
4.8 NOISE

This section provides a discussion of noise and vibration that could result from development associated with the implementation of the Updated Plan. Specifically, the existing noise environment within the Planning Area and future noise and ground-borne vibration levels are addressed. In addition, this section describes the means by which noise and vibration are regulated from a federal, state and local perspective.

4.8.1 ENVIRONMENTAL SETTING

4.8.1.1 Noise and Vibration Basics

Noise

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perceptibility of sound is subjective and the physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as “noisiness” or “loudness.” Sound pressure magnitude is measured and quantified using a logarithmic ratio of pressures, the scale of which gives the level of sound in decibels (dB). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate this human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The A-weighted sound level is expressed in “dBA.” This scale de-emphasizes low frequencies to which human hearing is less sensitive and focuses on mid- to high-range frequencies.

The sound measurement scale (dB) is logarithmic. A logarithmic scale is used because sound levels can span a very large range and the logarithmic scale permits use of relatively small numbers. For example, sound pressures at about 115 dBA are not uncommon in discotheques or near loudspeakers at rock concerts. A sound pressure at 115 dBA is equal to 10,000,000 micropascals. In contrast, zero dBA is the threshold of human hearing, which is equivalent to 20 micropascals. Thus, a range of about ten million pressure units can be described with only 115 dB units.

Logarithmic scales cannot be added arithmetically. For example, one sound at 80 dB plus another sound at 80 dB would not equal 160 dB. The combined 80 dB sounds would result in a total sound level of about 83 dB because sound is measured on a logarithmic scale. The

combined total sound level from two sources is only 40.3 dBA if one sound is at 40 dBA and the second sound is at 29 dBA. The following are rules that may be helpful in understanding this analysis:

- In general, one sound must be at least three dB louder than another sound for people to reliably determine that one sound source is louder than a second source; and
- A sound that is about ten dB louder than a second sound would be perceived as being about twice as loud as the second sound.

Time variation in noise exposure is typically expressed in terms of the average energy over time (L_{eq}), or alternatively, as a statistical description of the sound level that is exceeded over some fraction of a given period of time. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_8 and L_{25} represent the noise levels that are exceeded 8 and 25 percent of the time, respectively, or for 5 and 15 minutes during a 1-hour period, respectively.

Although the A-weighted scale accounts for the range of people's response, and therefore, is commonly used to quantify individual event or general community sound levels, the degree of annoyance or other response effects also depends on several other perceptibility factors. These factors include:

- Ambient (background) sound level;
- Magnitude of sound event with respect to the background noise level;
- Duration of the sound event;
- Number of event occurrences and their repetitiveness; and
- Time of day that the event occurs.

Several methods have been devised to relate noise exposure over time to human response. Commonly used noise metrics for this type of study are the Community Noise Equivalent Level (CNEL) or day-night average level (L_{dn}). Both of these descriptors represent the weighted energy noise level for a 24-hour day after including a 10 dB penalty for noise levels occurring at night between the hours of 10:00 P.M. to 7:00 A.M. The CNEL, originally developed for use in the California Airport Noise Regulation, additionally includes a 5 dBA penalty to noise occurring during evening hours from 7:00 P.M. to 10:00 P.M. These descriptors account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods.

Ground-Borne Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or the root mean square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. According to data published by the California Department of Transportation (Caltrans), 0.1 inch/sec PPV is the level at which continuous vibrations begin to annoy people, and 0.2 inch/sec PPV is the threshold at which there is a risk of "architectural" damage to normal dwelling structures that contain plastered walls and/or ceilings.²⁸ In addition, the Federal Transit Administration (FTA) recommends protecting existing structures by limiting vibration levels to 0.2 inch/sec PPV.²⁹ Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are therefore, usually confined to short distances (i.e., 500 feet or less) from the source.

4.8.2 REGULATORY FRAMEWORK

Many government agencies have established noise standards and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise. Standards and guidelines that are applicable to implementation of the Updated Plan are discussed below.

4.8.2.1 Federal Authorities and Administering Agencies

Noise

There are no federal regulations specifically governing noise issues for the Updated Plan. The Federal Aviation Administration (FAA) sets noise limits for commercial aircraft (14 CFR Part 36) and establishes procedures for airport noise studies and land use compatibility evaluations (14 CFR Part 150) in the Federal Aviation Regulations. The federal Department of Housing and Urban Development (HUD) has site acceptability standards for HUD financed or assisted projects. These standards consider a site with an Ldn of 65 dBA or less "acceptable," while those with an Ldn greater than 75 dBA are "unacceptable." With respect to residential and other sensitive uses, the exterior standard of 65 dBA CNEL is generally consistent with the

²⁸ California Department of Transportation, *Transportation Related Earthborne Vibrations, Technical Advisory Number TAV-02-01-R9601, February 20, 2002.*

²⁹ Federal Transit Authority, *Transit Noise and Vibration Impact Assessment, Final Report, April 1995.*

interior standard of 45 dBA CNEL. This is because normal wood frame residential construction usually provides from 12 to 18 dBA of reduction from exterior to interior areas, and a 20 dBA reduction is commonly achieved in new structures.

Ground-Borne Vibration

There are no federal standards for ground-borne vibration; however, the FTA has established a PPV threshold of 0.2 inch per second for vibration in proximity to fragile buildings.

