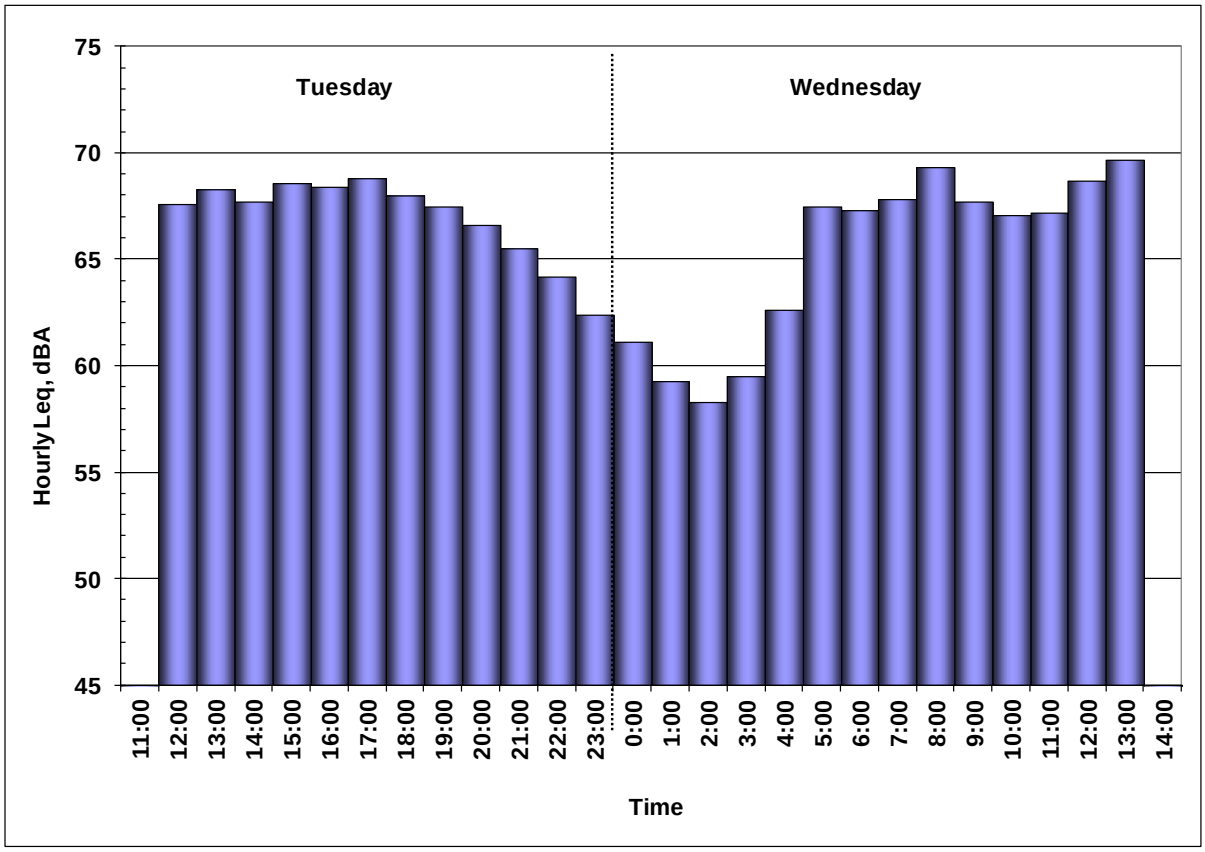
Figure 3-4 Ambient Noise Measurements – Neil Armstrong St, East of Bldg. W, Montebello, CA



The *E. Markland Drive / Potrero Grande Drive* measurement location is at an elevation of approximately 291 feet and the Mesa Substation is located at a distance of approximately 320 feet on the opposite side of Potrero Grande Drive. The monitor location was approximately 62 feet from the center of the street, in line with the front yards of residential structures along Potrero Grande Drive in the City of Monterey Park. The measurement results at this location represent the ambient noise levels for the nearest noise sensitive land use along Potrero Drive. Traffic on SR-60 located approximately 680 feet south and traffic along the adjacent Potrero Grande Drive were the dominate noise sources. Figure 3-5 shows the measured hourly ambient L_{eq} values for daytime,

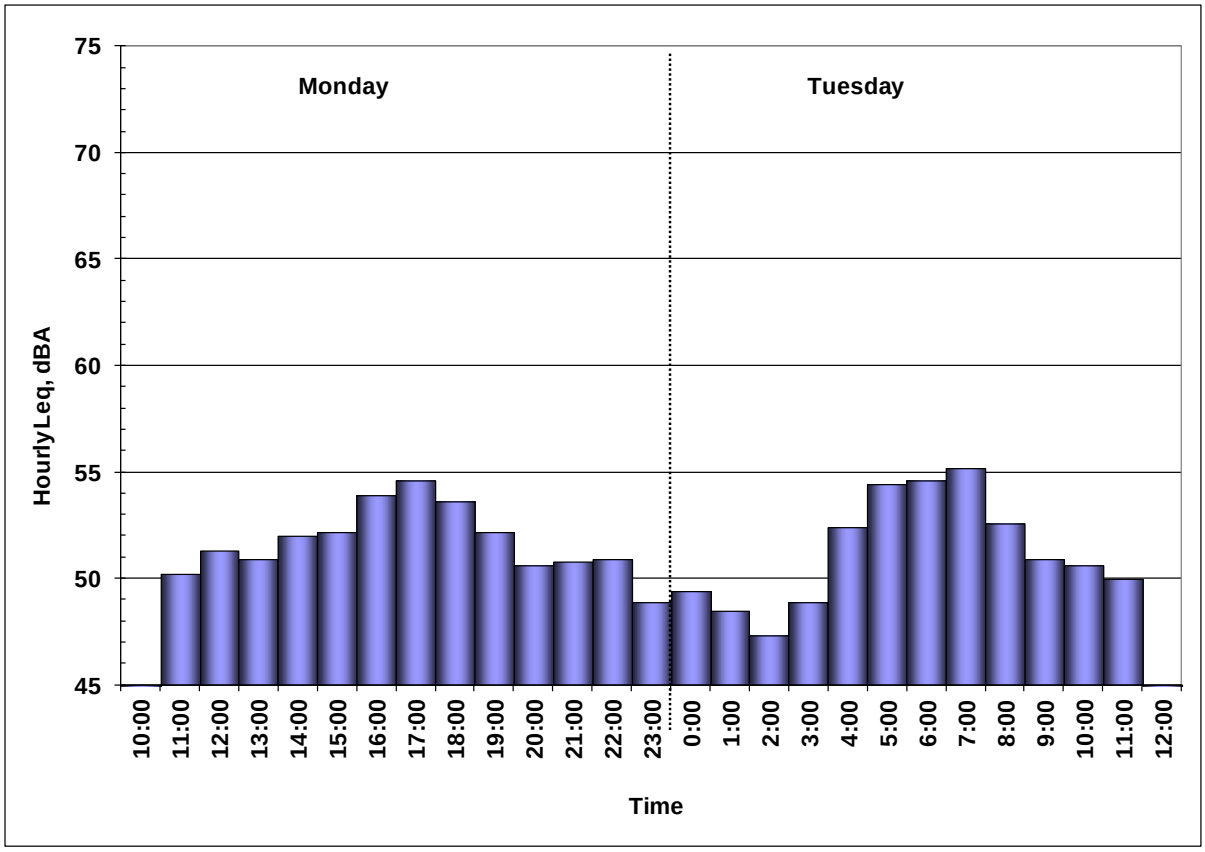
evening and nighttime hours. The average daytime noise level was 68 dBA. The lowest L_{eq} levels during the 25 hours monitor period were 58 dBA during nighttime hours (10:00 p.m. – 7:00 a.m.) and 64 dBA during daytime hours (7:00 a.m. – 7:00 p.m.).

Figure 3-5 Ambient Noise Measurements – NW Corner of Potrero Grande Drive and E. Markland Drive, Monterey Park, CA



The *1990 Holly Oak Drive, Monterrey Park* location is at an elevation of approximately 479 feet and the Mesa Substation is located at a distance of approximately 1,060 feet south. On January 1, 2015 the noise monitor was located near the rear property line that overlooks the substation. The measurement results at this location represent the existing ambient noise levels for noise sensitive the land uses along the ridge overlooking the substation from the north. Local traffic, distant traffic on the SR-60 located approximately 2,725 feet SSE and aircraft under the flight pattern to Los Angeles International Airport (LAX) were the dominant noise sources during the measurements. Figure 3-6 shows the measured hourly ambient L_{eq} values for daytime, evening and nighttime hours. The average daytime noise level was 52 dBA. The lowest L_{eq} levels during the 25 hours monitor period were 47 dBA during nighttime hours (10:00 p.m. – 7:00 a.m.) and 50 dBA during daytime hours (7:00 a.m. – 7:00 p.m.).

Figure 3-6 Ambient Noise Measurements – 1900 Holly Oak Drive, Monterey Park, CA



The *Goodrich Substation* is located in Pasadena just north of I-210, a 5-lane plus HOV lane in both directions freeway with the Gold Line in the median. The substation, shown in Figure 3-2, is approximately 280 feet wide and up to 540 feet long. The freeway is elevated in this area. There is a single-family residential area approximately 100 feet west of the station and a parking lot on the east side of the station for the Pasadena City College Community Education Center. Residential areas are north and east of the college. The nearest residential property line to the east is approximately 235 feet from the edge of the substation.

The *Goodrich Substation* measurement location and the surrounding land uses are at an elevation of approximately 730 to 735 feet and the I-210 freeway is at an elevation of approximately 758 feet. Traffic on the I-210 Foothill Freeway was the dominant noise source during the measurements. The noise measurements were made at a location eight feet east of the Goodrich Substation, approximately 480 feet from the edge of I-210, approximately 508 feet north of E. Foothill Blvd, approximately 325 feet from the nearest college building and approximately 400 feet from the residential land uses located west of the substation. The measurement results at this location represent the ambient noise

levels for the noise sensitive land uses surrounding the substation. Figure 3-7 shows the measured hourly ambient L_{eq} values for daytime, evening and nighttime hours. The average daytime noise level was 64 dBA. The lowest L_{eq} levels during the 25 hours monitor period were 58 dBA during nighttime hours (10:00 p.m. – 7:00 a.m.) and 62 dBA during daytime hours (7:00 a.m. – 7:00 p.m.).

Figure 3-7 Ambient Noise Measurements – Goodrich Substation, Pasadena, CA

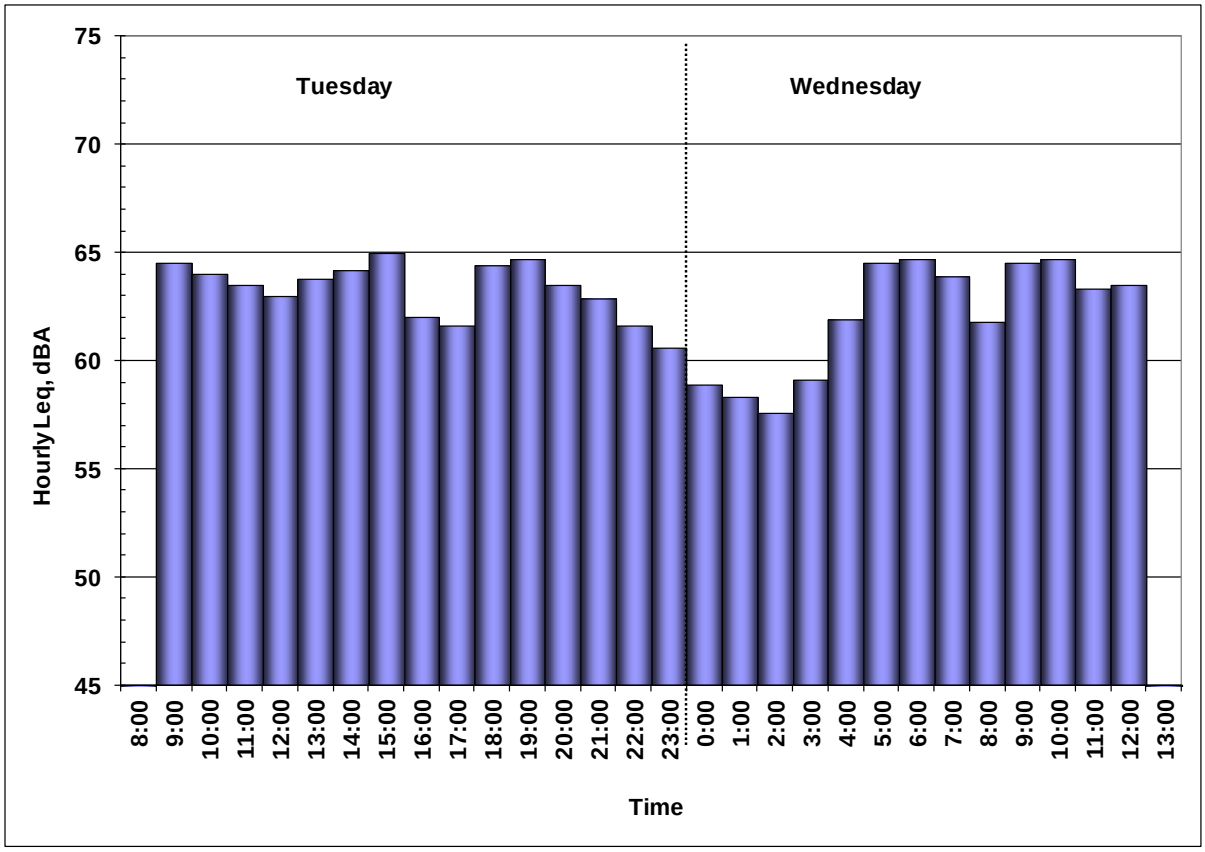


Table 3-1 Summary of Measured Noise Levels

Noise Measurement Location	Average L_{eq}(8-hr)	Lowest L_{eq}(1-hr)	
		Nighttime	Daytime
Shurr High School at Appian Way, Montebello, CA	62	56	59
Neil Armstrong St, East of Bldg. W, Montebello, CA	55	49	53
NW Corner of Potrero Grande Drive and E. Markland Drive, Monterey Park, CA	68	58	64
1990 Holly Oak Drive, Monterrey Park	52	47	50
Goodrich Substation, Pasadena, CA	64	58	62

4. Noise Impact Analysis

4.1 Methodology

The impact analysis for the Proposed Project has been prepared consistent with the CEQA guidelines, by comparison of the Proposed Project's construction and operation with the noise limits and construction time restrictions in the cities of Montebello, Monterey, and Pasadena's noise regulations, and by determination if the Proposed Project causes a substantial increase in ambient noise levels in the project vicinity above levels existing without the Proposed Project. Construction noise will be evaluated using the FTA guidance in Table 2-1 Construction Noise Limits.

