

Introduction

This section evaluates potential noise impacts associated with construction and operation of the proposed project. The analysis includes a discussion of the existing noise environment and noise-sensitive land uses in the project area.

Potential noise impacts associated with project construction and operation include noise from construction equipment, corona discharge along power lines, and operation of additional circuit breakers at substations. Implementation of standard noise-abatement measures, including noise abatement BMPs, will ensure that all project-related noise impacts are less than significant.

Noise Terminology

Below are brief definitions of noise terminology used in this section.

- **Sound.** A vibratory disturbance transmitted by pressure waves through a medium such as air and capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A measure of sound intensity based on a logarithmic scale that indicates the squared ratio of actual sound pressure level to a reference sound pressure level (20 micropascals).
- **A-Weighted Decibel (dBA).** A measure of sound intensity that is weighted to take into account the varying sensitivity of the human ear to different frequencies of sound. Typical A-weighted noise levels for various types of sound sources are summarized in Table 4.11-1.
- **Equivalent Sound Level (L_{eq}).** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that would contain the same acoustical energy as the time-varying sound that actually occurs during the monitoring period. The 1-hour A-weighted equivalent sound level (L_{eq} 1h) is the energy average of A-weighted sound levels occurring during a 1-hour period.

- Day-Night Level (Ldn).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels between 10:00 p.m. and 7:00 a.m.

Table 4.11-1. Typical A-Weighted Sound Levels

Sound Source	Sound Level (dBA)	Typical Response
Carrier deck jet operation	140	Painfully loud
Limit of amplified speech	130	
Jet takeoff (200 feet) Auto horn (3 feet)	120	Threshold of feeling and pain
Riveting machine Jet takeoff (2,000 feet)	110	Very annoying
Shout (0.5 foot) New York subway station	100	
Heavy truck (50 feet) Pneumatic drill (50 feet)	90	Hearing damage (8-hour exposure)
Passenger train (100 feet) Helicopter (in flight, 500 feet) Freight train (50 feet)	80	Annoying
Freeway traffic (50 feet)	70	Intrusive
Air conditioning unit (20 feet) Light auto traffic (50 feet)	60	
Normal speech (15 feet)	50	Quiet
Living room Bedroom Library	40	
Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Threshold of hearing

Source: Caltrans 1998.

A doubling of acoustical energy from a noise source results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured. Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000–8,000 Hz) range. In typical noisy environments, most people are able to begin to detect sound level increases of 3 dB, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, doubling sound energy (e.g., doubling the volume of traffic on a

highway) is generally perceived as a detectable but not substantial increase in sound level.

Attenuation rate is used to describe the rate at which the intensity of a sound signal declines as it travels outward from its source. When distance is the only factor considered, sound levels from isolated point sources of noise typically decrease by about 6 dBA for every doubling of distance from the noise source. When the noise source is a continuous line (e.g., vehicle traffic on a highway), sound levels decrease by about 3 dBA for every doubling of distance. Noise levels can also be affected by several factors other than the distance from the noise source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can affect the reduction of noise levels. Atmospheric conditions (e.g., wind speed and direction, humidity levels, and temperatures) also can affect the degree to which sound is attenuated over distance.

Methodology

Evaluation of potential noise impacts from project construction and operation included reviewing relevant city and county noise standards and policies, identifying the existing noise environment and noise-sensitive land uses throughout the project area, and estimating noise from construction and operation of project facilities. The existing ambient noise environment in the project vicinity was identified based on published studies of noise levels at similar land uses. Noise-sensitive land uses were identified based on site reconnaissance and aerial photo images of the project vicinity.

