

4.9 NOISE

This section includes definitions of common noise descriptions; descriptions of applicable noise regulations, acoustic fundamentals, and existing ambient noise conditions; and an analysis of potential short- and long-term noise impacts associated with implementation of the alternatives.

4.9.1 Affected Environment

4.9.1.1 COMMON NOISE DESCRIPTORS

Before discussing the noise setting for the project, background information on sound, noise, vibration, and common noise descriptors is needed to provide context and a better understanding of the technical terms and regulations referenced throughout this section. The noise descriptors referenced or used in this section are defined as follows (Caltrans 2009):

- ▲ Decibel (dB): a sound level expressed in decibels which is the logarithmic ratio of two like-pressure quantities, with one pressure quantity being a reference sound pressure of 20 micropascals.
- ▲ A-weighted decibel (dBA): the frequency-response adjustment of a sound level meter that conditions the output signal to approximate human hearing response. All noise levels in this analysis are A-weighted unless otherwise noted.
- ▲ C-weighted decibel (dBC): the frequency-response adjustment of a sound level meter that conditions the output signal to account for the frequency sensitivity of the human ear at very high noise levels.
- ▲ Equivalent continuous sound level (L_{eq}): the equivalent steady-state sound level in a stated period that would contain the same acoustic energy as the time-varying sound level during the same period (i.e., average noise level).
- ▲ Maximum sound level (L_{max}): the highest instantaneous noise level during a specified period.
- ▲ Day-night sound level (L_{dn}): the 24-hour L_{eq} with a 10-dBA penalty applied to noise events during the hours from 10 p.m. to 7 a.m., which accounts for a typically quieter background and the time typically reserved for sleeping.
- ▲ Community noise equivalent level ($L_{dn}/CNEL$): similar to L_{dn} , $L_{dn}/CNEL$ is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring between 10 p.m. and 7 a.m. and a 5-dB penalty applied to noise events occurring during evening hours between 7 p.m. and 10 p.m.

4.9.1.2 CHARACTERISTICS OF ENVIRONMENTAL NOISE

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium to the human ear. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-pascals (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels.

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. That is, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one automobile generates 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 hertz (Hz) and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels, or dBA. Table 4.9-1 describes typical A-weighted noise levels for various noise sources.

Table 4.9-1 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock band
Jet fly-over at 1,000 feet	– 100 –	
Gas lawn mower at 3 feet	– 90 –	
Diesel truck at 50 feet at 50 miles per hour	– 80 –	Food blender at 3 feet, garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	– 70 –	Vacuum cleaner at 10 feet, normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	– 60 –	
Quiet urban daytime	– 50 –	Large business office, dishwasher next room
Quiet urban nighttime	– 40 –	Theater, large conference room (background)
Quiet suburban nighttime	– 30 –	Library, bedroom at night
Quiet rural nighttime	– 20 –	Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	– 0 –	Lowest threshold of human hearing

Source: Caltrans 2009

Human Response to Changes in Noise Levels

As discussed above, the doubling of sound energy 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 from 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. With respect to how humans perceive and react to changes in noise levels, a 1-dBA increase is imperceptible, a 3-dBA increase is barely perceptible, a 6-dBA increase is clearly noticeable, and a 10-dBA increase is subjectively perceived as approximately twice as loud (Egan 2007).

In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

4.9.1.3 VIBRATION

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery or transient in nature). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2006, Caltrans 2013). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006). This is based on a reference value of 1 microinch per second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest for evaluating ground vibration is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Table 4.9-2 describes the general human response to different ground vibration-velocity levels.

Table 4.9-2 Human Response to Different Levels of Ground Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude.
Source: FTA 2006

Blasting

When a blast is detonated to break up or disrupt rock, only a portion of the energy is consumed in breaking up and moving the rock. The remaining energy is dissipated in the form of seismic waves expanding rapidly outward from the blast, either through the ground (as vibration) or through the air (as air overpressure or airblast). While an explosives specialist can quite easily design a blast to stay well below any vibration or air overpressure levels that could cause damage, it is virtually impossible to design blasts that are not perceptible by people in the vicinity.

Noise from blasting or “blast noise” is primarily composed of sound pressures at frequencies below the threshold-of-hearing for humans (16–20 Hz). Therefore, blast noise is not typically measured with an A-weighted scale, but rather a linear scale expressed simply as dB. A-weighted scales will usually record significantly lower levels of noise than linear scaled noise levels. However, to evaluate human response to blast noise, reference noise levels in dBA can be used. Further, blast overpressure at higher frequencies can be startling in a quiet surrounding, but it will not normally cause damage unless it exceeds approximately 150 dB (linear, unweighted). Low frequency overpressures, although they might be below the range of human hearing, can impact structures, such as resulting in windows rattling. On hearing window rattling or similar overpressure generated noise, the average homeowner will not be able to distinguish between air overpressure or ground vibration as the source but will generally incorrectly attribute the effect to the latter (Caltrans 2013). For these reasons, ground vibration impact criteria (discussed above) is appropriate for evaluating disturbance to people occupying nearby structures and dBA is used to evaluate the human response to blasting noise. *Placer County General Plan* policies pertaining to blast overpressure (discussed below) regulate the design of the blast.

4.9.1.4 ENVIRONMENTAL SETTING

Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship and transient lodging, and other places where low interior noise levels are essential, are also considered noise-sensitive. Those noted above are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance. In addition, buildings of older age are more prone to vibration-induced damage.

Existing sensitive land uses exist throughout the study area, which encompasses the disturbance areas surrounding the proposed gondola alignments between the Squaw Valley Ski Area (Squaw Valley) and Alpine Meadows Ski Area (Alpine Meadows), and the proposed Gazex facilities. Squaw Valley Lodge and some scattered residential land uses are located near the proposed location of the Squaw Valley base terminal along Squaw Peak Road. In the Alpine Meadows portion of the study area, a residential area is located along Alpine Meadows Road, Chalet Road, and two individual houses located near the proposed gondola study area for Alternatives 3 and 4. Exhibit 4.9-1 shows existing sensitive land uses and proposed project components.

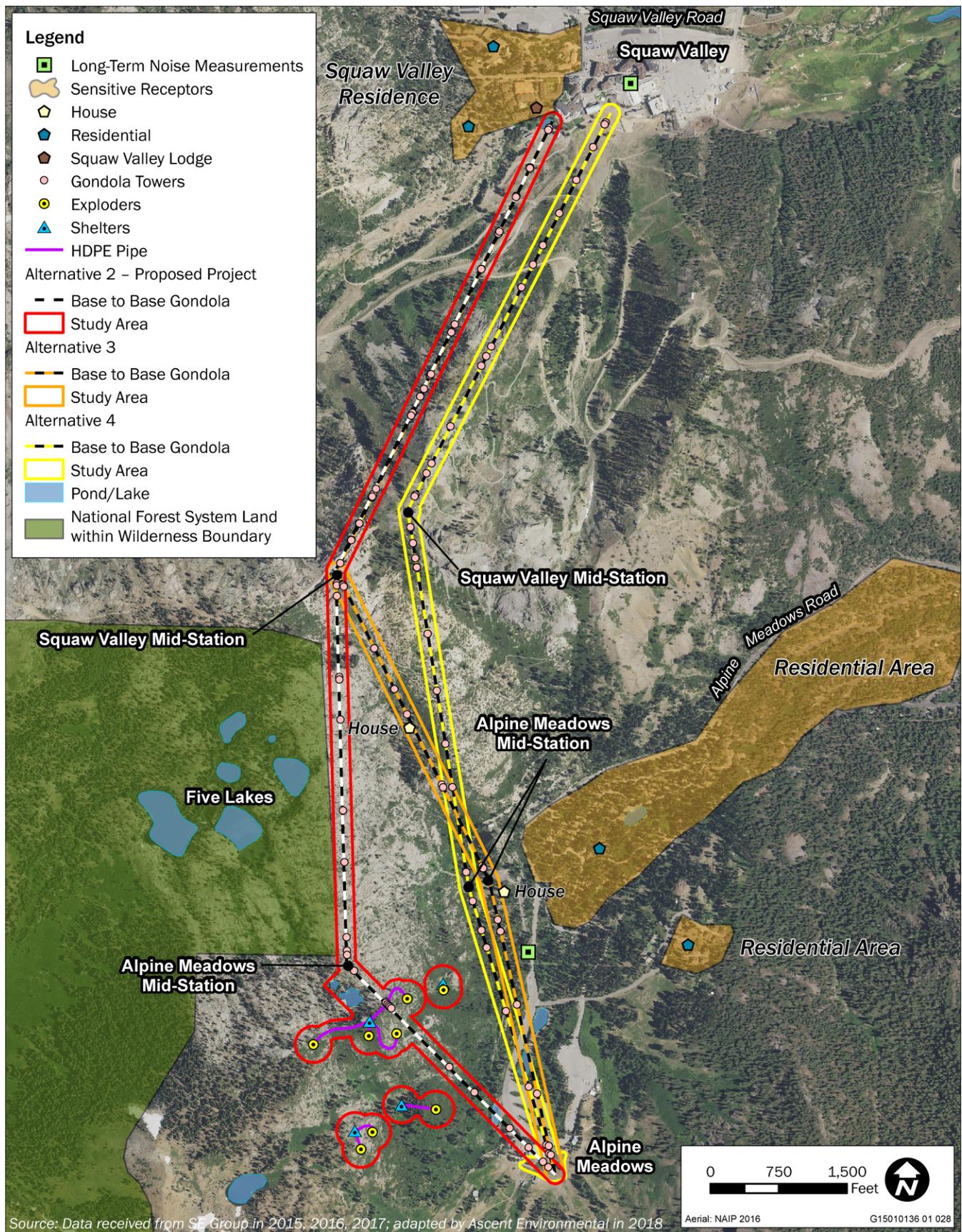


Exhibit 4.9-1 Existing Noise and Vibration Sensitive Land Uses and Proposed Project Components

Regional Setting

Regional noise sources include traffic-related noise on roadways and highways, airplanes and helicopters flying overhead, and noise associated with typical residential development (e.g., people talking, dogs barking, children playing, yard maintenance equipment).

Sound is affected by distance from the source, surrounding obstacles, and atmospheric properties. Thus, regional noise sources would not typically interfere or combine with noise sources on or close to the project site. Therefore, noise sources and levels that would affect the project or nearby sensitive receptors are discussed below in “Local Setting.”

Local Setting

Primary noise sources include traffic noise on surrounding roadways, community noise, and recreational activities associated with equipment, events, and people using the facilities at both Squaw Valley and Alpine Meadows. In addition, during the winter ski season avalanche mitigation activities (by howitzer projectiles, hand-placed charges, or existing Gazex facilities) occur periodically, resulting in short, but relatively loud explosions that can be heard throughout the area.

To characterize existing ambient noise levels, noise-level measurements were taken, traffic noise modeling was conducted, and a review of available documentation was completed. A summary of short-term measurements is presented in Table 4.9-3, long-term measurements in Table 4.9-4, and existing traffic noise levels in Table 4.9-5. Locations of long-term (24-hour) noise measurements are shown on Exhibit 4.9-1.

Table 4.9-3 Summary of Short-Term Noise Measurements

	Date	Time/Duration	Primary Noise Source	Location/Distance from Avalanche Control Activity	L _{eq} (dBA)	L _{min} (dBA)	L _{max} (dBA)
Squaw Valley							
1	4/12/2013	11:10 a.m./15 min	Ski lifts/people talking	Squaw Valley Lodge	55.5	53.7	64.2
2	3/30/2012	3:30 p.m./15 min	Far East Express Lift	Far East Express Lift	69.6	66.8	73.5
3	4/21/2016	8:09 a.m./<1 min	Avalanche control (Gazex)	850 feet	NA	NA	105.4
Alpine Meadows							
1	4/21/2016	7:18 a.m./<1 min	Avalanche control (howitzer warhead)	2,690 feet	NA	NA	96.5
2	4/21/2016	7:18 a.m./<1 min	Avalanche control (howitzer projectile)	25 feet	NA	NA	115.1
3	4/21/2016	7:41 a.m./<1 min	Avalanche control (4-pound hand charge)	80 feet	NA	NA	109.7
4	4/21/2016	7:44 a.m./<1 min	Avalanche Control (2-pound hand charge)	80 feet	NA	NA	109.1

Notes: L_{eq} = equivalent continuous noise level; L_{min} = minimum noise level; L_{max} = maximum noise levels; dBA = A-weighted decibels.
All measurements conducted by Ascent Environmental in 2012, 2013, 2016

Table 4.9-4 Summary of Long-Term Noise Measurements

	Date	Time/Duration	Location	L _{dn} (dBA)
Squaw Valley				
1	4/12/2013	24-hour	Squaw Village	58.0
Alpine Meadows				
1	4/4/2014	24-hour	Alpine Meadows Road	55.0

Notes: L_{dn} = day-night sound level; dBA = A-weighted decibels.

Source: Squaw Valley measurements conducted by Ascent Environmental 2013; Alpine Meadows measurements conducted by Bollard Acoustics in 2014 as referenced in the Draft EIR for the Alpine Subdivision project (Placer County 2017)

Table 4.9-5 Summary of Modeled Existing Traffic Noise Levels

Segment Number	Roadway Segment/Segment Description	CNEL/L _{dn} (dB) at 100 Feet from Roadway Centerline	Distance (feet) from Roadway Centerline to CNEL/L _{dn} (dB)		
			65	60	55
1	Squaw Valley Road west of State Route 89 (winter Saturday)	60.2	48	103	221
2	Alpine Meadows Road west of State Route 89 (winter Saturday)	58.0	34	73	158
1	Squaw Valley Road west of State Route 89 (winter Sunday)	63.0	74	159	342
2	Alpine Meadows Road west of State Route 89 (winter Sunday)	62.3	66	143	308

Source: Modeled by Ascent Environmental in 2018

4.9.1.5 REGULATORY SETTING

Federal

U.S. Department of Transportation

To address the human response to ground vibration, FTA set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. Among these guidelines are the following maximum-acceptable vibration limits:

- ▲ 65 VdB, referenced to 1 microinch per second and based on the RMS velocity amplitude, for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities);
- ▲ 80 VdB for residential uses and buildings where people normally sleep; and
- ▲ 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

U.S. Bureau of Mines

In 1974, the U.S. Bureau of Mines (USBM) began a study to gather and update available blast vibration data. Work was included in the area of structural and human response to vibration. This resulted in the publishing in 1980 of USBM RI 8507, "Structure Response and Damage Produced by Ground Vibration from Surface Mine Blasting." USBM recommends a maximum safe overpressure of 0.014 pound per square inch (134 dB linear, unweighted) for residential structures. The first occurrence of airblast damage is usually the breakage of poorly mounted windows.