4.2 Noise

4.2.1 Construction

Based upon schedule information provided by SCE staff shown in Appendix A, construction activity will begin in 2016 and be completed by the middle of 2021. Construction noise is a temporary phenomenon. Construction noise levels will vary from hour-to-hour and day-to-day, depending on the equipment in use and the operations being performed. Grading, excavation, and construction activities related to the proposed project would increase the ambient noise levels in the project area on an intermittent basis. Construction activities will require the temporary use of noise-generating construction equipment similar to those presented in Appendix A which shows the maximum noise levels for each item of equipment as well as the duration of use and usage factor (the percent of time operating at maximum level).

The construction noise levels will vary throughout the construction period, depending on the equipment simultaneously operating in the same area, the equipment usage factors, and the equipment's varying noise level. The noisiest period of construction is estimated to occur in the 4th quarter of 2016. The calculated L_{eq}(8-hr) noise contours (lines of equal sound level) from the noisiest construction period were calculated using CadnaA, a computer-aided noise model. Location of housing and terrain were also included into the modeling. Existing source of noise such as traffic and industrial equipment are not included in the model. The model assumes that the construction activity is evenly distributed on the site and considers the spatial locations and sizes of noise sources, the elevation of sources and the surrounding topography, noise reduction resulting from obstructions such as buildings and walls, and ground and air absorption.

Figure 4-1 Construction Noise Contours – Leq(8-hr), dBA shows the noise contours during the noisiest phase of construction (excluding helicopter use). The symbols ( ) in Figure 4-1 correspond to measurement locations in Figure 3-1. The shaded area in the center of figure is the Mesa Substation. Noise from roads and highways and other

existing noise sources are not included in the calculations. However, some roadways are shown on the figure to provide spatial reference.

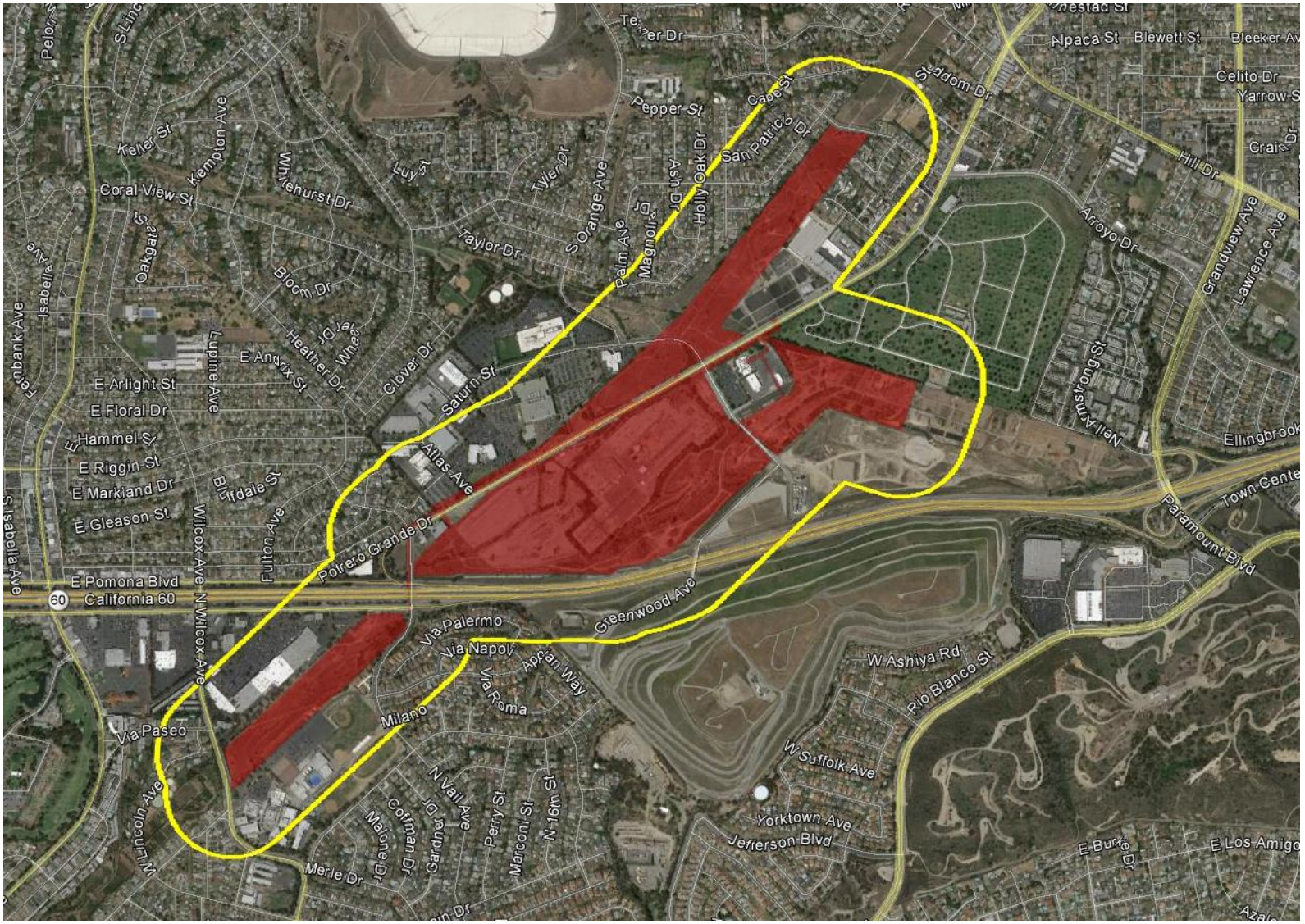
Table 4-1 Construction Schedule

Task	Duration	Start	Finish
Mesa 500kV Substation Construction	43 months	1/6/2016	4/30/2021
Site Prep/Grading ph. 1	8 months	1/6/2016	1/13/2017
Civil Construction ph. 1	8 months	9/26/2016	5/5/2017
Electrical Construction Ph. 1	4 months	7/20/2017	11/16/2017
Cutover Seq Ph 1	6 months	12/18/2018	6/1/2018
Demo/ site prep / grading ph. 2	2 months	6/4/2018	7/27/2018
Civil Construction ph. 2	2 months	7/2/2018	8/24/2018
Electrical Construction Ph. 2	4 months	7/30/2018	11/16/2018
Cutover Seq Ph. 2	2 months	11/19/2018	1/11/2019
Demo / Site Prep Grading Ph. 3	6 months	1/14/2019	6/28/2019
Civil construction Ph. 3	8 months	5/6/2019	12/13/2019
Electrical Construction Ph. 3	12 months	12/16/2019	11/13/2020
Cutover	6 months	11/16/2020	4/30/2021
Off-Site Construction	42 months	6/30/2016	12/31/2020
Source: SCE, 9-19-14 Schedule			

SCE anticipates using helicopters such as the Hughes 500 F during conductor stringing activities for the 500/220 kV transmission lines in the ROW. Helicopter use may occur up to seven hours per day for approximately 15 days spread throughout the approximately 55-month construction window for the stringing of electrical conductor. In addition, helicopter activities would occur during the time periods allowed by the cities of Monterey Park and Montebello municipal codes. According to the construction equipment list, helicopters such as the Hughes 500 F would operate up to seven hours per day during the 244 days of installing and transferring conductors. The noise levels at 100 feet from this helicopter can range between 84 dBA and 97 dBA, depending on the activities being performed. Assuming worst case noise levels, the 8-hour L_{eq} may exceed 80 dBA up to approximately 660 feet of the helicopter activity. The yellow line shown in Figure 4-2 indicates the 660-foot buffer around the temporary construction areas where helicopters may operate.

Figure 4-1 Construction Noise Contours – L_{eq}(8-hr), dBA

Figure 4-2 80 dBA L_{eq}(8-hr) Contour For Helicopter Use in ROW



In addition to the substation construction there will be modifications to the fiber optic facilities connecting the substation to other parts of the SCE infrastructure. Figure 4-3 presents the fiber optic cable routes. Table 4-2 provides an estimate of the sound levels at 50 feet from the construction activities associates with the fiber optic cable construction. Number of equipment, duration at the site and typical usage factors were applied to estimate the sound exposure levels during a typical day. These activities would be limited to between one and two days at each location. Potential noise impacts would be reduced and controlled during equipment operation from noise reduction features (e.g., mufflers and engine shrouds) typically installed on SCE and SCE contractor equipment.

Table 4-2 Fiber Optic Cable Construction Sound Levels

Task	Duration	L_{eq}(8-hr), dBA at 50 feet	Distance to Los Angeles County L_{max} = 75 dBA, feet
Wood pole Replacement	1 day at pole Location	81	160
Cable Installation	< 1 hr at pole Location	66	90
Cable Removal	< 1 hr at pole Location	66	90
Trenching (saw cutting)	1 to 2 days	86	N/A
Trenching (no saw cutting)	1 to 2 days	83	90
Backfill and Repave Trench	1 to 2 days	83	N/A
Backfill Trench	1 to 2 days	79	90
Source: Federal Highway Administration, 2006; SCE.			

Underground conduit installation within the street will involve saw cutting, trenching activities, conduit installation, back filling and street surface replacement. Underground conduit installation in areas not under an existing paved street will just involve trenching, conduit installation, and then back filling. The activities include the following underground conduit installations (Trenching):

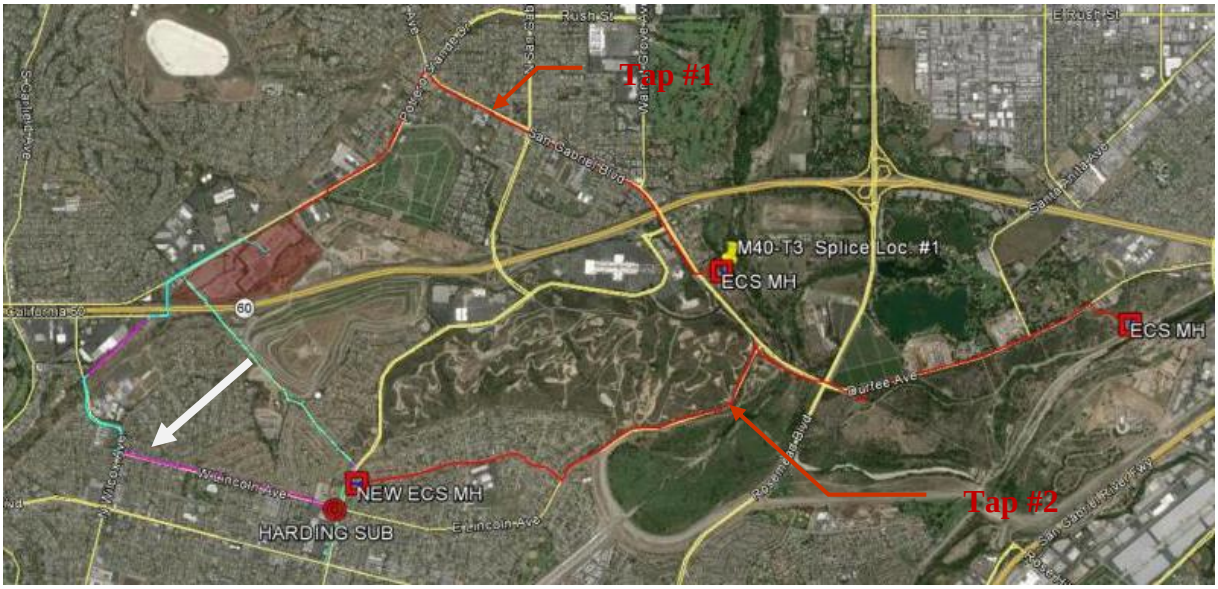
- 300 feet on W. Lincoln Avenue near Harding Substation (City of Montebello) The nearest residential land use is on the east side of Montebello Blvd, approximately 75 ft away. The Leq(8-hr) will be less than 85 dBA at the nearest noise sensitive land use during saw cutting activity.
- 650 feet on W Avenida De La Merced (City of Montebello) There are residential land uses on both sides of W Avenida De La Merced. The Leq(8-hr) will be less than 90 dBA at the nearest noise sensitive land use during saw cutting activity.
- 175 feet of conduit off of street surface near M40-T3 Splice east of San Gabriel Blvd, County of Los Angeles. There are two residences within approximately 70

feet of this location. No saw cutting will be required and the work will involve mainly a backhoe to trench and cover. The Leq(8-hr) will be less than 80 dBA at the nearest noise sensitive land use.

- 200 feet of conduit off of street surface near M38-T5 splice east of Duffee Avenue There are no residential land uses within 500 feet of this site. No saw cutting will be required and the work will involve mainly a backhoe to trench and cover.

The remaining activity will be installing or removing fiber optic cable in existing conduit or on existing poles over approximately 9.6 miles. The cable installation on poles will involve bucket trucks and cable pulling activity. Approximately 20% of the existing wood poles may need to be replaced following wind loading tests.

Figure 4-3 Fiber Optic Cable Work Areas



An existing overhead cable route that runs southeast from Mesa Substation to Harding Substation will be removed from existing poles and installed on existing poles (pink) and existing underground conduit (turquoise) as indicated by the white arrow in Figure 4-3. The fiber optic cable will be reinstalled to existing conditions following the completion of the Mesa substation build out.

