

## Appendix A

### Acoustical Terminology

<b>Acoustics</b>	The science of sound.
<b>Ambient Noise</b>	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
<b>Attenuation</b>	The reduction of an acoustic signal.
<b>A-Weighting</b>	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
<b>Decibel or dB</b>	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
<b>CNEL</b>	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three (+5 dB for TRPA calculations) and nighttime hours weighted by a factor of 10 (or +10 dB) prior to averaging.
<b>Frequency</b>	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
<b>Ldn</b>	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
<b>Leq</b>	Equivalent or energy-averaged sound level.
<b>Lmax</b>	The highest root-mean-square (RMS) sound level measured over a given period of time.
<b>L(n)</b>	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one hour period.
<b>Loudness</b>	A subjective term for the sensation of the magnitude of sound.
<b>Noise</b>	Unwanted sound.
<b>Peak Noise</b>	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
<b>RT<sub>60</sub></b>	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
<b>Sabin</b>	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
<b>Threshold of Hearing</b>	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
<b>Threshold of Pain</b>	Approximately 120 dB above the threshold of hearing.
<b>Impulsive</b>	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
<b>Simple Tone</b>	Any sound which can be judged as audible as a single pitch or set of single pitches.

**Appendix B**  
**FHWA-RD-77-108 Highway Traffic Noise Prediction Model**  
**Data Input Sheet**

Project #: 2013-194  
 Description: Existing Heavenly Summer Epic  
 Ldn/CNEL: CNEL  
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	US 50	Loop Road to Kingsbury Way	26,790	77	10	13	3	1	30	100	
2	US 50.	Loop Road to Casino Core	20,930	77	10	13	3	1	30	100	
3	US 50.	Casino Core to Stateline Ave	21,920	77	10	13	3	1	30	100	
4	US 50.	Stateline Ave to Friday Ave	24,170	77	10	13	3	1	30	100	
5	US 50.	Friday Ave to Park Ave	24,830	77	10	13	3	1	30	100	
6	US 50	Park Ave to Pioneer Trail	30,610	77	10	13	3	1	30	100	
7	US 50	Pioneer Trail to Ski Run Blvd	23,590	77	10	13	3	1	30	100	
8	Pioneer Trail	South of US 50	7,900	77	10	13	3	1	30	100	
9	Park Ave	West of US 50	2,560	77	10	13	2	1	25	100	
10	Park Ave	East of US 50	5,950	77	10	13	2	1	25	100	
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**Appendix B**

**FHWA-RD-77-108 Highway Traffic Noise Prediction Model**

**Predicted Levels**

Project #: 2013-194  
Description: Existing Heavenly Summer Epic  
Ldn/CNEL: CNEL  
Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	US 50	Loop Road to Kingsbury Way	60.3	56.2	58.6	63
2	US 50.	Loop Road to Casino Core	59.2	55.1	57.5	62
3	US 50.	Casino Core to Stateline Ave	59.4	55.3	57.7	63
4	US 50.	Stateline Ave to Friday Ave	59.8	55.8	58.1	63
5	US 50.	Friday Ave to Park Ave	60.0	55.9	58.2	63
6	US 50	Park Ave to Pioneer Trail	60.9	56.8	59.1	64
7	US 50	Pioneer Trail to Ski Run Blvd	59.7	55.7	58.0	63
8	Pioneer Trail	South of US 50	55.0	50.9	53.3	58
9	Park Ave	West of US 50	47.9	43.0	47.6	51
10	Park Ave	East of US 50	51.5	46.7	51.3	55

**Appendix B**  
**FHWA-RD-77-108 Highway Traffic Noise Prediction Model**  
**Noise Contour Output**

Project #: 2013-194  
 Description: Existing Heavenly Summer Epic  
 Ldn/CNEL: CNEL  
 Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	US 50	Loop Road to Kingsbury Way	17	36	79	169	365
2	US 50.	Loop Road to Casino Core	14	31	67	144	309
3	US 50.	Casino Core to Stateline Ave	15	32	69	148	319
4	US 50.	Stateline Ave to Friday Ave	16	34	73	158	340
5	US 50.	Friday Ave to Park Ave	16	35	75	161	347
6	US 50	Park Ave to Pioneer Trail	18	40	86	185	398
7	US 50	Pioneer Trail to Ski Run Blvd	16	33	72	155	335
8	Pioneer Trail	South of US 50	7	16	35	75	162
9	Park Ave	West of US 50	3	6	12	27	58
10	Park Ave	East of US 50	5	10	22	47	101