Construction of the project will require the use of heavy equipment that will temporarily increase noise levels at properties near the work sites. After the project is constructed, maintenance of these project facilities generally is performed as needed. Maintenance work, which is less extensive and takes place over a shorter period than project construction, is part of the existing environmental baseline, as the maintenance program is ongoing for the existing power corridor. Therefore, the impact analysis focuses on estimating noise generated during project construction. Noise generated by the peak construction phase was estimated based on the Federal Highway Administration (FHWA) sound propagation method for construction noise sources (FHWA 2006). With this method, a geometric attenuation rate of 6 dB per doubling of distance is assumed. Additional attenuation resulting from ground absorption is included. Any shielding effects from local barriers (including topography and fences) are not included; this gives a conservative or “worst-case” estimation. The estimated construction noise levels then were used to evaluate the noise impacts at noise-sensitive land uses near the work sites.

Noise generated from the project operation includes corona discharge along power lines. The project involves modifying and reconstructing existing power lines, as well as construction of approximately 1.3 miles of new power line along the Proposed River Crossing. The new power line segment will be located in a remote rural area near the San Benito River; therefore, operations noise is not

expected to be significant. Noise from corona discharge along a portion of the high-voltage power lines (no new circuit breakers will be installed) is expected to increase slightly from the existing operation due to the addition of a new circuit. Therefore, noise impacts related to operation of the project were evaluated qualitatively.

Affected Environment

Regulatory Setting

Federal Regulations

While no federal regulations limit overall environmental noise levels, federal guidance documents address environmental noise and regulations for specific sources (e.g., aircraft or federally funded highways).

The only energy facility-specific requirements are those of the Federal Energy Regulatory Commission (FERC), which regulates interstate electrical power lines, natural gas, and petroleum pipelines. The FERC limits specifically address compressor facilities associated with pipelines under its jurisdiction and limits the noise to 55-dBA DNL in noise-sensitive areas (FERC 2002).

State of California

There is no statewide noise regulation; however, the CEQA Checklist in Appendix G of the State CEQA Guidelines identifies the criteria that must be considered when analyzing a project's potential to result in temporary and permanent noise impacts.

Local Regulations

Because the CPUC has exclusive jurisdiction over siting, design, and construction of the project, the project is not subject to local discretionary land use regulations. The following analysis of local regulations relating to biological resources is provided for informational purposes and to assist with CEQA review.

San Benito County General Plan

The San Benito County General Plan (San Benito County 1984) noise policies are listed below. In summary, the County does not have specific noise limits for short-term construction activities or project operation noise.

Noise Policy 4 – Noise Sensitive Areas Policy: *To route heavily traveled transportation routes to ensure minimum noise encroachment upon residential and other noise-sensitive uses.*

Noise Policy 17 – Construction Related Noise Policy: *It will be the County's continuing policy to control the operation of construction equipment at specific sound intensities and frequencies during specified hours.*

Noise Policy 18 – High Noise Emissions Policy: *The County will encourage the use of barriers or enclosures for equipment having high noise emission.*

San Benito County Code of Ordinances

Section 25.37.035 of the San Benito County Code of Ordinances relates to noise and states:

(A) *The following table contains the acceptable noise standard for noise emanating from any source, as it affects surrounding properties.*

<i>Sound Levels for San Benito County</i>		
<i>Location</i>	<i>Sound Level in dbA</i>	<i>L_{eq} One Hour Average</i>
	<i>Day</i>	<i>Night</i>
<i>Rural residential</i>	45	35
<i>Residential</i>	50	40
<i>Commercial</i>	65	55
<i>Industrial</i>	70	60

(B) *The L_{eq} one hour average (the sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over a given sample period) shall not be exceeded in any one hour period.*

(C) *Sound shall be measured with a sound level meter which meets the standards of the American National Standards Institute ANSI section S1.4-1979.*

(D) *Measurement shall be taken at the property line of the noise generating parcel.*

(E) The following activities shall be exempt from the noise level standards:

- (1) Safety signals, warning devices, emergency vehicle sirens;*
- (2) Temporary construction, demolition or maintenance of structures between the hours of 7:00 a.m. and 7:00 p.m., except Sundays and federal holidays;*
- (3) Agricultural equipment, including but not limited to water well pumps, pest-repelling devices and other related necessary and agricultural oriented uses;*
- (4) Yard maintenance equipment operated between the hours of 7:00 a.m. and 7:00 p.m.; and*
- (5) Other uses as set forth by a resolution or as conditions of approval by the Planning Commission or the Board of Supervisors.*

City of Hollister General Plan

The City of Hollister General Plan (City of Hollister 2005) noise policies are listed below. In summary, the City does not have specific noise limits for short-term construction activities. The City requires construction activity to reduce noise between 7:00 p.m. and 7:00 a.m. For long-term operation, project-related noise impacts at existing residential areas would be considered significant if the project will cause an increase of 3 dBA or more, or if the increase will result in an Ldn greater than 60 dBA.