TAP #1 and TAP #2 (red routes in Figure 4-3) include installing fiber optic cable on existing poles. New cross arms may need to be installed on new and existing poles to accommodate the fiber optic cable. The overhead work will involve bucket trucks on streets and progress at a rate of approximately 15 to 20 poles per day. The L_{eq}(8-hr) will be less than 70 dBA at the nearest noise sensitive land use.

In some cases wooden poles will need to be replaced (about 1 day duration for pole replacement). This will involve a boom truck, bucket truck, and auger truck. The L_{eq}(8-hr) will be less than 80 dBA at the nearest noise sensitive land use.

Operation

The most noticeable audible noise associated with normal substation operation consists of continuously radiated audible discrete tones generated by the substation's transformer banks. Cycling of the capacitors and associated circuit-breaker and switching operations can also cause short duration audible impulse noise with the magnitude varying with voltage, load, and operation speed. However, the noise generated by the cycling of the capacitors and associated circuit-breaker and switching operations is of very short duration (5 seconds or less), occurs only once or twice a year, and do not significantly contribute to the substation's overall noise level.

Based on transformer bank noise levels published in NEMA Standards Publication No. TR 1-1993 (R2000) and SCE Specification A1-2009, the transformer banks' noise levels would not exceed 84 / 86 / 88 dBA for each of the eleven 500/220 kV single phase transformers, 84 / 85 / 86 dBA for each of the three (3) 220/66 kV three phase transformers, and 68 dBA for each of the two 66/16 kV three phase transformers (Figure 4-4). These transformer sound levels are defined in NEMA Standards Publication No. TR 1-1993 (R2000) and IEEE Standard C57.12.90-2010 as the transformer bank's average sound pressure levels.

The combined operational noise levels from the transformer banks were calculated using the following transformer equipment data provided by SCE staff:

Table 4-3 Transformer Bank Design Data

Transformer Bank	kV Rating	Size, in [a)] L * W * H	Noise Level, dBA OA/FA/FOA [a), b)]
AA, singe phase	500/220	396 * 317 * 216	84 / 86 / 88
A, Three Phase	220/66	403 * 281 * 191	84 / 85 / 86
B, Three Phase	66/16	109 * 59 * 128	68

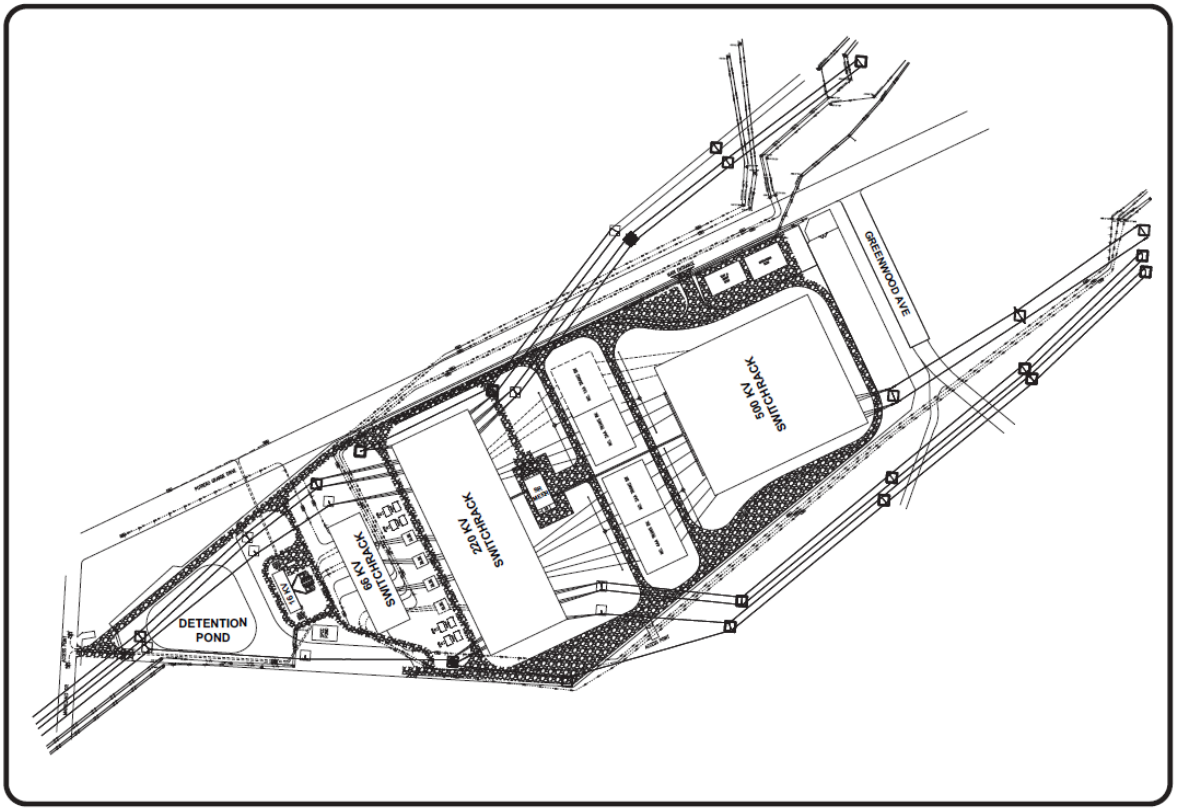
a) Data supplied by SCE

b) Oil cooled/forced air cooled/forced oil and forced air cooled. Measurement distance: 1 foot / 6 foot / 6 foot.

Using the highest transformer bank's average sound pressure levels, transformer dimensional information and proposed layout provided by SCE staff, the L_{eq} noise contours (lines of equal sound level) from the transformer banks simultaneously in operation were calculated using CadnaA noise model. For this analysis, the transformer banks locations were in accordance with the proposed substation layout (Figure 4-4).

The Noise model incorporated the 10-foot high wall along the periphery of the substation and 35-foot high firewalls between the AA transformer units.

Figure 4-4 Proposed Substation Layout



The noise model considers the spatial locations and sizes of noise sources, the elevation of sources and the surrounding topography, noise reduction resulting from obstructions such as buildings and walls, and ground and air absorption. The resulting noise contours are presented in Figure 4-5. The outline of the proposed substation perimeter wall is shown in black.

The symbols ( ) in Figure 4-5 correspond to the measurement locations in Figure 3-1. Noise from roads and highways and other existing noise sources are not included in the calculations. However, some roadways are shown on the figure to provide spatial reference. Figure 4-5 illustrates that the Proposed Project's calculated operational noise levels from all transformer banks do not exceed 55 dBA for residential land uses. Calculated noise levels at commercial/institutional buildings north of the substation in the City of Monterey Park are less than 60 dBA.

Corona noise from high voltage transmission lines is not expected to change as a result of the Proposed Project.

Figure 4-5 Operational L_{eq} Noise Contours, dBA

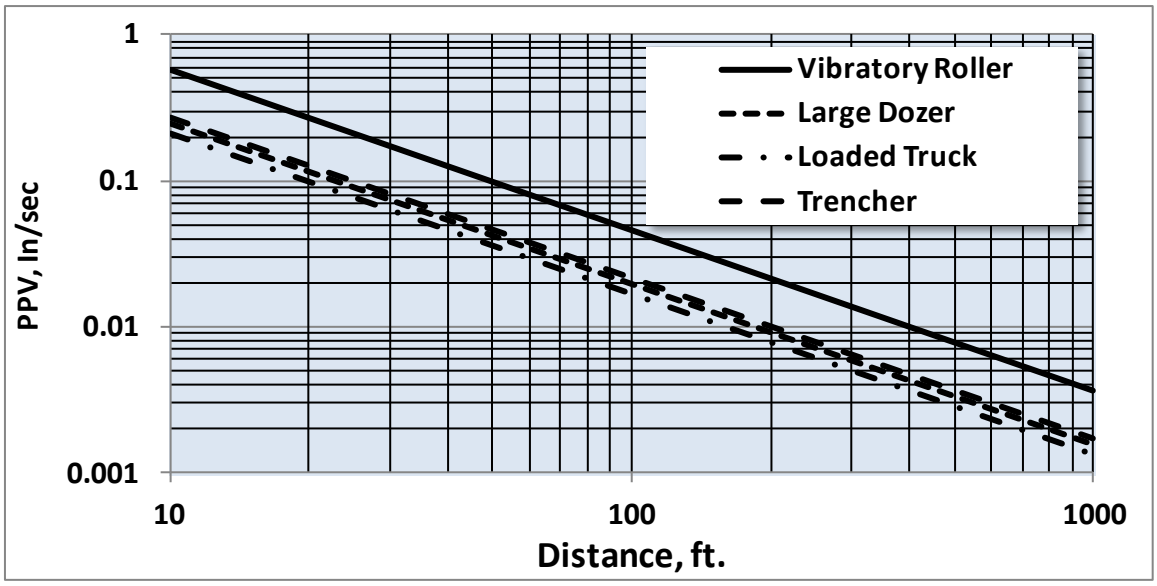
4.3 Vibration

4.3.1 Construction

The vibration amplitude decreases with distance from the source, as presented in Figure 4-6. Damage potential can be estimated by comparing the vibration damage potential threshold criteria provided previously in Table 2-2 Vibration Damage Threshold Guidance to the typical levels of vibration from construction equipment shown in below. Vibration levels beyond approximately 15 feet from construction activities are below the damage threshold for older and newer residential buildings.

Beyond approximately 60 feet from most construction activities vibration would be less than the Barely Perceptible threshold for transient vibration of 0.04 in/sec PPV. Beyond approximately 200 feet from most construction activities vibration would be less than Barely Perceptible threshold for continuous vibration of 0.01 in/sec PPV. The nearest residence is west of Potrero Grande Drive in Monterey Park, approximately 280 feet from the edge of the substation.

Figure 4-6 Construction Vibration Amplitudes



Source: Caltrans 2013

Construction activities would occur adjacent to residential property lines in some locations along the telecommunications line reroute; however, ground-disturbing activities in these areas would be minimal and in most cases more than 25 feet from any occupied structures. In addition, this work is anticipated to last one day in each location. Due to the short-term nature of this work and the limited activities, vibration may be perceptible, but persons would not be exposed to excessive groundborne

vibration. All other Proposed Project components would be located more than 25 feet from occupied structures.

4.3.2 Operation

Vibration during operation of the Mesa Substation may result from vehicles on site. Vibration levels beyond 25 feet from vehicle activities are below the damage threshold for older and newer residential buildings.

Transient vibration levels within approximately 10 feet of a loaded truck may be Distinctly Perceptible. The nearest residence is west of Potrero Grande Drive in Monterey Park, approximately 280 feet from the edge of the substation.

5. Impact Assessment

The impact assessment for the Proposed Project has been prepared in accordance with the CEQA impact significance guidelines for noise and vibration. According to the CEQA guidelines, a significant noise impact would occur if the project would result in:

1. 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.
2. Exposure of persons to or generation of excessive Groundborne vibration or Groundborne noise levels.
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
5. 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.
6. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

It should be noted that the CEQA guidelines do 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.

IMPACT SIGNIFICANCE 1

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?

Construction

The City of Monterey Park exempts construction or demolition work from noise level standards if these activities are limited to between the hours of seven a.m. and seven p.m. on weekdays and the hours of nine a.m. and six p.m. on Saturdays, Sundays and holidays. The City of Pasadena limits construction within 500 feet of a residential area to the hours from 7:00 a.m. to 7:00 p.m. on Monday through Friday; from 8:00 a.m. to 5:00 p.m. on Saturday and construction is prohibited on Sundays and holidays (New Year's Day, Martin Luther King Jr. Day, Lincoln's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving, and Christmas). Furthermore, the City of Pasadena limits

construction noise levels to 85 dBA measured 100 feet from the equipment. The City of Montebello limits construction to between 7 a.m. and 8 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturdays, Sundays, and legal holidays. The County of Los Angeles limits construction noise to 75 dBA Lmax at single family residential properties.

SCE and its contractors intend to conduct the construction and demolition activities within the time limit restrictions of the City of Monterey Park, the City of Montebello, Rosemead, South El Monte, Commerce, Bell Gardens and the City of Pasadena. As shown in Table 5-1 (Typical Noise levels of Construction Equipment), none of the construction equipment are expected to exceed 85 dBA at 100 ft. Consequently, under this CEQA criterion the impacts of the Proposed Project are ***less than significant*** in these municipalities. The impacts of the Proposed Project at times will be ***significant*** while construction occurs in areas within and adjacent to Los Angeles County.

Construction activities would typically be limited to the hours specified in the local municipal codes as adopted by the cities of Monterey Park, Montebello, Rosemead, South El Monte, Commerce, Bell Gardens, and Pasadena, as well as the County of Los Angeles. In the event construction activities are anticipated on days or hours outside of what is specified by the local ordinances (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, or if construction needs require continuous work)., SCE would route construction traffic away from residences, schools, and recreational facilities to the maximum extent feasible. SCE will also provide a five-day advance notification, including a general description of the work to be performed, location, and hours. Additionally, potential noise impacts would be further reduced and controlled during equipment operation from noise reduction features (e.g., mufflers and engine shrouds) typically installed on SCE and SCE contractor equipment. Consequently, under this CEQA criterion the impacts of the Proposed Project are ***less than significant***.

Fiber Optic Cable construction activities will occur during daytime hours when construction activities are permitted by local municipal codes. Under this CEQA criterion the impacts of the Proposed Project would be ***less than significant***.

Operation

The City of Montebello noise ordinance does not set noise limits for residential land uses but prohibits noise adjacent to any school, institution of learning, church or court while the same are in use, or adjacent to any medical facility, including but not limited to, a hospital, medical office, clinic, or any location where medical treatment is

rendered, which unreasonably interferes with the workings of such an institution, or which unreasonably disturbs the occupants of or visitors to these structures.

The City of Monterey Park Municipal Code lowest noise standard is 50 dBA for residential zoned land use during nighttime hours and 70 dBA for industrial land uses. Where the actual measured medium noise exceeds these standards, the measured noise level is used as the standard.

The calculated noise levels from operational transformer banks are compared in Table 5-1 Comparison of Transformer Bank Noise Levels to Noise Standards to the applicable noise standard for the measurement receptor locations.