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**FHWA-RD-77-108 Highway Traffic Noise Prediction Model**  
**Data Input Sheet**

Project #: 2013-194  
 Description: Existing Plus Project Heavenly Summer Epic  
 Ldn/CNEL: CNEL  
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	US 50	Loop Road to Kingsbury Way	27,080	77	10	13	3	1	30	100	
2	US 50.	Loop Road to Casino Core	20,990	77	10	13	3	1	30	100	
3	US 50.	Casino Core to Stateline Ave	21,980	77	10	13	3	1	30	100	
4	US 50.	Stateline Ave to Friday Ave	24,230	77	10	13	3	1	30	100	
5	US 50.	Friday Ave to Park Ave	24,920	77	10	13	3	1	30	100	
6	US 50	Park Ave to Pioneer Trail	31,160	77	10	13	3	1	30	100	
7	US 50	Pioneer Trail to Ski Run Blvd	23,960	77	10	13	3	1	30	100	
8	Pioneer Trail	South of US 50	8,080	77	10	13	3	1	30	100	
9	Park Ave	West of US 50	2,600	77	10	13	2	1	25	100	
10	Park Ave	East of US 50	6,630	77	10	13	2	1	25	100	
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**Predicted Levels**

Project #: 2013-194  
Description: Existing Plus Project Heavenly Summer Epic  
Ldn/CNEL: CNEL  
Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	US 50	Loop Road to Kingsbury Way	60.3	56.2	58.6	63
2	US 50.	Loop Road to Casino Core	59.2	55.1	57.5	62
3	US 50.	Casino Core to Stateline Ave	59.4	55.3	57.7	63
4	US 50.	Stateline Ave to Friday Ave	59.8	55.8	58.1	63
5	US 50.	Friday Ave to Park Ave	60.0	55.9	58.2	63
6	US 50	Park Ave to Pioneer Trail	60.9	56.9	59.2	64
7	US 50	Pioneer Trail to Ski Run Blvd	59.8	55.7	58.1	63
8	Pioneer Trail	South of US 50	55.1	51.0	53.3	58
9	Park Ave	West of US 50	47.9	43.1	47.7	51
10	Park Ave	East of US 50	52.0	47.1	51.8	56

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**FHWA-RD-77-108 Highway Traffic Noise Prediction Model**  
**Noise Contour Output**

Project #: 2013-194  
 Description: Existing Plus Project Heavenly Summer Epic  
 Ldn/CNEL: CNEL  
 Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	US 50	Loop Road to Kingsbury Way	17	37	79	170	367
2	US 50.	Loop Road to Casino Core	14	31	67	144	310
3	US 50.	Casino Core to Stateline Ave	15	32	69	148	319
4	US 50.	Stateline Ave to Friday Ave	16	34	73	158	341
5	US 50.	Friday Ave to Park Ave	16	35	75	161	347
6	US 50	Park Ave to Pioneer Trail	19	40	87	187	403
7	US 50	Pioneer Trail to Ski Run Blvd	16	34	73	157	338
8	Pioneer Trail	South of US 50	8	16	35	76	164
9	Park Ave	West of US 50	3	6	13	27	58
10	Park Ave	East of US 50	5	11	23	51	109

**Appendix B**  
**FHWA-RD-77-108 Highway Traffic Noise Prediction Model**  
**Data Input Sheet**

Project #: 2013-194  
 Description: Year 2035 Heavenly Summer Epic  
 Ldn/CNEL: CNEL  
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	US 50	Loop Road to Kingsbury Way	29,600	77	10	13	3	1	30	100	
2	US 50.	Loop Road to Casino Core	23,100	77	10	13	3	1	30	100	
3	US 50.	Casino Core to Stateline Ave	24,300	77	10	13	3	1	30	100	
4	US 50.	Stateline Ave to Friday Ave	26,500	77	10	13	3	1	30	100	
5	US 50.	Friday Ave to Park Ave	26,400	77	10	13	3	1	30	100	
6	US 50	Park Ave to Pioneer Trail	32,800	77	10	13	3	1	30	100	
7	US 50	Pioneer Trail to Ski Run Blvd	24,800	77	10	13	3	1	30	100	
8	Pioneer Trail	South of US 50	9,000	77	10	13	3	1	30	100	
9	Park Ave	West of US 50	3,200	77	10	13	2	1	25	100	
10	Park Ave	East of US 50	6,600	77	10	13	2	1	25	100	
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**FHWA-RD-77-108 Highway Traffic Noise Prediction Model**