Policy HS3.1 Protection of Residential Areas from Unacceptable Noise Levels

Protect the noise environment in existing residential areas, requiring the evaluation of mitigation measures for projects under the following circumstances: (a) the project would cause the Ldn to increase 3 dBA or more; (b) any increase would result in an Ldn greater than 60 dBA; (c) the Ldn already exceeds 60 dBA; and (d) the project has the potential to generate significant adverse community response.

Policy HS3.2 Noise Source Control

Work with property owners to control noise at its source, maintaining existing noise levels and ensuring that noise levels do not exceed acceptable noise standards as established in the Noise and Land Use Compatibility Guidelines ([Table 4.11-2]).

Table 4.11-2. Land Use Compatibility for Community Noise

Land Use Category	Community Noise Exposure <i>L_{dn}</i> or <i>CNEL</i> , dB					
	55	60	65	70	75	80
Residential - Low Density Single Family, Duplex, Mobile Homes	Light Gray		Medium Gray		Dark Gray	
Residential - Multi-Family	Light Gray		Medium Gray		Dark Gray	
Transient Lodging - Motels, Hotels	Light Gray		Medium Gray		Dark Gray	
Schools, Libraries, Churches, Hospitals, Nursing Homes	Light Gray		Medium Gray		Dark Gray	
Auditoriums, Concert Halls, Amphitheaters	Light Gray		Medium Gray		Dark Gray	
Sports Arena, Outdoor Spectator Sports	Light Gray		Medium Gray		Dark Gray	
Playgrounds, Neighborhood Parks	Light Gray		Medium Gray		Dark Gray	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Light Gray		Medium Gray		Dark Gray	
Office Buildings, Business Commercial and Professional	Light Gray		Medium Gray		Dark Gray	
Industrial, Manufacturing, Utilities, Agriculture	Light Gray		Medium Gray		Dark Gray	

INTERPRETATION:

Normally Acceptable
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

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

Source: OPR 2003.

Policy HS3.3 Construction Noise

Regulate construction activity to reduce noise between 7:00 pm and 7:00 am.

City of Hollister Municipal Code

Section 8.28.020 of the City of Hollister Municipal Code relates to noise and states:

- (A) *It is unlawful at any time, for any person to knowingly make, continue or cause to be made or continued, any excessive, unnecessary or unusually loud noise.*
- (B) *The term “excessive, unnecessary or unusually loud noise” means a noise disturbance which occurs at any time of the day, and, because of its volume level, duration or character, annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety of any reasonable person of normal sensitivity residing in the area.*
- (C) *For any kind of noise regardless of the time of day in which it occurs, the standards which shall be considered in determining whether a violation exists, may include, but shall not be limited to, the following:*
- (1) The volume or intensity of the noise;*
 - (2) Citizen complaints;*
 - (3) The proximity of the noise to residential properties;*
 - (4) The nature and zoning of the area within which the noise emanates;*
 - (5) The time and/or day of the week the noise occurs;*
 - (6) The duration of the noise;*
 - (7) Whether the noise is recurrent, intermittent or constant;*
 - (8) Whether the noise is produced by a commercial or noncommercial activity; and*
 - (9) A noise level in residential districts exceeding 55 dBA during daylight hours, and 50 dBA after sunset, measured at the property line of the complaining party or inside an affected multiple-dwelling unit.*

The code does not provide an exemption for construction activity.