Office of Surface Mining Reclamation and Enforcement

The Office of Surface Mining Reclamation and Enforcement (OSMRE) published a document titled "Blasting Guidance Manual" that addresses the negative effects of blasting. The OSMRE Guidance Manual includes noise and vibration limits with respect to building damage and human perception. The OSMRE airblast noise limits with respect to building damage are similar to those of the USBM, as described above. The OSMRE airblast limits for building damage may apply to the location of any dwelling, public building, school, church, community or institutional building in connection with blasting under the jurisdiction of the OSMRE. Based on OSMRE data, a 129-dB peak noise level is utilized for evaluating building damage impacts associated with the project's blasting-related activities. This airblast limit set forth by the OSMRE is based on the minimal probability of superficial damage to residential type structures, and also takes into consideration subjective human response. Per the OSMRE, if an airblast can be kept at or below 120 dB, then annoyance would be minimal.

Federal Transit Administration Vibration Impact Criteria

FTA provides guidance on evaluating effects of vibration levels on humans from various vibration-inducing events, including construction activities such as blasting and pile driving. The impact criteria are based on receptor categories and frequency of events occurring in 1 day. Table 4.9-6 summarizes the FTA vibration impact criteria.

Table 4.9-6 FTA Ground-Borne Vibration Impact Criteria

Land Use Category	GVB Impact Levels (VdB re 1 micro-inch /sec)		
	Frequent Event ¹	Occasional Events ²	Infrequent Events ³
Category 1: Buildings where vibration would interfere with interior operations. ⁴	65 VdB	65 VdB	65 VdB
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	80 VdB

Notes: GVB = groundborne vibration; VdB = vibration decibels.

¹ "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.

² "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have these many operations.

³ "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

⁴ This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.

Source: FTA 2006

State

California Department of Transportation Noise and Vibration Standards

As presented in the Protocol, Section 14-8.2, Noise Control, Caltrans standard specifications establish a construction noise exposure/production limit of 86 dB (L_{max}) at a distance of 50 feet. Additionally, this specification establishes that all internal combustion engines should be equipped with manufacturer-recommended mufflers, and that no internal combustion engines may be operated without mufflers.

In 2013, Caltrans published the Transportation and Construction Vibration Guidance Manual, which provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. With respect to structural damage, Caltrans recommends that a level of 0.2 in/sec PPV not be exceeded for the protection of normal residential buildings, and that 0.1 in/sec PPV not be exceeded for the protection of old or historically significant structures (Caltrans 2013).

Local

Placer County General Plan

The *Placer County General Plan* (Placer County 2013) contains noise policies and standards (e.g., exterior and interior noise-level performance standards for new projects affected by or including non-transportation noise sources [Table 4.9-7], and maximum allowable noise exposure levels for transportation noise sources [Table 4.9-8]) and the Placer County Noise Ordinance (Article 9.36 of the Placer County Code) contains noise limits for sensitive receptors (Placer County 2004). The following policies and standards contained in the General Plan and ordinance are relevant to the alternatives:

- ▶
Policy 9.A.2. Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 9-1 [Table 4.9-7 in this EIS/EIR] as measured immediately within the property line of lands designated for noise-sensitive uses: provided, however, the noise created by occasional events occurring within a stadium on land zoned for university purposes may temporarily exceed these standards as provided in an approved Specific Plan.

- Policy 9.A.4.** Impulsive noise produced by blasting should not be subject to the criteria listed in Table 9-1 [Table 4.9-7]. Single event impulsive noise levels produced by gunshots or blasting shall not exceed a peak linear overpressure of 122 dB, or a C-weighted Sound Exposure Level (SEL) of 98 dBC. The cumulative noise level from impulsive sounds such as gunshots and blasting shall not exceed 60 dB L_{Cdn} or CNEL_c on any given day. These standards shall be applied at the property line of a receiving land use.
- Policy 9.A.5.** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 9-1 [Table 4.9-7] at existing or planned noise-sensitive uses, the County shall require submission of an acoustical analysis as part of the environmental review process so that noise mitigation may be included in the project design. The requirements for the content of an acoustical analysis are listed in Table 9-2 [available in the General Plan].
- Policy 9.A.9.** Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 9-3 [Table 4.9-8] or the performance standards in Table 9-3 [Table 4.9-8] at outdoor activity areas or interior spaces of existing noise-sensitive land uses.

**Table 4.9-7 Placer County Allowable L_{dn} Noise Levels Within Specified Zone Districts¹
Applicable to New Projects Affected by or Including Non-Transportation Noise Sources**

Zone District of Receptor	L _{dn} (dBA) at Property Line of Receiving Use	Interior Spaces (dBA) ²
Residential Adjacent to Industrial ³	60	45
Other Residential ⁴	50	45
Office/Professional	70	45
Transient Lodging	65	45
Neighborhood/General Commercial/Shopping Center	70	45
Heavy Commercial/Limited Industrial/Highway Service	75	45
Industrial	-	45
Industrial Park	75	45
Industrial Reserve	-	-
Airport	-	45
Unclassified	-	-
Farm/Agriculture Exclusive ⁶	-	-
Recreation and Forestry	70	-

Notes: Except where noted otherwise, noise exposures will be those which occur at the property line of the receiving use.

Where existing transportation noise levels exceed the standards of this table, the allowable L_{dn} shall be raised to the same level as that of the ambient level.

If the noise source generated by, or affecting, the uses shown above consists primarily of speech or music, or if the noise source is impulsive in nature, the noise standards shown above shall be decreased by 5 dBA.

Where a use permit has established noise level standards for an existing use, those standards shall supersede the levels specified in this table. Similarly, where an existing use which is not subject to a use permit causes noise in excess of the allowable levels in this table, said excess noise shall be considered the allowable level. If a new development is proposed which will be affected by noise from such an existing use, it will ordinarily be assumed that the noise levels already existing or those levels allowed by the existing use permit, whichever are greater, are those levels actually produced by the existing use.

Existing industry located in industrial zones will be given the benefit of the doubt in being allowed to emit increased noise consistent with the state of the art⁵ at the time of expansion. In no case will expansion of an existing industrial operation because to decrease allowable noise emission limits. Increase emissions above those normally allowable should be limited to a one-time 5 dBA increase at the discretion of the decision-making body.

The noise level standards applicable to land uses containing incidental residential uses, such as caretaker dwellings at industrial facilities and homes on agriculturally-zoned land, shall be the standards applicable to the zone district, not those applicable to residential uses.

Where no noise level standards have been provided for a specific zone district, it is assumed that the interior and/or exterior spaces of these uses are effectively insensitive to noise.

¹ Overriding policy on interpretation of allowable noise levels: Industrial-zoned properties are confined to unique areas of the County, and are irreplaceable. Industries which provide primary wage-earner jobs in the County, if forced to relocate, will likely be forced to leave the County. For this reason, industries operating upon industrial zoned properties must be afforded reasonable opportunity to exercise the rights/privileges conferred upon them by their zoning. Whenever the allowable noise levels herein fall subject to interpretation relative to industrial activities, the benefit of the doubt shall be afforded to the industrial use.

Table 4.9-7 Placer County Allowable L_{dn} Noise Levels Within Specified Zone Districts¹ Applicable to New Projects Affected by or Including Non-Transportation Noise Sources

Where an industrial use is subject to infrequent and unplanned upset or breakdown of operations resulting in increased noise emissions, where such upsets and breakdowns are reasonable considering the type of industry, and where the industrial use exercises due diligence in preventing as well as correcting such upsets and breakdowns, noise generated during such upsets and breakdowns shall not be included in calculations to determine conformance with allowable noise levels.

² Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.

³ Noise from industrial operations may be difficult to mitigate in a cost-effective manner. In recognition of this fact, the exterior noise standards for residential zone districts immediately adjacent to industrial, limited industrial, industrial park, and industrial reserve zone districts have been increased by 10 dB as compared to residential districts adjacent to other land uses.

For purposes of the Noise Element, residential zone districts are defined to include the following zoning classifications:
AR, R-1, R-2, R-3, FR, RP, TR-1, TR-2, TR-3, and TR-4.

⁴ Where a residential zone district is located within an -SP combining district, the exterior noise level standards are applied at the outer boundary of the -SP district. If an existing industrial operation within an -SP district is expanded or modified, the noise level standards at the outer boundary of the -SP district may be increased as described above in these standards.

Where a new residential use is proposed in an -SP zone, an Administrative Review Permit is required, which may require mitigation measures at the residence for noise levels existing and/or allowed by use permit as described under "NOTES," above, in these standards.

⁵ State of the art should include the use of modern equipment with lower noise emissions, site design, and plant orientation to mitigate off-site noise impacts, and similar methodology.

⁶ Normally, agricultural uses are noise insensitive and will be treated in this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within agricultural zone districts. Therefore, where effects of agricultural noise upon residences located in these agricultural zones are a concern, an L_{dn} of 70 dBA will be considered acceptable outdoor exposure at a residence.

Source: Placer County 2013

Table 4.9-8 Placer County Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹		Interior Spaces	
	L_{dn} /CNEL	L_{dn} /CNEL	L_{dn} /CNEL	L_{eq} , dBA ²
Residential	60 ³		45	
Transient Lodging	60 ³		45	
Hospitals, Nursing Homes	60 ³		45	
Theaters, Auditoriums, Music Halls				35
Churches, Meeting Halls	60 ³			40
Office Buildings				45
Schools, Libraries, Museums				45
Playgrounds, Neighborhood Parks	70			

Notes: CNEL = community noise equivalent level

¹ Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.

² As determined for a typical worst-case hour during periods of use.

³ Where it is not possible to reduce noise in outdoor activity areas to 60 L_{dn} /CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dBA L_{dn} /CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: Placer County 2013

Placer County Municipal Code

The Placer County Noise Ordinance (Article 9.36.060 Sound limits for sensitive receptors of the Placer County Code) defines sound level performance standards for sensitive receptors (Table 4.9-9). The ordinance states that it is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied, or otherwise controlled by such a person that causes the exterior sound level, when measured at the property line of any affected sensitive receptor, to exceed the ambient sound level by 5 dBA or exceed the sound level standards as set forth in Table 4.9-9, whichever is greater.

Each of the sound level standards specified in Table 4.9-9 shall be reduced by 5 dBA for simple tone noises, consisting of speech and music. However, in no case shall the sound level standard be lower than the ambient sound level plus 5 dBA.

Table 4.9-9 Placer County Noise Ordinance Noise Level Standards for Sensitive Receptors

Sound Level Descriptor (dBA)	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}	55	45
L_{max}	70	65

Source: Placer County 2004

According to Article 9.36.030, “Exemptions,” some noise-generating activities are exempt from the above noise ordinance standards, including construction that is performed between 6:00 a.m. and 8:00 p.m., Monday through Friday, and between 8:00 a.m. and 8:00 p.m. Saturday and Sunday, provided that all construction equipment is fitted with factory-installed muffler devices and maintained in good working order.

Other noise sources applicable to the alternatives that are exempt from the Placer County Noise Ordinance include:

- ▲ sound sources typically associated with residential uses (e.g., children at play, air conditioners in good working order); and
- ▲ emergencies, involving the execution of the duties of duly authorized governmental personnel and others providing emergency response to the general public, including but not limited to sworn peace officers, emergency personnel, utility personnel, and the operation of emergency response vehicles and equipment.

4.9.2 Analysis Methods

4.9.2.1 METHODS AND ASSUMPTIONS

To assess potential short-term (construction-related) noise and vibration impacts, sensitive receptors and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from the *FTA Guide on Transit Noise and Vibration Impact Assessment* methodology (FTA 2006) and the *Federal Highway Administration Roadway Construction Noise Model User’s Guide* (FHWA 2006). Reference levels are noise and vibration emissions for specific equipment or activity types that are well documented in the field of acoustics.

The assessment of long-term (operational) impacts was based on reference noise emission levels and measured noise levels for activities and equipment associated with project operation (e.g., gondola stations, avalanche mitigation strategies), and standard attenuation rates and modeling techniques.

The assessment of potential long-term (operational) noise impacts from project-generated increases in traffic was conducted using modeling based on the Caltrans traffic noise analysis protocol and the technical noise supplement (Caltrans 2013), as well as project-specific traffic data (Appendix E). To assess this impact, traffic noise levels under existing and existing-plus-project conditions for affected roadway segments were modeled. The modeling conducted does not account for any natural or human-made shielding (e.g., the presence of vegetation, berms, walls, or buildings) and, consequently, represents worst-case noise levels.

As described in Section 2.2.6, “Resource Protection Measures,” the project incorporates a number of Resource Protection Measures (RPMs) designed to avoid and minimize environmental effects. These RPMs are considered part of the project by the Forest Service and will be conditions of approval of the Placer County

Conditional Use Permit. The text of all RPMs is provided in Appendix B. The potential effects of implementing the action alternatives are analyzed as follows: The effect of the action alternatives was determined, relevant RPMs were applied, and the effectiveness of reducing adverse effects was determined. If additional measures were needed to further reduce effects, they were identified.

As it relates to CEQA, the significance of impacts is determined before RPMs are implemented. The analysis then determines whether the RPMs would reduce significant impacts to a less-than-significant level. If significant impacts would remain, mitigation measures are added, as feasible, to further reduce the significant impact. All RPMs, as well as additional mitigation measures, would be included in the Placer County mitigation monitoring and reporting program, and their implementation would be ensured by the Conditional Use Permit's conditions of approval. All RPMs are considered roughly proportional and have an essential nexus to the impacts they reduce.