Table 5-1 Comparison of Transformer Bank Noise Levels to Noise Standards

Receptor Locations	Calculated L_{eq}, dBA [a)]	Noise Standard, dBA
Shurr High School at Appian Way, Montebello	43 / ≤45 [b]	None
East of Bldg. W, Neil Armstrong St, Montebello	39 / ≤36	None
NW Corner of Potrero Grande Drive and E. Markland Drive, Monterey Park	48 / ≤50	58 [c]
1990 Holly Oak Drive, Monterey Park	53 / ≤50	50
Receivers within 480 ft. of I-210, Pasadena	58 [d]	58[c]

[a] Without APM-01 / With APM-01.
[b] ≤45 with 35-foot firewalls extended to provide a 3-sided enclosure around each Bank AA transformer unit. With quieter transformer option the level would be 43 dBA.
[c] Actual measured noise level is used since it is higher than City Standard assumed noise level.
[d] No change in noise levels are anticipated due to project.

The data in the above table illustrate that the project's operational noise levels would not exceed the City of Monterey Municipal Code's noise standards at the ambient measurement locations. However, Figure 4-5 Operational Leq Noise Contours, dBA, indicates that there are residences to the north of the Mesa Substation that exceed the City of Monterey Park noise limit of 50 dBA. Consequently, the operational impacts of the Proposed Project under this CEQA criterion would be ***potentially significant.*** Implementation of APM-1 will reduce impacts to ***less than significant***.

Figure 5-1 shows the noise contours with the implementation of 3-sided firewalls around the AA Transformer Bank. Figure 5-2 Operational Leq Noise Contours with 4 decibel Quieter Bank AA Transformers, dBA shows the noise contours with the purchase of 4 decibel quieter than the values in Table 4-3 Transformer Bank Design Data for the AA Transformer Bank.

The number of high voltage lines will remain the same and no increase in corona noise is anticipated, and there is ***no impact***.

No changes to the current operational noise levels at the Goodrich Station are anticipated and the operational impacts of the Proposed Project under this CEQA criterion would be ***less than significant***.

IMPACT SIGNIFICANCE 2

Would the Proposed Project expose persons to or generate excessive groundborne vibration or groundborne noise levels?

The nearest residence is approximately 280 feet from the edge of construction at Mesa Substation, and construction vibration will be less than 0.02 in/sec PPV. This is less than the "Distantly Perceptible" criterion of 0.04 in/sec PPV for continuous/frequent intermittent sources shown in Table 2-2 Vibration Damage Threshold Guidance. The nearest residence is over 280 feet from the nearest on-site roadway and operational vibration levels will be less than 0.01 in/sec PPV, less than the "Barely Perceptible," and are considered ***less than significant.***

Construction activities would occur adjacent to residential property lines in some locations along the telecommunications line reroute; however, ground-disturbing activities in these areas would be minimal and in most cases more than 25 feet from any occupied structures. In some cases the criteria of 0.01 in/sec PPV will be exceeded. This work is anticipated to last one day in each location. Due to the short-term nature of this work and the limited activities, vibration may be perceptible, but persons would not be exposed to excessive groundborne vibration. All other Proposed Project components would be located more than 25 feet from occupied structures. As a result, impacts would be ***less than significant***.

Consequently, the groundborne vibration or groundborne noise level impacts of the Proposed Project under this CEQA criterion are considered ***less than significant***.

Operation and maintenance activity would be similar to existing activities near the Mesa Substation and along the telecommunications lines; therefore vibration impacts are considered **l*ess than significant***.

IMPACT SIGNIFICANCE 3

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

Construction

The construction noise levels generated by the Proposed Project are considered to be temporary. Consequently, the construction noise level impacts of the Proposed Project under this CEQA criterion are considered to result in ***no impact***.

Operation

For operation, a substantial increase in ambient noise would be 5 dB. The data shown in Table 5-2 indicate that the only location where the operational noise levels exceed the lowest existing monitored noise levels would be at Holly Oak Drive in Monterey Park. Existing noise level at this location is exceeded by 3 dBA during the quietest hour. Consequently, the operational noise level impacts of the Proposed Project under this CEQA criterion are considered ***less than significant*** for the operation of Mesa Substation. Project noise at nearby residential land uses will not exceed the existing ambient noise levels by more than 5 dB and noise impacts are considered ***less than significant***.

SCE will implement APM-NOI-01 which entails providing an engineering solution to decrease the operational noise levels to 50 dBA, below the nighttime standard for the City of Monterey Park.

Figure 5-1 Operational L_{eq} Noise Contours with 3-Sided Firewalls, dBA

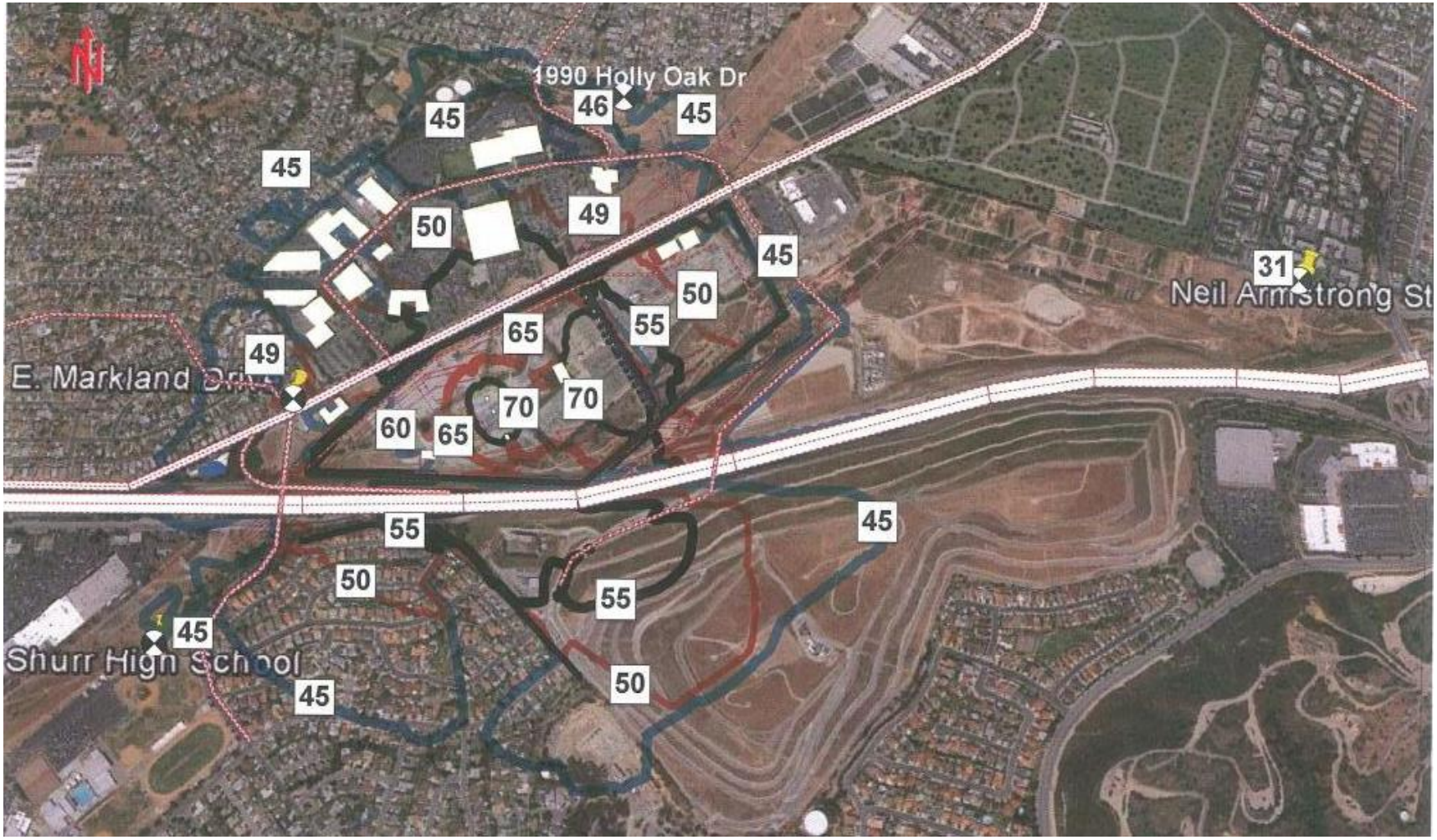


Figure 5-2 Operational L_{eq} Noise Contours with 4 decibel Quieter Bank AA Transformers, dBA

Table 5-2 Comparison of Calculated Transformer Bank Noise Levels to Measured Noise Levels

Receptor Locations	Calculated L_{eq}, dBA [a)]	Lowest Measured L_{eq}(1-hr), dBA
Shurr High School at Appian Way, Montebello	43 / ≤45 [b)]	56
East of Bldg. W, Neil Armstrong St, Montebello	39 / ≤36	49
NW Corner of Potrero Grande Drive and E. Markland Drive, Monterey Park	48/ ≤50	58
1990 Holly Oak Drive, Monterey Park	53 / ≤50	50
Receivers within 480 feet of I-210, Pasadena	58 [c)]	58

Notes: a) Without APM-01 / With APM-01.
b) ≤45 with 35-foot firewalls extended to provide a 3-sided enclosure around each Bank AA transformer unit. With quieter transformer option the level would be 432 dBA.
c) No change in noise levels anticipated as a result of Proposed Project

IMPACT SIGNIFICANCE 4

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

Construction

Construction activity will change throughout the day. A substantial increase over ambient would be a 12 decibel increase. The calculated L_{eq}(8-hr) construction noise levels for the noisiest construction period (excluding helicopter use) are compared to the average daytime noise levels measured at the nearest noise sensitive receptor locations in Table 5-3.

Table 5-3 Calculated Noise Levels from Construction Compared to Measured Noise Levels at Noise Sensitive Receptor Locations

Receptor Locations	Calculated L_{eq}(8-hr), dBA [a)]	Measured L_{eq}(daytime), dBA
Shurr High School at Appian Way, Montebello	66	62
East of Bldg. W, Neil Armstrong St, Montebello	48	55
NW Corner of Potrero Grande Drive and E. Markland Drive, Monterey Park	69	68
1990 Holly Oak Drive, Monterey Park	71	52
Receivers within 480 feet of I-210 and within 320 feet of construction activity, Pasadena	75	64

Notes: a) Represents noise contribution to existing environment.

The calculated average construction noise levels during the noisiest period of construction of the Proposed Project exceed the measured average daytime noise level by more than 12 decibels at residential land uses along the bluff overlooking the Project from the north (along Holly Oak Drive and the southern end of Palm Drive). Noise levels at Holly Oak Drive were estimated to be approximately 71 dBA during peak construction. Although the 19 dBA temporary increase in ambient noise levels at Holly Oak Drive in the City of Monterey Park would exceed the 12 dBA Caltrans guideline, the noise levels identified in this analysis are typically considered acceptable for construction activities during daytime hours and noise levels of 71 dBA are of the same magnitude as the those generated by dense traffic on a major avenue. Construction activities would typically be conducted during the hours that are exempt from the City of Monterey Park noise standards. In the event construction activities are anticipated on days or hours outside of what is specified by the local ordinances (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, or if construction needs require continuous work), SCE would route all construction traffic away from residences, schools, and recreational facilities to the maximum extent feasible. Additionally, potential noise impacts would be further reduced and controlled during equipment operation from noise reduction features (e.g., mufflers and engine shrouds) typically installed on SCE and SCE contractor equipment. Therefore, impacts are considered ***less-than-significant***.

Noise from telecommunications line construction activities will be temporary, localized, and intermittent. These activities will be primarily conducted along the residential streets within unicorporated Los Angeles County and the cities of South El Monte, Montebello, Monterey Park, and Rosemead. These activities will be directly adjacent to sensitive noise receptors and may be exposed to noise levels in excess of 80 dBA. While these noise lvels would exceedd the Caltrans construction noise threshold, these activities would be limited to between one and two days at each location. Potential noise impacts would be reduced and controlled during equipment operation from noise reduction features (e.g., mufflers and engine shrouds) typically installed on SCE and SCE contractor equipment, Therefore, impacts are considered ***less than significant***.

Construction activities would typically be limited to the hours specified in the local municipal codes as adopted by the cities of Monterey Park, Montebello, Rosemead, South El Monte, Commerce, Bell Gardens, and Pasadena, as well as the County of Los Angeles. In the event construction activities are anticipated on days or hours outside of what is specified by the local ordinances (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, or if construction needs require continuous work)., SCE would route all construction traffic away from residences, schools, and recreational facilities to the maximum extent feasible. Additionally, potential noise impacts would be further reduced and controlled during equipment operation from noise reduction features (e.g., mufflers and engine shrouds) typically installed on SCE and SCE contractor equipment. Impacts are considered ***less-than-significant***.

During some periods of construction helicopters could be used in the ROW, the red colored areas shown in Figure 4-2. When construction activities include helicopter operations, SCE would provide advance notice to all property owners within 660 feet of the Proposed Project helicopter operation areas. The announcement would state that the use of helicopters is anticipated and would provide the start date, anticipated completion date, hours of helicopter usage, and a telephone contact number for questions or complaints during construction. In addition, helicopters would maintain a height of at least 500 feet when passing over residential areas, as well as a lateral distance of at least 500 feet from all schools and hospital buildings, except when they are at construction areas or actively assisting with construction activities. In addition, helicopter activities would occur during the time periods allowed by the cities of Monterey Park and Montebello municipal codes. As a result, impacts are considered ***less than significant***.

IMPACT SIGNIFICANCE 5

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?

The Proposed Project is not located within an airport land use plan or within two miles of a public airport, resulting in ***no impact*** from public airport noise.

IMPACT SIGNIFICANCE 6

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?

The nearest airstrip to Mesa Substation is Goodyear Blimp Base Airport, which is located approximately 15 miles southwest of the Mesa Substation site, and approximately 23 miles southwest of Goodrich Substation. Therefore, there would be ***no impact.***

5.1 Applicant-Proposed Measures

This noise study concludes that the Proposed Project could potentially cause a significant noise impact at some noise sensitive receptor locations. To minimize these potential impacts, SCE has designed and would incorporate the following APM:

- **APM-01: Transformer Noise.** SCE would provide an engineering solution to decrease the operational noise of the substation transformers to 50 dBA or below, as measured at residential receptors. This may include the use of quieter transformers, a barrier wall, or another engineering solution. A feasible engineering solution will be incorporated during final engineering.