4.8.2.2 State Authorities and Administering Agencies

Noise

The State of California, Department of Health Services, Environmental Health Division, has published the Guidelines for Noise and Land Use Compatibility (the State Guidelines) which recommend guidelines for local governments to use when setting standards for human exposure to noise and preparing noise elements for general plans. The State Guidelines, summarized in Table 4.8-1 on page 4-202, indicate that residential land uses and other noise sensitive receptors generally should be located in areas where outdoor ambient noise levels do not exceed 65 to 70 dBA (CNEL or L_{dn}). Application of this compatibility matrix to development projects is not mandated by the Department of Health Services; however, each jurisdiction is required to consider the State Guidelines when developing its general plan noise element and when determining acceptable noise levels within its community.³⁰

The State Department of Housing and Community Development, however, has required that new residential units should not be exposed to outdoor ambient noise levels in excess of 65 dBA (CNEL or L_{dn}), and, if necessary, sufficient noise insulation must be provided to reduce interior ambient levels to 45 dBA.³¹ Within a 65 dBA exterior noise environment, interior noise levels are typically reduced to acceptable levels (to at least 45 dBA CNEL) through conventional construction, but with closed windows and fresh air supply systems or air conditioning.

According to the State Guidelines, an exterior noise level of 60 dBA CNEL is considered to be a “normally acceptable” noise level for single-family, duplex, and mobile homes involving normal, conventional construction, without any special noise insulation requirements. Exterior

³⁰ *These Guidelines are also published by the Governor’s Office and Planning and Research in the State of California General Plan Guidelines (2003).*

³¹ *The U.S. Environmental Protection Agency identified an indoor CNEL of 45 dB as necessary to protect against sleep interference. Assuming a conservative structural noise insulation of 20 dB for typical dwellings, 45 dB corresponds to an outdoor CNEL of 65 dB as minimizing sleep interference.*

Table 4.8-1**Noise and Land Use Compatibility Criteria**

Land Use Category	Normally acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low Density	50-60	55-70	70-75	75-85
Residential-Multiple Family	50-65	60-70	70-75	75-85
Transient Lodging-Motel, Hotels	50-65	60-70	70-75	75-85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	60-70	70-80	80-85
Auditoriums, Concert Halls, Amphitheaters	NA	50-70	NA	70-85
Sports Arenas, Outdoor Spectator Sports	NA	50-75	NA	70-85
Playgrounds, Neighborhood Parks	50-70	NS	67.5-75	72.5-85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	NS	70-80	80-85
Office Buildings, Business Commercial and Professional	50-70	67.5-77.5	75-85	NS
Industrial, Manufacturing, Utilities, Agriculture	50-75	70-80	75-85	NS

Notes:

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

Conditionally Acceptable - New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and noise insulation features have been included in the design.

Normally Unacceptable - New construction or development should generally be discouraged. Prior to new construction or development, a detailed analysis of the noise reduction requirements must be made.

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

NS=Not specified.

Source: Modified from the State of California Governor's Office of Planning and Research General Plan Guidelines, Appendix A

noise levels up to 65 dBA CNEL are typically considered “normally acceptable” for multi-family units and transient lodging without any special noise insulation requirements. Between these values and 70 dBA CNEL, exterior noise levels are typically considered “conditionally acceptable,” and residential construction should only occur after a detailed analysis of the noise reduction requirements is made and needed noise attenuation features are included in the project design. Exterior noise attenuation features include, but are not limited to, setbacks to place structures outside the conditionally acceptable noise contour and orientation.

Under the State Guidelines, an exterior noise level of 70 dBA CNEL is typically the dividing line between an acceptable and unacceptable exterior noise environment for all other noise sensitive uses, including schools, libraries, churches, hospitals, day care centers, and

nursing homes of conventional construction. Noise levels below 75 dBA CNEL are typically acceptable for office and commercial buildings, while levels up to 75 dBA CNEL are typically acceptable for industrial uses. In unacceptable interior noise environments, additional noise insulation features, such as extra batting or resilient channels³² in exterior walls, double paned windows, air conditioners to enable occupants to keep their windows closed, solid wood doors, noise baffles on exterior vents, etc., are typically needed to provide acceptable interior noise levels. The best type of noise insulation for a land use should be based on detailed acoustical analyses that identify all practical noise insulation features and that confirm their effectiveness.

Other applicable State laws and regulations are shown in Table 4.8-2 on page 4-204 and provide the authority to various state and local agencies to control the exposure of people to noise. The most important of these provisions are found in the Aviation Noise Standards set forth in Title 21 (Public Works) of the California Code of Regulations (21 CCR 5000), and the Noise Insulation Standards set forth in the State Building Code (24CCR Section T25-28).

Ground-Borne Vibration

There are no adopted State policies or standards for ground-borne vibration. The traditional view has been that common vibrations related to roadway traffic and construction activities pose no threat to buildings or structures. However, Caltrans recommends that extreme care be taken when sustained pile driving occurs within 7.5 meters (25 feet) of any building and 15-30 meters (50-100 feet) of a historic building or a building in poor condition.

4.8.2.3 Local Authorities and Administering Agencies

Noise

Chapter 8.16 of the Mammoth Lakes Municipal Code (Town Noise Ordinance) controls unnecessary, excessive and annoying noise in the Town. However, this chapter does not control noise sources that are preempted by other jurisdictions including in-flight aircraft and motor vehicles operating on public rights-of-way. As outlined in Section 8.16.070 of the Town Noise Ordinance and presented in Table 4.8-3 on page 4-205, the Town has established maximum exterior noise levels based on land use zones. Noise levels in excess of the levels indicated in Table 4.8-3 are conditionally permitted, depending on the intensity of the noise and the duration of exposure.³³ The Town Noise Ordinance also states that interior noise levels resulting from

³² A resilient channel is a pre-formed section of sheet metal approximately 0.5" deep x 25" wide x 12" long that is installed between wallboard panels and framing to reduce sound transmission through walls. By preventing the wallboard from lying against the studs, the channel inhibits the transmission of sound through the framing.