4.9.2.2 EFFECTS ANALYSIS AND SIGNIFICANCE CRITERIA

NEPA Indicators

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the action alternatives. Under NEPA, impacts should be addressed in proportion to their significance (40 CFR 1502.2[b]), meaning that severe impacts should be described in more detail than less consequential impacts. This is intended to help decision makers and the public focus on the project's key effects. The evaluation of effects considers the magnitude, duration, and significance of the changes. Changes that will improve the existing condition if they occur are noted and considered beneficial, and detrimental impacts are characterized as adverse. Where there would be no change, a "no effect" conclusion is used. The Forest Service has determined that the action alternatives would have noise effects. The following analytical indicators are used to inform the Forest Service's determination of impacts:

- ▲ Narrative discussion of existing noise levels in the study area based on existing documentation (including measurements of avalanche control methodologies, additional noise measurements taken for this project, and accepted prediction methodologies) (**Section 4.9.1.4, "Environmental Setting"**)
- ▲ Identification of sensitive receptors in the study area (**Section 4.9.1.4, "Environmental Setting"**)
- ▲ Identification of major noise sources in the study area (**Section 4.9.1.4, "Environmental Setting"**)
- ▲ Narrative description of potential noise-related impacts associated with construction and operation of the proposed projects, including short-term construction-related noise (e.g., use of heavy equipment and helicopters) and long-term operational noise (e.g., gondola and Gazex exploders), noise impacts of the Gazex exploders compared with existing avalanche control methods, and traffic-related noise (**Impacts 4.9-1, 4.9-2, 4.9-3, 4.9-4**)
- ▲ Discussion of the helicopter flight plan and its potential to increase noise levels in the study area (**Impact 4.9-2**)

CEQA Criteria

Based on the Placer County CEQA checklist, Appendix G of the State CEQA Guidelines, and noise policies and standards in the *Placer County General Plan*, implementing any of the alternatives would result in a significant impact related to noise if it would:

- ▲ expose persons to or generation of noise levels in excess of standards established in the local General Plan (Tables 4.9-7 and 4.9-8), noise ordinance (Table 4.9-9) (**Impacts 4.9-1, 4.9-3**);
- ▲ expose persons to or generation of excessive groundborne vibration (Table 4.9-6) or groundborne noise levels (**Impact 4.9-2**);

- ▲ result in a substantial permanent increase (i.e., 5 dB) in ambient noise levels in the project vicinity above levels existing without the project (**Impacts 4.9-3, 4.9-4**);
- ▲ result in a substantial temporary or periodic increase (Table 4.9-9) in ambient noise levels in the project vicinity above existing without the project (**Impact 4.9-1**);
- ▲ for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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 (**Section 4.9.2.3, “Issues not Discussed Further”**); or
- ▲ 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 (**Section 4.9.2.3, “Issues not Discussed Further”**).

4.9.2.3 ISSUES NOT DISCUSSED FURTHER

As discussed in the initial study prepared for the project (Appendix A), the project site is not located within an airport land use plan, nor is it located within 2 miles of a public airport or airstrip. Therefore, none of the alternatives would result in noise impacts for people residing or working close to an airport or airstrip. No impact would occur; therefore, these issues are not discussed further in this Draft EIS/EIR.

4.9.3 Direct and Indirect Environmental Consequences

4.9.3.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Impact 4.9-1 (Alt. 1): Construction Noise Impacts

Alternative 1 – No Action Alternative would result in a continuation of existing conditions. There would be no construction activities that would result in substantial temporary increases in noise. There would be **no effect** under both NEPA and CEQA.

Under Alternative 1 – No Action Alternative, the Tahoe National Forest (TNF) and Placer County would not provide necessary authorizations to allow construction of a gondola or Gazex facilities. The outcome would be a continuation of existing conditions, with no new construction and no installation and operation of new facilities. Therefore, there would be no generation of construction noise.

NEPA Effects Conclusion

With no generation of construction noise, there would be **no effect** related to this issue.

CEQA Determination of Effects

With no generation of construction noise, there would be **no effect** related to this issue.

Mitigation Measures

No mitigation measures are required.

Impact 4.9-2 (Alt. 1): Construction Vibration Impacts

Alternative 1 – No Action Alternative would result in a continuation of existing conditions. There would be no construction activities that would result in substantial temporary increases in vibration levels that could damage nearby structures or disturb sensitive land uses. There would be **no effect** under both NEPA and CEQA.

Under Alternative 1 – No Action Alternative, the TNF and Placer County would not provide necessary authorizations to allow construction of a gondola or Gazex facilities. The outcome would be a continuation of

existing conditions, with no new construction and no installation and operation of new facilities. Therefore, there would be no generation of construction-related vibration.

NEPA Effects Conclusion

With no generation of construction vibration, there would be **no effect** related to this issue.

CEQA Determination of Effects

With no generation of construction vibration, there would be **no effect** related to this issue.

Mitigation Measures

No mitigation measures are required.

Impact 4.9-3 (Alt. 1): Exposure of Existing Sensitive Receptors to Operational Noise from Proposed Gazex Exploders and Gondola

Alternative 1 – No Action Alternative would result in a continuation of existing conditions. There would be no new gondola or noise associated from stationary equipment (e.g., drive unit, motor, cooling fans). Avalanche control strategies would remain unchanged. There would be **no effect** under both NEPA and CEQA.

Under Alternative 1 – No Action Alternative, the TNF and Placer County would not provide necessary authorizations to allow construction of a gondola or Gazex facilities. The outcome would be a continuation of existing conditions, with no new gondola, and associated stationary equipment, or any new Gazex exploders. The existing ambient noise environment would not change.

NEPA Effects Conclusion

With no new noise sources, there would be **no effect** related to this issue.

CEQA Determination of Effects

With no new noise sources, there would be **no effect** related to this issue.

Mitigation Measures

No mitigation measures are required.

Impact 4.9-4 (Alt. 1): Exposure of Existing Sensitive Receptors to Operational Project-Generated Transportation Noise Sources

Alternative 1 – No Action Alternative would result in a continuation of existing conditions. There would be no new gondola or noise associated from increased vehicle trips on area roadways associated with increased ski days at Squaw Valley or Alpine Meadows. There would be **no effect** under both NEPA and CEQA.

Under Alternative 1 – No Action Alternative, the TNF and Placer County would not provide necessary authorizations to allow construction of a gondola or Gazex facilities. The outcome would be a continuation of existing conditions, with no new gondola, and associated stationary equipment, or any new Gazex exploders. The existing ambient noise environment would not change.

NEPA Effects Conclusion

With no increases in traffic or associated traffic noise, there would be **no effect** related to this issue.

CEQA Determination of Effects

With no increases in traffic or associated traffic noise, there would be **no effect** related to this issue.

Mitigation Measures

No mitigation measures are required.

4.9.3.2 ALTERNATIVE 2

Impact 4.9-1 (Alt. 2): Construction Noise Impacts

Under Alternative 2, existing noise-sensitive receptors would be located close to the Squaw Valley base terminal proposed construction area. Blasting may be necessary at remote locations for tower and exploder installation, and mid-station construction, exposing existing receptors to blast noise. Helicopters would be used to transport material and personnel to construction sites, resulting in noise exposure to existing receptors, depending on specific flight paths. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise would be **adverse** because construction activities would temporarily increase existing noise levels. However, construction activities would be temporary, lasting one season, and would occur during the less sensitive times of the day when people are less likely to be disturbed. Implementation of RPMs NOI-1 through NOI-6 would mitigate this effect. Under CEQA, and using the CEQA criteria, this impact would be **significant** prior to consideration of RPMs because without implementation of RPMs that define the timing and duration of construction and the proper use of muffling devices on equipment, construction could occur during times of day, or in a manner, outside those identified in the Placer County Noise Ordinance. Implementation of RPMs MUL-7, NOI-2, NOI-5, and NOI-6 would limit the timing of construction to those identified in the Placer County Municipal Code, require the proper use of muffling devices, and limit the duration of construction to a single construction season. In addition, RPMs NOI-1, NOI-3, and NOI-4 would ensure construction noise is minimized to the extent possible by limiting helicopter flight paths to avoid residential areas and the Granite Chief Wilderness (GCW), requiring blasting to be conducted by qualified contractors, and providing a means to reduce potentially disturbing noise during ongoing construction activities by establishing a disturbance coordinator. With implementation of these three additional RPMs, this impact would be reduced, although helicopter noise could still occur for up to 20 days in proximity to existing sensitive land uses and could result in substantial temporary increases in disturbance. This impact would remain **significant**. (Impacts related to wilderness activities are addressed separately in Section 4.3, “Wilderness.”)

The effects of construction noise depend on the type of construction activities occurring on any given day; noise levels generated by those activities; distances to noise-sensitive receptors; potential noise attenuating features such as topography, vegetation, and existing structures; and the existing ambient noise environment in the receptor’s vicinity. Construction generally occurs in several discrete stages, each phase requiring a specific complement of equipment with varying equipment type, quantity, and intensity. These variations in the operational characteristics of the equipment change the effect they have on the noise environment of the project site and in the surrounding area for the duration of the construction process. Additionally, for evaluation of construction noise, activities that occur during the more noise-sensitive evening and nighttime hours are of greater concern than daytime noise. Because exterior ambient noise levels typically decrease during the late evening and nighttime hours as traffic volumes and commercial activities decrease, construction activities performed during these more noise-sensitive periods are more conspicuous and can result in increased annoyance and potential sleep disruption for occupants of nearby residences. Construction-related noise is discussed separately below for the various project components.

Under Alternative 2, project construction would occur over a single construction season (i.e., 180–200 days), beginning in late spring and ending in the fall. Although this period of construction is included in the text of the project description (Chapter 2, “Description of Alternatives”), it is also identified as a RPM, RPM MUL-7, which states that construction would be completed in a single construction season. General construction activities would include grubbing/clearing of on-site vegetation, excavation and relocation of rock and soil on the site, backfilling and compaction of soils, and construction of proposed facilities (e.g., base terminals, mid-stations, lift towers, Gazex exploders, shelters). It is anticipated that helicopters would be used during construction to transport personnel and equipment to and from the project site, during

installation of lift infrastructure, and for tree removal activities. Some blasting may be required to remove rock outcroppings during terminal, mid-station, and lift tower construction. Construction equipment would be staged at the existing Squaw Valley and Alpine Meadows surface parking lots.

Construction noise can be characterized based on the type of activity and associated equipment needed and, in this analysis, is evaluated by considering noise levels associated with vegetation clearing/tree removal, grading/foundation work, building/structure construction, blasting, and helicopter use. Reference noise levels for typical construction equipment required for these activities are shown in Table 4.9-10. Assuming simultaneously operating equipment and typical reference noise levels for construction equipment, representative noise levels for the various types of construction activity are shown in Table 4.9-11.

Table 4.9-10 Noise Emission Levels from Construction Equipment

Equipment Type	Typical Noise Level (L _{max} dBA) @ 50 feet
Chain saw	85
Chipper	75
Concrete mixer	85
Crane	85
Dozer	85
Dump truck	84
Rock drill	85
Excavator (spider/tracked)	85
Front end loader	80
Generator	70
Grader	85
Pickup trucks	55

Notes: Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacture-specified noise levels for each piece of heavy construction equipment.

Sources: FTA 2006, Berger et al. 2010

Table 4.9-11 Noise Emission Levels from Construction Activities

Construction Activity	Noise Level (L _{eq} dBA) @ 50 feet	Noise Level (L _{max} dBA) @ 50 feet
Vegetation clearing	83.0	88.4
Grading/foundation work	86.0	90.0
Building construction/tower installation	81.6	89.0
Blasting	NA	94.0
Helicopter	87.9	NA

Notes: Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacture-specified noise levels for each piece of heavy construction equipment.

Source: FTA 2006

Different construction activities would occur for different components of the proposed gondola construction. To evaluate construction noise impacts, existing sensitive receptors near the study area were identified, the various construction activities and associated noise levels were modeled, and noise levels were compared to Placer County daytime noise standards for sensitive receptors (i.e., daytime 55 dBA L_{eq}/70 dBA L_{max}, also

shown in Table 4.9-9 above). Construction impacts are evaluated below based on construction activity type. Because of the nature of construction activities and remote locations, nighttime construction is not proposed. This analysis focusses on daytime activities and daytime noise standards.

Off-Road Equipment

Construction for base terminals and mid-stations would include foundation/grading work, minimal excavation, and structure construction. Tower, exploder, and shelter installations would include excavation/digging, concrete pours, and foundation/structure construction. Based on modeling conducted for these types of activities, excavation and foundation work would result in the highest noise levels, potentially reaching 86.0 dBA L_{eq} and 90 dBA L_{max} at 50 feet from construction activity.

Construction activities in much of the study area would be located in remote locations where no sensitive receptors exist. However, existing sensitive land uses (i.e., Squaw Valley Lodge) are located approximately 175 feet north of the proposed Squaw Valley base terminal location along Squaw Peak Road. On the Alpine Meadows side, a residential neighborhood is located approximately 2,500 feet northeast of the proposed Alpine Meadows base terminal location along Alpine Meadows Road. Two residential structures are located 750 feet east and 1,800 feet east of the proposed gondola alignment. See Exhibit 4.9-1 for location of project components (e.g., base terminals, mid-stations, towers, Gazex exploders, shelters) in proximity to existing sensitive land uses. Construction activities associated with station and tower construction would attenuate to below Placer County daytime noise standards at 846 feet from construction activities. Thus, construction noise would exceed daytime standards at the residences and Squaw Valley Lodge and the one residence located just east of the proposed gondola alignment.

Construction activity that would occur closest to the National Forest System-GCW would be associated with tower installations occurring as close as 100 feet from the eastern boundary and near the proposed gondola alignment (Exhibit 4.9-1). Construction noise would attenuate to 73.7 dBA L_{eq} and 81.1 dBA L_{max} at the National Forest System-GCW boundary.

Construction noise from heavy-duty equipment could exceed daytime standards at residences located near the proposed Squaw Valley base terminal and the residence located near the proposed gondola alignment.

Blasting

Construction activities associated with mid-stations and tower installation may require blasting to remove rock outcroppings, resulting in noise levels of up to 94 dBA L_{max} at 50 feet from blasting activities. Blasting activity is typically limited to isolated locations and few occurrences to remove the identified obstruction, and because of safety concerns, is not typically conducted during the night. Because of the intermittent nature of blasting, only L_{max} standards are applied to blasting noise.

Blasting activities associated with mid-station, tower, and exploder installation would attenuate to below Placer County daytime noise standards at 400 feet from the blast site. Specific locations and need for blasting would be determined based on final on-the-ground assessments. Considering the proposed tower mid-station, and exploder locations, the only existing sensitive receptors that could be disturbed by blasting are located on the Squaw Valley side of the gondola. Although it is not known exactly where blasting would occur, lift tower locations would be at least 175 feet (i.e., beyond the base terminal) and thus blasting noise would be less than 79.6 dBA L_{max} (i.e., noise level 175 feet from blasting) at the sensitive receptors near the Squaw Valley base terminal, above the applicable Placer County standard. However, blasting would likely be required only in very remote places where large outcroppings obstruct construction, and blasting would generally be a last resort construction method. Also, it is highly unlikely that blasting would be used as a construction method near structures that would qualify as sensitive receptors due to safety concerns.

As discussed above, blasting may be required at remote locations. Thus, assuming that blasting would occur for tower installations under this alternative, blasting noise could reach 86.0 dBA L_{max} within the eastern boundary of the National Forest System-GCW, located 100 feet east of proposed tower installations.

Because of the intermittent and infrequent occurrence of blasting activities, and considering that blasting would not occur during the more sensitive times of the day and is highly unlikely to be used as a construction method near sensitive receptors, blasting would not result in a substantial temporary increase in noise at sensitive receptors or exceed applicable County standards.

