INTRODUCTION

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 "pitch" or "loudness." Pitch is generally an annoyance, while loudness can affect the ability to hear. 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. Unlike linear units, decibels are measured on a logarithmic scale representing points on a sharply rising curve. 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. A-weighted sound levels measured for various sources, as well as people's responses to these levels, are provided in Figure 10 on page 109.

Due to the physical characteristics of noise transmission and reception, an increase of 10 dBA is normally required to achieve a doubling of loudness, as perceived by the human ear. In addition, a 3-dBA increase is recognizable to most people in the context of the community noise environment. A change in noise level usually would not be detectable unless the new noise source is at least as loud as the ambient conditions.

Objects that obstruct the line-of-sight between a noise source and a receptor reduce the noise level if the receptor is located within the "shadow" of the obstruction, such as behind a sound wall. This type of sound attenuation is known as barrier insertion loss. If a receptor is located behind the wall but has a view of the source (i.e., line-of-sight not fully blocked), some barrier insertion loss would still occur, though to a lesser extent. Conversely, a receptor located on the same side of the wall as a noise source may actually experience an increase in the perceived noise level as the wall reflects noise back to the receptor, thereby compounding the noise.

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 period of time (typically conducted over one hour). For example, the L_{50}

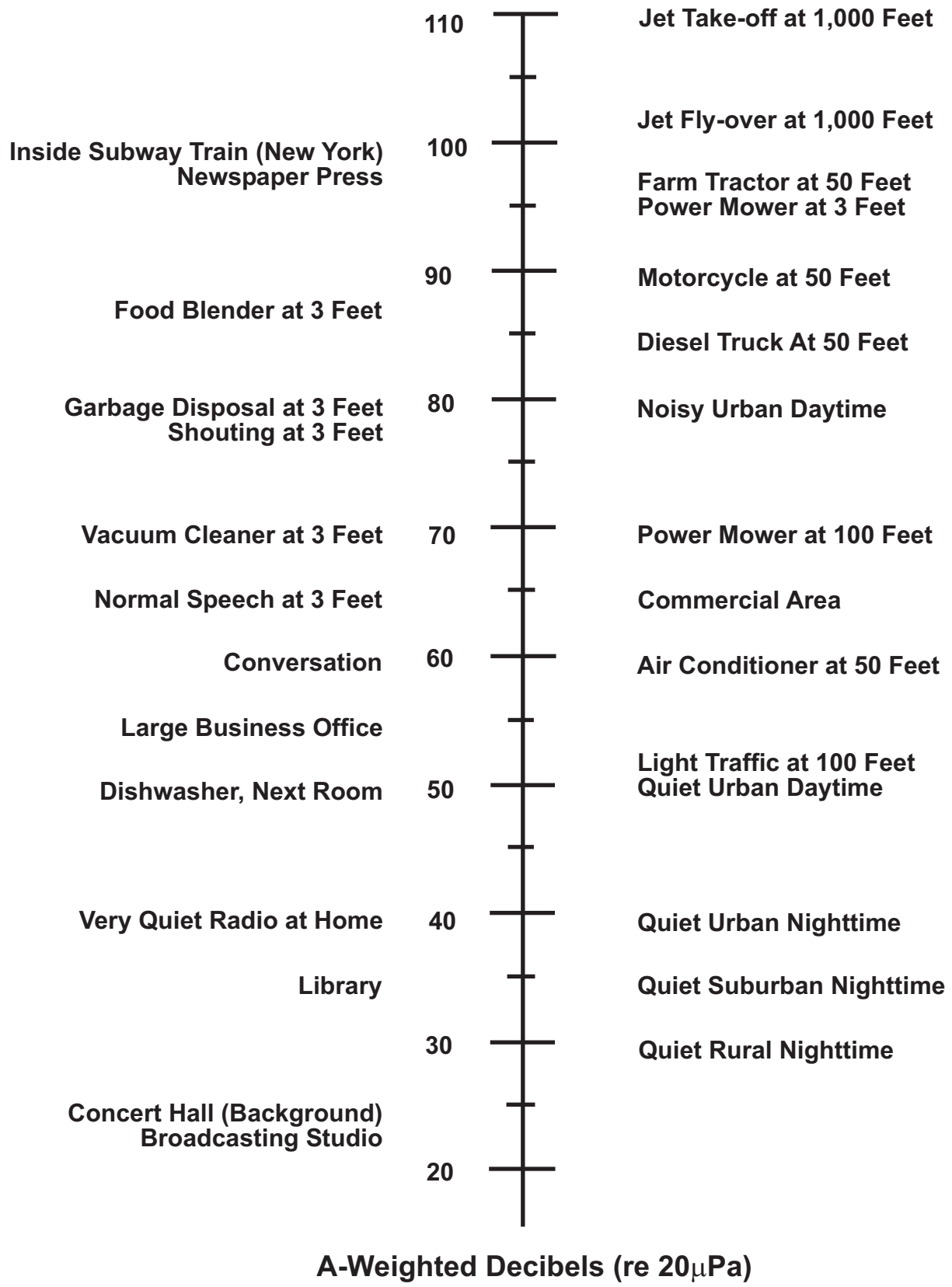

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Figure 10
A-Weighted Sound Levels

Source: Compiled by Hodges & Shutt
from Various Sources, December 1993.

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.

Other values typically noted during a noise survey are the L_{min} and L_{max}, which values represent the minimum and maximum noise levels observed during a measurement period, respectively. Maximum and minimum noise levels, as compared to the L_{eq}, are a function of the characteristics of the noise source. As an example, sources such as generators have maximum and minimum noise levels that are similar to L_{eq} since noise levels for steady-state noise sources do not substantially fluctuate. However, as another example, vehicular noise levels along local roadways result in substantially different minimum and maximum noise levels when compared to the L_{eq} since noise levels fluctuate during pass-by events.

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 also depends on several other perceptibility factors. These factors include:

- The ambient (background) sound level;
- The magnitude of sound event with respect to the background noise level;
- The duration of the sound event;
- The number of event occurrences and their repetitiveness; and
- The time of day that the event occurs.

Several methods have been devised to relate noise exposure over time to human response. A commonly used noise metric for this type of study is the Community Noise Equivalent Level (CNEL). The CNEL adds a 5 dBA penalty to noise occurring during evening hours from 7:00 P.M. to 10:00 P.M., and a 10 dBA penalty to sounds occurring between the hours of 10:00 P.M. to 7:00 A.M., to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. Thus, the CNEL noise metric provides a 24-hour average of A-weighted noise levels at a particular location, with an evening and a nighttime adjustment, which reflects increased sensitivity to noise during these times of the day.

3.5.1 REGULATORY FRAMEWORK

Many government agencies have established noise standards and guidelines to protect people from potential hearing damage and various other adverse physiological and social effects

associated with noise. Discussed below are the standards and guidelines that are applicable to the development of the Ski Back Trail.

a. Federal Level

The United States Environmental Protection Agency (U.S. EPA) has developed guidelines on recommended maximum noise levels to protect public health and welfare.[41] For example, 55 dBA is recommended as the maximum for the annual average L_{dn} in outdoor residential areas and areas where people spend widely varying amounts of time and other places in which quiet is a basis for use. With regard to worker noise exposure, Federal regulations (e.g., 29 CFR Part 1919.120) safeguard the hearing of workers exposed to occupational noise, enforced by the Occupational Safety and Health Administration (OSHA). For example, it is illegal for employees to be exposed to noise levels of 115 dBA for more than 15 minutes during any workday.

b. State Level

The California Department of Health Services (DHS) Office of Noise Control has studied the correlation of noise levels and their effects on various land uses. As a result, the DHS has established four categories for judging the severity of noise intrusion on specified land uses:

- Normally Acceptable: Is generally acceptable with no mitigation necessary.
- Conditionally Acceptable: May require some mitigation, as established through a noise study.
- Normally Unacceptable: Requires substantial mitigation.
- Clearly Unacceptable: Probably cannot be mitigated to a less than significant level.

