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3.6 NOISE

3.6-1 INTRODUCTION

This analysis discusses the existing noise environment in the vicinity of the Heavenly Mountain Resort Master Plan Amendment (MPA 05), the potential noise impacts associated with the MPA 05, and existing MP 96 mitigation measures and MPA 05 standard design features. The intent of this document is to comply with the requirements of the California Environmental Quality Act (CEQA) and the Tahoe Regional Planning Agency (TRPA) requirements.

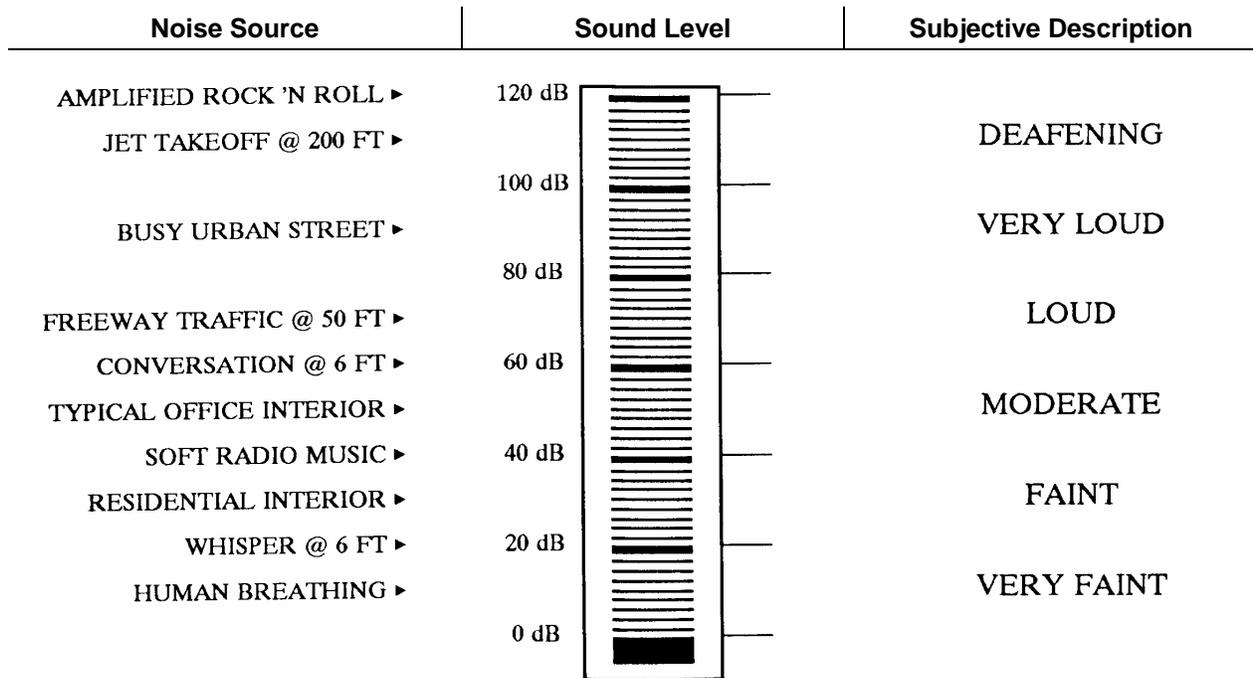
3.6-2 ENVIRONMENTAL AND REGULATORY SETTING

This chapter discusses the potential noise impacts of the proposed MPA 05 on the surrounding environment.

Noise is often defined as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. Researchers generally agree that A-weighted sound pressure levels (sound levels) are well correlated with community reaction to noise. Variations in sound levels over time are represented by statistical descriptors, and by time-weighted composite noise metrics such as the Community Noise Equivalent Level (CNEL). The unit of sound level measurement is the decibel (dB), sometimes expressed as dBA. Throughout this analysis, A-weighted sound pressure levels are used to describe community noise unless otherwise indicated. Figure 3.6-1 provides examples of sound levels associated with common noise sources.

The decibel notation used for sound levels describes a logarithmic relationship of acoustical energy, so sound levels cannot be added or subtracted in the conventional arithmetic manner. For example, a doubling of acoustical energy results in a change of 3 dB, which is usually considered to be barely perceptible. A 10-fold increase in acoustical energy yields a 10-decibel change, which is subjectively like a doubling of loudness.