Helicopter Noise

In addition to typical land equipment and occasional blasting, helicopter use would be required to transport materials (e.g., tower poles, removed trees) and personnel to various inaccessible locations within the study area. Total helicopter usage over a 180- to 200-day construction season is anticipated to occur up to 20 days. For safety and visibility reasons, helicopters would be used only during the day.

Helicopter noise represents the loudest average noise level that could occur (Table 4.9-11) and; therefore, the largest impact area when compared to L_{eq} standards. Based on reference noise levels, helicopters can emit noise levels of 87.9 dBA at 50 feet overhead. Helicopter flyovers would exceed daytime noise standards of 55 dBA L_{eq} within 1,520 feet of helicopter flight. Helicopters would be staged at existing parking lots at Squaw Valley and Alpine Meadows and therefore could disturb nearby residences during takeoff/approach and flyover depending on the altitude of flights, specific flight pattern, and location of material delivery. Nonetheless, overall helicopter activity would be relatively short-term and infrequent, occurring up to 20 days over the entire construction period. Further, daily helicopter use would include material delivery and transport to construction sites located in remote locations, exposing existing land uses to helicopter noise only during approach and takeoff procedures. It should be noted that helicopter use in the area is not uncommon (e.g., ski patrol, medical personnel, law enforcement) and; therefore, would not be a completely new or unfamiliar noise source at nearby sensitive receptors.

Helicopter use would be relatively infrequent and temporary, occurring up to 20 days out of the entire construction period and only during daytime hours, minimizing the potential to disturb people when they are sleeping. However, because specific helicopter flight paths and daily activity levels are unknown, a conservative approach is taken here and it is concluded that helicopter use has the potential to result in temporary, but substantial, disturbance to existing sensitive receptors, depending on specific flight paths, drop-off locations, and activity levels.

All Construction

As discussed above, construction activities would include off-road vehicles, helicopter use, and potential blasting that would result in increases in temporary noise levels during these activities. Construction would be relatively short-term, lasting only one construction season (up to 200 days) with helicopter use occurring up to 20 days. Further, in accordance with Article 9.36.030, "Exemptions," of the Placer County Noise Ordinance, construction activities that occur between 6:00 a.m. and 8:00 p.m., Monday through Friday, and between 8:00 a.m. and 8:00 p.m. Saturday and Sunday, provided that all construction equipment is fitted with factory-installed muffler devices and maintained in good working order, are exempt from Placer County noise limits for sensitive receptors (Table 4.9-9). However, if construction of Alternative 2 did not occur in a manner that qualified for this exemption, construction noise could exceed daytime standards and could occur outside of daytime hours when people are more sensitive to noise. However, RPM NOI-6 specifically identifies that construction activity would occur within the daily timeframes identified in the Placer County Noise Ordinance construction exemption. RPM MUL-7 identifies that construction would occur in a single construction season, minimizing the duration of construction noise generation. RPMs NOI-2 and NOI-5 require that construction equipment is equipped with properly operating and maintained muffler devices, which would be consistent with the requirement of the Placer County Noise Ordinance construction exemption.

With implementation of these RPMs, construction activities would occur during times, and in a manner, consistent with the Placer County Noise Ordinance construction exemption. Construction would not occur during night time hours, and in addition, would be completed in a single construction season. Thus, because of the short-term nature of construction activities and the implementation of applicable RPMs, daytime construction activities would not result in a substantial temporary increase in noise and would not expose persons to generation of noise levels in excess of standards established in the local noise ordinance.

However, because specific helicopter flight paths and daily activity levels are unknown, a conservative approach is taken here and it is concluded that helicopter use has the potential to result in temporary, but substantial, disturbance to existing sensitive receptors, depending on specific flight paths, drop-off locations, and activity levels.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise under Alternative 2 would be **adverse** because construction activities would temporarily increase existing noise levels. These effects would be mitigated through implementation of RPMs MUL-7 and NOI-1 through NOI-6.

CEQA Determination of Effects

Alternative 2 would result in daytime construction activities and noise from heavy-duty equipment, blasting, and helicopter use. Without proper implementation of RPMs, it is possible that construction could occur at times, or in a manner, inconsistent with the Placer County Noise Ordinance, resulting in exposure of persons to noise levels in excess of standards established in the local noise ordinance and at times during which people are more sensitive to noise exposure. Under CEQA, and using the CEQA criteria, if construction of Alternative 2 occurs at times, or in a manner inconsistent with the Placer County Noise Ordinance, this would be a significant impact. However, with implementation of RPMs MUL-7, NOI-2, NOI-5, and NOI-6, construction activities would be temporary, lasting one season, and would occur during the less noise-sensitive times of the day when people are less likely to be disturbed, consistent with the Placer County Noise Ordinance; and mufflers would be properly installed and maintained on construction equipment in compliance with the Noise Ordinance. With implementation of these RPMs, the potential to disturb people during construction activities would be substantially reduced.

RPMs NOI-1, NOI-3, and NOI-4 would further reduce adverse effects from construction noise by limiting helicopter flight paths to avoid residential areas and the GCW, providing a means to reduce potentially disturbing noise during ongoing construction activities by establishing a disturbance coordinator, and requiring that blasting be conducted by qualified contractors (thereby helping ensure that the proper amount and type of explosive is used to achieve the desired result). However, given the uncertainty of helicopter flight path and daily activity levels, and the proximity to existing receptors, helicopter noise could result in substantial disturbance to existing sensitive receptors and this impact would be **significant**.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the Mitigation Monitoring and Reporting Program for the project. The adoption of RPMs MUL-7, NOI-2, NOI-5, and NOI-6 as mitigation measures reduces this significant impact by limiting construction to a single season and requiring that construction activities be conducted in a manner consistent with the Placer County Noise Ordinance. The adoption of RPMs NOI-1, NOI-3, and NOI-4 as mitigation measures further reduces the effects of construction noise but does not eliminate the potential for helicopters to result in substantial temporary disturbance to sensitive receptors. There is no feasible mechanism to ensure that helicopters flying between available staging areas (i.e., the Squaw Valley and Alpine Meadows Parking lots) and the gondola alignment will not generate substantial disturbance to nearby sensitive receptors. This impact would be **significant and unavoidable**.

Impact 4.9-2 (Alt. 2): Construction Vibration Impacts

Under Alternative 2, existing sensitive receptors would be located close to the Squaw Valley base terminal construction area. In addition, blasting may be necessary at remote locations for tower and exploder installation, and mid-station construction, exposing existing receptors to ground vibration from blasting. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise would be **adverse** because construction activities would temporarily increase vibration levels. However, blasting activities would be temporary and would occur during the less

sensitive times of the day when people are less likely to be disturbed. Further, potential blast site locations would not be close to any existing residences or places where people sleep. RPMs NOI-4 and NOI-6 would mitigate this effect. Under CEQA, vibration levels would not exceed applicable thresholds and this impact would be **less than significant**. In addition, RPMs NOI-4 and NOI-6 would ensure proper considerations are taken during blasting activities and by limiting construction times, including blasting, to the less sensitive daytime hours when construction noise is exempt from the Placer County Noise Ordinance. With implementation of these two RPMs, this impact would be reduced, although these RPMs are not necessary to reduce the significant impact to a less-than-significant level.

Construction activities generate varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and, at high-levels, can cause annoyance and sleep disturbance.

Project construction would include various types of equipment including, excavators, cranes, loaders, trucks, drills, and others. In addition, blasting may be required to remove rock outcroppings during mid-station, tower, or shelter installations. Considering these construction activities, blasting would result in the highest vibration levels and is therefore of greatest concern when evaluating construction-related vibration levels.

Although residential structures may not be as strongly constructed as engineered structures (e.g., commercial buildings, infrastructure), it is unusual to find damage to them from blast vibration. In numerous instances, vibration levels far greater than the maximum levels recommended by the USBM or OSMRE failed to cause damage (FTA 2006). Further, considering that blasting would occur only in remote locations within the proposed gondola alignment for tower, exploder, or mid-station construction, blasting would occur beyond 100 feet of any structure. At this distance, because of the rapidly diminishing intensity of ground vibration as distance from the source increase, no existing structures would be exposed to blasting activities that could result in structural damage and; therefore, this analysis focusses on disturbance and annoyance to people from vibration noise (i.e., VdB).

Vibration levels can result in interference or annoyance impacts on residences or other land uses where people sleep, such as, hotels and hospitals. According to FTA, vibration levels associated with blasting are 100 VdB at 50 feet (FTA 2006). FTA vibration annoyance potential criteria depend on the frequency of the vibration events. Specific blasting parameters are not typically known until it has been determined that blasting would occur, and site-specific geology and soil parameters evaluated. Nonetheless, to evaluate vibration levels from blasting activities it was assumed that blast events could occur less than 30 times in 1 day. Given the nature of the proposed project, with relatively small disturbance footprints for individual towers and other facilities, large numbers of blasts would not be needed to achieve desired effects. Based on FTA vibration impact criteria, when vibration events occur less than 30 times per day, they are considered “infrequent events.” Infrequent events in excess of 80 VdB are considered to result in a significant vibration impact on residences and places where people sleep. Based on FTA’s recommended procedure for applying propagation adjustments to these reference levels, vibration levels from blasting could exceed threshold of significance for “infrequent events” within 230 feet of a sensitive land use (refer to Appendix F for modeling details).

Under Alternative 2, blasting activities would not occur during nighttime hours when people are sleeping and more likely to be disturbed. Further, potential blast sites would be located along the proposed gondola alignment and the mid-station locations where rock outcroppings may be present, all at locations beyond 230 feet of existing residences. Blasting would not result in sleep disturbance or exposure of sensitive receptors to substantial short-term increases in noise.

For the reasons described above, although construction of Alternative 2 would generate some level of ground vibration, levels would not exceed applicable thresholds. RPM NOI-4 would further reduce the potential for ground vibration by requiring that a licensed blasting contractor would be used in the event that blasting is required (thereby helping ensure that the proper amount and type of explosive is used to achieve

the desired result), and all blasting activities would be required to comply with Placer County municipal code (i.e., construction hour time limits). RPM NOI-6 would limit the potential for human disturbance from ground vibration by requiring that all construction work, including blasting, occur during daytime hours, consistent with Placer County Noise Ordinance, minimizing the potential to result in sleep disturbance from any blasting activities.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to blasting vibration under Alternative 2 would be **adverse** because blasting activities would temporarily increase existing vibration levels. These effects would be mitigated through implementation of RPMs NOI-4 and NOI-6.

CEQA Determination of Effects

Alternative 2 may require blasting to remove rock outcroppings for construction of mid-stations, towers, exploders, or shelters in remote locations. However, blasting activities would be temporary and would be infrequent enough and far enough away from sensitive receptors that ground vibration thresholds would not be exceeded. Under CEQA, and using the CEQA criteria, this impact would be **less than significant**. RPMs NOI-4 and NOI-6 would further reduce potential effects from construction-generated ground vibration by requiring that a licensed blasting contractor would be used in the event that blasting is required, and all blasting activities would be required to comply with Placer County municipal code (i.e., construction hour time limits). However, these RPMs would not be necessary to reduce a significant impact to a less-than-significant level.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the Mitigation Monitoring and Reporting Program for the project. The adoption of RPMs NOI-4 and NOI-6 as mitigation measures would reduce the effects of construction generated ground vibration but are not necessary to reduce a significant effect.

Impact 4.9-3 (Alt. 2): Exposure of Existing Sensitive Receptors to Operational Noise from Proposed Gazex Exploders and Gondola

Under Alternative 2, the proposed gondola would result in a new noise source at the base terminals, mid-stations, and tower locations. Existing avalanche mitigation strategies would be replaced by eight new Gazex exploders at Alpine Meadows. The change in avalanche mitigation operations would not change existing noise levels. No receptors are located close to the proposed gondola base terminal at Alpine Meadows. However, the new gondola would be located close to existing receptors at the Squaw Valley base terminal location. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to the gondola operational noise would be **adverse** because the new gondola would result in a new noise source at the base terminals, mid-stations, and tower locations. The addition of the new gondola to Squaw Valley would not result in a substantial permanent increase in noise, and under CEQA this impact would be **less than significant**.

Alternative 2 would include operation of a gondola connecting the ski and base terminal areas of Alpine Meadows and Squaw Valley and use of eight Gazex avalanche mitigation exploders (seven on National Forest System lands and one on private lands at Alpine Meadows). Refer to Exhibit 4.9-1 for proposed gondola alignment and Gazex exploder locations.

Noise would be generated by the new gondola, associated with stationary equipment (e.g., drive units, motors, cooling fans) and during operation when the gondola passes over lift towers and the mid-stations, associated with the gondola arm passing over cable wheels. In addition, the new avalanche mitigation system would replace use of the existing control technology at Alpine Meadows (i.e., howitzer cannon) in the

vicinity of the gondola alignment and result in an overall increase in exploders on the project site. Noise from each source is discussed separately below.

Proposed Gondola

The proposed gondola would include two individual gondola units, one from Alpine Meadows, the other at Squaw Valley. Both units would be driven from the base terminals that would be located in each area (Exhibit 4.9-1).

Noise sources associated with the base terminals include the drive units, the motor, primary reducer, and the motor cooling fan. The drive units would be located above the gondola cabins in a machine room and, therefore; would not contribute substantially to the noise generated from the terminal station. Gondola machinery is fairly generic and would be very similar to other existing lifts currently operating at Squaw Valley, such as the Far East Express lift. A noise study was conducted at the Far East lift in 2015, which captured noise levels generated by the lifts entering and leaving the base terminal (Ascent Environmental 2015). Measured noise levels for the Far East Express were 69.6 dBA L_{eq} and 73.5 L_{max} at 54 feet. The maximum noise level occurred when the lift chair entered the base terminal, passing over the guide rails and driver bullwheel. The proposed gondola would include similar equipment as the Far East Express and, therefore; these reference noise levels would be representative of operating noise at the new gondola base terminals, mid-stations, and when the gondola cabin passes over the horizontal arm on top of a tower, to which the sheave wheels are attached. When the gondola is moving between towers, there are no moving parts and thus no noise sources. Noise levels between towers would be minimal and would not increase ambient noise levels over existing conditions. This analysis focusses on noise generated at the base terminals, mid-stations, and tower-crossings.