The DHS has published the *Guidelines for Noise and Land Use Compatibility* (State Guidelines) which recommends 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 21 on page 112 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}).

41. *U.S. EPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974.*

Table 21

Land Use Compatibility for Community Noise Sources

Land Use Category	Noise Range (Ldn or CNEL), dB			
	I[a]	II[b]	III[c]	IV[d]
Passively used open spaces	50	50−55	55−70	70+
Auditoriums, concert halls, amphitheaters	45−50	50−65	65−70	70+
Residential: low density single family, duplex, mobile homes	50−55	55−70	70−75	75+
Residential: multifamily	50−60	60−70	70−75	75+
Transient lodging: motels, hotels	50−60	60−70	70−80	80+
Schools, libraries, churches, hospitals, nursing homes	50−60	60−70	70−80	80+
Actively used open spaces: playgrounds, neighborhood parks	50−67	C	67−73	73+
Golf courses, riding stables, water recreation, cemeteries	50−70	C	70−80	80+
Office buildings, commercial business and professional	50−67	67−75	75+	C
Industrial, manufacturing, utilities, agriculture	50−70	70−75	75+	C

a. *Noise Range I - Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.*

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

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

d *Noise Range IV - Clearly Unacceptable: New construction or development should generally not be undertaken.*

Source: Office of Noise Control, California Department of Health, 1976.

c. Local Level

As previously described in Section 1.0, Introduction/Purpose and Need, of this Final EA, the Town of Mammoth Lakes (Town) and the Mammoth Mountain Ski Area (MMSA) have a close relationship due to their physical land connection and economic dependency. As such, despite the fact that the Proposed Action does not require approval by the Town, it is necessary to ensure that the Proposed Action is consistent with the relevant Town's plans and policies.

(1) Town of Mammoth Lakes 2007 General Plan Update

As required under Section 65302(f) of the *California Government Code*, each community must prepare and adopt a comprehensive long-range general plan for its physical development containing seven mandatory elements, including a Noise Element. The Noise Element must: (1) identify and appraise noise problems in the community; (2) recognize the State Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels. The

applicable *Town of Mammoth Lakes 2007 General Plan Update (General Plan Update)* Noise Element policies include the following:

- Policy 4.2.1 – New development of noise sensitive land uses shall not be permitted in areas exposed to existing or projected future levels of noise from transportation noise sources which exceed 60 dB L_{dn} in outdoor activity areas or 45 dB L_{dn} in interior spaces.
- Policy 4.2.2 - Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dBA L_{dn} within outdoor activity areas and 45 dBA L_{dn} within interior spaces of existing noise sensitive land uses.
- Policy 4.2.4 - 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 a daytime noise standard of 50 dBA L_{eq} or 70 dBA L_{max} and a nighttime noise standard of 45 dBA L_{eq} or 65 dBA L_{max}. This is presented in Table 22 on page 114.

To achieve compliance with the policies of the Noise Element, the Noise Element provides implementation measures. The following implementation measures are applicable.

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.

Table 22

Maximum Allowable Noise Exposure-Stationary Noise Sources [a]

Noise Scale	Daytime (7 A.M. to 10 P.M.)	Nighttime (10 P.M. to 7 A.M.)
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65

[a.] *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.*

Source: Revised Mammoth Lakes Noise Element of the General Plan, 1997.

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.

(2) Town of Mammoth Lakes Municipal Code

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 23 on page 115, the Town has established maximum exterior noise levels based on land use zones. Noise levels in excess of the levels indicated in Table 23 are conditionally permitted, depending on the intensity of the noise and the duration of exposure.[42]

(a) Exterior Noise Levels

The Town Noise Ordinance states that exterior noise levels are not to be exceeded for a cumulative period of more than 30 minutes in any hour. If the existing ambient L_{50} exceeds these levels, then the ambient L_{50} becomes the exterior noise levels. For events shorter than 30 minutes, higher noise limits are used for the exterior noise standards. For example, 5, 10, and 15 dBA are added to the above noise limits for events less than 15, 5, and 1 minute, respectively. An excess of 20 dBA plus the above noise limits (e.g., for suburban one- and two-family

[42.] *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 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).*

Table 23

Town Exterior Noise Standards

Receiving Land Use Category	Time Period	Noise Zone Classification [a] Maximum Noise Levels (dBA) L_{50} Rural Suburban	Suburban	Urban
One- and two-family residential	10:00 P.M.–7:00 A.M.	40	45	50
One- and two-family residential	7:00 A.M.–10:00 P.M.	50	55	60
Multiple-dwelling residential	10:00 P.M.–7:00 A.M.	45	50	55
Multiple-dwelling residential	7:00 A.M.–10:00 P.M.	50	55	60
Limited commercial/some multiple-dwelling	10:00 P.M.–7:00 A.M.	55	-	-
Limited commercial/some multiple-dwelling	7:00 A.M.–10:00 P.M.	60	-	-
Commercial	10:00 P.M.–7:00 A.M.	60	-	-
Commercial	7:00 A.M.–10:00 P.M.	65	-	-
Light industrial	Anytime	70	-	-
Heavy industrial	Anytime	75	-	-

a. *Levels not to be exceeded by more than 30 minutes in any hour (L_{50}). 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: Town of Mammoth Lakes Noise Ordinance, Chapter 8.16.

residential, 75 dBA L_{max} during the day and 65 dBA L_{max} during the night) may not be exceeded for any period of time.

(b) Interior Noise Levels

For interior noise standards, the Town sets an allowable interior noise level of 45 dBA for the period from 7:00 A.M. to 10:00 P.M. and 35 dBA for the period from 10:00 P.M. to 7:00 A.M. for all multi-family residential uses.[43] For events shorter than five minutes in any hour, the noise standard is increased in 5 dBA increments in each standard. For example, 5 and 10 dBA are added to these noise limits for events less than five minutes (50 dBA during daytime hours and 40 dBA during nighttime hours) and one minute (55 dBA during daytime hours and 45 dBA during nighttime hours), respectively. If the measured ambient noise reflected by the L_{50} exceeds that permissible within any of the interior noise standards, the allowable interior noise

43. *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).*

level shall be increased in 5 dBA increments in each standard as appropriate to reflect said ambient noise level.

Per Section 8.16.080(A) of the Town Noise Ordinance, although the above interior noise standards have been identified for multi-family residential uses, they are used in this analysis for all residential uses, including single-family dwelling units.

(c) Construction Noise

Section 8.16.090(B)(6) of the Town Noise Ordinance establishes exterior noise standards that regulate construction noise from mobile and stationary equipment for various general zoning classifications. Non-scheduled, intermittent, short-term operations (less than 10 days) of mobile equipment (e.g., backhoes, bulldozers, etc.) standards are provided in Table 24 on page 117. Noise standards for repetitively scheduled and relatively long-term construction operations (periods of 10 days or more) of stationary equipment (e.g., compressors and generators) are also provided in Table 24. Section 15.08.020 of the Town of Mammoth Lakes Municipal Code limits construction noise between 7:00 A.M. and 8:00 P.M., Monday through Saturday. Work hours on Sundays and Town recognized holidays shall be limited to the hours between 9:00 A.M. and 5:00 P.M. and permitted only with the approval of the building official or designee.