Figure 3.6-1: Examples of Sound Levels



The CNEL descriptor is used by the TRPA for determining a significant noise impact. The CNEL is defined as the 24-hour average noise level with noise occurring during evening hours (7:00 p.m. – 10 p.m.) weighted by a factor of three, and nighttime hours (10 p.m. – 7 a.m.) weighted by a factor of 10, prior to the averaging.

The MPA 05 includes modifications and/or additions to the MP 96.

Ambient Noise Levels Within the Project Boundaries and in the Project Vicinity

Existing noise sources associated with ski resort operation include snowmaking, snow grooming machines, avalanche control, parking lot activities, snow removal, and automobile traffic generated by ski area patrons. In general, snowmaking occurs at nighttime, usually at the beginning and end of the ski season, depending on the amount of natural snowfall. Snow grooming typically occurs every night during the ski season. Parking lot activities and automobile traffic occur during the times the ski facility is open, with peak periods of activity in the morning and evening hours. Snow removal is undertaken at the parking lots at the California, Stagecoach and Boulder base areas after snowfall, typically at nighttime.

Previous Noise Measurement Surveys and Modeling for the 95 Draft EIR/EIS/EIS

Continual noise level measurements were conducted for the 95 Draft EIR/EIS/EIS to establish existing exterior noise levels, both with and without snowmaking operations, in residential areas adjacent to the Heavenly Mountain Resort. Please refer to the 95 Draft EIR/EIS/EIS, Section 4.6, Noise.

Additional noise level measurements and/or computer modeling were also conducted to determine background noise levels during the winter associated with snow grooming, snowmobile operations, ski lift operations, snow removal operations and avalanche control. Please refer to the 95 Draft EIR/EIS/EIS, Section 4.6, Noise.

Noise levels associated with roadway traffic were determined for both winter and summer activities in the 95 Draft EIR/EIS/EIS, Section 4.6, Noise.

Additional Noise Measurement Surveys and Modeling of the Existing Noise Environment

Additional continual 24-hour noise level measurements were conducted by Bollard & Brennan, Inc. during the summer of 2000 for the 2001 TRPA Threshold Review. One set of noise level measurements was conducted on Wells Fargo Lane with a view of the Nevada-side Stagecoach Lodge. The measured CNEL of 48 dB is in compliance with the Plan Area Statement (PAS) standard of 55 dB CNEL. No other noise measurements were conducted for the 2001 TRPA Threshold Review within proximity of the Heavenly Mountain Resort. The TRPA recognizes that one measurement for a period of 1 hour or even 24 hours every 5 years cannot provide a conclusive determination of the overall noise levels for that location or Plan Area. In fact, there may be variations in the measured noise levels even if noise measurements were conducted continuously for an entire year. However, the measured noise levels for a 24-hour period can provide a representation of the potential noise level and noise sources. Therefore, CNEL is based on the 24-hour average sound level.

Ongoing noise level measurements have been conducted on an annual basis for the Heavenly Mountain Resort snowmaking operations. Annual reports of snowmaking noise levels have been conducted since the 1996/1997 ski season. Annual noise monitoring has been conducted as a part of the MMP included in the MP 96 (Chapter 7). The snowmaking noise measurements were conducted for both the California and Nevada sides of the ski area. Table 3.6-1 provides a summary of the measured noise levels on the California side of the ski area. This noise monitoring site operates continually between November 1st and March 30th of the ski season. The measurements are conducted at the Tahoe Seasons Resort which is located adjacent to the California base area.

Table 3.6-1

Summary of Measured Noise Levels at the Tahoe Seasons Resort – CA Base Area
(Average Measured CNEL)

Year	CNEL on Days with Snowmaking	CNEL on Days without Snowmaking	CNEL During Measurement Period	Total # of Monitoring Days	Total # of Snowmaking Days
1996/1997	74.1 dBA	61.7 dBA	71.6 dBA		
1997/1998	73.5 dBA	61.8 dBA	70.2 dBA		
1998/1999	73.0 dBA	62.0 dBA	69.5 dBA		
1999/2000	74.3 dBA	62.0 dBA	73.0 dBA	141	101
*2000/2001	74.1 dBA	60.0 dBA	72.2 dBA	140	89
2001/2002	73.9 dBA	60.3 dBA	72.1 dBA	145	93
2002/2003	72.0 dBA	63.1 dBA	68.3 dBA	150	61
2003/2004	67.4 dBA	62.3 dBA	65.7 dBA	104	56
2004/2005	65.3 dBA	61.5 dBA	63.1 dBA	149	51

*The 2000/2001 - 2004/2005 measurement site is different than in previous years. The noise measurement site moved from the Tahoe Season roof-top to the ground floor due to interference from roof-top mechanical equipment.