Based on the above reference noise levels, noise generated from the new gondola at the base terminals/mid-stations and tower crossings would attenuate to below Placer County daytime noise standards for sensitive receptors at 200 feet from the stations and tower locations. No receptors are located within 200 feet of the proposed alignment or tower locations for this alternative and, therefore; noise generated by the gondola passing over towers would not result in noise exposure that exceeds applicable standards at any existing sensitive land use. Noise levels from the proposed gondola would be 62.6 dBA L_{eq} at the eastern boundary of the National Forest System-GCW (i.e., 100 feet west of proposed tower locations)

Existing sensitive receptors are located 2,500 feet north of the proposed Alpine Meadows base terminal, well beyond the distance that gondola operating noise would exceed Placer County noise standards for sensitive receptors. The new gondola would not exceed Placer County noise standards at any of the existing sensitive land uses near Alpine Meadows.

At the Squaw Valley base terminal location, existing sensitive receptors are located approximately 175 feet north of the proposed base terminal (i.e., Squaw Valley Lodge and some residences). Noise levels from the Squaw Valley base terminal would attenuate to 56.3 dBA L_{eq} and 60.2 dBA L_{max} at this location, exceeding Placer County daytime noise standards of 55 dBA L_{eq} at Squaw Valley Lodge. However, the gondola would operate during the winter season only, from just before Alpine Meadows and Squaw Valley open until just after closing (approximately 8:00 a.m. to 6:00 p.m.), the same time as other ski lift operations. Thus, operation of the new gondola would not likely disturb people sleeping at Squaw Valley Lodge and would not result in any noise during most of the year. In addition, during the winter season many noise-generating activities take place at Squaw Valley daily, including amplified music at bars, people talking and laughing, and other ski lift operations (e.g., Gold Coast Funitel, Squaw One Express). The addition of the new gondola would generate noise that is similar to existing conditions and is the type of noise that would be expected at a ski resort such as Squaw Valley. As discussed previously in this section, a doubling of a noise source is required to result in a 3-dB increase in noise, and this is the point at which noise increases are clearly audible. Thus, assuming the existing lifts in this location also operate at similar noise levels as would the proposed gondola, noise would increase by up to 3 dB. In accordance with Placer County Municipal Code, a 5-dB increase in noise would be considered substantial. The addition of a new gondola would not result in substantial changes or increases in noise over existing conditions and would not operate during the sensitive times of the day, minimizing the likelihood of disturbing people.

Avalanche Control (Gazex Exploders)

As mentioned above and shown in Exhibit 4.9-1, eight new Gazex exploders would be installed at Alpine Meadows to mitigate avalanche risk during the winter season. Currently, at Alpine Meadows, avalanche mitigation strategies include the use of a 105-millimeter howitzer cannon and hand-deployed explosives. The Gazex exploders would replace the use of artillery at Alpine Meadows for avalanche mitigation in the vicinity of the gondola alignment.

On April 22, 2016, a noise assessment was conducted to capture noise levels associated with the existing howitzer, hand explosives, and Gazex (an existing exploder currently operated at Squaw Valley). Noise measurements were conducted using a Larson Davis LxT noise level meter. Measurements were conducted between 7:00 a.m. and 9:00 a.m. on April 21, 2016. Conditions were adequate for measurement including clear skies and minimal wind. The results of the noise measurements conducted of the various avalanche mitigation systems are shown below in Table 4.9-12.

Table 4.9-12 Avalanche Control Noise Levels

Noise Event	Noise Level (dBA) at 100 feet
105-mm howitzer projectile thrust	103.1
105-mm howitzer warhead explosion	125.1
Gazex explosion	124.0
2-pound hand charge	107.2
4-pound hand charge	107.8

Notes: dBA = A-weighted decibels; mm = millimeters.
Source: Data collected by Ascent Environmental. in 2016

Based on the measurements conducted, the warhead explosion from the howitzer hitting the mountain surface generates the loudest noise. However, the noise generated by the Gazex explosion differed from that of the howitzer by only 1 dB, which is not typically noticeable to the human ear. Thus, for purposes of this analysis, the Gazex and the howitzer would result in the same noise levels. Considering that avalanche mitigation currently uses artillery that explodes in the same general areas where the proposed Gazex exploders would be located, the ambient noise levels would not change over existing conditions (considering dBA or dBC levels) with implementation of this alternative.

Based on the discussion above, operation of Alternative 2 would not result in a substantial permanent increase in ambient noise levels.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to operational noise (gondola and avalanche mitigation) under Alternative 2 would be **adverse** because the new gondola would result in a new noise source at the base terminals, mid-stations, and tower locations. Avalanche control would not change existing noise levels. However, any increases in noise levels would be minor and would be consistent with the existing noise environment. Short of relocating the proposed gondola equipment or not approving the project, no measures are available to reduce noise associated with gondola operation.

CEQA Determination of Effects

The new gondola under Alternative 2 would result in a new noise source at the existing Squaw Valley and Alpine Meadows base terminal locations. No receptors are located close to the proposed gondola base terminal at Alpine Meadows. Under CEQA, and using the CEQA criteria, the addition of the new gondola to Squaw Valley would not result in a substantial permanent increase in noise and this impact would be **less than significant**. There are no applicable RPMs that would reduce this impact.

Mitigation Measures

No mitigation measures are required.

Impact 4.9-4 (Alt. 2): Exposure of Existing Sensitive Receptors to Operational Project-Generated Transportation Noise Sources

Under Alternative 2, the proposed gondola would result in increases in visitation rates to Squaw Valley and Alpine Meadows. Overall, traffic would increase as a result of additional people traveling to either Squaw Valley or Alpine Meadows. In addition, the new gondola would result in a slight shift in current travel patterns to and between Squaw Valley and Alpine Meadows. The net effect would result in both slight increases and decreases in traffic (and traffic noise) on Squaw Valley Road and Alpine Meadows Road depending on the day. Nonetheless, any increases in traffic noise would be less than 0.5 dBA in all circumstances and, therefore, would not be audible. Consistent with the Placer County Noise Ordinance, project-generated increases in traffic noise would not be substantial and would not expose existing sensitive receptors to permanent increases in noise. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, there would be **minutely adverse** direct and indirect effects related to the gondola operational traffic noise because the new gondola would result in slight (i.e., inaudible) increases in traffic noise. There are no applicable RPMs that would reduce this effect. Under CEQA, and using the CEQA criteria, this impact would be **less than significant** because traffic noise increases would not result in a substantial permanent increase in noise or expose existing receptors to excessive noise levels. There are no applicable RPMs that would reduce this impact.

Project implementation would result in an increase in traffic volumes on affected roadway segments and, potentially, an increase in traffic noise levels. Generally, a doubling of a noise source (such as twice as much traffic) is required to result in an increase of 3 dB, which is perceived as barely noticeable by people (Egan 2007:21). The Placer County Noise Ordinance establishes a 5-dBA increase in a noise source as a substantial noise increase. Thus, regarding traffic noise specifically, an increase in 5 dB or more in traffic noise would be considered substantial. In addition, as indicated in Table 4.9-8, Placer County has established land use-based noise standards from transportation noise for residential/transient lodging land uses as 60 dB L_{dn} at the exterior property line. However, regardless of whether existing noise levels currently exceed standards, projects that do not result in a substantial permanent increase in noise would not result in noise levels that substantially alter the existing condition or expose receptors to excessive or substantial increases in noise.

Traffic noise modeling was conducted based on projected traffic increases during the winter season as a result of increased visitation to Squaw Valley and Alpine Meadows attributable to the project. Refer to Section 4.7, "Transportation and Circulation," and Appendix F for more details regarding inputs and results of the traffic noise modeling. Traffic noise modeling was conducted for winter weekend days (i.e., peak traffic days) for existing conditions and existing plus project conditions. Results are shown in Table 4.9-13.

Based on the modeling conducted, overall, traffic would increase as a result of additional people traveling to either Squaw Valley or Alpine Meadows. The average daily trips (ADT) combined for both resorts would increase for both Saturday and Sunday (Table 4.9-13). However, the new gondola would result in a slight shift in current travel patterns at, and between, Squaw Valley and Alpine Meadows. The net effect of this shift results in both slight increases and decreases in traffic (and traffic noise) on Squaw Valley Road and Alpine Meadows Road depending on the day. Compared to existing conditions, Squaw Valley Road would have a lower ADT on Saturday and a resulting reduction in traffic noise but an increase in trips on Sunday and an increase in traffic noise. Conversely, Alpine Meadows Road would have a higher ADT on Saturday and a resulting increase in traffic noise but a decrease in trips on Sunday and a decrease in traffic noise. Ceasing operation of the current shuttle between Squaw Valley and Alpine Meadows while the gondola is in operation also results in an overall reduction in ADT on Squaw Valley Road and Alpine Meadows Road. When there are increases in traffic and traffic noise on Squaw Valley Road and Alpine Meadows Road, increases in noise would be less than 0.5 dBA (i.e., not audible). Consistent with the Placer County Noise Ordinance,

project-generated increases in traffic noise would not be substantial and would not expose existing sensitive receptors to substantial increases in noise.

Table 4.9-13 Placer County Roadway Level of Service – Existing Plus Project Conditions

Segment	Existing Conditions				Existing Plus Project Conditions					
	Saturday Daily Conditions		Sunday Daily Conditions		Saturday Daily Conditions			Sunday Daily Conditions		
	ADT	CNEL ¹	ADT	CNEL ¹	ADT	CNEL ¹	Change (dBA)	ADT	CNEL ¹	Change (dBA)
Squaw Valley Road west of SR 89	12,750	60.2	13,100	63.0	12,700	60.1	-0.1	14,250	63.4	+0.4
Alpine Meadows Road west of SR 89	5,450	58.0	8,550	62.3	5,850	58.3	+0.3	7,750	61.9	-0.4

Notes: ADT = average daily trips; dBA= A-weighted decibel; CNEL = community noise equivalent level in dBA.

¹Traffic noise is reported as a 24-hour community noise equivalent level in A-weighted decibels at 100 feet from the centerline of the road.

Source: Modeling conducted by Ascent Environmental in 2018

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, there would be **minutely adverse** direct and indirect effects related to operational traffic noise under Alternative 2 because the new gondola would result in increases in noise levels, but these increases would be below 0.5 dBA and would not be audible. There are no applicable RPMs that would reduce this effect.

CEQA Determination of Effects

The new gondola under Alternative 2 would result in additional traffic, and associated noise, on Squaw Valley Road and Alpine Meadows Road. However, any increases in noise levels would be below 0.5 dBA and would not be audible. Under CEQA, and using the CEQA criteria, increases in traffic noise would not result in a substantial permanent increase in noise or expose existing or future sensitive receptors to excessive traffic noise levels. This impact would be **less than significant**. There are no applicable RPMs that would reduce this impact.

Mitigation Measures

No mitigation measures are required.

4.9.3.3 ALTERNATIVE 3

Impact 4.9-1 (Alt. 3): Construction Noise Impacts

Under Alternative 3, existing noise-sensitive receptors would be located close to the Squaw Valley base terminal construction area. Blasting may be necessary at remote locations for tower and exploder installation, and mid-station construction, exposing existing receptors to blast noise. Helicopters would be used to transport material and personnel to construction sites, resulting in noise exposure to existing receptors, depending on specific flight paths. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise would be **adverse** because construction activities would temporarily increase existing noise levels. However, construction activities would be temporary, lasting one season, and would occur during the less sensitive times of the day when people are less likely to be disturbed. Implementation of RPMs NOI-1 through NOI-6 would mitigate this effect. Under CEQA, and using the CEQA criteria, this impact would be **significant** prior to consideration of RPMs because without implementation of RPMs that define the timing and duration of construction and the proper use of muffling devices on equipment, construction could occur during times of day, or in a manner, outside those identified in the Placer County Noise Ordinance. Implementation of RPMs MUL-7, NOI-2, NOI-5, and NOI-6 would limit the timing of construction to those identified in the Placer County Municipal Code, require the proper use of muffling devices, and limit the duration of construction to a single construction season. In addition, RPMs NOI-1, NOI-3,

and NOI-4 would ensure construction noise is minimized to the extent possible by limiting helicopter flight paths to avoid residential areas and the GCW, requiring blasting to be conducted by qualified contractors, and providing a means to reduce potentially disturbing noise during ongoing construction activities by establishing a disturbance coordinator. With implementation of these three additional RPMs, this impact would be reduced, although helicopter noise could still occur for up to 20 days in proximity to existing sensitive land uses and could result in substantial temporary increases in disturbance. This impact would remain **significant**. (Impacts related to wilderness activities are addressed separately in Section 4.3, “Wilderness.”)

Primary project components for Alternative 3 would be the same as described above for Alternative 2 (e.g., towers, mid-stations, base terminals, Gazex system). Thus, construction activities and associated noise levels for Alternative 3 would also be the same as those described for Alternative 2. The only difference would be that the proposed gondola alignment for Alternative 3 would be located further to the east compared to Alternative 2 (see Exhibit 4.9-1). As a result, construction and blasting activities associated with lift tower installations and the Alpine Meadows mid-station would be located closer to the existing residences on the Alpine Meadows side of the gondola but further away from the National Forest System-GCW, resulting in slightly higher noise levels at these residences but lower levels within the National Forest System-GCW. In addition, if helicopter activity were required for material delivery along the gondola alignment for Alternative 3, helicopter activity would be located closer to existing residences under this alternative as compared to Alternative 2.

As discussed above for Alternative 2, construction activities would include off-road vehicles, helicopter use, and potential blasting that would result in increases in temporary noise levels during these activities. Construction would be relatively short-term, lasting only one construction season (up to 200 days) with helicopter use occurring up to 20 days. Further, in accordance with Article 9.36.030, “Exemptions,” of the Placer County Noise Ordinance, construction activities that occur between 6:00 a.m. and 8:00 p.m., Monday through Friday, and between 8:00 a.m. and 8:00 p.m. Saturday and Sunday, provided that all construction equipment is fitted with factory-installed muffler devices and maintained in good working order, are exempt from Placer County noise limits for sensitive receptors (Table 4.9-9). However, if construction of Alternative 3 did not occur in a manner that qualified for this exemption, construction noise could exceed daytime standards at residences located near project facilities and could occur outside of daytime hours when people are more sensitive to noise. However, RPM NOI-6 specifically identifies that construction activity would occur within the daily timeframes identified in the Placer County Noise Ordinance construction exemption. RPM MUL-7 identifies that construction would occur in a single construction season, minimizing the duration of construction noise generation. RPMs NOI-2 and NOI-5 require that construction equipment is equipped with properly operating and maintained muffler devices, which would be consistent with the requirement of the Placer County Noise Ordinance construction exemption.