6. Project Alternative Impact Analysis

No alternatives were analyzed.

7. Cumulative Impact Analysis

Construction of Mesa Substation could occur simultaneously with seven of the projects listed in Table 7-1 Cumulative Projects Within One Mile. The simultaneous construction of these projects could result in a cumulative impact to overall noise levels when combined with the Proposed Project. The nearest proposed projects within the vicinity of the Mesa Substation site— the Monterey Park Market Place, the 2015 Potrero Grande Specific Plan, the South San Gabriel Bikeway Access Improvements, and the Durfee Avenue Construction Activity —are located adjacent to the Proposed Project. A temporary cumulative increase in noise could result when construction of these projects occurs simultaneously with construction of the Proposed Project.

Sensitive receptors are located in the surrounding residential neighborhoods to the north and west of the Mesa Substation site and to the west of the Goodrich Substation site. In addition, as addressed in Section 4.14, Public Services, there are a number of schools adjacent and within 1 mile of the Proposed Project, including the following:

- Schurr High School adjacent to the telecommunications line reroute between Mesa and Harding substations
- La Merced Intermediate School adjacent to the new telecommunications line from transmission tower M38-T5 to Mesa Substation
- Pasadena City College Community Education Center adjacent to the temporary 220 kV line loop-in at Goodrich Substation
- Don Bosco Technical Institute adjacent to the new telecommunications line from transmission tower M40-T3 to Mesa Substation

However, construction of these proposed projects will be limited to the timeframes established by the local noise ordinances. Construction of the Proposed Project will also largely occur during the approved timeframes. While some construction activities associated with the Proposed Project may occur outside of the established timeframes, it is not likely that other projects will be working outside of the established timeframes at the same time (if at all). Additionally, SCE would route all construction traffic away from residences, schools, and recreational facilities to the maximum extent feasible and potential noise impacts would be further reduced and controlled during equipment operation from noise reduction features (e.g., mufflers and engine shrouds) typically installed on SCE and contractor equipment. Therefore, a temporary cumulative noise impact is not anticipated to be significant.

Long-term operation of the proposed Mesa Substation has the potential to increase noise levels due to the new transformers being installed. Two nearby projects, the Monterey Park Market Place and the Montebello Hills Master Planned Community, also have the potential to increase noise after they have been constructed. As described in the projects' Environmental Impact Reports, long-term noise associated with these projects would not

adversely affect the same neighborhoods that would also be affected by the Proposed Project. Therefore, a permanent cumulative noise impact would not result.

Table 7-1 Cumulative Projects Within One Mile

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	2015 Mesa Substation 66 kV capacitor	Mesa Substation	Mesa Substation	0.0	Approved	2018
N/A	New Mesa Substation Distribution Substation Plan (DSP) circuit	Mesa Substation	Mesa Substation	0.0	Pending	2021
State Clearinghouse Number (SCN) 1999051058	Monterey Park Market Place: Approximately 600,000-square-foot commercial retail center, gas station, and 2,333 parking spaces at Greenwood Avenue and Potrero Grande Avenue	City of Monterey Park	New telecommunications line from transmission tower M40-T3 to Mesa Substation	Adjacent	Approved	2015 (Estimated Start)- 2016[3]
General Plan Amendment (GPA-) 13-02 Specific Plan (SP-) 13-02	2015 Potrero Grande Drive Specific Plan: 80 residential units on an approximately 9.15-acre parcel at 2015 Potrero Grande Drive	City of Monterey Park	New telecommunications line from transmission tower M40-T3 to Mesa Substation	Adjacent	Approved	2014-2016[4]

[3] The construction schedule was obtained from the Monterey Park Market Place developer.

[4] The construction schedule was obtained from the Mitigated Negative Declaration, adopted by the City of Monterey Park on February 5, 2014.

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
SP-13-01	500 East Markland Drive Specific Plan: An approximately 127,492-square-foot, four-story, public self-storage facility on approximately 1.12 acres at the southwest corner of Potrero Grande Drive and Markland Drive	City of Monterey Park	Telecommunications line reroute between Mesa and Harding substations	Adjacent	Approved	2014-2015[5]
N/A	Jay Imperial Park: Currently vacant Southern California Edison (SCE) transmission corridor properties along San Gabriel Boulevard would be redeveloped as open space, complete with walking trails, grass, native landscaping, and related amenities	City of Rosemead	New telecommunications line from transmission tower M40-T3 to Mesa Substation	Adjacent	Capital Improve-ment Project for the 2014-2015 fiscal year	--

[5] The construction schedule was obtained from City of Monterey Park staff.

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	Thienes Avenue (East): Cold milling existing asphalt concrete and asphalt concrete overlay; removal and replacement of damaged sidewalk, driveways, curbs and gutters; and other items, such as traffic striping, manhole, water, and gas valve adjustments on Durfee Avenue to County Park Entry and to San Gabriel River	City of South El Monte	New telecommunications line from transmission tower M38-T5 to Mesa Substation	Adjacent	Engineering Project for 2015	2015
N/A	South San Gabriel Bikeway Access Improvements: Installation of 2.43 miles of Class II Bike Lane and 1 mile of four- to three-lane road diet. Located on North San Gabriel Boulevard	Unincorporated Los Angeles County	New telecommunications line from transmission tower M40-T3 to Mesa Substation	Adjacent	Design	Construction estimated to begin in Spring 2017
SCN 2007081156	Tehachapi Renewable Transmission Project: Construction of Segments 7, 8, and 11 of approximately 173 miles of transmission line with upgrades to several substations	Various cities, including the cities of Monterey Park, Montebello, and Pasadena	--	Adjacent	Under construction	2010-2015

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	Harding Substation Elimination: Cutover 178 transformers from 4 kV to 16 kV and elimination of substation equipment at the Corner of Montebello Boulevard and Lincoln Avenue	City of Montebello	Telecommunications line reroute between Mesa and Harding substations	Adjacent	--	2015
N/A	Montebello Boulevard/Towne Center Drive Resurfacing Median and Landscape Enhancements: Resurfacing Montebello Boulevard and Towne Center Drive, landscaping medians on Montebello Boulevard and San Gabriel Boulevard and in public ROW areas adjacent to the California Department of Transportation maintenance yard	City of Rosemead	New telecommunications line from transmission tower M40-T3 to Mesa Substation	0.9, 0.42, and adjacent	Capital Improvement Project for the 2014-2015 fiscal year	--

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
SCN 2008011122	Montebello Hills Master Planned Community: An approximately 488-acre master planned community at Montebello Boulevard and Paramount Boulevard, including approximately 1,200 single-family residential units; approximately 315 acres of open space (including approximately 260 acres of federally protected habitat preserve, an approximately 5.5-acre public park, and approximately 13.5 acres of dedicated accessible trails and greenbelts); and an approximately 1.5-acre community center	City of Montebello	New telecommunications line from transmission tower M38-T5 to Mesa Substation	0.3	Draft EIR released in March 2009; Final EIR is being prepared	--
N/A	Durfee Avenue Construction Activity: 116-town home residential development; 6.02-acre gated community at 1181 Durfee Avenue	City of South El Monte	New telecommunications line from transmission tower M38-T5 to Mesa Substation	0.32	In construction	April 2014-Spring 2016

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	New distribution circuit required at the corner of Walnut Grove Avenue and Landis View Lane	City of Rosemead	New telecommunications line from transmission tower M40-T3 to Mesa Substation	0.4	--	2015
N/A	6039 Florence Avenue: 27,000-square-foot new store	City of Bell Gardens	Street light source line conversion from overhead to underground within Loveland Street	0.44	Preliminary Review	--
N/A	Cal Royal Products: 39,000-square-foot addition to existing 106,748-square-foot building at 6605 Flotilla Street	City of Commerce	Replacement of an existing lattice steel tower (LST) on the Goodrich-Laguna Bell 220 kV Transmission Line	0.56	Plan Check as of January 2, 2015	--
Project ID: RDC0015693	Allston Street Neighborhood: Preventative Maintenance to Allston Street Neighborhood	East Los Angeles	Replacement of an existing LST on the Goodrich-Laguna Bell 220 kV Transmission Line	0.64	Design	Estimated start: July 2017

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	Pace Apartments: 29 apartment units at 8540-8642 Beverly Boulevard	City of Pico Rivera	New telecommunications line from transmission tower M38-T5 to Mesa Substation	0.66	Project appeal denied for appeal by City Council on September 23, 2014. Conditional Use Permit denied by Planning Commis-sion on September 3, 2014	--

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
SCN 2007071094	Las Encinas Hospital Master Development Plan: Construction of a new psychiatric hospital and expansion of senior living services on an approximately 24.7-acre site, including the removal of approximately 44,398 square feet of existing structures and the construction of approximately 309,012 square feet of new structures, resulting in a total building square footage of approximately 528,505 square feet	City of Pasadena	Temporary 220 kV line loop-in at Goodrich Substation	0.7	Approved	Phase 1: October 2014-April 2016 Phase 2: April 2016-April 2017 Phase 3: July 2016-February 2017 Phase 4: May 2017-October 2017
N/A	Residential Development: 14-unit condominium at 3928 Rosemead Boulevard	City of Pico Rivera	New telecommunications line from transmission tower M38-T5 to Mesa Substation	0.71	Final Tract Map submitted to Public Works in October 2014	--
N/A	Florence Avenue Bridge Rehabilitation at Rio Hondo River: Rehabilitation of the Florence Avenue Bridge over the Rio Hondo River	City of Downey	Street light source line conversion from overhead to underground within Loveland Street	0.86	--	August 2016-March 2017

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	Garvey Avenue Specific Plan: Planned commercial, industrial, and residential development along Garvey Avenue, from New Avenue to San Gabriel Boulevard	City of Rosemead	New telecommunications line from transmission tower M40-T3 to Mesa Substation	0.97	Draft EIR expected in May 2015	--
SCN 2008081042	MTA-Interstate (I-) 710 Traffic/Freeway Project: Improvements to I-710	City of Bell Gardens	Street light source line conversion from overhead to underground within Loveland Street	0.98	Release Final I-710 Corridor Project EIR/EIS for public review and comment: Winter 2015/2016	--

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
IGR/CEQA No. 140538AL-MND Case no.: GPA 12-02, Zone Change (ZC) 12-02, Tentative Tract Map (TTM) 72529, Design Review (DR) 12-05, and Alley Vacation	Garvey Del Mar Mixed Use Project: Mixed use development located on 1.14 acres, including the demolition of all existing structures to construct a five-story, mixed use development with 15,553 square feet of retail/restaurant space on the basement/first and second floors and 60 residential units on the third through fifth floors, comprising 54,609 square feet, for a total built area of 70,162 square feet. Parking is proposed as a combination of surface and two stories of subterranean basement parking at 7801-7825 Garvey Avenue, 3012 Del Mar Avenue, and 3017 Brighton Street	City of Rosemead	New telecommunications line from transmission tower M40-T3 to Mesa Substation	0.99	Mitigated Negative Declaration approved by the Planning Commission in December 2014	--
N/A	Suva Street Bridge Rehabilitation at the Rio Hondo River: Rehabilitation of the Suva Street Bridge over the Rio Honda River (Los Angeles County Project)	City of Downey	Street light source line conversion from overhead to underground within Loveland Street	1.0	--	January 2016-June 2016

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	New distribution circuit required at the corner of Paramount Boulevard and Elba Street	City of Pico Rivera	New telecommunications line from transmission tower M38-T5 to Mesa Substation	1.0	--	2015
N/A	Pavement Rehabilitation Project: Resurfacing or reconstructing street sections (8.7 land miles) throughout the city and repair of damaged curb and gutter, driveway approaches, and sidewalks	City of Bell	--	--	Capital Improvement Project for 2014-2015 Fiscal Year	--
N/A	Slurry Seal Project: Apply asphaltic emulsion to various city streets in order to rejuvenate the existing pavement surface and extend the life of the existing asphalt concrete	City of Bell	--	--	Capital Improvement Project for the 2014-2015 Fiscal Year	--
N/A	Sidewalk Replacement: Part of the city's routine maintenance program to repair or replace damaged sidewalks throughout the city	City of Bell	--	--	Capital Improvement Project for the 2014-2015 Fiscal Year	--

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
Project number 3758	Project 2: Gallant/Lanto/Ajax/Ed Selinda/Gotham	City of Bell Gardens	Street light source line conversion from overhead to underground within Loveland Street	--	Design Complete	--
Project number 3768	Street Improvement Project: Lubec Street, El Selinda Avenue, and Adamson Avenue	City of Bell Gardens	Street light source line conversion from overhead to underground within Loveland Street	--	--	--
Project number 3763	Residential Street Rehabilitation Project: Suva/Live Oak/Loveland Street	City of Bell Gardens	Street light source line conversion from overhead to underground within Loveland Street	--	Design	--
N/A	Residential Street Resurfacing: Pavement rehabilitation of residential streets citywide	City of Downey	--	--	--	2014-2015

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	High Speed Rail: The California High-Speed Rail Authority is responsible for planning designing, building, and operation of the first high-speed rail system in the nation, and is currently refining alignment alternatives appropriate for the urban rail corridor from Los Angeles to Anaheim, and Los Angeles to San Diego	--	New telecommunications line from transmission tower M38-T5 to Mesa Substation	--	Design	--
SCN 2010011062	Metro Gold Line Extension: The Los Angeles County Metropolitan Transit Authority (Metro) is studying two light rail alternatives to extend the current Gold Line Eastside light rail beyond the Atlantic Station in East Los Angeles	To be determined	New telecommunications line from transmission tower M38-T5 to Mesa Substation	--	A draft EIR has been completed, and further analysis is required for both of the alternatives	--
N/A	Subtransmission Reconductor: 2.83 miles of reconductor on the Mesa-Laguna Bell – Narrows 66 kV line	City of Montebello	Telecommunications line reroute between Mesa and Harding substations	--	--	2015

Project Identification Number	Project Description	Location	Nearest Proposed Project Component	Approximate Distance to Proposed Project (Miles)	Status	Anticipated Construction Schedule
N/A	Subtransmission Reconductor: 0.58 mile of reconductoring on the Mesa-Rush No. 3 line. New line would tap off of Mesa-Rosemead No. 2 Line 1.5 miles to Rush Substation, located on the southeast corner of Walnut Grove Avenue and Rush Street	Between Mesa and Rush substations (within the cities of Monterey Park and Rosemead)	Telecommunications line reroute between Mesa and Harding substations	--	--	2015

Notes: “N/A” = Not Applicable; “--" = information not available.