3.5.2 AFFECTED ENVIRONMENT

a. Existing Noise Environment

The Ski Back Trail area is located in a suburban area just north of the Town. Traffic on State Highway 203 (SR-203), remote construction activities in the Town, and residents in the community to the south are the major sources of ambient noise in the vicinity.

b. Sensitive Receptors

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to noise. The nearest noise-sensitive receptors are 10 single-family residential units located approximately 200 feet south of the proposed Ski Back Trail alignment. All other noise-sensitive receptors (including additional single-family residential units located further south) are more than 500 feet from the proposed Ski Back Trail alignment.

c. Ambient Noise Levels

The noise environment in the area was characterized by conducting a survey of the area and performing noise measurements on November 12, 2004. The monitoring locations shown on

Table 24

Town Construction Noise Restrictions

Time Period [a]	Single-family Residential	Multi-family Residential	Semi-residential/ Commercial	Business Properties
Mobile Equipment [b]				
Daily, except Sundays and legal holidays: 7:00 A.M. to 8:00 P.M.	75 dBA	80 dBA	85 dBA	-
Daily, 8:00 P.M. to 7:00 A.M. and all day Sundays and legal holidays	60 dBA	64 dBA	70 dBA	-
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	65 dBA	70 dBA	
Daily, 8:00 P.M. to 7:00 A.M. and all day Sundays and legal holidays	50 dBA	55 dBA	60 dBA	
Daily, including Sunday and legal holidays, all hours				85 dBA L_{50}

[a] *The Town requires that 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.*

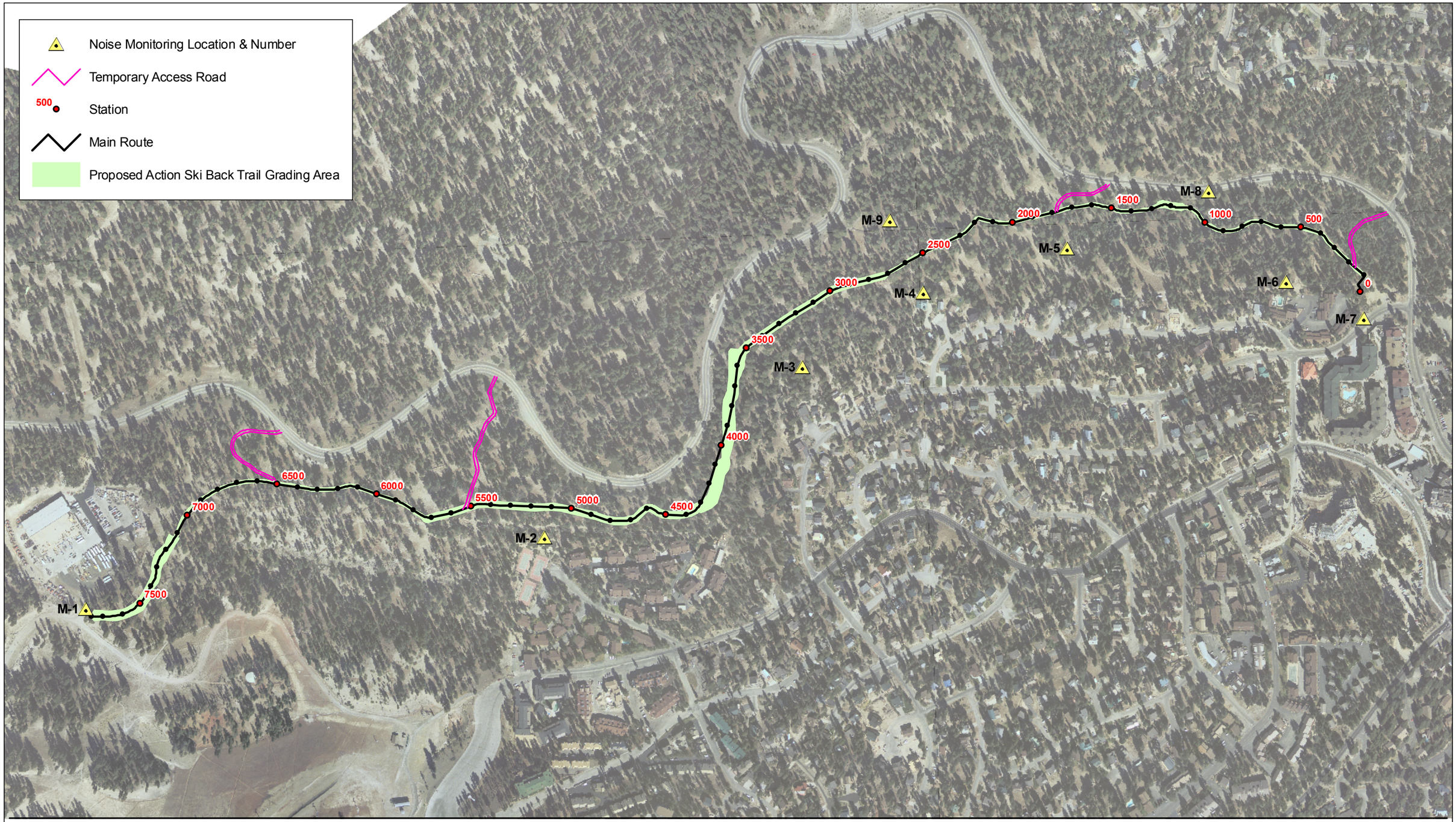
[b] *Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment (e.g. excavator, backhoe, dozer, etc.)*

[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 of Mammoth Lakes Noise Ordinance, Section8.16.090

Figure 11 on page 118 were selected to characterize the general ambient noise level in the area. Table 25 on page 119 lists the noise measurement location and noise sources observed during the noise measurement periods. Table 26 on page 120 lists the ambient noise monitoring results.

Based on Table 25, only the locations (M-7 and M-8) that are immediately adjacent to SR-203 were affected by relatively high traffic noise. For receptor locations that are away from SR-203, traffic noise contributed to the relatively low background noise. Table 26 shows that ambient noise in the area is moderate with the L_{eq} ranging from 43 to 58 dBA. Ambient noise levels are higher in areas where vehicular traffic is closer to the noise monitoring locations. Along the proposed Ski Back Trail alignment, the dominant noise source is traffic on SR-203, with some traffic on other local streets also contributing to the ambient noise. Sporadic construction activity noise, as well as other community noises (children playing and conversation), add to the background noise levels.



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Source: Triad Holmes, Inc., 2007.

Figure 11
Noise Monitoring Locations

Table 25

Noise Measurement Locations and Noise Sources

Site	Location Description	Noise Sources
M-1	Near start of the Ski Back Trail; Station 78; 400 feet southeast of Maintenance Building	Truck beeping and idling near Maintenance Building; conversation; birds chirping
M-2	Mammoth Ski & Racquet Club; 200 feet south of Station 52; approximately 400 feet from and 30 feet below SR-203	Bus beeping; passing cars; conversation
M-3	Residential area 400 feet south of Station 33; approximately 400 feet east of SR-203	Traffic on SR-203 and local streets; conversation
M-4	Residential area 200 feet south of Station 27; approximately 600 feet from SR-203	Traffic on SR-203 and local streets; conversation
M-5	Near Station 17; approximately 400 feet from SR-203	Traffic on SR-203; conversation
M-6	200 feet south of Station 7; approximately 550 feet from SR-203	Traffic on SR-203; truck/bus passing; children playing nearby; conversation
M-7	On sidewalk near end of Ski Back Trail at the proposed bridge area just north of The Village	Traffic on local streets; construction activities; conversation
M-8	Along SR-203; 200 feet north of Station 10	Traffic on SR-203; conversation
M-9	Approximately 150 feet west of Station 25 and 250 feet from SR-203	Traffic on SR-203; conversation; remote construction activities

Source: LSA Associates, Inc., November2004.