Additional analyses of noise measurement data indicate that overall measured noise levels at the Tahoe Season Resort, when a full array of fan guns are operating at the base and along the face of the California side, was 62 dB CNEL. Since background noise levels without any snowmaking operations are in the 62 dB to 63 dB CNEL range, and the measured noise levels do not change when the full array of fan guns are operating, this data would indicate that the noise levels associated with fan guns are a minimum of 10 dB below the background noise levels. Therefore, when only fan guns are operating on the California side, the contribution of noise from the fan guns is expected to be 52 dB CNEL or lower (when adding dBs logarithmically; 52 dB + 62 dB = 62 dB).

Snowmaking operations also occur on the lower runs at the Nevada Boulder and Stagecoach base areas. Snowmaking at the lower runs of the Boulder and Stagecoach base areas generally only occur for 2 to 3 days each year. However, the snowmaking equipment may operate continually for a 24-hour period. Tables 3.6-2 and 3.6-3 show the annual noise measurement data at each of these locations.

Table 3.6-2

Ambient Noise Level Measurements - Boulder Base Area

Year	Date	Measured Sound Level, Leq		
		Boulder Base	Corner of Jack Cir. And Bonnie Ct.	
			Measured	Measured for the 1996 Master Plan
1999-2000	December 14, 1999	70 dBA	63 dBA	65 dBA
2000-2001	December 14, 2000	73 dBA	65 dBA	
2001-2002	NA ¹	NA ¹	NA ¹	
2002-2003	February 4, 2003	71 dBA	53 dBA	
2003-2004	December 8, 2003	60 dBA	NA ¹	
2004-2005	December 3, 2004	66 dBA	58 dBA	

Source: Bollard & Brennan, Inc.

¹Snowmaking operations did not occur at this location during this season.

Table 3.6-3

Ambient Noise Level Measurements - Stage Coach Base Area

Year	Date	Measured Sound Level, Leq			
		460 Quaking Aspen Rd.		Entrance to The Ridge	Eagle Nest
		Measured	Measured for Master Plan		
1999-2000	December 4, 1999	87 dBA	82-92 dBA	62 dBA	78 dBA
2000-2001	December 11, 2000	86 dBA		56 dBA	72 dBA
2001-2002	November 30, 2001	57 dBA		55 dBA	59 dBA
2002-2003	February 2, 2003	83 dBA		---	70 dBA
2003-2004	December 8, 2003	87 dBA		58 dBA	74 dBA
2004-2005	November 30, 2004	81 dBA		58 dBA	68 dBA

Source: Bollard & Brennan, Inc.

There are two components of snowmaking operations that are the primary sources of noise. These components are the air/water spray nozzles (or guns), located along specific ski trails, and the compressors, with their pumps and fans. In addition, portable diesel generators have also been used for power, and have been located in the base area parking lots.

Since preparation of the 1996 EIR/EIS/EIS, fan guns have been incorporated into the fleet of snowmaking equipment. The fan guns have generally been found to be approximately 20 dB quieter than typical air/water nozzle guns. In addition, diesel generators are no longer used as a part of the snowmaking system.

The air/water nozzle snowmaking system at Heavenly consists of various types of snowmaking nozzles. The nozzles include the Omichron, Ratnik Triple, Ratnik 2+2, Ratnik Single, and others. Each nozzle has varying performance characteristics for snowmaking and noise emissions. Most of the nozzles are mounted to skids, and can be connected to any of the snowmaking hydrants on the mountain. The system delivers air and water to each nozzle. The air-water mixture is manually controlled as a function of temperature and humidity. The primary noise source associated with the air-water nozzles, is the compressed air which is mixed with the water at the nozzle. Table 3.6-4 provides a summary of some of the air-water nozzle noise levels. These were provided in the 95 Draft EIR/EIS/EIS, Section 4.6, Noise.