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Appendix A

Typical Noise levels of Substation Construction Equipment

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
Survey (2 people) Phase 1-3	250	1-Survey Trucks(Gasoline)	10	1	74	10	64
Grading Phase 1 (14 people)	185	2-Dozer (Diesel)	10	2	85	40	93
		2-Loader (Diesel)	10	2	80	40	
		4-Scraper(Diesel)	10	4	85	40	
		2-Grader (Diesel)	10	2	85	40	
		4-Water Truck (Diesel)	10	4	80	40	
		1-Tool Truck(Gasoline)	10	1	75	40	
		3-Pickup 4X4 (Gasoline)	10	3	75	10	
		20- Haul Truck (Gasoline)	10	20	80	40	
Fencing Phase 1 Block Wall (16 people)	60	1-Bobcat (Diesel)	10	1	80	40	82
		1-Forklift(Propane)	10	1	80	40	
		1-4X4 Backhoe (Diesel)	10	1	80	40	
	15	1-Concrete Pump (Diesel)	6	1	82	20	
	60	1-Flatbed Truck (Gasoline)	2	1	75	40	
	60	1-Crewcab Truck (Gasoline)	2	1	75	20	
Civil Phase 1 (60 people)	140	3-Excavator (Diesel)	10	3	85	40	92
		3-Foundationauger(Diesel)	10	3	85	20	
		6-Backhoes (Diesel)	10	6	80	40	
		3-Dump truck (Diesel)	6	3	80	40	
		3-Skip Loader (Diesel)	10	3	80	40	
		3-Water Truck (Diesel)	10	3	80	40	
		4-Bobcat Skid Steer (Diesel)	10	4	80	40	
		4-Forklift(Propane)	6	4	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
	45	2-17TonCrane (Diesel)	5	2	80	16	
	20	1- Concrete Pump Trk (Diesel)	5	1	81	40	
	140	4-Tool Truck(Gasoline)	3	4	75	10	
MEER Phase 1 (50 people)	120	2-Carry-all Truck (Gasoline)	3	2	75	20	86
		5-tool truck (Gasoline)	2	5	75	10	
		1-Stake Truck (Gasoline)	5	1	75	10	
	60	1-20TonCrane (Diesel)	5	1	81	16	
	40	1- Concrete Pump Trk (Diesel)	5	1	81	20	
	120	3-Forklift(Propane)	5	3	80	40	
	60	2-Backhoes (Diesel)	10	2	80	40	
	60	1-Loader (Diesel)	10	1	80	40	
	60	2-Bobcat Skid Steer (Diesel)	10	2	80	40	
	60	2-Manlifts (Propane)	10	2	75	10	
	120	400KW Generator (Diesel)	12	1	82	50	
Electrical Phase 1 (50) people)	260	4-Scissor Lifts (Propane)	5	4	75	20	84
		4-Manlifts (Propane)	5	4	75	20	
		3-Reach Manlift (Propane)	5	3	75	20	
		2-15 Ton Crane (Diesel)	5	2	80	16	
	80	1-20 Ton Crane (Diesel)	10	1	81	16	
	100	1-50 Ton Crane (Diesel)	8	1	83	16	
	60	1-100 Ton Crane (Diesel)	8	1	85	16	
	260	1-Flatbed Truck (Gasoline)	5	1	74	40	
		2-Tool Trailer	3	2			

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		3-Forklift(Propane)	6	3	80	40	
		3-Crew Trucks(Gasoline)	2	3	75	20	
Wiring Phase 1 (50 people)	90	3-Manlift (Propane)	5	3	75	10	77
		2-Tool Trailer	3	2			
		3-Forklift (Propane)	3	3	80	40	
Maintenance Crew Equipment Check Phase 1 (5 people)	65	2-MaintenanceTrucks (Gasoline)	5	2	75	10	66
Testing Phase 1 (9 people)	200	4-Crew Truck (Gasoline)	3	4	75	20	70
Asphalting Phase 1 (15 people)	30	2-Paving Roller(Diesel)	5	2	80	20	78
		2-Stake Truck(Gasoline)	5	2	75	20	
		1-Dump Truck (Diesel)	5	1	80	40	
		1-Asphalt Curb Machine (Diesel)	3	1	80	20	
Test & Maintenance Building Phase 1(50 people)	150	2-Carry-all Truck (Gasoline)	3	2	75	20	85
		5-tool truck (Gasoline)	2	5	75	20	
		1-Stake Truck (Gasoline)	5	1	75	20	
	60	1-20TonCrane (Diesel)	5	1	81	16	
	40	1- Concrete Pump Trk (Diesel)	5	1	81	20	
	150	3-Forklift(Propane)	5	3	80	40	
	60	2-Backhoes (Diesel)	10	2	80	40	
	30	1-Loader (Diesel)	10	1	80	40	
	60	2-Bobcat Skid Steer (Diesel)	10	2	80	40	
		2-Manlifts (Propane)	10	2	75	10	
Control Building Phase 1	180	2-Carry-all Truck (Gasoline)	3	2	75	20	85

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
(50 people)		5-tool truck (Gasoline)	2	5	75	20	
		1-Stake Truck (Gasoline)	5	1	75	20	
	60	1-20Ton Crane (Diesel)	5	1	81	16	
	40	1- Concrete Pump Trk (Diesel)	5	1	81	20	
	180	3-Forklift (Propane)	5	3	80	40	
	60	2-Backhoes (Diesel)	10	2	80	40	
	30	1-Loader (Diesel)	10	1	80	40	
	60	2-Bobcat Skid Steer (Diesel)	10	2	80	40	
	60	2-Manlifts (Propane)	10	2	75	10	
Electrical Demo Phase 2 (20 people)	25	2-Manlifts (Propane)	6	2	75	10	81
		3-Reach Lift (Propane)	6	3	75	10	
		1-15 ton Crane (Diesel)	6	1	80	16	
		1-50 ton Crane (Diesel)	6	1	83	16	
		2-Tool Trailer	5	2			
		2-Forklift (Propane)	6	2	80	40	
		3-Crew Trucks (Gasoline)	2	3	75	20	
Civil Demo / Grading Phase 2 (14 people)	40	2-Excavator (Diesel)	10	2	81	40	90
		2-Backhoes (Diesel)	10	2	80	40	
		3-Dump truck (Diesel)	10	3	80	40	
		2-Skip Loader (Diesel)	10	2	80	40	
		2-Water Truck (Diesel)	10	2	75	40	
		2-Bobcat Skid Steer (Diesel)	10	2	80	40	
		2-Forklift (Propane)	6	2	80	40	

Activity and number of Personnel	Number of Work Days	Equipment		Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		2-Dozer	(Diesel)	10	2	82	40	
		2-Loader	(Diesel)	10	2	80	40	
		2-Scraper	(Diesel)	10	2	84	40	
		1-Grader	(Diesel)	10	1	83	40	
		3-Water Truck	(Diesel)	10	3	75	40	
Civil Installation Phase 2 (20 people)	60	2-Excavator	(Diesel)	10	2	81	40	88
		2-Foundationauger	(Diesel)	10	2	85	20	
		2-Backhoes	(Diesel)	10	2	80	40	
		3-Dump truck	(Diesel)	10	3	80	40	
		2-Skip Loader	(Diesel)	10	2	80	40	
		1-Water Truck	(Diesel)	10	1	75	40	
		2-Bobcat Skid Steer	(Diesel)	10	2	80	40	
		2-Forklift	(Propane)	5	2	80	40	
		1-Tool Trailer		5	1			
Electrical Phase 2 Including Wiring (50 people)	80	2-Scissor Lifts	(Propane)	10	2	75	10	84
		3-Manlifts	(Propane)	10	3	75	10	
		3-Reach Lift	(Propane)	10	3	75	10	
		1-15 ton Crane	(Diesel)	6	1	80	16	
		1-50 ton Crane	(Diesel)	10	1	83	16	
		1-100 ton Crane	(Diesel)	10	1	85	16	
		2-Tool Trailer		10	2			
		3-Forklift	(Propane)	6	3	80	40	
		3-Crew Trucks	(Gasoline)	5	3	75	20	
		1-Flatbed Truck	(Gasoline)	6	1	75	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
Maintenance Crew Equipment Check Phase 2 (3 people)	25	2-MaintenanceTrucks (Gasoline)	5	2	75	20	69
Testing Phase 2 (9 people)	100	4-Crew Truck (Gasoline)	3	4	75	20	70
Civil Demo / Grading Phase 3 (75 people)	100	3-Excavator (Diesel)	10	3	81	40	94
		4-Backhoes (Diesel)	10	4	80	40	
		4-Dump truck (Diesel)	10	4	80	40	
		3-Skip Loader (Diesel)	10	3	80	40	
		2-Water Truck (Diesel)	10	2	75	40	
		4-Bobcat Skid Steer (Diesel)	10	4	80	40	
		4-Forklift (Propane)	10	4	80	40	
		3-Dozer (Diesel)	10	3	82	40	
		2-Loader (Diesel)	10	2	80	40	
		6-Scraper (Diesel)	10	6	84	40	
		2-Grader (Diesel)	10	2	83	40	
		4-Water Truck (Diesel)	10	4	75	40	
		30- Haul Truck (Gasoline)	10	30	76	40	
Civil Installation Phase 3 (75 people)	175	4-Excavator (Diesel)	10	4	81	40	91
		4-Foundationauger (Diesel)	10	4	84	20	
		5-Backhoes (Diesel)	10	5	80	40	
		3-Dump truck (Diesel)	10	3	80	40	
		2-Skip Loader (Diesel)	10	2	80	40	
		4-Water Truck (Diesel)	10	4	75	40	
		6-Bobcat Skid Steer (Diesel)	10	6	80	40	
		3-Forklift (Propane)	5	3	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		2-Tool Trailer	2	2			
Electrical Phase 3 Including Wiring (80 people)	240	4-Scissor Lifts (Propane)	10	4	75	20	86
		4-Manlifts (Propane)	10	4	75	20	
		3-Reach Manlifts (Propane)	10	3	75	20	
		1-15 Ton Crane (Diesel)	6	1	80	16	
		1-20 Ton Crane (Diesel)	5	1	81	16	
	80	1-100Ton Crane (Diesel)	10	1	85	16	
	240	3-Tool Trailer	5	3			
		4-Forklift (Propane)	7	4	80	40	
		3-Crew Trucks (Gasoline)	7	3	75	20	
		1-Flatbed Truck (Gasoline)	7	1	75	40	
	120	500 KW Generator (Diesel)	10	1	82	50	
Maintenance Crew Equipment Check Phase 3 (5 people)	80	3-MaintenanceTrucks (Gasoline)	5	3	75	20	71
Testing Phase 3 (9 people)	360	4-Crew Truck (Gasoline)	3	4	75	20	70
Asphalting & Fencing Phase 3 (25 people)	40	2-Paving Roller (Diesel)	10	2	80	20	85
		1-Asphalt Paver (Diesel)	10	1	77	50	
		2-Stake Truck (Gasoline)	5	2	75	20	
		1-Tractor (Diesel)	10	1	84	40	
		1-Dump Truck (Diesel)	10	1	76	40	
	90	2-Crew Trucks (Gasoline)	2	2	75	20	
	40	1-Asphalt Curb Machine (Diesel)	10	1	80	50	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
	40	1-Concrete Pump (Diesel)	10	1	81	20	
	60	1-Forklift (Propane)	6	1	80	40	
	90	1-Backhoe (Diesel)	10	1	80	40	
Fiber Optic Cable Installation	1176	Pickup Truck	10	4	75	20	75
		Man Lift	10	2	75	10	
Fiber Optic/Copper Cable Removal	262	Pickup Truck	10	4	75	20	76
		Man Lift	10	2	75	20	
Splicing & Testing		Pickup Truck	5	2	75	20	69
Install Underground Cable	130	Pickup Truck	6	2	75	20	78
		Manlift	6	1	75	10	
		Boom/Crane Truck	6	2	80	16	
		Wire Truck/Trailer	6	2			
		Pulling Machine	6	1	80	40	
Splice Underground Cable (31)	130	Pickup Truck	6	1	75	20	72
		Splice Truck	6	2	75	20	
Survey	1183	Pickup Truck	10	2	75	20	71
Construction and Materials Yard	1163	Pickup Truck	4	1	75	20	78
		Forklift	5	1	80	40	
		Boom/Crane Truck	5	1	80	16	
		Water Truck	10	1	80	16	
		Flat Bed Truck/Trailer	6	1	74	40	
R/W Clearing	18	Pickup Truck	10	2	75	20	87
		Backhoe/Front Loader	7	2	79	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Dozer	7	2	84	40	
		Grader	7	2	84	40	
		Water Truck	9	2	80	40	
		Flat Bed Truck/Trailer	5	2	74	40	
Roads & Landing Work	26	Pickup Truck	5	2	75	20	88
		Backhoe/Front Loader	7	2	79	40	
		Dozer	7	2	84	40	
		Grader	5	2	84	40	
		Water Truck	10	2	80	40	
		Drum Type Compactor	5	2	74	40	
		Excavator	7	2	83	40	
		Flat Bed Truck/Trailer	4	2	74	40	
Wet Crossing Installation	6	Pickup Truck	10	2	75	20	85
		Excavator	10	1	83	40	
		Backhoe/Front Loader	10	1	79	40	
		Loader	10	1	80	40	
		Dump Truck	10	1	80	40	
		Water Truck	10	1	80	40	
		Concrete Mixer Truck	10	1	82	40	
		Flat Bed Truck/Trailer	10	1	74	40	
A-Guard Structure Installation	19	Pickup Truck	8	1	75	20	86
		Pickup Truck	8	1	75	20	
		Compressor Trailer	7	2	79	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Manlift	5	2	75	20	
		Boom/Crane Truck	8	2	83	16	
		Water Truck	10	2	80	40	
		Auger Truck	8	2	85	20	
		Flat Bed Pole Truck	8	2	74	40	
B-Guard Structure Installation	4	Pickup Truck	8	1	75	20	86
		Pickup Truck	8	1	75	20	
		Compressor Trailer	7	2	79	40	
		Manlift	5	2	75	20	
		Boom/Crane Truck	8	2	83	16	
		Water Truck	10	2	80	40	
		Auger Truck	8	2	85	20	
		Flat Bed Pole Truck	8	2	74	40	
C-Guard Structure Installation	4	Pickup Truck	8	1	75	20	86
		Pickup Truck	8	1	75	20	
		Compressor Trailer	7	2	79	40	
		Manlift	5	2	75	20	
		Boom/Crane Truck	8	2	83	16	
		Water Truck	10	2	80	40	
		Auger Truck	8	2	85	20	
		Flat Bed Pole Truck	8	2	74	40	
A-Shoo-fly Pole Haul	5	Pickup Truck	10	1	75	20	81
		Water Truck	10	1	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Boom/Crane Truck	8	2	83	16	
		Flat Bed Pole Truck	10	2	74	40	
B-Shoo-fly Pole Haul	2	Pickup Truck	10	1	75	20	81
		Water Truck	10	1	80	40	
		Boom/Crane Truck	8	2	83	16	
		Flat Bed Pole Truck	10	2	74	40	
A-Shoo-fly Pole Assembly	3	Pickup Truck	10	2	75	20	81
		Compressor Trailer	10	1	79	40	
		Pickup Truck	10	2	75	20	
		Water Truck	10	1	80	40	
		Boom/Crane Truck	10	1	83	16	
B-Shoo-fly Pole Assembly	1	Pickup Truck	10	2	75	20	81
		Compressor Trailer	10	1	79	40	
		Pickup Truck	10	2	75	20	
		Water Truck	10	1	80	40	
		Boom/Crane Truck	10	1	83	16	
A-Install Shoo-fly Pole	6	Pickup Truck	6	2	75	20	86
		Manlift	10	2	79	40	
		Boom/Crane Truck	7	2	83	16	
		Auger Truck	8	2	85	20	
		Water Truck	10	2	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Flat Bed Pole Truck	6	2	74	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
B-Install Shoo-fly Pole	1	Pickup Truck	6	2	75	20	86
		Manlift	10	2	75	20	
		Boom/Crane Truck	7	2	83	16	
		Auger Truck	8	2	85	20	
		Water Truck	10	2	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Flat Bed Pole Truck	6	2	74	40	
A-Install Shoo-fly Conductor	11	Pickup Truck	10	2	75	20	87
		Pickup Truck	10	2	75	20	
		Manlift	10	2	75	20	
		Boom/Crane Truck	10	2	83	16	
		Medium Crane	10	2	84	16	
		Wire Truck/Trailer	10	1	80	40	
		Pulling Machine	10	1	80	20	
		Pulling Machine	10	1	80	20	
		Conductor Splicing Rig	10	1	75	10	
		Fiber Splicing Lab	10	1			
		Spacing Cart	10	4			
		Backhoe/Front Loader	8	2	79	40	
		Dozer	8	1	84	40	
		Dozer	10	1	84	40	
		Flat Bed Truck/Trailer	10	2	74	40	
	3	Pickup Truck	10	2	75	20	87