3.5.3 ENVIRONMENTAL CONSEQUENCES

a. Methodology

Evaluation of noise impacts includes the following:

- Determine the noise impacts associated with short-term construction of the proposed project on adjacent noise-sensitive uses;
- Determine the long-term traffic and operational noise impacts on on-site noise-sensitive uses; and
- Determine the required mitigation measures to reduce short-term and long-term noise impacts.

Table 26

Short-Term Ambient Noise Monitoring Results

Site	Date	Duration	L_{eq}	L_{max}	L_{min}
M-1	11/12/04	10 minutes	45	55	40
M-2	11/12/04	10 minutes	47	55	45
M-3	11/12/04	5 minutes	45	59	42
M-4	11/12/04	5 minutes	43	47	42
M-5	11/12/04	10 minutes	45	50	43
M-6	11/12/04	5 minutes	46	60	42
M-7	11/12/04	10 minutes	58	75	52
M-8	11/12/04	5 minutes	52	72	43
M-9	11/12/04	10 minutes	47	58	42

Source: LSA Associates, Inc., November 2004.

(1) Construction Noise

Construction noise impacts are evaluated by determining the noise levels generated by the different types of construction activity, calculating the construction-related noise level at nearby sensitive receptor locations, and comparing these construction-related noise levels to ambient noise levels (i.e., noise levels without construction noise). More specifically, the following steps were undertaken to calculate construction-period noise impacts:

1. Ambient noise levels at surrounding sensitive receptor locations were estimated based on field measurement data;
2. Noise levels for construction equipment were obtained from manufacturers, reported in the available literature, and used by other agencies for similar planning-level analysis;
3. Distances between construction site locations (noise source) and surrounding sensitive receptors were measured;
4. The construction noise level was then calculated for sensitive receptor locations based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance;
5. For each sensitive receptor location, the construction noise level obtained above from Step 4 was added to the ambient noise level described in Step 1 to calculate the construction noise impact in terms of an hourly L_{eq}; and
6. Noise level increases were compared to the construction noise significance thresholds identified below.

(2) Operational Noise

(a) Traffic Noise

The Federal Highway Administration (FHWA) highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions in the vicinity of the Ski Back Trail alignment. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. Similar to the noise attenuation through distance divergence and ground absorption for a point source, California Department of Transportation (Caltrans) guidelines recommend a drop-off rate of 4.5 dBA per doubling of the distance (-4.5 dBA/DD) from a line source (i.e., highways or freeways) for a soft ground (e.g., plowed farmland, grass, crops, soft dirt, or scattered bushes and trees). The resultant noise levels are weighted and summed over 24-hour periods to determine the L_{dn} values.

(b) Snow-Making Activities

The range of noise levels from the snow guns utilized for snow-making activities are compared to the measured ambient noise levels included in Table 26. In the event this maximum sound level continues for more than a few minutes, the noise level is measured in comparison with the maximum allowable Noise Exposure at Stationary Noise Sources identified by the Town during winter daytime hours, as shown in Table 22. For noise impacts in sensitive residential areas, the data from U.S. EPA's Protective Noise Levels (U.S. EPA 550/9-79-100, November 1979) is compared to the Town's interior noise standard.

(c) Snow-Grooming Activities

Noise levels generated by these activities are evaluated based on the daytime exterior and interior noise standards set forth in the Town Noise Ordinance and in terms of the maximum noise level (L_{max}).

(d) Skier Pass-By Noise

Noise produced by skiers passing by the surrounding residential uses is based on the average dBA of speech for different vocal efforts under quiet conditions at a distance of three feet in a free field.[44] The peak vocal level at this time was then compared to the baseline conditions defined in the *Handbook of Acoustical Measurements and Noise Control.*

[44] *Harry Levitt and John C. Webster, Handbook of Acoustical Measurements and Noise Control Third Edition, 1991.*

b. Environmental Consequences of the Proposed Action

(1) Construction Impacts

Short-term noise impacts would be associated with excavation, grading, and construction of five retaining walls along the Ski Back Trail alignment during construction. Construction-related short-term noise levels would be higher than existing ambient noise levels in the area today, but would no longer occur once construction is completed.

Two types of short-term noise impacts could occur during the construction. First, construction crew commute and the transport of construction equipment and materials to the site would incrementally increase noise levels on access roads leading to the site.[45] There would be a relatively high single-event noise exposure potential at a maximum level of 87 dBA L_{max} with trucks passing at 50 feet. However, the projected construction traffic would be small when compared to the existing traffic volumes on SR-203 and other affected streets and it's associated longer-term (e.g., hourly or daily) noise level changes would not be measurable. Therefore, there would be no adverse effect regarding short-term construction-related worker commutes and equipment transport noise and no mitigation measures would be required.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction of the five retaining walls along the trail. Construction is performed in discrete steps, each of which has its own mix of equipment and consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by the work phase.

Table 27 on page 123 lists maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 feet between the equipment and a noise receptor. These levels are based on information provided by the manufacturers, reported in the available literature, and used by other agencies for similar planning-level analysis. Although these noise emission levels represent typical values, there can be wide fluctuations in the noise emissions of similar equipment, particularly if the mufflers or tracks (for tracked vehicles) are defective. Typical maximum noise levels for the equipment

[45] *Construction of the Ski Back Trail would utilize primarily existing MMSA workers, except for construction of the five retaining walls. However, this analysis was conservative and assumed a worst-case scenario of requiring 1.25 trips per the four pieces of construction equipment utilized per day, resulting in a total of five worker trips per day.*

Table 27

Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Range of Maximum Sound Level Measured at 50 feet (dBA)	Suggested Maximum Sound Level for Analysis at 50 feet (dBA)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81–96	93
Rock Drills	83–99	96
Jackhammers	75–85	82
Pneumatic Tools	78–88	85
Pumps	74–84	80
Scrapers	83–91	87
Haul Trucks	83–94	88
Cranes	79–86	82
Portable Generators	71–87	80
Rollers	75–82	80
Dozers	77–90	85
Tractors	77–82	80
Front-End Loaders	77–90	86
Hydraulic Backhoes	81–90	86
Hydraulic Excavators	81–90	86
Graders	79–89	86
Air Compressors	76–89	86
Trucks	81–87	86

Sources: Bold Beranek, & Newman, Noise Control for Buildings and Manufacturing Plants, 1987;and LSA Associates, Inc., May 2007.

expected to be utilized could range up to 91 dBA at 50 feet during the noisiest construction phases.

The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three or four minutes at lower power settings.