Table 3.6-4

Snowmaking Air/Water Nozzle Noise Measurement Results

	Location	L _{eq} , dB at Nozzle Position					
		L. Side	Back	R. Side	Front	L. Side	L. Side
Nozzle Type	Distance	25'	25'	25'	50'	50'	100'
Omichron		91	89	96	103	83	75
Ratnik Triple		97	94	97	102	93.5	82
Ratnik 2+2		98	89	96.5	109	93	87
Ratnik Single		95	92.5	97	101	88	83

Source: Brown-Buntin Associates, Inc. 1996

Noise measurement data were collected more recently for fan guns at Heavenly. The types of fan guns which Heavenly is currently using include Super Polecat and Techno Alpen. Bollard & Brennan, Inc. conducted noise level measurements of each of these two snowmaking guns on March 24, 2003. Results indicate that noise levels associated with the fan guns are approximately 22 dB to 30 dB less than a typical Omichron Whisper Gun or Ratnik Single air-water snowmaking nozzle. The results of the noise measurements are shown in Table 3.6-5.

Table 3.6-5

Snowmaking Fan Gun Noise Measurement Results

	Location	L _{eq} , dB at Nozzle Position	
		Side	Front
Fan Gun Type	Distance	50 feet	50 feet
15 hp Super Polecat		69.5 dB	72.5 dB
20 hp Techno Alpen		68.7 dB	75.4 dB

Source: Bollard & Brennan, Inc. 2003

Other noise sources analyzed within the 95 Draft EIR/EIS/EIS, Section 4.6, Noise, include blasting of boulders during the summer months and concert noise levels. Please refer to the 95 Draft EIR/EIS/EIS for these discussions.

3.6-3 EVALUATION CRITERIA

The following criteria are included in TRPA Regional Plan documents as noted in the “Justification” column.

Table 3.6-6

Evaluation Criteria with Point of Significance - Noise

Evaluation Criteria	As Measured by	Point of Significance	Justification
1. Will construction of the Project expose the public to high noise levels?	Hours of Operation	Construction outside of the hours between 8:00 a.m. to 6:30 p.m.	TRPA Code of Ordinances Chapter 23, Section 23.8
2. Will operation and maintenance of the Project expose the public to high noise levels?	Projected noise levels at the Plan Area Boundary	PAS 080 - 50 dB CNEL PAS 082, 085, 086, 087, 088 – 55 dB CNEL PAS 089B – 65 dB CNEL (PAS 098B was replaced by the Stateline/Ski Run Community Plan) PAS 095 – 45 dB CNEL PAS 121 – 45 dB CNEL	TRPA Plan Area Statement Criteria

Table 3.6-6

Evaluation Criteria with Point of Significance - Noise

Evaluation Criteria	As Measured by	Point of Significance	Justification
3. Will operation of the Project cause a single noise event greater than threshold limits?	Projected noise levels due to Mobile Equipment at 50 feet	Snow Groomers 82 dBA at 50 feet. Snowmobiles 82 dBA at 50 feet.	TRPA Threshold Carrying Capacities (Resolution # 82-11)

Source: Parsons, 2005

3.6-4 ENVIRONMENTAL IMPACTS

The noise sources described for the 95 Draft EIR/EIS/EIS are the same as those proposed to be included in the MPA 05. However, the proposed MPA 05 includes additional snowmaking acreage spread out within the ski resort boundary and includes new types of snowmaking equipment. While the number of ski lifts would only increase by a total of three, the alignments and locations would change. Although the overall buildout capacity of the mountain would not change, the capacity on the Lake Tahoe Basin side of the resort would increase.

The primary noise sources which require special attention and analysis include the snowmaking equipment and proposed amphitheater. No additional lift capacity is expected to occur on the mountain. Even though the PAOTS on the Lake Tahoe Basin side of the mountain are expected to increase, noise sources such as additional voices and skis on the snow are not primary noise sources, and would not adversely affect CNEL values.

Impacts associated with noise from the project are evaluated using the TRPA CNEL standards as the test of significance. The TRPA standards are the most restrictive.