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
B-Install Shoo-fly Conductor		Pickup Truck	10	2	75	20	
		Manlift	10	2	75	20	
		Boom/Crane Truck	10	2	83	16	
		Medium Crane	10	2	84	16	
		Wire Truck/Trailer	10	1	80	40	
		Pulling Machine	10	1	80	20	
		Pulling Machine	10	1	80	20	
		Conductor Splicing Rig	10	1	75	10	
		Fiber Splicing Lab	10	1			
		Spacing Cart	10	4			
		Backhoe/Front Loader	8	2	79	40	
		Dozer	8	1	84	40	
		Dozer	10	1	84	40	
		Flat Bed Truck/Trailer	10	2	74	40	
A-Remove Existing Conductor & GW (11) – 500 kV, 220 kV & 66 kV	15	Pickup Truck	10	4	75	20	86
		Manlift	10	4	75	20	
		Boom/Crane Truck	10	2	83	16	
		Dozer	5	1	84	40	
		Dozer	5	1	84	40	
		Pulling Machine	5	1	80	20	
		Pulling Machine	5	1	80	20	
		Pulling Machine	5	1	80	20	
		Flat Bed Truck/Trailer	2	2	74	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Water Truck	6	2	80	40	
		Flat Bed Truck/Trailer	4	4	74	40	
B-Remove Existing Conductor & GW (11) – 500 kV, 220 kV & 66 kV	57	Pickup Truck	10	4	75	20	86
		Manlift	10	4	75	20	
		Boom/Crane Truck	10	2	83	16	
		Dozer	5	1	84	40	
		Dozer	5	1	84	40	
		Pulling Machine	5	1	80	20	
		Pulling Machine	5	1	80	20	
		Pulling Machine	5	1	80	20	
		Flat Bed Truck/Trailer	2	2	74	40	
		Water Truck	6	2	80	40	
		Flat Bed Truck/Trailer	4	4	74	40	
C-Remove Existing Conductor & GW (11) – 500 kV, 220 kV & 66 kV	14	Pickup Truck	10	4	75	20	86
		Manlift	10	4	75	20	
		Boom/Crane Truck	10	2	83	16	
		Dozer	5	1	84	40	
		Dozer	5	1	84	40	
		Pulling Machine	5	1	80	20	
		Pulling Machine	5	1	80	20	
		Pulling Machine	5	1	80	20	
		Flat Bed Truck/Trailer	2	2	74	40	
		Water Truck	6	2	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Flat Bed Truck/Trailer	4	4	74	40	
D-Remove Existing Conductor & GW (11) – 500 kV, 220 kV & 66 kV	8	Pickup Truck	10	4	75	20	86
		Manlift	10	4	75	20	
		Boom/Crane Truck	10	2	83	16	
		Dozer	5	1	84	40	
		Dozer	5	1	84	40	
		Pulling Machine	5	1	80	20	
		Pulling Machine	5	1	80	20	
		Pulling Machine	5	1	80	20	
		Flat Bed Truck/Trailer	2	2	74	40	
		Water Truck	6	2	80	40	
		Flat Bed Truck/Trailer	4	4	74	40	
A-LST Removal (12) – 500kV, 220 kV & 66 kV	6	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Dump Truck	6	1	80	40	
		Medium Crane	5	2	84	16	
		Large Crane	7	2	85	16	
		Flat Bed Truck/Trailer	10	2	74	40	
B-LST Removal (12) – 500kV, 220 kV & 66 kV	9	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Dump Truck	6	1	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Medium Crane	5	2	84	16	
		Large Crane	7	2	85	16	
		Flat Bed Truck/Trailer	10	2	74	40	
C-LST Removal (12) – 500kV, 220 kV & 66 kV	6	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Dump Truck	6	1	80	40	
		Medium Crane	5	2	84	16	
		Large Crane	7	2	85	16	
		Flat Bed Truck/Trailer	10	2	74	40	
D-LST Removal (12) – 500kV, 220 kV & 66 kV	1	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Dump Truck	6	1	80	40	
		Medium Crane	5	2	84	16	
		Large Crane	7	2	85	16	
		Flat Bed Truck/Trailer	10	2	74	40	
A-LST Foundation Removal (13) – 500kV, 220 kV & 66 kV	5	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Dump Truck	10	2	80	40	
		Excavator	10	1	83	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
B-LST Foundation Removal (13) – 500kV, 220 kV & 66 kV	10	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Dump Truck	10	2	80	40	
		Excavator	10	1	83	40	
C-LST Foundation Removal (13) – 500kV, 220 kV & 66 kV	6	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Dump Truck	10	2	80	40	
		Excavator	10	1	83	40	
D-LST Foundation Removal (13) – 500kV, 220 kV & 66 kV	2	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Dump Truck	10	2	80	40	
		Excavator	10	1	83	40	
A-TSP Removal (14) – 220 kV & 66 kV	2	Pickup Truck	8	2	75	20	83
		Pickup Truck	8	2	75	20	
		Water Truck	10	1	80	40	
		Compressor Trailer	10	2	79	40	
		Large Crane	7	2	85	16	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
B-TSP Removal (14) – 220 kV & 66 kV	3	Pickup Truck	8	2	75	20	83
		Pickup Truck	8	2	75	20	
		Water Truck	10	1	80	40	
		Compressor Trailer	10	2	79	40	
		Large Crane	7	2	85	16	
C-TSP Removal (14) – 220 kV & 66 kV	2	Pickup Truck	8	2	75	20	83
		Pickup Truck	8	2	75	20	
		Water Truck	10	1	80	40	
		Compressor Trailer	10	2	79	40	
		Large Crane	7	2	85	16	
A-TSP Foundation Removal (15) – 220 kV & 66 kV	4	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Dump Truck	10	2	80	40	
		Excavator	10	1	83	40	
B-TSP Foundation Removal (15) – 220 kV & 66 kV	5	Pickup Truck	8	2	75	20	85
		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Dump Truck	10	2	80	40	
		Excavator	10	1	83	40	
	2	Pickup Truck	8	2	75	20	85

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
C-TSP Foundation Removal (15) – 220 kV & 66 kV		Compressor Trailer	10	2	79	40	
		Water Truck	10	1	80	40	
		Backhoe/Front Loader	10	2	79	40	
		Dump Truck	10	2	80	40	
		Excavator	10	1	83	40	
66 kV Pole Removal (16)	13	Pickup Truck	8	2	75	20	81
		Compressor Trailer	10	1	79	40	
		Manlift	7	2	75	20	
		Boom/Crane Truck	7	2	83	16	
		Flat Bed Pole Truck	10	2	74	40	
A-Install LST Foundations	28	Pickup Truck	5	2	75	20	89
		Boom/Crane Truck	7	2	83	16	
		Backhoe/Front Loader	10	2	79	40	
		Auger Truck	10	2	85	20	
		Water Truck	10	2	80	40	
		Dump Truck	10	4	80	40	
		Concrete Mixer Truck	7	4	82	40	
B-Install LST Foundations	26	Pickup Truck	5	2	75	20	89
		Boom/Crane Truck	7	2	83	16	
		Backhoe/Front Loader	10	2	79	40	
		Auger Truck	10	2	85	20	
		Water Truck	10	2	80	40	
		Dump Truck	10	4	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Concrete Mixer Truck	7	4	82	40	
C-Install LST Foundations	5	Pickup Truck	5	2	75	20	89
		Boom/Crane Truck	7	2	83	16	
		Backhoe/Front Loader	10	2	79	40	
		Auger Truck	10	2	85	20	
		Water Truck	10	2	80	40	
		Dump Truck	10	4	80	40	
		Concrete Mixer Truck	7	4	82	40	
A-LST Steel Haul	4	Pickup Truck	10	1	75	20	82
		Water Truck	10	1	80	40	
		Forklift	8	2	80	40	
		Flat Bed Truck/Trailer	10	2	74	40	
B-LST Steel Haul	4	Pickup Truck	10	1	75	20	82
		Water Truck	10	1	80	40	
		Forklift	8	2	80	40	
		Flat Bed Truck/Trailer	10	2	74	40	
A-LST Steel Assembly	40	Pickup Truck	5	2	75	20	84
		Pickup Truck	5	2	75	20	
		Compressor Trailer	7	2	79	40	
		Forklift	7	2	80	40	
		Large Crane	10	2	85	16	
B-LST Steel Assembly	34	Pickup Truck	5	2	75	20	84
		Pickup Truck	5	2	75	20	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Compressor Trailer	7	2	79	40	
		Forklift	7	2	80	40	
		Large Crane	10	2	85	16	
C-LST Steel Assembly	7	Pickup Truck	5	2	75	20	84
		Pickup Truck	5	2	75	20	
		Compressor Trailer	7	2	79	40	
		Forklift	7	2	80	40	
		Large Crane	10	2	85	16	
A-LST Erection	36	Pickup Truck	8	2	75	20	86
		Pickup Truck	8	2	75	20	
		Water Truck	10	2	80	40	
		Compressor Trailer	7	4	79	40	
		Medium Crane	7	2	84	16	
		Large Crane	7	2	85	16	
B-LST Erection	34	Pickup Truck	8	2	75	20	86
		Pickup Truck	8	2	75	20	
		Water Truck	10	2	80	40	
		Compressor Trailer	7	4	79	40	
		Medium Crane	7	2	84	16	
		Large Crane	7	2	85	16	
C-LST Erection	8	Pickup Truck	8	2	75	20	86
		Pickup Truck	8	2	75	20	
		Water Truck	10	2	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Compressor Trailer	7	4	79	40	
		Medium Crane	7	2	84	16	
		Large Crane	7	2	85	16	
A-Install TSP Foundations (21) – 220 kV & 66 kV	45	Pickup Truck	5	4	75	20	90
		Boom/Crane Truck	7	2	83	16	
		Backhoe/Front Loader	10	2	79	40	
		Auger Truck	10	2	85	20	
		Water Truck	10	2	80	40	
		Dump Truck	10	2	80	40	
		Concrete Truck	6	10	82	40	
B-Install TSP Foundations (21) – 220 kV & 66 kV	7	Pickup Truck	5	4	75	20	90
		Boom/Crane Truck	7	2	83	16	
		Backhoe/Front Loader	10	2	79	40	
		Auger Truck	10	2	85	20	
		Water Truck	10	2	80	40	
		Dump Truck	10	2	80	40	
		Concrete Truck	6	10	82	40	
C-Install TSP Foundations (21) – 220 kV & 66 kV	7	Pickup Truck	5	4	75	20	90
		Boom/Crane Truck	7	2	83	16	
		Backhoe/Front Loader	10	2	79	40	
		Auger Truck	10	2	85	20	
		Water Truck	10	2	80	40	
		Dump Truck	10	2	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Concrete Truck	6	10	82	40	
A-TSP Haul (22) – 220 kV & 66 kV	9	Pickup Truck	8	1	75	20	81
		Water Truck	10	1	80	40	
		Boom/Crane Truck	8	2	83	16	
		Flat Bed Pole Truck	10	2	74	40	
B-TSP Haul (22) – 220 kV & 66 kV	1	Pickup Truck	8	1	75	20	81
		Water Truck	10	1	80	40	
		Boom/Crane Truck	8	2	83	16	
		Flat Bed Pole Truck	10	2	74	40	
C-TSP Haul (22) – 220 kV & 66 kV	3	Pickup Truck	8	1	75	20	81
		Water Truck	10	1	80	40	
		Boom/Crane Truck	8	2	83	16	
		Flat Bed Pole Truck	10	2	74	40	
A-TSP Assembly (23) – 220 kV & 66 kV	8	Pickup Truck	6	2	75	20	82
		Pickup Truck	6	2	75	20	
		Water Truck	10	1	80	40	
		Compressor Trailer	6	2	79	40	
		Boom/Crane Truck	7	2	83	16	
B-TSP Assembly (23) – 220 kV & 66 kV	2	Pickup Truck	6	2	75	20	82
		Pickup Truck	6	2	75	20	
		Water Truck	10	1	80	40	
		Compressor Trailer	6	2	79	40	
		Boom/Crane Truck	7	2	83	16	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
C-TSP Assembly (23) – 220 kV & 66 kV	1	Pickup Truck	6	2	75	20	82
		Pickup Truck	6	2	75	20	
		Water Truck	10	1	80	40	
		Compressor Trailer	6	2	79	40	
		Boom/Crane Truck	7	2	83	16	
A-TSP Erection (24) – 220 kV & 66 kV	8	Pickup Truck	6	2	75	20	83
		Pickup Truck	6	2	75	20	
		Water Truck	10	1	80	40	
		Compressor Trailer	6	2	79	40	
		Large Crane	7	2	85	16	
B-TSP Erection (24) – 220 kV & 66 kV	2	Pickup Truck	6	2	75	20	83
		Pickup Truck	6	2	75	20	
		Water Truck	10	1	80	40	
		Compressor Trailer	6	2	79	40	
		Large Crane	7	2	85	16	
C-TSP Erection (24) – 220 kV & 66 kV	2	Pickup Truck	6	2	75	20	83
		Water Truck	10	1	80	40	
		Compressor Trailer	6	2	79	40	
		Large Crane	7	2	85	16	
A-Install/Transfer Conductor (25) – 500 kV, 220 kV & 66 kV	111	Pickup Truck	10	2	75	20	88
		Pickup Truck	10	2	75	20	
		Manlift	10	2	75	20	
		Boom/Crane Truck	10	2	83	16	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Medium Crane	10	2	84	16	
		Wire Truck/Trailer	10	1	80	40	
		Pulling Machine	10	1	80	40	
		Pulling Machine	10	1	80	40	
		Conductor Splicing Rig	10	1	75	20	
		Fiber Splicing Lab	10	1			
		Spacing Cart	10	4			
		Backhoe/Front Loader	8	2	79	40	
		Dozer	8	1	84	40	
		Dozer	10	1	84	40	
		Flat Bed Truck/Trailer	10	2	79	40	
		Helicopter	7	0	103	40	
		Fuel Truck	7	1	74	40	
B-Install/Transfer Conductor (25) – 500 kV, 220 kV & 66 kV	48	Pickup Truck	10	2	75	20	88
		Pickup Truck	10	2	75	20	
		Manlift	10	2	75	20	
		Boom/Crane Truck	10	2	83	16	
		Medium Crane	10	2	84	16	
		Wire Truck/Trailer	10	1	80	40	
		Pulling Machine	10	1	80	40	
		Pulling Machine	10	1	80	40	
		Conductor Splicing Rig	10	1	75	10	
		Fiber Splicing Lab	10	1			