³³ Noise levels may not exceed the exterior noise standard for a cumulative period of more than thirty minutes in any hour; or plus five decibels for a combined period of more than fifteen minutes in any hour; or plus ten (Footnote continued on next page)

Table 4.8-2**Applicable State Laws and Regulations**

Title 21 (Public Works) CCR 5000 et seq.	Aviation Noise Standards. Basic requirement that CNEL not exceed 65 dBA in exterior areas of residences, schools, hospitals, churches, and synagogues. Standards and procedures for defining noise impact areas, monitoring, resolving complaints.
Title 24 (Building) CCR T25-28	Noise insulation standards. Maximum interior CNEL of 45 dBA for all multi-family residences. Requirement for acoustic report for multi-family structures in areas with exterior CNEL over 60 dBA.
Public Utilities Code Section 21670 et seq.	Establishes and defines planning and review procedures for Airport Land Use Commissions.
Health and Safety Code Sections 17922.6 and 46000 et seq.	Establishes Office of Noise Control, guidelines for preparation of Noise Elements, and adoption of local standards and ordinances.
Title 18 (Industrial Relations) CCR 5095	Establishes standards and procedures for occupational exposures to noise.
Motor Vehicle Code Section 27200 et seq.	Establishes maximum allowable noise levels for motorcycles (Section 27202), heavy vehicles (27204), and other vehicles (27206). Maximum of 80 dBA at 50 feet for most vehicles.
Title 13 (Motor Vehicles) CCR 602 and 1036	Establishes standards and procedures for motor vehicle exhaust noise. Maximum of 95 dBA at 20 inches for most passenger vehicles and light trucks.
California Assembly Bill 2274	Establishes standards and procedures for off-road vehicles. Effective January 1, 2003, all off-road vehicles must meet the static noise test limit of 96 dB to legally use any and all public off-road areas.

Source: PCR Services Corporation, 2005

outside sources within residential units shall not exceed 45 dBA L_{50} between 7:00 A.M. and 10:00 P.M., and 35 dBA L_{50} between 10:00 P.M. and 7:00 A.M.³⁴ If the existing interior or exterior ambient noise level exceeds that permissible within the noise limit categories, the allowable noise exposure standard is increased in five dBA increments in each category as appropriate to encompass or reflect the ambient noise level (Section 8.16.070 and 8.16.080 of the Town Noise Ordinance).

The Town Noise Ordinance identifies specific restrictions regarding construction noise. As outlined in Section 8.16.090 of the Town Noise Ordinance and presented in Table 4.8-4 on page 4-206, the Town has established maximum exterior noise levels from the operation of

decibels for a combined period of more than five minutes in any hour; or plus fifteen decibels for a combined period of more than one minute in any hour; or plus twenty decibels for any period of time (maximum noise level).

³⁴ *Noise levels may not exceed the interior noise standard for a cumulative period of more than five minutes in any hour; or plus five decibels for a combined period of more than one minute in any hour; or plus ten decibels for any period of time (maximum noise level).*

Table 4.8-3

Town Exterior Noise Ordinance Standards

Receiving Land Use	Time Period	Noise Zone Classification ^a Maximum Noise Levels (dBA) L ₅₀		
		Rural/ Suburban	Suburban	Urban
One and Two Family Residential	10 P.M. to 7 A.M.	40	45	50
	7 A.M. to 10 P.M.	50	55	60
Multiple Dwelling Residential/Public Space	10 P.M. to 7 A.M.	45	50	55
	7 A.M. to 10 P.M.	50	55	60
Limited Commercial/Some Multiple Dwellings	10 P.M. to 7 A.M.	55	—	—
	7 A.M. to 10 P.M.	60	—	—
Commercial	10 P.M. to 7 A.M.	60	—	—
	7 A.M. to 10 P.M.	65	—	—
Light Industrial	Anytime	70	—	—
Industrial	Anytime	75	—	—

^a The classification of different areas of the community in terms of environmental noise zones shall be determined by the noise control officer, based upon assessment of community noise survey data. Additional area classifications should be used as appropriate to reflect both lower and higher existing ambient levels than those shown. Industrial noise limits are intended primarily for use at the boundary of industrial zones rather than for noise reduction within the zone.

Source: The Town Noise Ordinance, Chapter 8.16

equipment used in construction, drilling, repair, alteration or demolition work. All mobile and stationary internal-combustion-powered equipment and machinery is also required to be equipped with suitable exhaust and air-intake silencers in proper working order.

Ground-Borne Vibration

The Town has established a vibration threshold within the Noise Ordinance. According to Section 8.16.090 of the Ordinance, operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet (forty-six meters) from the source if on a public space or public right-of-way. While not defined, the perception threshold is generally defined as a motion velocity of 0.01 inch per second.

Table 4.8-4

Town Construction Noise Standards

Construction Equipment ^a	Type I Areas Single-Family Residential	Type II Areas Multi-Family Residential	Type III Areas Semi-Residential Commercial ^a	Business Properties
Mobile Equipment^b				
Daily, except Sundays and legal holidays; 7:00 A.M. to 8:00 P.M.	75 dBA L ₅₀	80 dBA L ₅₀	85 dBA L ₅₀	----
Daily, 8:00 P.M. to 7:00 A.M. and all day Sunday and legal holidays	60 dBA L ₅₀	64 dBA L ₅₀	70 dBA L ₅₀	----
Daily, including Sunday and legal holidays, all hours	----	----	----	85 dBA L ₅₀
Stationary Equipment^c				
Daily, except Sundays and legal holidays; 7:00 A.M. to 8:00 P.M.	60 dBA L _{eq}	65 dBA L _{eq}	70 dBA L _{eq}	----
Daily, 8:00 P.M. to 7:00 A.M. and all day Sunday and legal holidays	50 dBA L _{eq}	55 dBA L _{eq}	60 dBA L _{eq}	----
Daily, including Sunday and legal holidays, all hours	----	----	----	75 dBA L ₅₀

^a All mobile or stationary internal combustion engine-powered equipment or machinery shall be equipped with suitable exhaust and air intake silencers in proper working order.