IMPACT: NOISE-1: Increased Snowmaking Noise

The No Action Alternative assumes that additional snowmaking in the MP 96 would still be allowed. The snowmaking analysis included in the 95 Draft EIR/EIS/EIS provides a comprehensive list of mitigation measures (Mitigation Measures 7.5-12 and 7.5-13) intended to reduce snowmaking noise levels to comply with the PAS standards or to reduce noise levels below the 1982 snowmaking noise levels. Much of the noise mitigation measures focuses on using fan guns (or the newest technology available) for all new snowmaking, and eventual replacement of existing air-water guns with fan guns. Based on snowmaking noise measurement data collected at Heavenly, it is evident that overall snowmaking noise could be reduced by a minimum of 20 dB through conversion of the existing air-water nozzle fleet of snowmaking equipment with fan gun (or other similar) technology.

The Skyline Trail/Summer Road Relocation & Regrading Project is a part of the Phase I list of MPA 05 projects. As a part of this project, new snowmaking infrastructure would be added within the newly realigned and relocated roadway/ski trail. The infrastructure would include air, water, and electrical power lines with hydrants spaced approximately 150 feet on center from the intersection of Milky Way Bowl to the Sky Express lift top station. A portion of this project is located inside the TRPA basin boundary. The linear length of the snowmaking pipelines is approximately 2,500 feet, and includes approximately 16 new snowmaking hydrants. Based on discussions with the Heavenly planning staff and review of the MP 96 MMP, snowmaking equipment along the Skyline Trail would consist of fan guns and would not include air-water nozzles. There would be a total of 16 snowmaking fan guns spaced at 150 feet apart along the realigned Skyline Trail. Each fan gun would produce an average noise level of 70 dB Equivalent Continuous Noise Level (4db exchange rate) Leq at 50 feet, depending on the orientation. The predicted noise level at the nearest PAS Boundary (PAS 095 – Trout/Cold Creek) is predicted to range between 65 dB and 70 dB Leq. Assuming the snowmaking equipment operates for 8 hours during the daytime period, the CNEL is predicted to range between 60 dB and 65 dB at the PAS 095 boundary. The noise level standard is 50 dB CNEL for PAS 095. Therefore, the proposed project would contribute to further exceedance of noise standards at this PAS boundary location.

The existing snowmaking CNEL is approximately 78 dB in the vicinity of the Skyline Trail based on use of existing snowmaking equipment. As required in the Proposed Action to minimize CNEL noise impacts, Heavenly shall limit snowmaking to daytime hours. In addition, Heavenly shall replace existing air-water nozzles with fan guns on adjacent ski trails located under the top portion of the Dipper Express and Sky Express Lifts (*e.g.*, Ski Trails I3 – Upper Ellie’s, V4 – Big Dipper, and V8 – Orion’s). Implementation of this MP 96 mitigation measure would result in overall reduction in existing snowmaking CNEL noise levels during snowmaking operations at the PAS 095 boundary. Based on noise measurements conducted in February 2005 at the PAS 095 boundary, and above the existing trail, the operation of the four existing air-water Ratnik guns resulted in measured noise levels of 76 dBA Leq. Therefore, the predicted noise levels for the proposed fan guns are at least 5 to 10 dB less than the existing snowmaking operations. The resulting CNEL at the PAS 095 boundary using the recommended mitigation measures would result in a CNEL of approximately 60 dB. This reduction in noise compared to existing conditions is consistent with the existing MP 96 mitigation plan which calls for Heavenly to provide an overall reduction in snowmaking noise through the use of new snowmaking technology.

The MPA 05 proposes additional future snowmaking on ski trails located throughout the mountain. The MPA 05 proposes 29.7 acres more of total snowmaking at Heavenly than the MP 96. However, for the in-basin ski trails, the MPA 05 actually proposes a decrease of 7.5 acres of snowmaking coverage compared to the MP 96 buildout. The snowmaking analysis included within the 95 Draft EIR/EIS/EIS provides a comprehensive list of mitigation measures (Mitigation Measures 7.5-12

and 7.5-13) intended to reduce snowmaking noise levels to comply with PAS standards or to reduce noise levels below the predicted 1982 snowmaking noise levels. Much of the noise mitigation measures focuses on using fan guns (or the newest technology available) for all new snowmaking, and eventual replacement of existing air-water guns with fan guns. Based on snowmaking noise measurement data collected at Heavenly, it is evident that overall snowmaking noise could be reduced by a minimum of 20 dB through conversion of the air-water nozzle fleet of snowmaking equipment with fan gun (or other similar) technology.

As required in Chapter 2 for future MPA 05 proposed snowmaking expansions, MP 96 mitigation measures for snowmaking (7.5-13) shall continue to be implemented as standard design features for new snowmaking projects are proposed to reduce existing on-mountain snowmaking noise levels at PAS boundaries.