City of San Juan Bautista General Plan

The City of San Juan Bautista General Plan (City of San Juan Bautista 1998) noise policies are listed below. In summary, the City does not have specific noise limits for short-term construction activities or project operation noise.

Policy S-25: *Require new residential, commercial, industrial and/or recreational development with the potential to generate high noise volumes to mitigate potential impacts, including traffic noise, on nearby sensitive uses. Noise attenuation techniques, such as site planning, building orientation, buffers, and the use of acoustical barriers, should be used as appropriate.*

This policy also applies to construction noise. Construction activities should be managed to minimize noise disturbances to surrounding uses.

Policy S-28: *Discourage activities which would introduce long-term noise sources such as machinery, truck traffic, and heavy equipment operation in established residential areas.*

Monterey County General Plan

The Monterey County General Plan (Monterey County 2007) noise policies are listed below. In summary, the County does not have specific noise limits for short-term construction activities. For long-term operation, noise impacts at existing residential areas would be considered significant if the project will result in an Ldn greater than 60 dBA.

Policy S-7.1 *New noise-sensitive land uses may only be allowed in areas where existing and projected noise levels are “acceptable” according to Table 4.11-2. A Community Noise Ordinance shall be established consistent with said Table that addresses, but is not limited to the following:*

- a. *Capacity-related roadway improvement projects.*
- b. *Construction-related noise impacts on adjacent land uses.*
- c. *New residential land uses exposed to aircraft operations at any airport or air base.*
- d. *Site planning and project design techniques to achieve acceptable noise levels such as: building orientation, setbacks, earthen berms, and building construction practices. The use of masonry sound walls for noise control in rural areas shall be discouraged.*
- e. *Design elements necessary to mitigate significant adverse noise impacts on surrounding land uses.*
- f. *Impulse noise.*

Policy S-7.8 *All discretionary projects which propose to use heavy construction equipment that has the potential to create vibrations that could cause structural damage to adjacent structures within 100 feet would be required to submit a pre-construction vibration study prior to the approval of a building permit. Specified measures and monitoring identified to reduce impacts would be incorporated into construction contracts. Pile driving or blasting are illustrative of the type of equipment that could be subject to this policy.*

Policy S-7.9 *No construction activities pursuant to a County permit that exceed levels listed in Policy S-7.1 shall be allowed within 500 feet of a noise-sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays shall be allowed prior to completion of a noise mitigation study. Noise protection measures, in the event of any identified impact, may include but not be limited to:*

- *Constructing temporary barriers, or*
- *Using quieter equipment than normal.*

Policy S-7.10 *Standard noise protection measures shall be incorporated into all construction contracts. These measures shall include:*

- *Construction shall occur only during times allowed by ordinance/code unless such limits are waived for public convenience;*
- *All equipment shall have properly operating mufflers; and*
- *Lay-down yards and semi-stationary equipment such as pumps or generators shall be located as far from noise-sensitive land uses as practical.*

Monterey County Municipal Code

Section 10.60.030 of the Monterey County municipal code relates to the operation of noise-producing devices. The code states the following:

No person shall, within the unincorporated limits of the County of Monterey, operate any machine, mechanism, device, or contrivance which produces a noise level exceeding eighty-five (85) dBA measured fifty (50) feet therefrom. The prohibition in this Section shall not apply to aircraft nor to any such machine, mechanism, device or contrivance which is operated in excess of two thousand five hundred (2,500) feet from any occupied dwelling unit.

Project Setting

Ambient Noise Environment

The project is located primarily in the rural areas of San Benito County and Monterey County. In the project vicinity, the predominant noise sources are likely to include vehicle traffic on highways and local streets, farming equipment operation, and an occasional aircraft over flight. Typical background noise levels in small town residential areas are from 40 to 50 dBA Ldn (FTA 2006.) Background noise levels in rural areas without significant man-made noise likely experience lower background noise levels than background noise levels in small town residential areas.