^b Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment (e.g., excavator, backhoe, dozer, etc.).

^c Maximum noise levels for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment (e.g., generators, compressors, etc.).

Source: Town Noise Ordinance. 8.16.090

4.8.2.4 Existing Conditions

Existing Noise Environment

Ambient noise levels in the Town have been documented in three separate noise surveys. The most recent noise level testing for the Town was conducted by Brown-Buntin Associates, Inc. in the summer of 2005. The noise survey was conducted within the UGB and was a sampling of the noise conditions within the Town. The results of this survey are included in Appendix D of this EIR. Table 4.8-5 on page 4-207 presents to background noise levels in Town. Extensive conclusions about the meaning of the noise level changes from 1995 to 2005 should not be drawn since the measurements were for a few days and many factors can influence noise levels. However, background noise levels in terms of L_{dn} at all locations were well below the 60 dB L_{dn} criterion in both 1995 and 2005. In addition, the 2005 noise measurements were conducted during the July 4th weekend (July 2nd through July 5th) and represent the busiest time period in the Town during the summer season.

Table 4.8-5**Background Noise Levels in 1995 and 2005**

Site No./Location(s)	July 1995 L_{dn}, dB	July 2005 L_{dn}, dB	Change
1/107 Sugar Pine	49.1	50.7	+1.6
2/286 Cortina Court/394 Grindelwald Road	50.5	44.2	-6.3
3/323 Wagon Wheel/203 Trails End	43.9	50.6	+6.7

Source: Brown-Buntin Associates, Inc., 2005

The most significant noise sources in the Town are traffic on State Route 203 and major town roadways, aircraft operations at the Mammoth Yosemite Airport, helicopter operations at Mammoth Hospital, the intermittent noises associated with construction, snow removal activities, snowmaking operations, avalanche control operations, industrial activities near State Route 203 and Meridian Boulevard, and recreation activities.

Construction Noise

Temporary construction activities occur within the Town near noise-sensitive areas. Activities generate noise levels at 50 feet in ranges from 85 to 88 dBA (RBF Consulting 2000). Construction activities are temporary in nature and occur in accordance with the Town Noise Ordinance during the daytime hours and within prescribed noise limits (see Table 4.8-3).

Vehicular Noise

Vehicular traffic is the major long-term noise source in the Town. Table 4.8-6 on page 4-208 presents the noise monitoring data associated with vehicular traffic along the selected roadways. Figure 4.8-1 on page 4-209 shows the locations of those existing noise levels that exceed the 60dB standard.

Snow Removal Activities

Section 8.16.100 of the Noise Ordinance provides an exemption for the performance of emergency work such as may be required to prevent or alleviate personal or property damage caused by an emergency. Although not specifically cited as such in the Noise Ordinance, the Town considers snow removal activities for purpose of public safety as emergency work when it occurs on public roadways, in parking lots, or around places of business.