CEQA and TRPA

Analysis: *Less than Significant; All Alternatives*

Under all Alternatives, Phase I and future MPA 05 projects would be required to comply with existing snowmaking noise mitigation measures from the MP 96 (e.g., 7.5-13). This mitigation measure requires that existing air-water snowmaking guns be replaced with quieter fan gun technology at the time of on mountain snowmaking expansion projects. Compliance with this measure for the proposed Phase I Skyline Trail snowmaking project and future MPA 05 projects would reduce existing snowmaking noise levels at adjacent Plan Area boundaries. Therefore, this impact is considered to be less than significant.

NEPA

Analysis: *All Alternatives*

Noise effects associated with expansion of on mountain snowmaking is discussed above under CEQA and TRPA.

IMPACT: NOISE-2: Increased Snow Grooming Noise

Under the No Action Alternative, snow grooming would continue based on activities anticipated in the MP 96. Based on analysis contained within the 95 Draft EIR/EIS/EIS, Section 4.6, Noise, no exceedance of the noise standards is expected to occur from snow grooming.

There are a series of ski trails anticipated to be developed as a part of the MPA 05. Based upon the MPA 05 plan maps, it is anticipated that these proposed ski trails can remain 85 feet from Plan Area boundaries that are adjacent to Heavenly. Operation of snow grooming equipment would not exceed Plan Area noise standards with a minimum of 85 feet of separation. Therefore, based on the analysis contained within the 95 Draft EIR/EIS/EIS, Section 4.6, Noise, no exceedance of noise standards is expected to occur.

CEQA and TRPA

Analysis: *Less than Significant; All Alternatives*

Under all Alternatives, Phase I and future MPA 05 projects would not result in new snow grooming activities within 85 feet from a non-Heavenly Plan Area boundary. Therefore, this impact is considered to be less than significant.

NEPA

Analysis: *All Alternatives*

Noise effects associated with snow grooming operations is discussed above under CEQA and TRPA.

IMPACT: NOISE-3: Increased Snowmobile Operations Noise

Under the No Action Alternative, snowmobile operations would continue based on activities anticipated in the MP 96. Since the 95 Draft EIR/EIS/EIS was prepared, snowmobile technology used at Heavenly has begun to include four-stroke engines. The four-stroke engine technology has been in part, industry-wide response to complaints regarding snowmobile noise levels. As reported in the August 6, 2004 TRPA Noise Thresholds Update Report, most four-stroke snowmobiles result in an overall maximum noise level ranging between 70 dB and 75 dB at a distance of 50 feet. This is consistent with the TRPA single event threshold of 82 dBA. Heavenly is currently in the process of replacing all two-stroke snowmobiles with four-stroke snowmobiles. This would result in an overall reduction in snowmobile noise. As the ski area expands its skiable terrain, it is likely to result in an incremental increase in the amount of terrain accessed by snowmobile by Heavenly Mountain Resort operations personnel. However, as mentioned above, Heavenly is currently in the process of replacing all existing two-stroke snowmobiles with four-stroke models. This would result in an overall reduction in snowmobile noise.

CEQA and TRPA

Analysis: *Less than Significant; All Alternatives*

Under all Alternatives, snowmobile noise levels would continue to be reduced as older equipment is replaced. Snowmobile noise levels would continue to be consistent with TRPA single-event standards. Therefore, this impact is considered to be less than significant.

NEPA

Analysis: *All Alternatives*

Noise effects associated with snowmobile operations is discussed above under CEQA and TRPA.

IMPACT: NOISE-4: Increased Rock Busting Noise

Noise impacts from rock-busting operations were thoroughly analyzed in the 95 Draft EIR/EIS/EIS, Section 4.6, Noise. It is expected that additional rock-busting operations would occur as a part of the continued development of the existing MP 96. To reduce the noise effects from future rock busting activities, existing mitigation measures for rock busting (mitigation measure 7.5-14) that limit the number of blasts that can occur at one time shall continue to be implemented.