Noise-Sensitive Land Uses

Noise-sensitive land uses generally are defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Noise-sensitive receptors in the project area are primarily residences; there are no parks or recreational areas near the alignment. Land uses along the Hollister Pole Segment are mostly agriculture lands, with a few homes on Buena Vista Road west of SR 156 that are located within 100–200 feet of the alignment (see Figures 3-3 to 3-19). Land uses along the Hollister Tower Segment are mostly open space areas, with a few homes on Avenida Del Piero south of SR 156 that are located within 100–300 feet of the alignment. The Hollister Substation is surrounded by agriculture lands and industrial land uses. No residences are in the vicinity of the substation.

Environmental Effects

This section describes the potential noise impacts associated with the proposed project. It lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate potentially significant impacts accompany each impact discussion.

Significance Criteria

For this analysis, an impact pertaining to noise was considered potentially significant under CEQA if the project would result in any of the following environmental effects; these criteria are based on professional practice and Appendix G of the State CEQA Guidelines:

- Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.
- Exposure of persons to or generation of ground-borne vibration or ground-borne noise levels.
- Substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

As discussed above, San Benito County, the City of Hollister, and Monterey County have specific municipal code noise standards related to noise. The City of San Juan Bautista does not have municipal code noise standards. However, the City’s noise element states that “Construction activities should be managed to minimize noise disturbances to surrounding uses.”

The Federal Transit Administration (FTA) provides guidelines for reasonable criteria for assessment of construction noise (FTA 2006). According to the FTA, construction noise that exceeds a 1-hour L_{eq} of 90 dBA or an 8-hour L_{eq} of 80 dBA during the day would provoke adverse community reaction.

Noise associated with construction would be potentially significant if: (1) the construction activity is permanent; (2) use of heavy equipment will occur after daytime hours; (3) noise exceeds applicable local standards or, in the absence of local standards, exceeds the FTA guidance discussed above; and (4) no feasible noise abatement measures can be implemented for noise-producing equipment.

A 5-dBA change in sound level is typically necessary to result in a noticeable community response, as a 3-dBA increase is generally considered the threshold of perceptible change outside of a laboratory when comparing similar sources of noise.

Impacts and Mitigation Measures

Construction Impacts

The construction phases of the project include construction of staging areas, access roads, and helicopter landing zones; the Hollister Tower Segment; the Hollister Pole Segment; and modifications to the Hollister Substation. The peak construction phases involve the approximately 7-mile Hollister Tower Segment and the approximately 9-mile Hollister Pole Segment. Each of these components will take approximately 12-13 months to construct.

Construction of the power line entails removal of existing poles and towers, installation of new poles and towers, and installation of conductors and cables. Helicopters will be used to install poles and towers, and to deliver materials and workers to locations where overland access is difficult. As described in Section 4.3, "Air Quality," helicopter usage during the construction phase is expected to include a total of four helicopters (two light-duty helicopters plus two heavy-duty helicopters), each of which would operate for an average 10 hours per day for 120 days.

Table 4.11-3 shows typical measured L_{max} noise emission levels for various types of equipment likely to be used for power line construction. The acoustical usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power. L_{eq} can be calculated from L_{max} values by adding a correction factor equal to 10 times the log of the usage factor to the L_{max} value. For example, for a usage factor of 40%, the correction factor is -4 dB. The L_{eq} for a backhoe with an L_{max} of 78 dBA and usage factor of 40% equals 74 dBA. Table 4.11-3 also shows L_{eq} values based on the usage factors and L_{eq} values at several distances using point source attenuation of 6 dB per doubling of distance.

Table 4.11-3. Typical Construction Equipment Noise Emission Levels

Equipment	Measured L_{max} (dBA) 50 feet from Source	Acoustical Usage Factor (%)	L_{eq} (dBA) at 50 feet from Source	L_{eq} (dBA) at 100 feet from Source	L_{eq} (dBA) at 500 feet from Source
Backhoe	78	40	74	68	54
Crane, mobile	81	16	73	67	53
Compactor	83	20	76	70	56
Concrete mixer	79	40	75	69	55
Concrete pump	81	20	74	68	54
Dozer	82	40	78	72	58
Front-end loader	79	40	75	68	55
Generator	81	50	78	72	58
Grader	85	40	81	75	61
Truck	76	40	72	66	52

Source: FHWA 2006.