Construction of the Ski Back Trail is expected to require the use of one large bulldozer; one large excavator; one mid-sized excavator with a compactor plate and rock hammer; one or two roller vibrating compactors; one excavator that would set the rockery; three off-road haulers;

two truck and trailers; six pickup trucks; one water truck; one microdrill rig (for the soil nail wall); one stump grinder; two large size loaders; one to two backhoes; and one compressor.[46]

Equipment usage would depend on the task at hand and is highly unlikely that more than two pieces of equipment would be used at the same time given the tight terrain. It is anticipated that an excavator and bulldozer or loader would be used simultaneously with one or two trucks swapping out to remove material. It is not expected that the entire length of the Ski Back Trail would be under construction at the same time. In particularly rocky areas, a hammer attachment may be used to break up the rocks. The stump grinder would be used in the last one to two weeks after the use of the heaviest equipment is completed.

Construction along the approximately 7,800 linear foot trail would move linearly on a daily basis, affecting a specific area for a short duration time period rather than over the entire project construction. Construction noise at a given location depends on the magnitude of noise during each construction phase, the duration of the noise, the distance from the construction activities, and the shielding provided by any existing natural or manmade barriers/buildings between the construction site and the receiver. It is anticipated that the use of the equipment would be used less than 10 days in any particular area along the alignment.

Based on the likely construction scenario described above, the worst-case combined noise level during this phase of construction would be 89 dBA L_{max} at a distance of 50 feet from the active construction area. The closest existing residences in the vicinity of the Ski Back Trail are located approximately 200 feet south of the Ski Back Trail alignment or more than 150 feet from the construction areas. Typically, noise attenuation from a point source through distance divergence gets 6 dBA reduction per doubling of the distance (-6 dBA/DD). However, noise attenuation from ground absorption and reflective wave canceling ads to the attenuation associated with geometric spreading.[47] For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, between the source and the receiver), an excess ground attenuation value of 1.5 dBA per doubling of the distance (-1.5 dBA/DD) is normally assumed. Since the Ski Back Trail area resembles a soft site scenario, total attenuation per doubling of the distance would be 7.5 dBA (-7.5 dBA/DD). At 150 feet, the noise attenuation is 12 dBA compared to the noise level measured at 50 feet from the point source of interest.

There is existing intervening terrain between these homes and the Ski Back Trail alignment. The closest homes are at elevations ranging from 30 to 40 feet lower than the Proposed Action alignment and are blocked by hills and trees. As a rule of thumb, when the

[46] *Per written correspondence with MMSA Project Team and Construction Manager, March 21, 2007.*

[47] *Caltrans, Traffic Noise Analysis Protocol Technical Noise Supplements, October 1998.*

line-of-sight between a receiver and a noise source is blocked, the receiver receives a minimum of 5 dBA noise reduction. Since the existing residences are 30 to 40 feet lower than the Ski Back Trail alignment, construction noise would be blocked by the terrain (edge of the hills). This terrain shielding provides at least 5 dBA in noise reduction. Additional noise attenuation that may be provided by the trees between the residences and the Proposed Action alignment was not factored into the impact analysis. Therefore, these closest residences may be subject to short-term noise reaching 74 dBA L_{max}, generated by on-site construction activities. This range of maximum construction noise would comply with the Town's Noise Ordinance requirements, which state that the maximum construction noise level at the existing residences needs to be reduced to 75 dBA or lower for residences in a single-family residential zone. In addition, compliance with the construction hours specified in the Town Noise Ordinance and implementation of Mitigation Measures 3.5-1 through 3.5-3 would further ensure that there would be no adverse effect regarding potential construction noise.

(2) Operational Impacts

(a) Traffic Noise Impacts

(i) Exterior Noise Levels

Exterior land uses on the north side of the existing single-family residential units located approximately 200 feet south of the proposed Ski Back Trail alignment are currently exposed to traffic noise levels from SR-203 ranging from 62.3 dBA to 66.5 dBA, during a typical winter weekday and Saturday, respectively, as illustrated in Table 28 on page 126. As described in Section 3.3, Transportation, of this Final EA, implementation of the proposed Ski Back Trail would not equate to trip reduction due to the fact that there is existing latent demand for the transit and auto trip by those people who would prefer to end their day between 3:30 P.M. and 4:30 P.M., but due to traffic conditions leave before or after. Therefore, as illustrated in Table 28, the background traffic noise levels along SR-203 would be 62.3 dBA and 66.5 dBA during a typical winter weekday and Saturday, respectively. It should be noted that these noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. Thus, the proposed Ski Back Trail would have no measurable change on weekday or weekend traffic noise. Finally, the 60 dBA L_{dn} noise contour does not and would not impact any residences along SR-203, which are more than 200 feet away from SR-203. As such, there would be no adverse effect regarding exterior noise from traffic and no mitigation measures would be required.

(ii) Interior Noise Levels

According to the U.S. EPA, standard homes within the cold climate of central and northern California provide at least 17 dBA of exterior to interior noise attenuation with

Table 28

Existing (2004) Background Traffic Noise Levels

Category	ADT	Centerline to 70 dBA L_{dn} (feet)	Centerline to 65 dBA L_{dn} (feet)	Centerline to 60 dBA L_{dn} (feet)	L_{dn} (dBA) 50 Feet from Centerline of Outermost Lane
Existing (2004) SR-203					
Winter weekday	3,895	17[a]	37	80	62.3
Winter Saturday	10,208	32	70	151	66.5

[a] *Traffic noise levels within 50 feet of roadway centerline were calculated manually.*

Source: LSA Associates, Inc., January 2005.

windows open and 27 dBA with windows closed.[48] Therefore, homes exposed to exterior traffic noise levels lower than 58 dBA L_{dn} (58 dBA - 27 dBA = 31 dBA), which as described above, the nearest residential units experience noise levels far below the 60 dBA L_{dn}, would not have their interior noise level exceeding the 45 dBA L_{dn} standard with windows closed. With windows open, homes exposed to exterior traffic noise levels below 58 dBA L_{dn} (58 dBA - 17 dBA = 41 dBA) would also be below the 45 dBA L_{dn} interior noise standard, which would not adversely effect interior noise levels. No mitigation measures would be required.

(b) Snow-Making Activities

(i) Exterior Noise Levels

Noise from snow-making activities would be from the 10 snow guns used to make artificial snow along the ski trail, as depicted on Figure 12 on page 127. Snow-making generally takes place between the months of November and December and varies during the times of day dependent upon ambient temperatures around 32 degrees Fahrenheit.[49] It is estimated that snow-making activities would occur for a total of 60 hours during the entire ski season.[50]