With implementation of these RPMs, construction activities would occur during times, and in a manner, consistent with the Placer County Noise Ordinance construction exemption. Construction would not occur during night time hours, and in addition, would be completed in a single construction season. Blasting and helicopter use would be infrequent and intermittent. However, because specific helicopter flight paths and daily activity levels are unknown, a conservative approach is taken here and it is concluded that helicopter use has the potential to result in temporary, but substantial, disturbance to existing sensitive receptors, depending on specific flight paths, drop-off locations, and activity levels.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise under Alternative 3 would be **adverse** because construction activities would temporarily increase existing noise levels. These effects would be mitigated through implementation of RPMs MUL-7 and NOI-1 through NOI-6.

CEQA Determination of Effects

Alternative 3 would result in daytime construction activities and noise from heavy-duty equipment, blasting, and helicopter use. Without proper implementation of RPMs, it is possible that construction could occur at

times, or in a manner, inconsistent with the Placer County Noise Ordinance, resulting in exposure of persons to noise levels in excess of standards established in the local noise ordinance and a substantial temporary increase in ambient noise levels above existing without the project. Under CEQA, and using the CEQA criteria, if construction of Alternative 3 occurs at times, or in a manner inconsistent with the Placer County Noise Ordinance, this would be a significant impact. However, with implementation of RPMs MUL-7, NOI-2, NOI-5, and NOI-6, construction activities would be temporary, lasting one season, and would occur during the less sensitive times of the day when people are less likely to be disturbed, consistent with the Placer County Noise Ordinance; and mufflers would be properly installed and maintained on construction equipment in compliance with the Noise Ordinance. With implementation of these RPMs, the potential to disturb people during construction activities would be substantially reduced. This impact would not differ materially from that under Alternative 2 because both alternatives would generate the same, or a very similar, amount of construction noise. RPMs NOI-1, NOI-3, and NOI-4 would further reduce adverse effects from construction noise by limiting helicopter flight paths to avoid residential areas, providing a means to reduce potentially disturbing noise during ongoing construction activities by establishing a disturbance coordinator, and requiring that blasting be conducted by qualified contractors. However, given the uncertainty of helicopter flight paths and daily activity levels and the proximity to existing receptors, helicopter noise could result in substantial disturbance to existing sensitive receptors and this impact would be **significant**.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the Mitigation Monitoring and Reporting Program for the project. The adoption of RPMs MUL-7, NOI-2, NOI-5, and NOI-6 as mitigation measures reduces this significant impact by limiting construction to a single season and requiring that construction activities be conducted in a manner consistent with the Placer County Noise Ordinance. The adoption of RPMs NOI-1, NOI-3, and NOI-4 as mitigation measures further reduces the effects of construction noise, but does not eliminate the potential for helicopters to result in substantial temporary disturbance to sensitive receptors. There is no feasible mechanism to ensure that helicopters flying between available staging areas (i.e., the Squaw Valley and Alpine Meadows Parking lots) and the gondola alignment will not generate substantial disturbance to nearby sensitive receptors. This impact would be **significant and unavoidable**.

Impact 4.9-2 (Alt. 3): Construction Vibration Impacts

Under Alternative 3, existing sensitive receptors would be located close to the Squaw Valley base terminal construction area. In addition, blasting may be necessary at remote locations for tower and exploder installation, and mid-station construction, exposing existing receptors to ground vibration from blasting. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise would be **adverse** because construction activities would temporarily increase vibration levels. However, blasting activities would be temporary and would occur during the less sensitive times of the day when people are less likely to be disturbed. Further, potential blast site locations would not be close to any existing residences or places where people sleep. RPMs NOI-4 and NOI-6 would mitigate this effect. Under CEQA, vibration levels would not exceed applicable thresholds and this impact would be **less than significant**. In addition, RPMs NOI-4 and NOI-6 would ensure proper considerations are taken during blasting activities and by limiting construction times, including blasting, to the less sensitive daytime hours when construction noise is exempt from the Placer County Noise Ordinance. With implementation of these two RPMs, this impact would be reduced, although these RPMs are not necessary to reduce the significant impact to a less-than-significant level.

Primary project components for Alternative 3 would be the same as described above for Alternative 2 (e.g., towers, mid-stations, base terminals, Gazex system). Thus, like Alternative 2, blasting may also be required for Alternative 3 for construction of mid-stations, lift towers, and exploders in remote locations along the gondola alignment. Blasting VdB levels would be the same as described for Alternative 2. With Alternative 3, the proposed gondola alignment for Alternative 3 would be located further to the east compared to Alternative 2 (see Exhibit 4.9-1). As a result, blasting activities associated with lift tower installations and the

Alpine Meadows mid-station would be located closer to existing residences on the Alpine Meadows side of the gondola, resulting in slightly higher potential for vibration at these residences. Specifically, one residence is located within the proposed alignment for this alternative and if blasting were to occur at the tower location closest to this house (i.e., 130 feet), blasting would result in 87 VdB. Nonetheless, the impact criteria of 80 VdB is designed for places where people sleep. Blasting would not occur at night and therefore would not disturb sleep. Also, if blasting were needed at this location, it would be for a single tower and would be a one time, or very limited vibration generating event.

As discussed above for Alternative 2, blasting activities would be temporary and intermittent and would not occur during sensitive times of the day or within distances that could result in disturbance at places where people sleep. Although construction of Alternative 3 would generate some level of ground vibration, levels would not exceed applicable thresholds. RPM NOI-4 would further reduce the potential for ground vibration by requiring that a licensed blasting contractor be used in the event that blasting is required (thereby helping ensure that the proper amount and type of explosive is used to achieve the desired result), and all blasting activities would be required to comply with Placer County municipal code (i.e., construction hour time limits). RPM NOI-6 would limit the potential for human disturbance from ground vibration by requiring that all construction work, including blasting, occur during daytime hours, consistent with Placer County Noise Ordinance, minimizing the potential to result in sleep disturbance from any blasting activities.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to blasting vibration under Alternative 3 would be **adverse** because blasting activities would temporarily increase existing vibration levels. These effects would be mitigated through implementation of RPMs NOI-4 and NOI-6.

CEQA Determination of Effects

Like Alternative 2, Alternative 3 may require blasting to remove rock outcroppings during construction of mid-stations, towers, exploders, or shelters in remote locations. However, blasting activities would be temporary and would be infrequent enough and far enough away from sensitive receptors that ground vibration thresholds would not be exceeded. Under CEQA, and using the CEQA criteria, this impact would be **less than significant**. RPMs NOI-4 and NOI-6 would further reduce potential effects from construction generated ground vibration by requiring that a licensed blasting contractor would be used in the event that blasting is required, and all blasting activities would be required to comply with Placer County municipal code (i.e., construction hour time limits). However, these RPMs would not be necessary to reduce a significant impact to a less-than-significant level. These RPMs would be equally effective under Alternative 3 and Alternative 2.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the Mitigation Monitoring and Reporting Program for the project. The adoption of RPMs NOI-4 and NOI-6 as mitigation measures would reduce the effects of construction generated ground vibration but are not necessary to reduce a significant effect.

Impact 4.9-3 (Alt. 3): Exposure of Existing Sensitive Receptors to Operational Noise from Proposed Gazex Exploders and Gondola

Under Alternative 3, the proposed gondola would result in a new noise source at the base terminals, mid-stations, and tower locations. Existing avalanche mitigation strategies would be replaced by eight new Gazex exploders at Alpine Meadows. The change in avalanche mitigation operations would not change existing noise levels. No receptors are located close to the proposed gondola base terminal at Alpine Meadows. However, the new gondola would be located close to existing receptors at the Squaw Valley base terminal location. In addition, the new gondola would exceed Placer County daytime noise standards at the existing residence that is located within the proposed gondola alignment. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to the gondola operational

noise would be **adverse** because the new gondola would result in a new noise source at the base terminals, mid-stations, and tower locations. The addition of the new gondola to Squaw Valley would not result in a substantial permanent increase in noise. However, the new gondola would result in exceedance of Placer County daytime standards at the existing residences within the gondola alignment and near the Alpine Meadows mid-station, resulting in a substantial increase in noise at these locations. Under CEQA, this impact would be **significant**.

Primary project components for Alternative 3 would be the same as described above for Alternative 2 (e.g., towers, mid-stations, base terminals, Gazex system). Thus, operational noise levels associated with the gondola and the avalanche mitigation strategies would be the same. However, with Alternative 3, the proposed gondola alignment would be located further to the east compared to Alternative 2. As a result, the new alignment could place a lift tower approximately 130 feet from the house located within the gondola alignment, resulting in noise levels of 59.7 dBA L_{eq} and 63.5 dBA L_{max} , exceeding the daytime noise standard of 55 dBA L_{eq} . In addition, the Alpine Meadows mid-station would be located approximately 180 feet from an existing house near Alpine Meadows Road, resulting in noise levels of 56.0 dBA L_{eq} , and 59.9 dBA L_{max} , exceeding the daytime noise standard of 55 dBA L_{eq} . Operational noise associated with the gondola could result in 52 dBA L_{eq} at the eastern boundary of the National Forest System-GCW (i.e., 258 feet west of the gondola), 10 dB lower compared to Alternative 2.

Although daytime noise standards would be exceeded, typical wooden structures provide, at a minimum, an exterior-to-interior noise reduction of 25 dB (Caltrans 2002). Thus, interior noise levels at these residences would be well below the Placer County interior noise standards of 45 dBA. However, given that the location of the proposed gondola alignment under Alternative 3 is in an area that is relatively undeveloped, rural, and quiet in nature, and the new gondola would introduce a new source that would exceed Placer County noise standards for sensitive receptors, Alternative 3 would result in a substantial permanent increase in noise levels. Avalanche control strategies for with Alternative 3 would be the same as Alternative 2, Therefore, associated noise levels and impacts would also be the same.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, Alternative 3 would result in long-term noise increases associated with the new Alpine Meadows mid-station being near, and gondola passing over, existing residential uses, resulting an **adverse** effect on existing sensitive receptors.

CEQA Determination of Effects

Like Alternative 2, Alternative 3 would result in increases in operational noise associated with the new gondola base terminals and mid-stations. Noise generated by avalanche control strategies would be similar to those currently being used at Alpine Meadows; therefore, ambient noise levels would not be substantially different from the existing ambient noise levels. Increases in gondola noise at existing sensitive land uses would result in an exceedance of Placer County daytime noise standards and a substantial increase in noise in areas where no noise source currently exists. Using the CEQA criteria, this impact would be significant. This impact would be greater under Alternative 3 than under Alternative 2 because the gondola alignment under Alternative 3 would be closer to a residence than would be the case under Alternative 2. There are no applicable RPMs that would reduce this impact. Therefore, this impact would be **significant**.

Mitigation Measure 4.9-3 (Alt. 3): Reduce Noise Exposure to Existing Sensitive Receptors from Proposed Stationary Noise Sources

The location of the proposed gondola components (e.g., stations, towers) under Alternative 3 shall be located, at a minimum, 200 feet from any existing sensitive land use.

Significance after Mitigation

Siting new noise sources beyond 200 feet of sensitive land uses would ensure that Placer County daytime noise standards of 55 dBA L_{eq} and 70 dBA L_{max} are not exceeded at sensitive receptors. This impact would be reduced to a **less-than-significant** level.

Impact 4.9-4 (Alt. 3): Exposure of Existing Sensitive Receptors to Operational Project-Generated Transportation Noise Sources

Under Alternative 3, the proposed gondola would result in increases in visitation rates to Squaw Valley and Alpine Meadows. Overall, traffic would increase as a result of additional people traveling to either Squaw Valley or Alpine Meadows. In addition, the new gondola would result in a slight shift in current travel patterns at and between Squaw Valley and Alpine Meadows. The net effect would result in both slight increases and decreases in traffic (and traffic noise) on Squaw Valley Road and Alpine Meadows Road depending on the day. Nonetheless, any increases in traffic noise would be less than 0.5 dBA in all circumstances and, therefore, would not be audible. Consistent with the Placer County Noise Ordinance, project-generated increases in traffic noise would not be substantial and would not expose existing sensitive receptors to permanent increases in noise. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, there would be **minutely adverse** direct and indirect effects related to the gondola operational traffic noise because the new gondola would result in slight (i.e., inaudible) increases in traffic noise. There are no applicable RPMs that would reduce this effect. Under CEQA, and using the CEQA criteria, this impact would be **less than significant** because traffic noise increases would not result in a substantial permanent increase in noise or expose existing receptors to excessive noise levels. There are no applicable RPMs that would reduce this impact.

Primary project components for Alternative 3 would be the same as described above for Alternative 2 (e.g., towers, mid-stations, base terminals, Gazex system). Thus, traffic patterns resulting from operation of the project would be the same. Therefore, associated traffic noise levels and impacts would also be the same.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, there would be **minutely adverse** direct and indirect effects related to operational traffic noise under Alternative 3 because the new gondola would result in increases in noise levels, but these increases would be below 0.5 dBA and would not be audible. There are no applicable RPMs that would reduce this effect.

CEQA Determination of Effects

Like Alternative 2, the new gondola under Alternative 3 would result in additional traffic, and associated noise, on Squaw Valley Road and Alpine Meadows Road. However, any increases in noise levels would be below 0.5 dBA and would not be audible. Under CEQA, and using the CEQA criteria, increases in traffic noise would not result in a substantial permanent increase in noise or expose existing or future sensitive receptors to excessive traffic noise levels. This impact would be **less than significant**. There are no applicable RPMs that would reduce this impact.

Mitigation Measures

No mitigation measures are required.

4.9.3.4 ALTERNATIVE 4

Impact 4.9-1 (Alt. 4): Construction Noise Impacts

Under Alternative 4, existing noise-sensitive receptors would be located close to the Squaw Valley base terminal construction area. Blasting may be necessary at remote locations for tower and exploder installation, and mid-station construction, exposing existing receptors to blast noise. Helicopters would be used to transport material and personnel to construction sites, resulting in noise exposure to existing receptors, depending on specific flight paths. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise would be **adverse** because construction activities would temporarily increase existing noise levels. However, construction activities would be temporary, lasting one season, and would occur during the less sensitive times of the day when people are less likely to be disturbed. Implementation of RPMs NOI-1 through NOI-6 would mitigate this effect.

Under CEQA, and using the CEQA criteria, this impact would be **significant** prior to consideration of RPMs because without implementation of RPMs that define the timing and duration of construction and the proper use of muffling devices on equipment, construction could occur during times of day, or in a manner, outside those identified in the Placer County Noise Ordinance. Implementation of RPMs MUL-7, NOI-2, NOI-5, and NOI-6 would limit the timing of construction to those identified in the Placer County Municipal Code, require the proper use of muffling devices, and limit the duration of construction to a single construction season. In addition, RPMs NOI-1, NOI-3, and NOI-4 would ensure construction noise is minimized to the extent possible by limiting helicopter flight paths to avoid residential areas and the GCW, requiring blasting to be conducted by qualified contractors, and providing a means to reduce potentially disturbing noise during ongoing construction activities by establishing a disturbance coordinator. With implementation of these three additional RPMs, this impact would be reduced, although helicopter noise could still occur for up to 20 days in proximity to existing sensitive land uses and could result in substantial temporary increases in disturbance. This impact would remain **significant**. (Impacts related to wilderness activities are addressed separately in Section 4.3, “Wilderness.”)