Light-duty helicopters typically result in noise of 72–81 dBA at 250 feet from the helicopter). Heavy-duty helicopters typically result in noise of 90–96 dBA at 250 feet from the helicopter (Helicopter Association 1993).

For this analysis, construction of the power line segments is assumed to occur linearly along each segment. The Hollister Tower Segment is expected to be constructed at a progression rate of 900 feet per week, and the Hollister Pole Segment is expected to be constructed at a progression rate of 1,200 feet per week. Construction activities near residential areas generally will be limited to daytime hours (6:30 a.m. to 5 p.m.) Monday through Friday, with some exceptions as required because of safety considerations for certain construction procedures that cannot be interrupted or to take advantage of line clearances during off-peak hours.

On-Ground Construction Equipment

Noise generated by construction of the power line was estimated using typical noise levels listed in Table 4.11-3, based on the FHWA construction noise method (FHWA 2006).

Review of the typical construction equipment noise levels in Table 4.11-3 indicates that the loudest equipment generally emits noise in the range of 75 to 85 dBA at 50 feet from a construction site, with usage factors of 16 to 50%. Noise at any specific receptor is dominated by the closest and loudest equipment. The types and numbers of construction equipment near any specific receptor location will vary over time. To make reasonably conservative estimates of noise

associated with power line construction, a front-end loader, a dozer, and a grader were assumed to operate at the same time and in the same location. Table 4.11-4 shows the estimated noise levels at various distances from a power line construction site based on this assumption and point source attenuation of 6 dB per doubling of distance.

Table 4.11-4. Estimated Construction Noise for Power Line Construction

Construction Equipment Noise Levels at 50 feet from a Construction Site	
Equipment Type	Noise Level L_{eq} (dBA)
Dozer	78
Front-end loader	75
Grader	81
Combined equipment noise level at 50 feet	83
Calculated Noise Levels at Varying Distances	
Distance from Construction Site (feet)	Calculated L_{eq} (dBA)
100	77
150	74
200	71
300	67
400	65
600	61
800	59
1,200	55
1,600	53

Noise-sensitive land uses adjacent to the power line segments are primarily residences. Distances between the nearest residence and the Hollister Tower Segment are approximately 100–300 feet, depending on the specific tower construction site. Distances between the nearest residence and the Hollister Pole Segment are approximately 100–200 feet, depending on the specific pole construction site. As shown in Table 4.11-4, the exterior noise level could be as high as 67–77 dBA L_{eq} when a tower or pole is installed adjacent to an existing residence. Because construction will progress quickly, construction activities are expected to be intermittent and to take place near an existing residence for no more than a few days over a several-month period.

Helicopters

A combination of light-duty and heavy-duty helicopters will be used to install towers and poles, and to deliver materials and workers to locations where overland access is difficult. As described in Section 4.3, “Air Quality,” helicopter use during the construction phase is expected to include a total of four helicopters (two light-duty helicopters plus two heavy-duty helicopters), each of which would operate for an average of 10 hours per day for 120 days. Most helicopter activity is expected to be focused at the five tower landing zone staging areas and the six pole landing zone staging areas shown in Figures 3-3 through 3-19, and at Towers 3/18 and 4/25 which would be constructed entirely by helicopter (Figures 3-6 and 3-7). The two helicopter-constructed towers and most of the helicopter landing zones are at least 1,500 feet from the closest dwelling. A few homes are within 300 feet of towers, at which limited helicopter usage is expected for tower construction.

As described below, helicopters could generate temporary but significant noise levels at a limited number of existing dwellings near the tower construction zones, at the helicopter staging areas, and along the flight paths between the staging areas and the construction zones. The level of annoyance caused by helicopter construction activity would depend on many site-specific factors discussed below.