The North Bowl Express Chairlift Replacement, Skyline Trail/Summer Road Relocation & Regrading, Re-commission Service Road from Gondola Top to Mid Station, and Hiking Trail Projects are included in the Phase I MPA 05 project list. Rock-busting or blasting could occur as a part of the construction of these projects and other future MPA 05 projects. The 95 Draft EIR/EIS/EIS, Section 4.6, Noise, discusses potential impacts associated with rock-busting or blasting. Rock-busting involves detonating charges in large boulders to break them for easier removal from trails or road corridors. According to Heavenly, this activity can occur during daytime hours anywhere in the Heavenly Mountain Resort, usually in July and August. "Whisperized" Ingersol Rand compressor powered air drills are used to drill holes in the boulders. Charges consisting of 1"x 8" 60 percent dynamite sticks are placed in the holes. Up to 50 holes may be blasted at once in multiple boulders, although five to 10 blasts per day are reported by Heavenly to be more common. The noise levels vary based on shot size and shot timing. Based on analysis in the 95 Draft EIR/EIS/EIS, locations of the 50 dB and 55 dB C-weighted CNEL contours are about 2,900 feet and 1,800 feet, respectively, from the blast site. To reduce the noise effects from future rock busting activities, existing mitigation measures for rock busting (mitigation measure 7.5-14) that limit the number of blasts that can occur at one time shall continue to be implemented.

CEQA and TRPA

Analysis: *Less than Significant; All Alternatives*

Under all Alternatives, rock busting operations would continue to be used during construction. Rock busting noise levels would not exceed TRPA PAS noise standards as long as it occurs approximately 2,900 feet from PAS boundaries, or are limited in number and duration if closer to PAS boundaries. Therefore, this impact is considered to be less than significant.

NEPA

Analysis: *All Alternatives*

Noise effects associated with rock busting activities is discussed above under CEQA and TRPA.

IMPACT: NOISE-5: New Noise from Amphitheater Concerts

The 95 Draft EIR/EIS/EIS, Section 4.6, Noise, included a detailed noise analysis of potential concert noise levels from the Gondola Top Station deck area. The analysis used a very conservative assumption of 106 dB at 180 feet as the reference noise level. The 95 Draft EIR/EIS/EIS utilized the Environmental Noise Model (ENM). This model accounts for topography, noise source frequency, and atmospheric conditions when calculating the locations of the CNEL noise contours. Results indicated that overall noise levels would be below 50 dB CNEL at the adjacent non-Heavenly Plan Area boundaries during a concert event. However, results also indicated that noise levels at the Heavenly Nevada (086) Plan Area would be approximately 80 dB CNEL and would exceed the 55 dB CNEL noise level standard.

The 95 Draft EIR/EIS/EIS also predicted that during certain atmospheric conditions, sound from a concert would be audible at adjacent residential areas and within other distant Plan Areas. However, it also predicted that the potentially audible noise levels would be substantially less than the applicable Plan Area noise level standards for those locations. The MP 96 includes Mitigation Measure 7.5-15 to control concert noise levels at the mixing board to ensure they do not exceed PAS noise standards. To reduce the effects from concerts at the Gondola Top Station, existing mitigation measures for concerts (mitigation measure 7.5-15) shall be implemented prior to holding any concerts. However, because of the proximity of the Gondola Top Station to the Nevada state line and the Plan Area 086 boundary, any amplified concert noise levels would need to be substantially limited with the mixing board.

The MPA 05 proposes construction of a 2,500-seat amphitheater just north of the Gondola Top Station for concert use during the summer months. As with concerts proposed in the No Action Alternative at the Gondola Top Station, location of the proposed amphitheater under All Action Alternatives would be in Heavenly California Plan Area 087, approximately 300 feet from the Nevada state line and the boundary of the Heavenly Nevada Plan Area 086. Alternatives 3, 4, [4A](#) and [5](#) would reduce the size of the amphitheater to a capacity of 1,100. However, for noise analysis purposes, the predicted noise levels were assumed to be the same under each Action Alternative.

On Friday September 3, 2005, J.C. Brennan & Associates, Inc. conducted a concert simulation at the proposed MPA 05 amphitheater location. The simulation was conducted during the early morning hours. The proposed amphitheater site is located in a natural bowl with surrounding topography which shields adjacent non-Heavenly Plan Areas. The simulated musical event included the use of two sets of cabinet speakers and four monitor speakers. The cabinet speakers were elevated at a height of 3 feet above the ground and were oriented in a northerly direction. The four monitor speakers were oriented to the south. This configuration was intended to simulate the actual speaker array to provide enough amplitude to produce noise levels in excess of 95 dB at a sound booth (or a distance of 100 feet from the

proposed stage location). A sound booth which is located at 100 feet from the stage is typical for events which have audiences between 1,000 and 4,000 people.