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Spacing Cart	10	4			
		Backhoe/Front Loader	8	2	79	40	
		Dozer	8	1	84	40	
		Dozer	10	1	84	40	
		Flat Bed Truck/Trailer	10	2	79	40	
		Helicopter	7	0	103	40	
		Fuel Truck	7	1	74	40	
C-Install/Transfer Conductor (25) – 500 kV, 220 kV & 66 kV	64	Pickup Truck	10	2	75	20	88
		Pickup Truck	10	2	75	20	
		Manlift	10	2	75	20	
		Boom/Crane Truck	10	2	83	16	
		Medium Crane	10	2	84	16	
		Wire Truck/Trailer	10	1	80	40	
		Pulling Machine	10	1	80	40	
		Pulling Machine	10	1	80	40	
		Conductor Splicing Rig	10	1	75	10	
		Fiber Splicing Lab	10	1			
		Spacing Cart	10	4			
		Backhoe/Front Loader	8	2	79	40	
		Dozer	8	1	84	40	
		Dozer	10	1	84	40	
		Flat Bed Truck/Trailer	10	2	79	40	
		Helicopter	7	0	103	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Fuel Truck	7	1	74	40	
D-Install/Transfer Conductor (25) – 500 kV, 220 kV & 66 kV	21	Pickup Truck	10	2	75	20	88
		Pickup Truck	10	2	75	20	
		Manlift	10	2	75	20	
		Boom/Crane Truck	10	2	83	16	
		Medium Crane	10	2	84	16	
		Wire Truck/Trailer	10	1	80	40	
		Pulling Machine	10	1	80	40	
		Pulling Machine	10	1	80	40	
		Conductor Splicing Rig	10	1	75	10	
		Fiber Splicing Lab	10	1			
		Spacing Cart	10	4			
		Backhoe/Front Loader	8	2	79	40	
		Dozer	8	1	84	40	
		Dozer	10	1	84	40	
		Flat Bed Truck/Trailer	10	2	79	40	
		Helicopter	7	0	103	40	
		Fuel Truck	7	1	74	40	
A-Shoo-fly Pole Removal	3	Pickup Truck	6	2	75	20	83
		Compressor Trailer	6	2	79	40	
		Water Truck	10	1	80	40	
		Manlift	10	2	75	20	
		Boom/Crane Truck	7	2	83	16	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Flat Bed Truck/Trailer	6	2	74	40	
B-Shoo-fly Pole Removal	1	Pickup Truck	6	2	75	20	83
		Compressor Trailer	6	2	79	40	
		Water Truck	10	1	80	40	
		Manlift	10	2	75	20	
		Boom/Crane Truck	7	2	83	16	
		Flat Bed Truck/Trailer	6	2	74	40	
A-Remove Shoo-fly Conductor & GW (27)	17	Pickup Truck	10	2	75	20	85
		Manlift	10	2	75	20	
		Sleeving Truck	5	2	80	20	
		Boom/Crane Truck	5	4	83	16	
		Pulling Machine	5	2	80	40	
		Flat Bed Truck/Trailer	2	2	74	40	
		Pulling Machine	5	2	80	40	
		Water Truck	10	1	80	40	
		Flat Bed Truck/Trailer	10	2	74	40	
B-Remove Shoo-fly Conductor & GW	3	Manlift	10	2	75	20	85
		Sleeving Truck	5	2	80	20	
		Boom/Crane Truck	5	4	83	16	
		Pulling Machine	5	2	80	40	
		Flat Bed Truck/Trailer	2	2	80	40	
		Pulling Machine	5	2	80	40	
		Water Truck	10	1	80	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Flat Bed Truck/Trailer	10	2	74	40	
A-Guard Structure Removal	15	Pickup Truck	7	2	75	20	84
		Pickup Truck	7	8	75	20	
		Compressor Trailer	7	2	79	40	
		Water Truck	10	1	80	40	
		Manlift	5	2	75	20	
		Boom/Crane Truck	10	2	83	16	
		Flat Bed Pole Truck	7	2	74	40	
B-Guard Structure Removal	1	Pickup Truck	7	2	75	20	84
		Pickup Truck	7	8	75	20	
		Compressor Trailer	7	2	79	40	
		Water Truck	10	1	80	40	
		Manlift	5	2	75	20	
		Boom/Crane Truck	10	2	83	16	
		Flat Bed Pole Truck	7	2	74	40	
Vault Installation	23	Pickup Truck	5	2	75	20	88
		Backhoe/Front Loader	8	2	79	40	
		Excavator	7	2	83	40	
		Dump Truck	10	2	80	40	
		Water Truck	10	1	80	40	
		Large Crane	7	1	85	16	
		Concrete Truck	3	10	82	40	
		Flat Bed Truck/Trailer	5	2	74	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Flat Bed Truck/Trailer	5	2	74	40	
Duct Bank Installation	55	Pickup Truck	5	2	75	20	90
		Compressor Trailer	5	2	79	40	
		Backhoe/Front Loader	7	2	79	40	
		Dump Truck	7	2	80	40	
		Pipe Truck/Trailer	7	1	80	20	
		Water Truck	10	1	80	40	
		Concrete Truck	4	10	82	40	
		Flat Bed Truck/Trailer	5	1	74	40	
		Flat Bed Truck/Trailer	5	1	74	40	
		Concrete Saw	8	2	90	20	
Install Underground Cable	40	Pickup Truck	5	2	75	20	83
		Manlift	5	4	75	20	
		Boom/Crane Truck	7	1	83	16	
		Water Truck	10	1	80	40	
		Pipe Truck/Trailer	7	1	80	40	
		Wire Truck/Trailer	5	1	80	40	
		Pulling Machine	5	2	80	40	
		Flat Bed Truck/Trailer	5	2	74	40	
Splice Underground Cable	42	Pickup Truck	10	20	75	20	81
		Splice Truck	10	2	75	20	
Restoration	10	Pickup Truck	4	2	75	20	86
		Backhoe/Front Loader	7	2	79	40	

Activity and number of Personnel	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax @50 ft dBA	Usage Factor %	$L_{eq}(8)$ @50 ft
		Grader	7	2	85	40	
		Water Truck	10	2	80	40	
		Drum Type Compactor	7	2	83	20	
		Flat Bed Truck/Trailer	3	1	74	40	

Sources: SCE; FHWA, 2006

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July 29, 2015

Stephanie Hansen
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Subject **Construction Trips Refinement Noise Evaluation**

Dear Stephanie:

This letter addresses the CPUC request to assess noise impacts during the periods when trenchless construction activities (jack-and-bore (J&B) activity for the MWD pipeline relocation and horizontal directional drilling (HDD) occur at the Mesa 500 Kilovolt Substation Project. We have also added a receiver at 527 Potrero Grande Drive and at the rear of the Markland Hotel for the top NE corner of the building. The J&B operations are scheduled during the third quarter of 2016 and the HDD operations are scheduled during the fourth quarter of 2016, consequently not during the same time period. The construction equipment list provided by SCE was used to calculate the noise levels from these activities and the noise model for 2016 Qtr 3 and Qtr 4 were modeled.

Revisions to Calculations

Construction activities for Qtr 3 and Qtr 4 were modeled to incorporate J&B and HDD (see assumptions below) with the other construction activities that are planned during those quarters. The following table provides a summary of the construction noise levels during the period when jack-and-bore activities occur in Qtr 3 of 2016 and during the period when HDD activities occur in Qtr 4 of 2016.

Receptor Locations	Calculated Qtr 3 L_{eq}(8-hr) dBA [a)]	Calculated Qtr 4 L_{eq}(8-hr) dBA [a)]
Shurr High School at Appian Way, Montebello	59	60
East of Bldg. W, Neil Armstrong St, Montebello	49	50
NW Corner of Potrero Grande Drive and E. Markland Drive, Monterey Park	64	65
1990 Holly Oak Drive, Monterey Park	69	70
527 Potrero Grande Drive Backyard, Monterey Park	66	68
Markland Hotel (rear top floor), Monterey Park	76	78
Notes: a) Represents noise contribution to existing environment.		

As reported previously, vibration levels beyond approximately 15 feet from construction activities are below the damage threshold for older and newer residential buildings and beyond approximately 60 feet from most construction activities vibration would be less than the Barely Perceptible threshold for transient vibration. There are no residential properties within this distance. The nearest edge of the Mesa work area is approximately 45 feet for the Markland Hotel. Since construction activity will be during daytime hours no vibration impact to the property is anticipated.

Assumptions

Activity	Number of Work Days	Equipment	Duration of Use (Hours/Day)	Quantity	Lmax, dBA @ 50 ft	Usage Factor %
Jack and Bore	50	Jack & Bore Machine	4	1	83	50
7/22/2016 – 9/30/2016		Dump Truck	4	1	76	40
		Backhoe Loader	4	1	79	40
		Dozer	2	1	82	40
		Excavator	4	1	81	40
		Rubber tire loader	4	1	79	40
		Skid Steer (bob Cat)	4	1	80	40
		Wtr Truck	4	1	75	40
		Generator	4	1	70	50
		Air Compressor	2	1	78	40
		Service Truck	1	1	75	20
HDD Entry	40	Drill Rig	8	1	84	20
10/13/2016 – 12/23/2016		Mud Recycle	8	1	77	50
		Wtr Truck	8	1	75	40
		Excavator	8	1	81	40
		Fork Lift	8	1	79	40
HDD Exit	40	Excavator	8	1	81	40
10/13/2016 – 12/23/2016		Vacuum Truck	8	1	85	40

Sources: SCE; FHWA, 2006

Discussion of Updated Calculations

This letter documents changes in the anticipated sound by adding in Qtr4 of 2016 (Phase 1) HDD activities and in Qtr3 of 2016 J&B activities. Note that previous modeling results were for the noisiest period, Qtr4 2016.

Construction activities, including HDD and J&B construction activities, would typically be limited to the hours specified in the local municipal codes as adopted by the city of Monterey Park, consequently there is no change to the construction noise impact conclusions of Acentech's February 2015 report.

Sincerely,
ACENTECH INCORPORATED

Ramon E. Nugent, PE
Principal Consultant