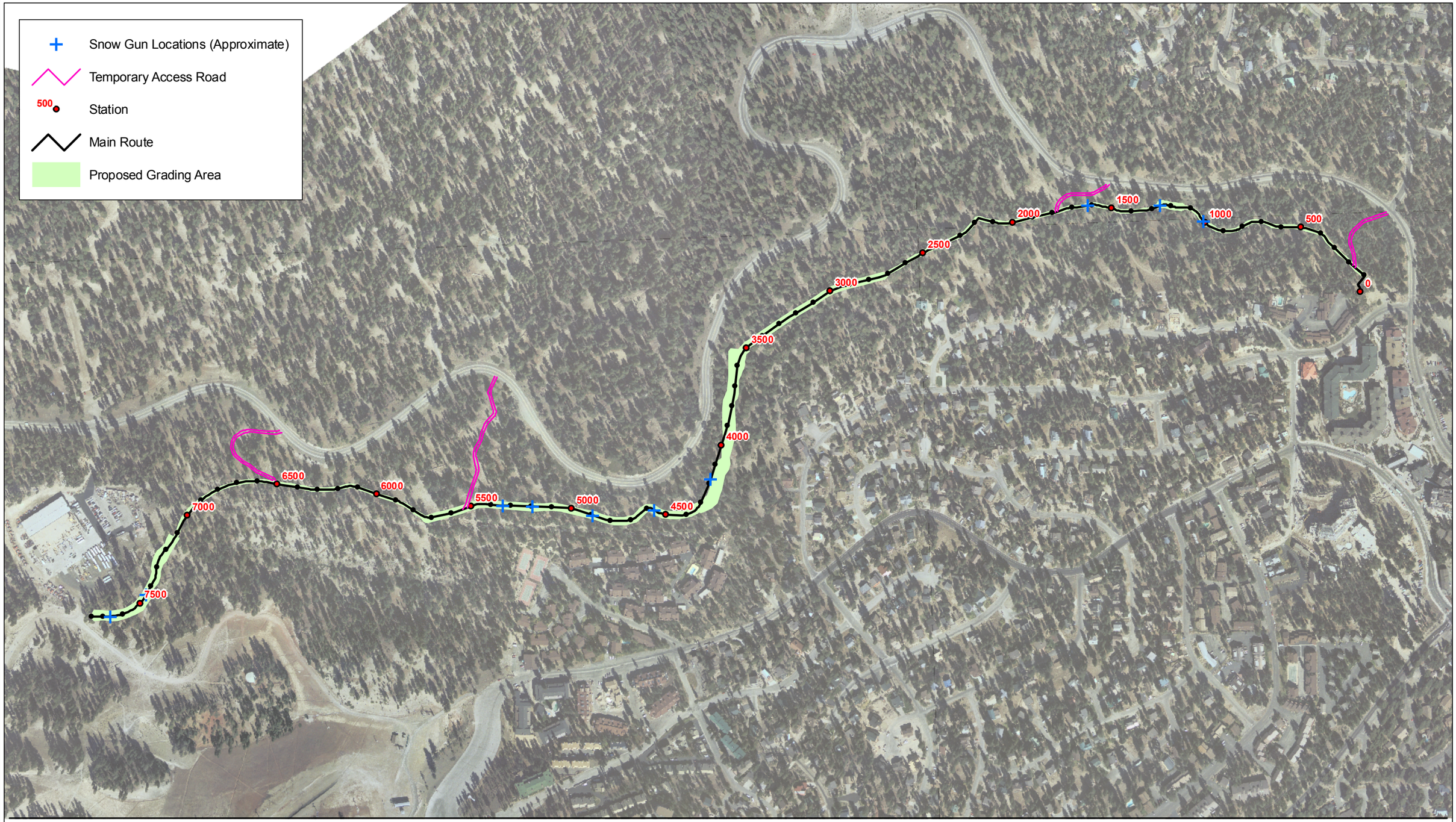
Noise levels from the snow-making guns at a distance of 200 feet, range from 64 dBA at 180 degrees, or behind the snow-making gun tower, to 67 dBA at 135 degrees, to 68 dBA at 0 degree, and 73 dBA at 45 and 90 degrees.[51] As previously described, the closest noise-

[48] *Based on the data provided in the U.S. EPA's Protective Noise Levels (U.S. EPA 550/9-79-100, November 1979).*

[49] *It should also be noted that implementation of the snow-making activities would not occur until snow retention information on the trail has been collected over several seasons.*

[50.] *Normal-year best-estimate by the MMSA's staff (Clifford Mann and Alex Fabbro, November 2004).*

[51] *Based on the sound test results provided by HKD Spectrum (the manufacturer of the snow-making guns), which are included in Appendix C of this Final EA.*



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450 0 450 Feet

Source: Triad Holmes, Inc., 2007.

Figure 12
Snow Gun Locations

sensitive receptors are single-family residential uses located approximately 200 feet south of the proposed Ski Back Trail alignment. These residences are also located approximately 30 to 40 feet below the proposed Ski Back Trail alignment. To allow for snow placement in consideration of the terrain (cross-slope) and dominant wind direction (west–northwest), snow-making guns would be placed in an up-slope configuration the majority, if not all of the time. Placement direction would be 270 to 0 to 190 degrees with 0 degrees at due north. Therefore, it is assumed that the snow-making guns would be 180 degrees from the nearest residence and the peak noise levels associated with the snow-making activities would be up to 64 dBA L_{max}. The difference in elevation and shielding provided by the terrain and trees would provide a minimum of 6 dBA in noise attenuation to the residences south of the proposed Ski Back Trail alignment. Therefore, the homes 200 feet from the snow-making activities would experience exterior noise levels up to 58 dBA L_{max} (64 dBA – 6 dBA = 58 dBA) outside the buildings.

This range of noise levels is comparable with the measured ambient noise levels included in Table 26. However, if this maximum sound level lasts continually for more than a few minutes, the noise could exceed the 50 dBA L_{eq} maximum allowable Noise Exposure at Stationary Noise Sources identified by the Town during winter daytime hours, as shown in Table 22. However, no noise-sensitive active outdoor uses such as residents sitting outside or barbecuing in the backyards or patios is anticipated at these residences. Occasional activities such as children having a snowball fight or playing in the snow would not be considered noise sensitive and would not be affected by snow-making noise. In addition, windows would be closed to keep the heat inside the house. Therefore, there would be no adverse effect regarding potential exterior noise at these residences. Regardless, Mitigation Measures 3.5-4, 3.5-5, and 3.5-6 are included to ensure there would be no adverse effect regarding snow-making noise.

(ii) Interior Noise Levels

As previously described, standard homes in central and northern California located within cold climates provide at least 17 dBA of exterior-to-interior noise attenuation with windows open and 27 dBA with windows closed. Therefore, these closest homes exposed to exterior noise levels reaching 58 dBA L_{max} would have interior noise levels reaching 31 dBA L_{max} with windows closed. This range of maximum interior noise levels is lower than the Town's interior noise standards of 55 dBA and 50 dBA, which is not to be exceeded by more than one minute and five minutes, respectively, in any hour during the daytime hours between 7:00 A.M. and 10:00 P.M. It is also lower than the interior noise standard of 45 dBA for noise lasting longer than five minutes in any hour during the daytime hours between 7:00 A.M. and 10:00 P.M. Therefore, no homes along the proposed Ski Back Trail alignment would be exposed to noise from snow-making that would exceed the Town's daytime exterior noise standards. In addition, implementation of Mitigation Measure 3.5-4 would ensure snow-making activities do not occur between 10:00 P.M. and 7:00 A.M., consistent with the Town's interior noise standard of 35 dBA

during the nighttime. Therefore, there would be no adverse effect regarding interior noise for the existing residential uses adjacent to the proposed Ski Back Trail alignment.

(c) Snow-Grooming Activities

(i) Exterior Noise Levels

In general, the Ski Back Trail would be groomed once daily although on heavily trafficked days, an additional grooming pass may be considered. It is anticipated that it would take approximately 15 minutes each way for the snowcats to groom the trail. Therefore, noise standards in terms of the maximum noise level (L_{max}) are needed to evaluate potential noise impacts from snow-grooming activities. Noise levels from snow-grooming activities showed a noise level of 55 to 59 dBA L_{max} at 200 feet, depending on the speed of the motor.[52] Attenuation provided by the terrain and trees would be 6 dBA. Therefore, the snow-grooming noise would be reduced to below 53 dBA L_{max} at the nearest residences along the proposed Ski Back Trail alignment. It is anticipated that snow-grooming would take place less than a few minutes for a specific area due to the continuously moving nature of the snowcats. Even without noise attenuation from the terrain and trees, noise levels associated with snow-grooming activities would be below the Town's standards at the nearest residences located approximately 200 feet south of the proposed Ski Back Trail alignment. Therefore, no homes along the proposed Ski Back Trail alignment would be exposed to noise from snow-grooming activity that would exceed the Town's daytime exterior noise standards. The placement of snow guns farther from the homes would increase the amount of time the grooming equipment would be in the project vicinity to place the snow. However, snow grooming would not take more than a few minutes depending on weather but could take up to no more than 10 minutes. However, noise levels would still be within and would not exceed the City's Noise Ordinance. There would be no adverse effect and no further mitigation measures are required.