Table 4.11-5 shows the ground-level noise levels (expressed as L_{eq} sound levels) at various distances from heavy-duty and light-duty helicopters (Helicopter Association International 1993). The literature indicates a wide variation in the L_{eq} noise levels generated by various helicopters within the “light duty” and “heavy duty” categories, and the noise levels at any given distance also depend on the orientation relative to the helicopter (e.g., left side and right side). The L_{eq} noise level is only one factor that governs the amount of public annoyance that can be caused by helicopter noise (FAA 2004). Another major factor is the presence of readily discernible “blade slap” noise, which can occur when the helicopter operates under high load or when the helicopter ascends or descends at a steep angle. Other important factors that affect the amount of annoyance include the level of public notification and public education about when and why helicopter noise will be occurring in a neighborhood (FAA 2004). Due to the complexity of these factors, there is no practical way to numerically predict which dwellings within the study area might experience annoyance caused by the proposed helicopter construction activity. Regardless, for this assessment it is concluded that a limited number of homes in the immediate vicinity of helicopter operations would likely experience temporary, but significant, annoyance caused by intermittent helicopter activity.

Table 4.11-5. Helicopter Noise Levels at Various Distances

Distance (feet)	Ground-Level Noise Caused by Heavy-Duty Helicopter L_{eq} (dBA)	Ground-Level Noise Caused by Light-Duty Helicopter L_{eq} (dBA)
250	96	81
500	90	75
1,000	84	69
1,500	81	66
2,000	78	63
3,000	75	60

Source: Helicopter Association International 1993.

On-Road Haul Trucks

Truck traffic to and from the construction sites can create additional intermittent noise at nearby residences along haul routes. Depending on the day of the construction, a maximum of 11 trucks per day (22 vehicle trips) will deliver material along the Hollister Tower Segment, and 35 trucks per day (70 vehicle trips) will deliver material along the Hollister Pole Segment. The noise impact of truck traffic will be limited to several seconds of elevated noise during each truck pass.

Noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies during construction – less-than-significant impact

Although construction activities near residential areas generally will be limited to daytime hours (6:30 a.m. to 5 p.m.), Monday through Friday, tower and pole construction could generate noise levels as high as 67–77 dBA L_{eq} when construction activity is adjacent to an existing residence. The estimated construction noise levels reflect a conservative condition where the three loudest pieces of equipment are assumed to operate simultaneously and continuously for a 1-hour period. In reality, construction activities likely will be intermittent and the construction equipment will seldom operate at full load. The actual noise levels from activities at the work site could be lower than the estimated noise levels listed in Table 4.11-4. Even in the unlikely event that such noise levels would extend for a 1-hour period, the noise level does not exceed the FTA guidance threshold for an adverse public reaction due to construction noise. Construction noise in the 67- to 77-dBA range could potentially exceed San Benito County and City of Hollister noise standards. However, construction activities will be short term at each pole location (1 or 2 days), temporary, and limited to daytime hours wherever feasible.

Intermittent helicopter activity could exceed San Benito County and City of Hollister noise standards and cause temporary annoyance at a limited number of existing dwellings near the helicopter landing zones or near towers at which helicopters will be used for intermittent construction support. Because helicopters will be used in relatively undeveloped areas at more than 1,500 feet from most residences, the potential for disturbance to residences is small. In addition, helicopter operations will be of short duration. Impacts will be temporary and limited to laydown areas, to pole sites, and along flight paths.

This impact will be less than significant with implementation of APM NOI-1 and APM NOI-2 described below.

APM NOI-1: IMPLEMENT NOISE CONTROL MEASURES FOR ON-GROUND CONSTRUCTION ACTIVITY.

PG&E will implement the following noise abatement measures during project construction to minimize the impact of temporary construction-related noise on nearby residences:

- Notify residents near future construction zones regarding the forecast schedule for nearby construction and provide project contact information.
- Comply with manufacturers' muffler requirements on all construction equipment engines.
- Turn off construction equipment when not in use, where applicable.
- Minimize equipment use.
- Use equipment fitted with factory-installed muffling devices during construction when readily available.
- Route truck traffic away from residential areas where feasible.