Table 4.8-6**Existing 2005 Traffic Noise Levels**

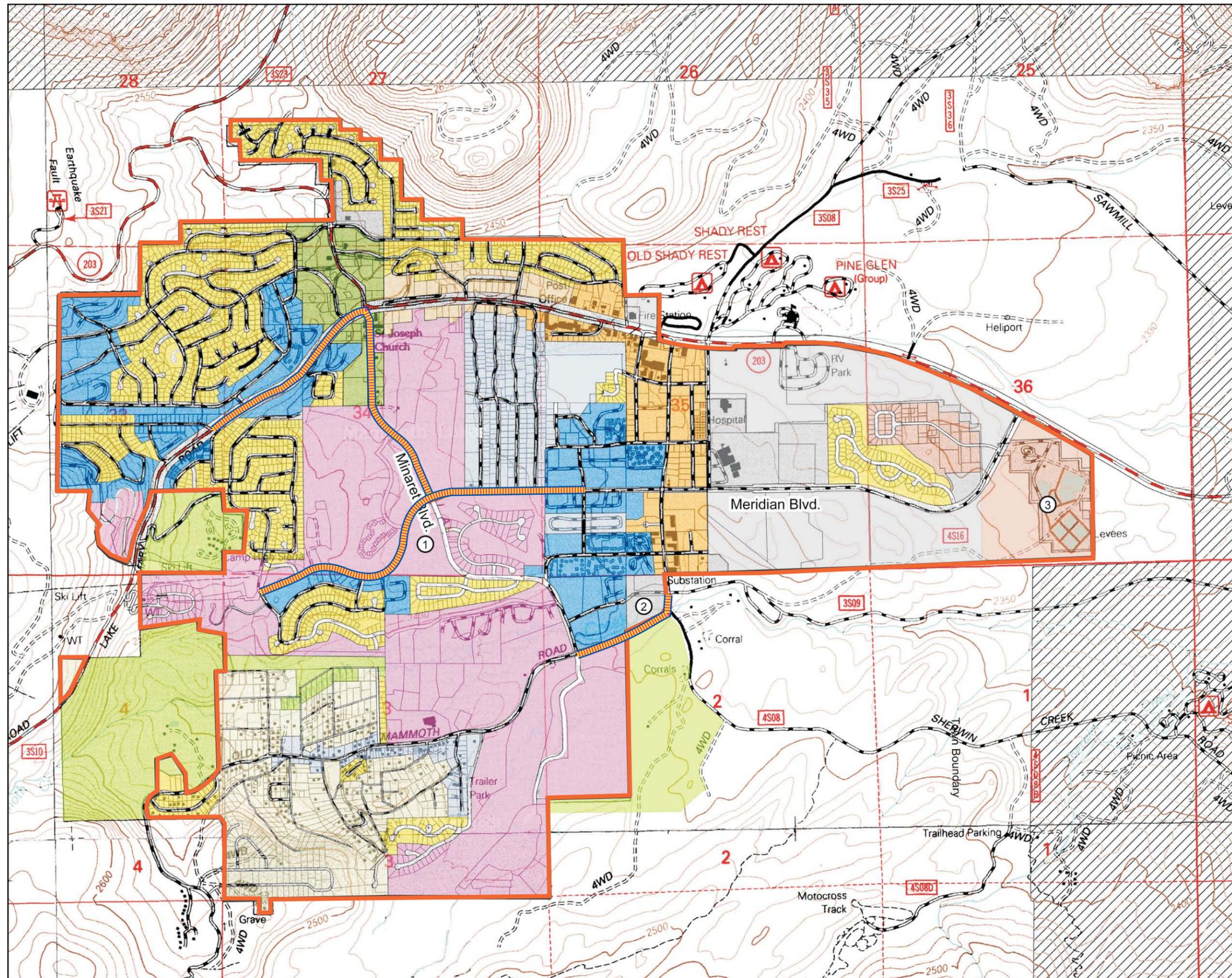
Roadway	Segment	Road Classifications	Ldn, dB at 100 feet
SR 203/Main	Meridian to Sierra Park	Arterial	59
	Sierra Park to Minaret	Arterial	61
	Minaret to Forest Trail	Arterial	59
	North of Minaret	Arterial	57
Lake Mary Road	Minaret to Kelly	Collector	58
	East of Kelly	Collector	55
	SR203 to Commerce	Arterial	54
Meridian Boulevard	Commerce to Old Mammoth	Arterial	59
	Old Mammoth to Azimuth	Arterial	58
	Azimuth to Minaret	Arterial	60
	East of Minaret	Collector	59
Old Mammoth Road	SR203 to Meridian	Arterial	60
	Meridian to Chateau	Arterial	60
	Chateau to Minaret	Arterial	57
Minaret Road	East of Minaret	Collector	57
	SR203 to Meridian	Arterial	58
	Meridian to Old Mammoth	Arterial	55
Forest Trail	North of Main	Collector	54
	East of Minaret	Collector	48
Canyon Boulevard	Hillside to Lake Mary	Collector	57
Lakeview Boulevard	East of Entry	Collector	53
	West of Entry	Collector	57
Kelley Road	South of Lake Mary	Collector	54
Center	South of Main	Local	53
Azimuth Drive	North of Meridian	Collector	52
	South of Meridian	Collector	57

Source: *Brown-Buntin Associates, Inc., 2005*

Aircraft Noise

The Mammoth Yosemite Airport currently has 400 flights per month, primarily by single-engine private aircraft. A commercial turbo-prop provides limited service. Existing airport noise does not contribute substantially to the ambient noise level in the Town (County of Mono Noise Element). In addition to the aircraft operation at the airport, the community is occasionally exposed to noise from helicopters using the heli-pad at the Town hospital.

The Final SSEIR for the Mammoth Yosemite Airport Expansion Project states that the FAA accepted the noise exposure criterion levels as required by the California Department of Transportation, Division of Aeronautics of CNEL 60, 65, 70, and 75. The Mammoth Yosemite Airport has a relatively small size of CNEL 70 and 75 noise exposure areas. The area exposed to aircraft noise of CNEL 65 and higher for the proposed project remains within the airfield



Town of Mammoth Lakes

Explanation

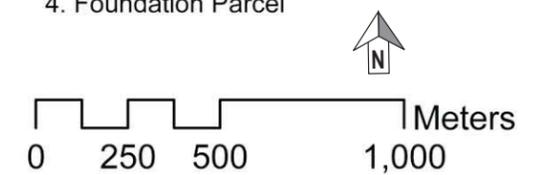
- Segment Exceeding 60 dB
- Urban Growth Boundary

Project

- Commercial 1
- Commercial 2
- High Density Residential 1
- High Density Residential 2
- Industrial
- Institutional Public
- Low Density Residential 1
- Low Density Residential 2
- Open Space
- Resort
- Specific Plan
- National Forest Lands
- National Forest Lands Outside the Municipal Boundary

PARCELS

1. Bell-Shape Parcel
2. Mammoth Creek Park
3. Water District
4. Foundation Parcel



Base Maps: Old Mammoth, Mammoth Mountain, Crystal Crag & Bloody Mountain
 Source: Brown-Burtin Associates, Inc; 2005

Figure 4.8-1 Road Segments in Excess of 60 dB Standard Map

boundary of the Airport on either Airport property or vacant land controlled by the Airport through leases or use permits. There are no noise sensitive land uses and no people living within the CNEL 65 noise exposure area.

Recreation Noise

Recreational vehicle noise results from the use of snowmobiles in the winter and motorcycles on dirt trails at the Sherwin Lake Motocross Course in the summer. Additional recreational related noise includes the live and recorded music occurring at Town events. Live amplified music was played at the Village on the evening of July 2, 2005. Sound level measurements and observations were made at several locations from about 7:00-8:00 P.M. to determine noise impacts from this type of entertainment. The results of measurements/observations are provided in Table 4.8-6 on page 4-208

Noise-Sensitive Receptor Locations

Certain land uses are particularly sensitive to noise including schools, residences, hospitals, rest homes, long-term medical and mental care facilities, parks, and recreation areas. Noise sensitive land uses in the Town include school facilities, residential development, hospitals, libraries, and churches. Additionally, the John Muir and Ansel Adams Wilderness Areas and the roadless area of the Inyo National Forest are in the vicinity of the Town and are considered sensitive areas.