Primary project components for Alternative 4 would be the same as described above for Alternative 2 (e.g., towers, mid-stations, base terminals, Gazex system). Thus, construction activities and associated noise levels for Alternative 4 would also be the same as those described for Alternative 2. The only difference would be that the proposed gondola alignment and Alpine Meadows mid-station for Alternative 4 would be located further to the east compared to Alternative 2 (see Exhibit 4.9-1). As a result, construction and blasting activities associated with lift tower installations and the Alpine Meadows mid-station would be located closer to existing residences on the Alpine Meadows side of the gondola but further from the National Forest System-GCW. In addition, if helicopter activity were required for material delivery along the gondola alignment for Alternative 4, helicopter activity would be located closer to existing residences under this alternative as compared to Alternative 2.

As discussed above for Alternative 2, construction activities would include off-road vehicles, helicopter use, and potential blasting that would result in increases in temporary noise levels during these activities. Construction would be relatively short-term, lasting only one construction season (up to 200 days) with helicopter use occurring up to 20 days. Further, in accordance with Article 9.36.030, “Exemptions,” of the Placer County Noise Ordinance, construction activities that occur between 6:00 a.m. and 8:00 p.m., Monday through Friday, and between 8:00 a.m. and 8:00 p.m. Saturday and Sunday, provided that all construction equipment is fitted with factory-installed muffler devices and maintained in good working order, are exempt from Placer County noise limits for sensitive receptors (Table 4.9-9). However, if construction of Alternative 3 did not occur in a manner that qualified for this exemption, construction noise could exceed daytime standards at residences located near project facilities and could occur outside of daytime hours when people are more sensitive to noise. However, RPM NOI-6 specifically identifies that construction activity would occur within the daily timeframes identified in the Placer County Noise Ordinance construction exemption. RPM MUL-7 identifies that construction would occur in a single construction season, minimizing the duration of construction noise generation. RPMs NOI-2 and NOI-5 require that construction equipment is equipped with properly operating and maintained muffler devices, which would be consistent with the requirement of the Placer County Noise Ordinance construction exemption.

With implementation of these RPMs, construction activities would occur during times, and in a manner, consistent with the Placer County Noise Ordinance construction exemption. Construction would not occur during night time hours, and in addition, would be completed in a single construction season. Blasting and helicopter use would be infrequent and intermittent. However, because specific helicopter flight paths and daily activity levels are unknown, a conservative approach is taken here and it is concluded that helicopter use has the potential to result in temporary, but substantial, disturbance to existing sensitive receptors, depending on specific flight paths, drop-off locations, and activity levels.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise under Alternative 4 would be **adverse** because construction activities

would temporarily increase existing noise levels. These effects would be mitigated through implementation of RPMs MUL-7 and NOI-1 through NOI-6.

CEQA Determination of Effects

Alternative 4 would result in daytime construction activities and noise from heavy-duty equipment, blasting, and helicopter use. Without proper implementation of RPMs, it is possible that construction could occur at times, or in a manner, inconsistent with the Placer County Noise Ordinance, resulting in exposure of persons to noise levels in excess of standards established in the local noise ordinance and a substantial temporary increase in ambient noise levels above existing without the project. Under CEQA, and using the CEQA criteria, if construction of Alternative 4 occurs at times, or in a manner inconsistent with the Placer County Noise Ordinance, this would be a significant impact. However, with implementation of RPMs MUL-7, NOI-2, NOI-5, and NOI-6, construction activities would be temporary, lasting one season, and would occur during the less sensitive times of the day when people are less likely to be disturbed, consistent with the Placer County Noise Ordinance; and mufflers would be properly installed and maintained on construction equipment in compliance with the Noise Ordinance. With implementation of these RPMs, disturbed, consistent with the Placer County Noise Ordinance; and mufflers would be properly installed and maintained on construction equipment in compliance with the Noise Ordinance. With implementation of these RPMs, the potential to disturb people during construction activities would be substantially reduced. This impact would not differ materially from that under Alternative 2 because both alternatives would generate the same, or a very similar, amount of construction noise. RPMs NOI-1, NOI-3, and NOI-4 would further reduce adverse effects from construction noise by limiting helicopter flight paths to avoid residential areas, providing a means to reduce potentially disturbing noise during ongoing construction activities by establishing a disturbance coordinator, and requiring that blasting be conducted by qualified contractors. However, given the uncertainty of helicopter flight paths and daily activity levels and the proximity to existing receptors, helicopter noise could result in substantial disturbance to existing sensitive receptors and this impact would be **significant**.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the Mitigation Monitoring and Reporting Program for the project. The adoption of RPMs MUL-7, NOI-2, NOI-5, and NOI-6 as mitigation measures reduces this significant impact by limiting construction to a single season and requiring that construction activities be conducted in a manner consistent with the Placer County Noise Ordinance. The adoption of RPMs NOI-1, NOI-3, and NOI-4 as mitigation measures further reduces the effects of construction noise, but does not eliminate the potential for helicopters to result in substantial temporary disturbance to sensitive receptors. There is no feasible mechanism to ensure that helicopters flying between available staging areas (i.e., the Squaw Valley and Alpine Meadows Parking lots) and the gondola alignment will not generate substantial disturbance to nearby sensitive receptors. This impact would be **significant and unavoidable**.

Impact 4.9-2 (Alt. 4): Construction Vibration Impacts

Under Alternative 4, existing sensitive receptors would be located close to the Squaw Valley base terminal construction area. In addition, blasting may be necessary at remote locations for tower and exploder installation, and mid-station construction, exposing existing receptors to ground vibration from blasting. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to construction noise would be **adverse** because construction activities would temporarily increase vibration levels. However, blasting activities would be temporary and would occur during the less sensitive times of the day when people are less likely to be disturbed. Further, potential blast site locations would not be close to any existing residences or places where people sleep. RPMs NOI-4 and NOI-6 would mitigate this effect. Under CEQA, vibration levels would not exceed applicable thresholds and this impact would be **less than significant**. In addition, RPMs NOI-4 and NOI-6 would ensure proper considerations are taken during blasting activities and by limiting construction times, including blasting, to the less sensitive daytime hours when construction noise is exempt from the Placer County Noise Ordinance. With implementation of these two RPMs, this impact would be reduced, although these RPMs are not necessary to reduce the significant impact to a less-than-significant level.

Primary project components for Alternative 4 would be the same as described above for Alternative 2 (e.g., towers, mid-stations, base terminals, Gazex system). Thus, like Alternative 2, blasting may also be required for Alternative 4, for construction of mid-stations, lift towers, and exploders in remote locations along the gondola alignment. Blasting VdB levels would be the same as described for Alternative 2. With Alternative 4, the proposed gondola alignment would be located further to the east compared to Alternative 2 (see Exhibit 4.9-1). As a result, blasting activities potentially occurring at tower installations or the Alpine Meadows mid-station could be located approximately 300 feet from the existing residence near Alpine Meadows Road, resulting in slightly higher potential for vibrations levels at this location, but still would be located beyond the distance identified where blasting would exceed 80 VdB (i.e., 230 feet).

As discussed above for Alternative 2, blasting activities would be temporary and intermittent and would not occur during sensitive times of the day or within distances that could result in disturbance at places where people reside or sleep. Although construction of Alternative 4 would generate some level of ground vibration, levels would not exceed applicable thresholds. RPM NOI-4 would further reduce the potential for ground vibration by requiring that a licensed blasting contractor be used in the event that blasting is required (thereby helping ensure that the proper amount and type of explosive is used to achieve the desired result), and all blasting activities would be required to comply with Placer County municipal code (i.e., construction hour time limits). RPM NOI-6 would limit the potential for human disturbance from ground vibration by requiring that all construction work, including blasting, occur during daytime hours, consistent with Placer County Noise Ordinance, minimizing the potential to result in sleep disturbance from any blasting activities.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to blasting vibration under Alternative 4 would be **adverse** because blasting activities would temporarily increase existing vibration levels. These effects would be mitigated through implementation of RPMs NOI-4 and NOI-6.

CEQA Determination of Effects

Like Alternative 2, Alternative 4 may require blasting to remove rock outcroppings during construction of mid-stations, towers, exploders, or shelters in remote locations. However, blasting activities would be temporary, and would be infrequent enough and far enough away from sensitive receptors that ground vibration thresholds would not be exceeded. Under CEQA, and using the CEQA criteria, this impact would be **less than significant**. RPMs NOI-4 and NOI-6 would further reduce potential effects from construction generated ground vibration by requiring that a licensed blasting contractor would be used in the event that blasting is required, and all blasting activities would be required to comply with Placer County municipal code (i.e., construction hour time limits). However, these RPMs would not be necessary to reduce a significant impact to a less-than-significant level. These RPMs would be equally effective under Alternative 4 and Alternative 2.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the Mitigation Monitoring and Reporting Program for the project. The adoption of RPMs NOI-4 and NOI-6 as mitigation measures would reduce the effects of construction generated ground vibration but are not necessary to reduce a significant effect.

Impact 4.9-3 (Alt. 4): Exposure of Existing Sensitive Receptors to Operational Noise from Proposed Gazex Exploders and Gondola

Under Alternative 4, the proposed gondola would result in a new noise source at the base terminals, mid-stations, and tower locations. Existing avalanche mitigation strategies would be replaced by eight new Gazex exploders at Alpine Meadows. The change in avalanche mitigation operations would not change existing noise levels. No receptors are located close to the proposed gondola base terminal at Alpine Meadows. However, the new gondola would be located close to existing receptors at the Squaw Valley base terminal location. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to the gondola operational noise would be **adverse** because the new gondola would result in a new noise source at the base terminals, mid-stations, and tower locations. The addition of the new gondola to Squaw Valley would not result in a substantial permanent increase in noise, and under CEQA, this impact would be **less than significant**.

Primary project components for Alternative 4 would be the same as described above for Alternative 2 (e.g., towers, mid-stations, base terminals, Gazex system). Thus, operational noise levels associated with the gondola and the avalanche mitigation strategies would be the same. However, with Alternative 4, the proposed gondola alignment would be located further to the east compared to Alternative 2. In addition, the Squaw Valley base terminal would also be located further east as compared to Alternative 2. As a result, the new alignment could place lift towers and mid-stations closer to existing houses, compared to Alternative 2 but would locate the Alpine Meadows base terminal further away from existing sensitive receptors compared to Alternative 2. All components would be further from the National Forest System-GCW. Thus, the proposed gondola alignment, gondola stations, and tower locations with this alternative would be located more than 200 feet from any existing sensitive receptors and, therefore, would not exceed Placer County daytime noise standards at any existing sensitive receptor. Avalanche control strategies with Alternative 4 would be the same as Alternative 2. Therefore, associated noise levels and impacts would also be the same. Operational noise associated with the gondola could result in 35.6 dBA L_{eq} at the eastern boundary of the National Forest System-GCW (i.e., 1,100 feet west of the gondola), 26 dB lower compared to Alternative 2.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect impacts related to operational noise (gondola and avalanche mitigation) under Alternative 4 would be **adverse** because the new gondola would result in a new noise source at the base terminals, mid-stations, and tower locations. Avalanche control would not change existing noise levels. However, any increases in noise levels would be minor and would be consistent with the existing noise environment. Short of relocating the proposed gondola equipment or not approving the project, no measures are available to reduce noise associated with gondola operation.

CEQA Determination of Effects

Like Alternative 2, Alternative 4 would result in new and additional long-term operational noise associated with gondola operation. However, increases in noise would not exceed applicable standards and would not be considered substantial. Replacement of the existing artillery avalanche mitigation strategy with the Gazex exploders at Alpine Meadows would not result in substantial changes to the existing noise levels. Under CEQA, and using the CEQA criteria, this impact would be **less than significant**. There are no applicable RPMs that would reduce this impact. This impact would be the same as under Alternative 2 because neither alternative would create a substantial permanent increase in noise.

Mitigation Measures

No mitigation measures are required.

Impact 4.9-4 (Alt. 4): Exposure of Existing Sensitive Receptors to Operational Project-Generated Transportation Noise Sources

Under Alternative 4, the proposed gondola would result in increases in visitation rates to Squaw Valley and Alpine Meadows. Overall, traffic would increase as a result of additional people traveling to either Squaw Valley or Alpine Meadows. In addition, the new gondola would result in a slight shift in current travel patterns at and between Squaw Valley and Alpine Meadows. The net effect would result in both slight increases and decreases in traffic (and traffic noise) on Squaw Valley Road and Alpine Meadows Road depending on the day. Nonetheless, any increases in traffic noise would be less than 0.5 dBA in all circumstances and, therefore, would not be audible. Consistent with the Placer County Noise Ordinance, project-generated increases in traffic noise would not be substantial and would not expose existing sensitive receptors to permanent increases in noise. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, there would be **minutely adverse** direct and indirect effects related to the gondola operational traffic noise because the new gondola would result in slight (i.e., inaudible) increases in traffic noise. There are no applicable RPMs that would reduce this effect. Under CEQA, and using the CEQA criteria, this impact would be **less than significant** because traffic noise increases would not result in a substantial permanent increase in noise or expose existing receptors to excessive noise levels. There are no applicable RPMs that would reduce this impact.

Primary project components for Alternative 4 would be the same as described above for Alternative 2 (e.g., towers, mid-stations, base terminals, Gazex system). Thus, traffic patterns resulting from operation of the project would be the same. Therefore, associated traffic noise levels and impacts would also be the same.

NEPA Effects Conclusion

Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, there would be **minutely adverse** direct and indirect effects related to operational traffic noise under Alternative 4 because the new gondola would result in increases in noise levels, but these increases would be below 0.5 dBA and would not be audible. There are no applicable RPMs that would reduce this effect.

CEQA Determination of Effects

Like Alternative 2, the new gondola under Alternative 4 would result in additional traffic, and associated noise, on Squaw Valley Road and Alpine Meadows Road. However, any increases in noise levels would be below 0.5 dBA and would not be audible. Under CEQA, and using the CEQA criteria, increases in traffic noise would not result in a substantial permanent increase in noise or expose existing or future sensitive receptors to excessive traffic noise levels. This impact would be **less than significant**. There are no applicable RPMs that would reduce this impact.

Mitigation Measures

No mitigation measures are required.