APM NOI-2: IMPLEMENT NOISE CONTROL MEASURES FOR HELICOPTER NOISE.

PG&E will implement the following BMPs during project construction to minimize the impact of temporary construction-related noise generated by helicopters:

- Notify residents near future construction zones and along helicopter flight paths regarding the schedule and reasons for upcoming construction and flight operations.
- Provide project contact information to facilitate response to noise complaints during the construction activity.
- To the extent feasible, plan helicopter flight paths between construction zones and the helicopter staging areas to avoid noise-sensitive receivers.
Note: All flight operations including takeoff, landing, and flight paths must comply with FAA regulations and all applicable safety concerns.

Groundborne vibration from non-impact construction activity – less-than-significant impact

Construction activities associated with the operation of heavy equipment may generate localized groundborne vibration and noise. Groundborne vibration from non-impact construction activity typically is below the threshold of perception when the activity is more than about 50 feet from a receiver. Moreover, groundborne vibration from such activities is a short-term effect that ends when construction is completed. Because construction will not involve high-impact activities, such as pile driving, this impact is expected to be less than significant, and no mitigation is required.

Substantial increase in ambient noise during construction – less-than-significant impact

Construction activities, including use of helicopters, will result in a temporary but significant increase in ambient noise levels.

As noted, on-ground construction equipment installing towers and poles could generate noise levels as high as 67–77 dBA L_{eq} at existing residences within 100–300 feet from the construction zones. Although linear construction will progress quickly and will not be near a given residence for more than a few days, a significant impact is possible where construction takes place in proximity to residences because of substantial increases in ambient noise. Implementation of APM NOI-1 (Implement noise control measures for on-ground construction activity) will ensure that this impact is less than significant.

In addition, helicopters assisting with construction of poles and towers could cause temporary but significant increases in ambient noise levels at a limited number of existing dwellings. This impact could occur at dwellings near the helicopter staging areas, along the flight paths, and near the poles and towers being constructed. Implementation of APM-NOI-2 (Implement noise control measures for helicopter noise) will ensure that the impact is less than significant.

Operations Impacts

Noise associated with maintenance of project facilities – no impact

Project operation will include operation and maintenance of project facilities, including power lines and the Hollister Substation. Maintenance activities are routinely performed for the existing power lines and substation, and will not noticeably differ for the upgraded facilities. Maintenance of project facilities generally is performed as needed. Ongoing maintenance activities include occasional facility inspection and vegetation management along the power line segments. Noise generated from the maintenance activities typically is temporary and substantially less than noise generated during construction.

Because future noise generated by project maintenance will not differ noticeably from the existing baseline, no noise impacts are associated with maintenance activities.

Operation of power lines will generate random cracking or hissing sounds associated with corona discharge, which occurs under high voltages. Particles such as dust or water droplets that may come in contact with a conductor tend to increase corona discharge and associated noises, making the potential for noise from corona discharge greatest during wet weather. The sound generated by a 115-kV power line during adverse weather conditions such as fog or rain is typically between 30 and 40 dBA at 90 feet from the outer conductor (PG&E 1998); this noise level is generally lower than the ambient noise levels of the project area. A portion of the project involves reconductoring the existing power line into a double-circuit power line, which could slightly increase the generation of corona discharge noise. Nevertheless, the noise levels are still expected to be within the range of 30 to 40 dBA at 90 feet from the outer conductor.

Because noise associated with operation of the Hollister Substation will not change from existing conditions, no operations impacts related to noise are expected at the Hollister Substation.

Increase in ambient noise from corona discharge – less-than-significant impact

Operation of the double-circuit power lines could generate noise levels from corona discharge as high as 46 dBA at 50 feet from the outer conductor, under adverse weather conditions (PG&E 1998). The noise levels of the new double-circuit power line are expected to be in the same range as those of the existing power line. Operations will not result in generation of noise levels above 60 dBA Ldn or result in an increase in the existing ambient noise levels of 3 dBA or more at residential areas. Therefore, this impact is expected to be less than significant, and no mitigation is required.

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