Existing Ground-Borne Vibration Environment

Sources of groundborne vibrations and noise in the Town include current industrial activities, helicopter overflights (mainly to the hospital), airplane takeoffs (experienced in the vicinity of the airport), refuse trucks, avalanche control blasting, snow plowing during winter months, and construction activities. Sources of groundborne vibration identified within the Town would not be considered substantial ground-borne vibration sources (e.g., mining operations).

Vibration-Sensitive Receptor Locations

Certain land uses are particularly sensitive to vibration including schools, residences, hospitals, rest homes, long-term medical and mental care facilities. Vibration sensitive land uses in the Town include school facilities, residential development, hospitals, libraries, and churches. With respect to structures, vibration-sensitive receptors generally include historic buildings, buildings in poor condition, and uses that require precision instruments (e.g., operating rooms or scientific laboratories).

Table 4.8-7**Live Music Noise Levels^a**

Location	Noise Level	
	Range	Leq
Condos @ Forest Trail & Hillside Drive	Music not audible	Music not audible
Condos under construction about 200' from rear of band	68-76 dBA	73 dBA
"Hillside Resort & Spa" construction site, opposite side Canyon Blvd.	69-77 dBA	72 dBA
	56-64 dBA	60 dBA
Mammoth Fireside Condos	56-63 dBA	59 dBA
	55-58 dBA	56 dBA
Forest Trail & Grindelwald	54-62 dBA	57 dBA
	Music not audible	Music not audible

^a Background noise measurements were conducted at 286 Cortina Court during the same measurement period as the live music (6:00 P.M. 46 dBA Leq; 7:00 P.M. 40 dBA Leq; and 8:00 P.M. 38 dBA Leq).

Source: Brown-Buntin Associates, Inc., 2005

4.8.2 THRESHOLDS OF SIGNIFICANCE

Based on Appendix G in the CEQA Guidelines, the project would be considered to have a significant impact on noise if the project would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the project would expose people residing or working in the project area to excessive noise levels.
- For a project located within the vicinity of a private airstrip, the project would expose people residing or working in the project area to excessive noise levels.

4.8.3 IMPACTS AND MITIGATION

Issue 4.8-1: Would development associated with implementation of the Updated Plan expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Discussion: Since the Updated Plan does not propose any specific development projects, no specific sources of noise can be identified. However, any specific development projects would be required to comply with standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

As described in the Regulatory Framework section, numerous federal, state and local regulations oversee noise levels from specific projects. While increases in noise levels associated with specific development projects cannot be eliminated, oversight by the appropriate agencies and compliance with the applicable regulations would maintain noise levels within acceptable levels.

Mitigation Measures

The Updated Plan would not expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, no mitigation measures are required.

Level of Significance After Mitigation Measures

Impacts related to the exposure of persons to or generate of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies would be less than significant.

Issue 4.8-2: Would development associated with implementation of the Updated Plan expose persons to or generate excessive groundborne vibrations or groundborne noise levels?

Discussion: Sources of groundborne vibration and groundborne noise in the Town include current industrial activities, helicopter overflights (mainly to the hospital), airplane takeoffs (experienced in the vicinity of the airport), avalanche control blasting, snow plowing during winter months, and construction activities. With regard to groundborne vibration or noise from the Airport, residences and schools are required to be located outside of the Airport's 65 CNEL noise contour and, as such, residential uses and schools would not be exposed to excessive groundborne vibration or groundborne noise.

The Updated Plan does not propose any specific development projects and no specific sources of groundborne vibration or groundborne noise can be identified. However, any specific

development projects would be required to comply with standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Specifically, Section 8.16.090 of the Ordinance prohibits operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet (forty-six meters) from the source if on a public space or public right-of-way. Oversight by the appropriate agencies and compliance with the applicable regulations would result in a less than significant impact with regard to groundborne vibration and groundborne noise.

Mitigation Measures

Implementation of the Updated Plan would not result in a significant impact with regard to groundborne vibration and groundborne noise impacts. Therefore, no mitigation measures are required.

Level of Significance After Mitigation Measures

Implementation of the Updated Plan would result in a less than significant impact with regard to groundborne vibration and groundborne noise impacts.

***Issue 4.8-3:** Would development associated with implementation of the Updated Plan result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

Discussion: Controlling ambient sound levels is one element of achieving the Vision Statement for Mammoth Lakes. The principal source of a permanent increase in ambient noise levels is vehicular traffic including automobiles, busses, and recreational vehicles. Table 4.13.3, which is provided in the Transportation and Circulation section of this EIR, outlines the anticipated changes in traffic conditions at specific intersections and selected road segments. The data generally shows a doubling of traffic volumes. The projected increase in traffic that would result from buildout of the Updated Plan would result in an increase in the amount of ambient noise in the Town during the high traffic periods, which are the winter weekend days. The types of developments and activities anticipated under the Updated Plan are not expected to greatly increase traffic volumes at night and thus traffic related noise during nighttime periods are not expected to greatly increase. However, as shown in Table 4.8-8 below, future traffic noise levels at some of the locations would exceed 60 dB Ldn at the 100-foot distance. Where noise-sensitive receptors (full-time occupancy residences) are located next to roads, there is a potential for noise impacts if noise levels exceed 60 dB Ldn. Whether there is an actual impact depends on site-specific conditions. Local topography may shield residences at some locations, and the orientation, location and design of noise-sensitive areas (e.g., patios and backyards) may adequately mitigate noise impacts. Interior noise levels should be satisfactory (45 dB Ldn or less) at all locations. Normal construction practices that satisfy building codes would reduce