(ii) Interior Noise Levels

The closest homes exposed to exterior noise levels reaching 53 dBA L_{max} would have interior noise levels reaching 26 dBA L_{max} with windows closed. This range of maximum interior noise levels is lower than the Town's 55 dBA and 50 dBA interior noise standards not to be exceeded by more than one minute and five minutes, respectively, in any hour during the daytime hours between 7:00 A.M. and 10:00 P.M. It is also lower than the interior noise standard of 45 dBA for noise lasting longer than five minutes in any hour during the daytime hours. The maximum interior noise level is also lower than the Town's 45 dBA and 40 dBA interior noise

[52] *Based on the sound level readings provided by Pisten Bully, the manufacturer of snow-grooming machines that most likely would be used for this project.*

standards not to be exceeded by more than one minute and five minutes, respectively, in any hour during the nighttime hours between 10:00 P.M. and 7:00 A.M. It is also lower than the interior noise standard of 35 dBA for noise lasting longer than five minutes in any hour during the nighttime hours. Therefore, there would be no adverse effect regarding interior noise for the existing residential uses adjacent to the proposed Ski Back Trail alignment from snow-grooming activities and no further mitigation measures are required.

(d) Skier Pass-By Noise

(i) Exterior Noise Levels

It is assumed that up to 16 skiers would pass through a given point at any one time during the peak afternoon hour during operational hours. Based on the average dBA of speech for different vocal efforts under quiet conditions at a distance of three feet in a free field, male shouting would result in 88 dBA and female shouting can reach 82 dBA.[53] A loud voice for a male is approximately 75 dBA and for a female is 71 dBA. Meanwhile, a raised voice is 65 dBA for male and 62 dBA for female. These are all maximum sound pressure levels (L_{max}) measured at three feet from the person. As previously described, every doubling of an equal sound energy would result in a 3 dBA increase in combined noise level. Therefore, two males shouting at the same time (worst-case scenario to have them reaching the peak level at the same time) would result in 91 dBA, four males in 94 dBA, eight males in 97 dBA, and 16 males in 100 dBA, all at three feet from the males. Similarly, for females shouting at three feet, two females would result in 85 dBA, four females in 88 dBA, eight females in 91 dBA, and 16 females in 94 dBA. The above calculation shows that as the number of people increase from 1 to 16, the peak noise level would increase by 12 dBA. It should be noted that this is the worst-case assumption since it is rarely possible for 16 people to generate peak vocal level at the same time. In addition, it is impossible to maintain a distance of three feet from all 16 people, since it is assumed they remain a point source. Similarly, for loud voice, 16 males would result in an increase from 75 dBA to 87 dBA at three feet and 16 females would result in 83 dBA at three feet. For raised voice, 16 males would result in 77 dBA at three feet, and 16 females would result in 74 dBA at three feet. Since male voice levels are higher than female voice levels, it is assumed that all skiers are male for a worst-case analysis scenario.

At a distance of 200 feet, the distance attenuation would provide approximately 36 dBA in noise reduction, compared to the noise level at three feet from the point source(s). Therefore, noise level from a single male person would be reduced to 52 dBA L_{max}, 39 dBA L_{max}, and 29 dBA L_{max}, respectively, for shouting, loud, and raised voice levels. At this distance, the above male shouting noise from 16 people would be reduced to 64 dBA L_{max}. Male loud voice

[53] *Harry Levitt and John C. Webster, Handbook of Acoustical Measurements and Noise Control Third Edition, 1991.*

from 16 people would be reduced to 51 dBA. Male raised voice from 16 people would be reduced to 41 dBA. In addition, noise attenuation provided by terrain and trees would further reduce the skier noise by 6 dBA or more. Therefore, no homes along the proposed Ski Back Trail alignment would be exposed to noise from skiers passing by that would exceed the Town's daytime exterior noise standards. There would be no adverse effect and no mitigation measures are required.

(ii) Interior Noise Levels

The closest homes exposed to exterior noise levels reaching 64 dBA L_{max} would have interior noise levels reaching 37 dBA L_{max} with windows closed. This range of maximum interior noise levels is lower than the Town's 55 dBA and 50 dBA interior noise standards not to be exceeded by more than one minute and five minutes, respectively, in any hour during the daytime hours between 7:00 a.m. and 10:00 p.m. It is also lower than the interior noise standard of 45 dBA for noise lasting longer than five minutes in any hour during the daytime hours. Therefore, there would be no adverse effect regarding interior noise for the existing residential uses adjacent to the proposed Ski Back Trail alignment from skier pass-by noise.

(3) Mitigation Measures

(a) Construction

Construction would be limited to the hours of 7:00 A.M. to 7:00 P.M. Monday through Saturday in accordance with the Town Noise Ordinance. No construction activities are permitted outside of these hours or on Sundays and Federal holidays.

Mitigation Measure 3.5-1: During all site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.

Mitigation Measure 3.5-2: The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.

Mitigation Measure 3.5-3: The construction contractor shall locate equipment staging in areas that would create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

(b) Operation

Mitigation Measure 3.5-4: Snow-making activities shall be limited to daytime hours between 7:00 A.M. and 8:00 P.M. with no snow-making activities permitted between 8:00 P.M. and 7:00 A.M.

Mitigation Measure 3.5-5: Maintain or establish vegetative screening between gun placements and residences.

Mitigation Measure 3.5-6: All snow-making equipment shall be placed a minimum of 300 feet from the nearest residential unit. The placement of snow guns farther from the homes would increase the amount of time the grooming equipment would be in the project vicinity to place the snow. However, snow grooming would not take more than a few minutes depending on weather but could take up to no more than 10 minutes. Confirmation that due to the distance and intervening topography, the snow-making equipment does not exceed the City's Noise Ordinance shall be performed by a qualified Acoustical Engineer.

c. Environmental Consequences of Alternative 1 – Original Alignment Proposal

(1) Construction Impacts

The Original Alignment Proposal Alternative would be similar to the Proposed Action with the exception that this Alternative would require substantially more cut and fill along the proposed alignment. Under this Alternative, construction of this trail would require six retaining walls and the temporary access corridors, which would maintain the same alignments as the Proposed Action.

Similar to the Proposed Action, short-term construction-related noise impacts would be associated with excavation, grading, and construction of the six retaining walls along the trail alignment. Construction-related short-term noise levels would be higher than existing ambient noise levels in the area but would no longer occur once construction of the trail is completed. Construction crew commute and the transport of construction equipment and materials to the site would incrementally increase noise levels on access roads leading to the site and may be more frequent than the Proposed Action.[54] There would be a relatively high single-event noise

[54] *Construction of Alternative 1 would utilize primarily existing MMSA workers, except for construction of the six retaining walls. However, this analysis was conservative and assumed a worst-case scenario of requiring 1.25 trips per the four pieces of construction equipment utilized per day, resulting in a total of five worker trips per day.*

exposure potential at a maximum level of 87 dBA L_{max} with trucks passing at 50 feet. However, the projected construction traffic would be small when compared to the existing traffic volumes on SR-203 and other affected streets, and it's associated longer-term (e.g., hourly or daily) noise level changes would not be measurable. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would not be substantial.