During the concert simulation, continuous 1 minute noise level measurements and hourly average noise level measurements were conducted at the expected sound booth location, at the nearest Plan Area boundary of PAS 086 Heavenly Nevada (located at the state line to the east of the proposed amphitheater site), the Gondola Mid Station, and at the Plan Area boundary for PAS 080 (located to the north of the proposed amphitheater site). In addition, observations were conducted at the Plan Area 095 boundary, located south of the proposed amphitheater site. The concert simulation included playing a compact disc which contained pop, jazz, and rock-n-roll music. The concert simulation also included tracks which contained people clapping and yelling. The concert simulation lasted for just over 1 hour, and did not have times of inactivity. The results of the noise measurements are contained in Table 3.6-7.

Table 3.6-7

Concert Simulation Noise Measurement Results

Noise Monitoring Site	Measured Noise Level Leq	Comments
Sound Booth Location	92.1 dB	
Heavenly NV PAS 086	64.3 dB	Closest Plan Area Boundary
Gondola Mid Station	53.5 dB	Barely Audible. Most noise was from visitor conversations and wind
PAS 080	37.9 dB	Adjacent Non-Heavenly Plan Area Boundary - Not Audible
PAS 095	No data	Adjacent Non-Heavenly Plan Area Boundary - Barely Audible

Source: j.c. brennan & associates, Inc. 2005

Results of the amphitheater noise analysis indicate that the predicted CNEL at the nearest Plan Area boundary (PAS 086 Heavenly Nevada) would be no greater than 65 dB CNEL provided that the concert would last for no more than 6 hours during daytime and evening hours. This noise level would exceed the TRPA noise level criterion of 55 dB CNEL for PAS 086. As part of the Proposed Action and Action Alternatives, Heavenly proposes to Amend Plan Areas 086 and 087 to eliminate the requirement to utilize the boundary between the two Plan Areas for concert and snowmaking noise assessment. The proposed changes to the Plan Area special policies are included in Chapter 2, Section 2.8 of this EIR/EIS/EIS. If the proposed Plan Area Amendment is approved by TRPA as part of the MPA 05, there would be no exceedance of the Plan Area noise level standards from concerts at the proposed

Amphitheater. As demonstrated in Table 3.6-7, the predicted CNEL exposures at the non-Heavenly Plan Areas boundaries would not exceed the noise level standards due to the distance from the concert noise source or from local shielding from the surrounding topography. Section 3.12, Land Use discusses the findings necessary for the necessary PAS amendment. In order for the findings to be made for the PAS amendment, no other non-noise thresholds can be exceeded. Impacts from snowmaking and amphitheater noise on wildlife are discussed in Section 3.9. Based upon the results of the wildlife analysis, no direct and indirect impacts to wildlife would occur as a result of the operation of the amphitheater.

CEQA and TRPA

Analysis: *Less than Significant; All Alternatives*

Under all Alternatives, concert noise at the Gondola Top Station or proposed amphitheater would exceed TRPA PAS noise standards at the Heavenly Nevada 086 Plan Area boundary (Nevada state line). Heavenly has proposed a Plan Area Amendment that would eliminate this internal ski resort boundary for noise analysis purposes. If this Plan Area Amendment is approved by TRPA, noise levels from concerts would meet applicable standards, including the internal Heavenly PAS boundary and all other adjacent PAS boundaries. Refer to Chapter 3.12, Land Use for analysis of the applicable findings required to support the Plan Area amendment. If the Plan Area Amendment is not approved by TRPA, existing mitigation measure 7.5-15 must be implemented to monitor concert noise levels at the sound board to meet existing TRPA noise standards. Therefore, this impact is considered to be less than significant.

NEPA

Analysis: *All Alternatives*

Noise effects associated with Gondola Top Station and amphitheater concerts is discussed above under CEQA and TRPA. There is no specific Forest Service standard for concert noise levels.

Cumulative Effects

This Chapter does not include an analysis of cumulative effects because this Chapter analyzes project noise impacts using CNEL which utilizes cumulative weighting for measurement of noise levels. There are no non-Heavenly noise sources that would contribute to upper mountain noise levels.