Table 4.8-8

Future (2024) Traffic Noise Levels in Terms of Day-Night Average Level (Ldn)

Roadway	Segment	Road Classifications	Ldn, dB at 100 feet		
			Existing (2005)	Future (2024)	Change
SR 203/Main	Meridian to Sierra Park	Arterial	59	62	3
	Sierra Park to Minaret	Arterial	61	63	2
	Minaret to Forest Trail	Arterial	59	61	2
	North of Minaret	Arterial	57	60	3
Lake Mary Road	Minaret to Kelly	Collector	58	62	4
	East of Kelly	Collector	55	57	2
	SR203 to Commerce	Arterial	54	58	4
Meridian Boulevard	Commerce to Old Mammoth	Arterial	59	62	3
	Old Mammoth to Azimuth	Arterial	58	60	2
	Azimuth to Minaret	Arterial	60	62	2
	East of Minaret	Collector	59	63	4
Old Mammoth Road	SR203 to Meridian	Arterial	60	62	2
	Meridian to Chateau	Arterial	60	63	3
	Chateau to Minaret	Arterial	57	61	4
Minaret Road	East of Minaret	Collector	57	60	3
	SR203 to Meridian	Arterial	58	61	3
	Meridian to Old Mammoth	Arterial	55	60	5
Forest Trail	North of Main	Collector	54	57	3
	East of Minaret	Collector	48	54	6
Canyon Boulevard	Hillside to Lake Mary	Collector	57	60	3
Lakeview Boulevard	East of Entry	Collector	53	56	3
Kelley Road Center	West of Entry	Collector	57	57	<1
	South of Lake Mary	Collector	54	57	3
Azimuth Drive	South of Main	Local	53	57	4
	North of Meridian	Collector	52	55	3
	South of Meridian	Collector	57	59	2

Source: Brown-Buntin Associates, Inc., 2005

exterior noise levels by 20 to 25 dB. This means that exterior noise levels up to 70 dB Ldn would still provide interior noise levels no greater than 45 db Ldn, assuming windows and doors are closed.

Since the Updated Plan does not propose any specific projects that would incorporate sensitive receptors, no specific requirements can be provided at this time. However, any specific development projects would be required to comply with standards established in the local general plan or noise ordinance, or applicable standards of other agencies. In addition, the Town would require projects to incorporate design measures as appropriate during the environmental review process. Such measures may include the following:

- Incorporating buffers and/or landscaped earthen berms to screen adjoining land uses from elevated noise levels;
- Orientating windows and outdoor living areas away from unacceptable noise exposure;
- Using acoustic building materials;
- Incorporating traffic calming measures, alternative intersection designs (roundabouts), and lower speed limits; and
- Incorporating state-of-the-art structural sound attenuation and setbacks.

With regard to stationary noise sources, since the Updated Plan does not propose any specific development projects, no specific stationary sources of noise can be identified at this time. However, any specific development projects would be required to comply with standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Implementation Measures in the Updated Plan

- I.4.A.a.1 New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected future levels of noise from transportation which exceed 60 dB Ldn in outdoor activity areas or 45 dB Ldn in interior spaces.
- I.4.A.a.2 Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dB Ldn in outdoor activity areas of 45 dB Ldn within interior spaces of existing noise-sensitive land-uses.
- I.4.A.a.3 New development of noise-sensitive land uses shall not be permitted where the noise level from existing stationary noise sources exceeds the level standards of Table VII.

	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Level dB	50	45
Maximum Level, dB	70	65

¹As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.

- I.4.A.a.4 Noise created by new proposed stationary noise sources or existing stationary noise sources which undergo modifications that may increase noise levels shall be mitigated so as not to exceed the noise level standard of Table VII at noise-sensitive uses.

Implementation Measures in the Noise Element

- Measure 5.1 The Town shall review new public and private development proposals to determine conformance with the policies of the Noise Element.
- Measure 5.2 The Town shall require an acoustical analysis in those cases where a project potentially threatens to expose noise-sensitive land uses to excessive noise levels. The presumption of the noise levels shall be based on the location of new noise-sensitive uses to known noise sources, or staff's professional judgment that a potential for adverse noise impacts exists. Acoustical analyses shall be required early in the review process so that noise mitigation may be included in the project design. For development not subject to environmental review, the requirements for an acoustical analysis shall be implemented prior to the issuance of building permits.
- Measure 5.3 The Town shall develop and employ procedures to ensure that noise mitigation measures required pursuant to an acoustical analysis are implemented in the development review and building permit processes.
- Measure 5.4 The Town shall develop and employ procedures to monitor compliance with the policies of the Noise Element after completion of projects where noise mitigation measures have been required.
- Measure 5.5 The Town shall enforce the State Noise Insulation Standards (California Code of Regulations, Title 24) and Chapter 35 of the Uniform Building Code (UBC) concerning interior noise exposure for multi-family housing, hotels and motels.
- Measure 5.6 The Town shall request the California Highway Patrol, the sheriff's office and the police department to actively enforce the California Vehicle Code sections relating to adequate vehicle mufflers and modified exhaust systems.