In addition, as this Alternative requires more cut and fill along the trail, construction noise would be higher than under the Proposed Action. Regardless, this Alternative would be required to implement the same construction mitigation measures (refer to Mitigation Measures 3.5-1 through 3.5-3), which would ensure that there would be no adverse effect regarding short-term construction noise impacts.

(2) Operational Impacts

All other operations and maintenance activities including transportation noise, snow-making, snow grooming, and skier pass-by noise would be the same under this Alternative as the Proposed Action. As such, the Original Alignment Proposal Alternative would have operational noise impacts similar to the Proposed Action.

Traffic noise impacts would be very similar to the Proposed Action in terms of effects on vehicular traffic trips on SR-203. The residences would still continue to experience similar traffic noise with this Alternative since there would be no change in traffic noise levels on the weekdays or weekends. Therefore, there would be no adverse effect and no mitigation measures would be required.

Snowmaking would occur for approximately 60 hours throughout the ski season and snow-making guns would be placed in the same configuration as in the Proposed Action. Under this Alternative, mitigation measures would also be required to ensure that snow-making activities comply with the Town's Noise Ordinances and would not take place between the hours of 8:00 P.M. and 7:00 A.M. As such, no homes along the Original Alignment Proposal ski trail alignment would be exposed to noise from snow-making that would exceed the Town's daytime exterior or interior noise standards.

Snow-grooming would not take place between the hours of 8:00 P.M. and 7:00 A.M. and would occur only when the maintenance is needed. Noise levels from snow-grooming activities would have a noise level of 55 to 59 dBA L_{max} at 200 feet, depending on the speed of the motor. With tree attenuation, the activities would have a noise level of 53 dBA and interior noise levels reaching 26 dBA L_{max} with windows closed. These levels would be below the Town's standards at the nearest residences adjacent to the trail alignment. Therefore, there would be no adverse

effect regarding exterior or interior noise for the existing residential uses adjacent to the Original Alignment Proposal from snow-grooming activities.

The exterior noise levels due to skier pass-by noise would reach 64 dBA L_{max} and the interior noise levels would reach 37 dBA L_{max} with windows closed. The interior noise levels are lower than the Town's 55 dBA and 50 dBA interior noise standards not to be exceeded by more than one minute and five minutes, respectively, in any hour during the daytime hours between 7:00 A.M. and 10:00 P.M. and is also lower than the interior noise standard of 45 dBA for noise lasting longer than five minutes in any hour during the daytime hours. No homes along the Original Alignment Proposal would be exposed to noise from skiers passing by that would exceed the Town's daytime exterior noise standards. Therefore, there would be no adverse effect regarding exterior or interior noise for the existing residential uses adjacent to the Original Alignment Proposal from skiers passing by.

d. Environmental Consequences of Alternative 2 – Transit Emphasis Alternative

(1) Construction Impacts

The Transit Emphasis Alternative does not include the construction of the Ski Back Trail. Rather, an increased emphasis would be on transit provisions focused on returning skiers from the Main Lodge, Chair 2/10, and Chair 4/20 to The Village, and other destinations in Town. As the Ski Back Trail would not be constructed under this alternative, no construction noise impacts would occur.

(2) Operational Impacts

Although under this Alternative a total of 240 additional skiers could, theoretically, be transported to The Village in the winter afternoon peak hours, it is not likely that this scenario would actually reduce traffic demand in the peak hour since not all of the total 240 additional transit riders would utilize the transit buses only during the peak hours. The daily reduction of 240 skiers using private vehicles among the 7,000 total skiers and snowboarders on typical winter Saturdays or 14,000 total skiers and snowboarders represent less than four percent and two percent, respectively, of the total skiers and snowboarders. The resulting change in traffic noise would not be measurable and there would be no adverse effect regarding traffic noise.

As the Transit Emphasis Alternative does not include the construction of the Ski Back Trail, impacts from snow-making, snow-grooming, or skiers passing by, would not occur to the single-family residential uses located 200 feet south of the Ski Back Trail (sensitive receptors).

e. Environmental Consequences of Alternative 3 – No Action Alternative

(1) Construction Impacts

The No Action Alternative would reflect a continuation of existing conditions without changes, additions, or upgrades. Since there would be no development under this Alternative, there would be no construction-related noise impacts.

(2) Operational Impacts

The No Action Alternative would result in the continued operation of the existing public transit system, Village Gondola, parking facilities, and mountain operations with no changes. Consequently, traffic noise conditions would remain the same, and thus, no traffic noise impacts would occur. In addition, this Alternative would not involve snow-making and snow-grooming activities and no skiers would pass by within 200 feet of single-family residential units. Therefore, there would be no operational noise impacts under this Alternative.

f. Conformity with Applicable Plans and Policies

(1) Construction

As described above, construction of the Proposed Action and Alternative 1 would result in a maximum of 74 dBA impacting the nearby residential community. The Proposed Action and Alternative 1 would also be required to comply with the Town's Noise Ordinance limiting the times of day construction activities may occur. Therefore, construction of the Proposed Action and Alternative 1 would be consistent with the Noise Element of the *General Plan Update*, Policy C.6 of the Community Design Element of the *General Plan Update*, and the Town's Municipal Code.

Since Alternative 2 and Alternative 3 would not result in construction impacts, they would both also be consistent with the Noise Element of the *General Plan*, Policy C.6 of the Community Design Element of the *General Plan Update*, and the Town's Municipal Code.

(2) Operation

Operational noise associated with the Proposed Action and Alternative 1 would include snow-making activities, snow-grooming activities, and skier pass-by noise. Since the Proposed Action and Alternative 1 would not result in an increase in traffic, there would not be an increase in traffic noise, thereby maintaining the existing ambient noise level ranging from 62.3 to 66.5 dBA. In addition, the maximum exterior noise levels of 64 dBA due to the snow-making

activities, 53 dBA due to the snow-grooming activities, and 52 dBA would all be consistent with the existing ambient noise levels and would not exceed the City's exterior noise standard. As such, operational noise levels would also be consistent with the City's interior noise standards since all exterior noise levels would be reduced by up to 17 dBA, well within the City's interior noise standards. Therefore, the Proposed Action and Alternative 1 would also be consistent with DHS' *Guidelines for Noise and Land Use Compatibility* and U.S. EPA guidelines.

Operation of Alternative 3 would result in an increase of four bus trips during the peak hour. Therefore, under this Alternative there would only be an increase in traffic noise and there would not be any operational noise impacts as a result of snow-making activities, snow-grooming activities, and skier pass-by noise. However, due to the high amount of traffic currently on SR-203 during the peak hours, four additional bus trips would not result in an increase in traffic noise and/or ambient noise levels in the area. Therefore, Alternative 3 would be consistent with the Town's exterior and interior noise standard and with DHS' *Guidelines for Noise and Land Use Compatibility* and U.S. EPA guidelines.

Alternative 4 would not result in any operational noise impacts and therefore, would also be consistent with the Town's exterior and interior noise standard and with DHS' *Guidelines for Noise and Land Use Compatibility* and U.S. EPA guidelines.