4.9.3.5 SUMMARY OF DIRECT AND INDIRECT EFFECTS

Table 4.9-14 provides a summary of the effects determinations for the direct and indirect effects evaluated above for each alternative.

For Alternative 1, the No Action Alternative, there would be no impact for all NEPA indicators and CEQA criteria evaluated.

For all the action alternatives, Impacts 4.9-1 and 4.9-2 would be adverse for all NEPA indicators. Construction activities would result in temporary increases in noise associated with heavy-duty off-road equipment, blasting, and helicopter use. Incorporation of noise-related RPMs would reduce these effects to the extent possible, but construction noise would not be eliminated. Under CEQA, impacts for all alternatives would be significant and unavoidable due to the potential for helicopter noise to result in substantial

disturbance to existing sensitive receptors. Because of location, construction noise from Alternative 2 would be more noticeable in the GCW; however, construction noise would be more noticeable at sensitive residential receptors along the southern part of the alignment under Alternatives 3 and 4. The Squaw Valley base terminal would be near the Squaw Valley Lodge under Alternatives 2 and 3 but more distant from this sensitive receptor under Alternative 4.

For Impact 4.9-3, long-term operation would introduce new stationary sources associated with the Gazex exploders, gondola stations, and lift towers. The same Gazex avalanche mitigation system would be installed for all action alternatives, and the contribution to operational noise effects from operating this system would be the same across Alternatives 2, 3, and 4. Increases in noise would be associated with stationary equipment at the base terminals (e.g., drive units, motors, cooling fans) and noise associated with the gondola passing over lift towers. Considering that permanent increases in noise would occur, for all NEPA indicators effects are adverse. Under Alternative 3, the impact would be slightly greater compared to Alternative 2 because the gondola alignment would directly affect an existing residence in an area where no noise sources currently exist. Under Alternatives 2 and 4, the impact would be less than significant under CEQA and no mitigation would be required. Under Alternative 3, the impact would be significant because operation of the gondola would result in a substantial permanent increase in noise at existing sensitive receptors. However, with incorporation of Mitigation Measure 4.9-3, project components would be located far enough away from existing residences to minimize noise exposure, and the impact would be reduced to a less-than-significant level. Under Alternatives 2 and 3, the Squaw Valley base terminal would be closer to existing residences than under Alternative 4; however, operation of this base terminal does not result in a significant effect under CEQA for any alternative.

For Impact 4.9-4, effects related to operational traffic noise are minorly adverse for all NEPA indicators and less than significant for all CEQA criteria for all three action alternatives, and there is no difference in effects across the action alternatives because traffic patterns (and thus traffic noise) would be the same for all action alternatives.

Table 4.9-14 Summary of Direct and Indirect Effects

Impact	Applicable Analytical Indicators and Significance Criteria	Alt. 1	Alt. 2	Alt. 3	Alt. 4
4.9-1: Construction Noise Impacts	Narrative description of potential noise-related impacts associated with construction of the proposed projects, including short-term construction-related noise (e.g., use of heavy equipment and helicopters)	No effect	Adverse under NEPA; significant and unavoidable under CEQA	Adverse under NEPA; significant and unavoidable under CEQA Same as for Alternative 2	Adverse under NEPA; significant and unavoidable under CEQA Same as for Alternatives 2 and 3
	Expose persons to or generation of noise levels in excess of standards established in the local General Plan, noise ordinance	No effect	Adverse under NEPA; significant under CEQA	Adverse under NEPA; significant under CEQA Same as for Alternative 2	Adverse under NEPA; significant under CEQA Same as for Alternatives 2 and 3
	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing without the project	No effect	Adverse under NEPA; significant and unavoidable under CEQA	Adverse under NEPA; significant and unavoidable under CEQA Same as for Alternative 2	Adverse under NEPA; significant and unavoidable under CEQA Same as for Alternatives 2 and 3

Table 4.9-14 Summary of Direct and Indirect Effects

Impact	Applicable Analytical Indicators and Significance Criteria	Alt. 1	Alt. 2	Alt. 3	Alt. 4
4.9-2: Construction Vibration Impacts	Narrative description of potential noise-related impacts associated with construction of the proposed projects, including short-term construction-related noise (e.g., use of heavy equipment and helicopters)	No effect	Adverse under NEPA; less than significant under CEQA	Adverse under NEPA; less than significant under CEQA Same as for Alternative 2	Adverse under NEPA; less than significant under CEQA Same as for Alternatives 2 and 3
	Discussion of the helicopter flight plan and its potential to increase noise levels in the study area	No effect	Adverse under NEPA; less than significant under CEQA	Adverse under NEPA; less than significant under CEQA Same as for Alternative 2	Adverse under NEPA; less than significant under CEQA Same as for Alternatives 2 and 3
	Expose persons to or generation of excessive groundborne vibration or groundborne noise levels	No effect	Adverse under NEPA; less than significant under CEQA	Adverse under NEPA; less than significant under CEQA Same as for Alternative 2	Adverse under NEPA; less than significant under CEQA Same as for Alternatives 2 and 3
4.9-3: Exposure of Existing Sensitive Receptors to Operational Noise from Proposed Gazex Exploders and Gondola	Narrative description of potential noise-related impacts associated with operation of the proposed projects, including long-term operational noise (e.g., gondola and Gazex exploders), and noise impacts of the Gazex exploders compared with existing avalanche mitigation methods	No effect	Adverse under NEPA; less than significant under CEQA	Adverse under NEPA; less than significant with mitigation under CEQA Greater than under Alternative 2	Adverse under NEPA; less than significant under CEQA Same as for Alternative 2 and less than for Alternative 3
	Expose persons to or generation of noise levels in excess of standards established in the local General Plan, noise ordinance	No effect	Adverse under NEPA; less than significant under CEQA	Adverse under NEPA; less than significant with mitigation under CEQA Greater than under Alternative 2	Adverse under NEPA; less than significant under CEQA Same as for Alternative 2 and less than for Alternative 3
	Result in a substantial permanent increase (i.e., 5 dB) in ambient noise levels in the project vicinity above levels existing without the project	No effect	Adverse under NEPA; less than significant under CEQA	Adverse under NEPA; less than significant with mitigation under CEQA Greater than under Alternative 2	Adverse under NEPA; less than significant under CEQA Same as for Alternative 2 and less than for Alternative 3
4.9-4: Exposure of Existing Sensitive Receptors to Operational Project-Generated Transportation Noise Sources	Narrative description of potential noise-related impacts associated with operation of the proposed projects, including traffic-related noise	No effect	Minorsly adverse under NEPA; less than significant under CEQA	Minorsly adverse under NEPA; less than significant under CEQA Same as for Alternative 2	Minorsly adverse under NEPA; less than significant under CEQA Same as for Alternatives 2 and 3
	Result in a substantial permanent increase (i.e., 5 dB) in ambient noise levels in the project vicinity above levels existing without the project	No effect	Adverse under NEPA; less than significant under CEQA	Adverse under NEPA; less than significant under CEQA Same as for Alternative 2	Adverse under NEPA; less than significant under CEQA Same as for Alternatives 2 and 3

4.9.4 Cumulative Effects

4.9.4.1 METHODS AND APPROACH

The list of past, present, and reasonably foreseeable future projects considered in this cumulative analysis is provided in Chapter 3 of this Draft EIS/EIR. The spatial scope for the cumulative effects analysis of noise is limited primarily to the project area for construction and stationary noise sources because of the nature of sound that decreases rapidly with distance from the sources. Only projects and activities in relatively close proximity to the gondola would generate sound that could also be heard simultaneously with sound generated by gondola construction and operation, thus resulting in a cumulative interaction. Traffic noise occurs on regional and local roadways affected by the project but has local effects on the surrounding sensitive receptors adjacent to affected roads. The temporal scope for the cumulative effects analysis includes the gondola construction period (6–8 months beginning in late spring 2019) and the operational period of the gondola (winter season). These would be the times when noise generated by other projects could interact with noise generated by the gondola. For this analysis, the temporal cumulative effects timeframe for present and future actions is 20-years. This is generally consistent with the longest implementation times for “Cumulative Effects Projects” listed in Table 3-3 and applicable to the spatial scope of this analysis; a 20-year estimated buildout period for the Village at Squaw Valley Specific Plan (Item #2 in Table 3-3) and a projection to 2039 for General Development in Olympic Valley (Item #10 in Table 3-3).

Any present or reasonably foreseeable future projects within the spatial and temporal scope of analysis that have the potential to create impacts on noise are listed below. Potential impacts associated with these projects include increases in noise, including traffic noise, caused by construction or operation.

Project	Potential Impacts
Alpine Meadows Master Development Plan	Construction noise and traffic noise
Village at Squaw Valley Specific Plan	Construction noise and traffic noise
Squaw Valley Red Dog Lift Replacement	Construction noise and operational noise exposure
Alpine Meadows Hot Wheels Lift Replacement	Construction noise and operational noise exposure
White Wolf Development	Construction noise and operational noise exposure
General Development in Olympic Valley	Construction noise and operational noise exposure
Timberline Twister	Construction noise and operational noise exposure
General Development in Alpine Meadows	Construction noise and operational noise exposure
Alpine Sierra Subdivision	Construction noise and operational noise exposure

4.9.4.2 CUMULATIVE IMPACTS

Alternative 1 – No Action Alternative

Alternative 1 – No Action Alternative would result in a continuation of existing conditions. There would be no direct or indirect impacts and thus by definition no cumulative impacts from noise.

Alternative 2

Construction Noise and Vibration

Impacts associated with noise related to implementation of Alternative 2 are analyzed in Section 4.9.3.2. Noise impacts are based on factors related to site-specific and project-specific characteristics and conditions, including distance to noise sources, barriers between land uses and noise sources, and the duration of the noise event. A cumulative noise impact could occur if project construction activity combined with other

nearby construction activity, resulting in a substantial increase in noise at the same sensitive land use. Given the foreseeable future development in the area, construction activities associated with the Alpine Meadows Master Plan, Village at Squaw Valley Specific Plan, Alpine Sierra subdivision, and the Timberline Twister could potentially occur at the same time as construction for this alternative.

Construction noise and vibration would vary depending on the activity (e.g., off-road equipment, blasting, helicopter use). Nonetheless, all construction activity would occur during one season and would take place only during the less sensitive times of the day when people are typically away from their homes or otherwise not sleeping. Further, as discussed in Section 4.9.3.2, numerous noise-related RPMs are in place that would ensure that all construction activity complies with Placer County code and policies, and they would ensure that all measures are implemented to reduce construction noise to the extent feasible. In addition, most of the proposed construction activities would take place in remote areas, where no existing or future planned development would occur. Construction noise is temporary, fluctuates throughout the duration of activities, and is of primary concern closest to the activities. Given the short-term nature of construction activities, the limited potential for construction to disturb any nearby receptor, and the inclusion of RPMs, construction activity associated with the gondola generally would not combine with construction activities of other future projects to result in a cumulatively adverse effect. The gondola project is considered to have a significant and unavoidable construction noise impact due to the use of a helicopter during construction and a lack of certainty at this time regarding the proximity of flight paths to nearby sensitive receptors. If existing sensitive receptors were simultaneously in close proximity to both gondola-related helicopter flight paths and construction of a reasonably foreseeable future project, this could result in an adverse cumulative effect and Alternative 2 would make a substantial contribution to this cumulative effect.

Operational Noise

Cumulative noise levels could be affected by additional buildout of surrounding land uses and increases in vehicular traffic on affected roadways. Future development in the area that could combine with project-generated operational noise include the Alpine Meadows Master Plan, Village at Squaw Valley Specific Plan, White Wolf project, Alpine Sierra subdivision, and the Timberline Twister.

Regarding increases in operational stationary noise, as discussed in Section 4.9.3.2, Alternative 2 would result in new stationary sources (e.g., gondola equipment, lift towers). However, noise from gondola operation would be similar to noise already existing at both Squaw Valley and Alpine Meadows and, as discussed in Section 4.9.3.2, would not result in substantial increases in noise over existing conditions (i.e., 5 dB). Further, noise generated from the new gondola would not result in substantial noise levels beyond 200 feet of the sources and thus would not combine with stationary sources associated with future planned development (e.g., building heating, ventilation, and air conditioning equipment; commercial loading docks). Increases in stationary noise would not result in a cumulatively adverse effect.

Future development in the project area would result in additional traffic-related noise on surrounding roadways and would contribute to the cumulative traffic noise condition. Alternative 2 would generate some increase in traffic, further increasing traffic noise under the cumulative condition. However, traffic noise increases attributable to Alternative 2 would be minor and inaudible (i.e., less than 0.5 dBA) (See Table 4.9-13). Therefore, traffic related noise attributable to Alternative 2 would not result in a substantial contribution to a significant cumulative noise impact.

Alternative 3

Construction Noise and Vibration

Construction activities and associated noise levels would be the same under this alternative as under Alternative 2. The only difference under this alternative is that the location of some project components would differ compared with Alternative 2. Nonetheless, all the project RPMs would continue to be in place, and impacts would be the same as described above for Alternative 2. If existing sensitive receptors were simultaneously in close proximity to both gondola-related helicopter flight paths and construction of a

reasonably foreseeable future project, this could result in an adverse cumulative effect and Alternative 3 would make a substantial contribution to this cumulative effect.

Operational Noise

Operational noise sources and associated noise levels would be the same under this alternative as under Alternative 2. The only difference under this alternative is that the location of some project components would differ compared with Alternative 2. Similar to Alternative 2, noise levels would be greatest closest to the source and would not be substantial beyond 200 feet of the new gondola. No cumulatively adverse effects would occur.

Long-term traffic noise impacts would be the same under this alternative as under Alternative 2. No cumulatively adverse effects would occur.

Alternative 4

Construction Noise and Vibration

Construction activities and associated noise levels would be the same under this alternative as under Alternative 2. The only difference under this alternative is that the location of some project components would differ compared with Alternative 2. Nonetheless, all the project RPMs would continue to be in place, and impacts would be the same as described above for Alternative 2. If existing sensitive receptors were simultaneously in close proximity to both gondola-related helicopter flight paths and construction of a reasonably foreseeable future project, this could result in an adverse cumulative effect and Alternative 4 would make a substantial contribution to this cumulative effect.

Operational Noise

Operational noise sources and associated noise levels would be the same under this alternative as under Alternative 2. The only difference under this alternative is that the location of some project components would differ compared with Alternative 2. Similar to Alternative 2, noise levels would be greatest closest to the source and would not be substantial beyond 200 feet of the new gondola. No cumulatively adverse effects would occur.

Long-term traffic noise impacts would be the same under this alternative as under Alternative 2. No cumulatively adverse effects would occur.