Implementation of the measures provided in the Updated Plan along with measures provided in the Noise Element would ensure that existing and proposed sensitive uses would not exceed applicable noise standards. However, a significant unavoidable impact would occur because the noise generated by traffic from implementation of the Updated Plan would exceed current ambient levels by up to 6 dBA.³⁵ As an example, Forest Trail east of Minaret would increase from 48 dB Ldn to 54 dB Ldn. An Ldn of 54 dB is well within the generally acceptable

³⁵ *Community responses to changes in noise levels fluctuate, but a change in noise level from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise, while a 5 dBA increase is readily noticeable.*

outside noise level provided in the Noise Element of 60 dB Ldn, but an increase of 6 dBA would be readily noticeable and, thus, considered a substantial change in noise levels.

Mitigation Measures

The existing regulations and the implementation measures in the Updated Plan and the Noise Element would ensure that permanent increases in noise levels within the UGB would not exceed the threshold of 60 dB Ldn in outdoor activity areas of 45 dB Ldn within interior spaces of existing noise-sensitive uses. However, a significant unavoidable impact would occur due to the incremental increase in noise that would result from the projected increase in traffic. The policies and implementation measures in the Updated Plan along with measures provided in the Noise Element would reduce permanent increases in ambient noise levels in the UGB to the extent feasible. No additional feasible mitigation measures were identified.

Level of Significance After Mitigation Measures

Implementation of the measures provided in the Updated Plan along with measures provided in the Noise Element would ensure that existing and proposed sensitive uses would not exceed applicable noise standards. However, a significant unavoidable impact would occur due to the incremental increase that would occur from traffic. Therefore, the permanent increase in ambient noise levels in the UGB above existing levels that would result from development associated with the Updated Plan would be significant and unavoidable.

***Issue 4.8-4:** Would development associated with implementation of the Updated Plan result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Discussion: Implementation of the Updated Plan would result in additional development within the Town, with a particular emphasis on resort and recreational land uses. These uses are associated with certain types of noise events that can represent increases over ambient sound levels; however, these are similar to existing conditions. During construction phases, the areas of concern would include noise from temporary construction and earthwork. However, construction activities are temporary in nature and would occur in accordance with the Town Noise Ordinance during the daytime hours and within prescribed noise limits (see Table 4.8.3). On a long-term basis, the concerns would pertain to an increase in the number and frequency of amplified sound music or other sounds from special events, an increase in the number and frequency of high-noise recreational vehicle use (such as snow jets, power boats, and motorized bikes), and other similar sources. The Updated Plan would provide for additional growth, which would result in an increase in these types of outdoor activities.

Implementation Measures in the Updated Plan

- I.4.A.a.3 New development of noise-sensitive land uses shall not be permitted where the noise level from existing stationary noise sources exceeds the level standards of Table VII.
- I.4.A.a.4 Noise created by new proposed stationary noise sources or existing stationary noise sources which undergo modifications that may increase noise levels shall be mitigated so as not to exceed the noise level standard of Table VII at noise-sensitive uses.

Table VII: Maximum Allowable Noise Exposure Stationary Noise Sources ¹		
	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Level dB	50	45
Maximum Level, dB	70	65
¹ As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.		

Implementation Measures in the Noise Element

- Measure 5.2 The Town shall require an acoustical analysis in those cases where a project potentially threatens to expose noise-sensitive land uses to excessive noise levels. The presumption of the noise levels shall be based on the location of new noise-sensitive uses to known noise sources, or staff's professional judgment that a potential for adverse noise impacts exists. Acoustical analyses shall be required early in the review process so that noise mitigation may be included in the project design. For development not subject to environmental review, the requirements for an acoustical analysis shall be implemented prior to the issuance of building permits.
- Measure 5.3 The Town shall develop and employ procedures to ensure that noise mitigation measures required pursuant to an acoustical analysis are implemented in the development review and building permit processes.
- Measure 5.4 The Town shall develop and employ procedures to monitor compliance with the policies of the Noise Element after completion of projects where noise mitigation measures have been required.
- Measure 5.6 The Town shall request the California Highway Patrol, the sheriff's office and the police department to actively enforce the California Vehicle Code sections relating to adequate vehicle mufflers and modified exhaust systems.

As indicated above, the Updated Plan would result in an increase in construction activities as well as an increase in outdoor events and recreational activities. All projects would be required to comply with existing regulations as well as policies in the Updated Plan and in the Noise Element. Compliance with applicable regulations and policies and implementation measures would result in a less than significant impact with regard to temporary or periodic increase in ambient noise levels.

Mitigation Measures

Implementation of the Updated Plan would not result in a significant impact with regard to temporary or periodic increases in ambient noise levels. Therefore, no mitigation measures are required.

Level of Significance After Mitigation Measures

Implementation of the Updated Plan would not result in a significant impact with regard to temporary or periodic increases in ambient noise levels.

***Issue 4.8-5:** For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would development associated with implementation of the Updated Plan result in the exposure of people residing or working in the project area to excessive noise levels?*

Discussion: The Mammoth Yosemite Airport is located approximately seven miles from the Town and the airport has a relatively small size of CNEL 70 and 75 noise exposure areas. The area exposed to aircraft noise of CNEL 65 and higher remains within the airfield boundary of the Airport on either Airport property or vacant land controlled by the Airport through leases or use permits. There are no noise sensitive land uses and no people living within the CNEL 65 noise exposure area. Implementation of the Updated Plan would comply with applicable regulatory requirements (e.g. Title 24 (Building) CCR T25-28), which would preclude locating sensitive receptors within the airport's 65 CNEL contour and, as such, the Updated Plan would not result in the exposure of sensitive receptors in the UGB to excessive noise levels.

Mitigation Measures

The Updated Plan would not expose people residing or working in the UGB to excessive noise levels from an airport. Therefore, no mitigation measures are required.

Level of Significance After Mitigation Measures

Impacts related to the exposure of persons residing or working in UGB to excessive noise levels from an airport would be less than significant.