**Predicted Levels**

Project #: 2013-194  
Description: Year 2035 Heavenly Summer Epic  
Ldn/CNEL: CNEL  
Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	US 50	Loop Road to Kingsbury Way	60.7	56.6	59.0	64
2	US 50.	Loop Road to Casino Core	59.6	55.6	57.9	63
3	US 50.	Casino Core to Stateline Ave	59.9	55.8	58.1	63
4	US 50.	Stateline Ave to Friday Ave	60.2	56.2	58.5	63
5	US 50.	Friday Ave to Park Ave	60.2	56.1	58.5	63
6	US 50	Park Ave to Pioneer Trail	61.2	57.1	59.4	64
7	US 50	Pioneer Trail to Ski Run Blvd	59.9	55.9	58.2	63
8	Pioneer Trail	South of US 50	55.5	51.5	53.8	59
9	Park Ave	West of US 50	48.8	44.0	48.6	52
10	Park Ave	East of US 50	52.0	47.1	51.7	56

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**Noise Contour Output**

Project #: 2013-194  
 Description: Year 2035 Heavenly Summer Epic  
 Ldn/CNEL: CNEL  
 Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	US 50	Loop Road to Kingsbury Way	18	39	84	181	390
2	US 50.	Loop Road to Casino Core	15	33	71	153	330
3	US 50.	Casino Core to Stateline Ave	16	34	74	159	342
4	US 50.	Stateline Ave to Friday Ave	17	36	78	168	362
5	US 50.	Friday Ave to Park Ave	17	36	78	168	361
6	US 50	Park Ave to Pioneer Trail	19	42	90	194	417
7	US 50	Pioneer Trail to Ski Run Blvd	16	35	75	161	346
8	Pioneer Trail	South of US 50	8	18	38	82	176
9	Park Ave	West of US 50	3	7	14	31	67
10	Park Ave	East of US 50	5	11	23	50	109

**Appendix B**  
**FHWA-RD-77-108 Highway Traffic Noise Prediction Model**  
**Data Input Sheet**

Project #: 2013-194  
 Description: Cumulative Plus Project Heavenly Summer Epic  
 Ldn/CNEL: CNEL  
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	US 50	Loop Road to Kingsbury Way	29,890	77	10	13	3	1	30	100	
2	US 50.	Loop Road to Casino Core	23,160	77	10	13	3	1	30	100	
3	US 50.	Casino Core to Stateline Ave	24,360	77	10	13	3	1	30	100	
4	US 50.	Stateline Ave to Friday Ave	26,580	77	10	13	3	1	30	100	
5	US 50.	Friday Ave to Park Ave	26,490	77	10	13	3	1	30	100	
6	US 50	Park Ave to Pioneer Trail	33,350	77	10	13	3	1	30	100	
7	US 50	Pioneer Trail to Ski Run Blvd	24,170	77	10	13	3	1	30	100	
8	Pioneer Trail	South of US 50	9,180	77	10	13	3	1	30	100	
9	Park Ave	West of US 50	3,240	77	10	13	2	1	25	100	
10	Park Ave	East of US 50	7,280	77	10	13	2	1	25	100	
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Project #: 2013-194  
Description: Cumulative Plus Project Heavenly Summer Epic  
Ldn/CNEL: CNEL  
Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	US 50	Loop Road to Kingsbury Way	60.8	56.7	59.0	64
2	US 50.	Loop Road to Casino Core	59.6	55.6	57.9	63
3	US 50.	Casino Core to Stateline Ave	59.9	55.8	58.1	63
4	US 50.	Stateline Ave to Friday Ave	60.2	56.2	58.5	63
5	US 50.	Friday Ave to Park Ave	60.2	56.2	58.5	63
6	US 50	Park Ave to Pioneer Trail	61.2	57.2	59.5	64
7	US 50	Pioneer Trail to Ski Run Blvd	59.8	55.8	58.1	63
8	Pioneer Trail	South of US 50	55.6	51.6	53.9	59
9	Park Ave	West of US 50	48.9	44.0	48.7	52
10	Park Ave	East of US 50	52.4	47.5	52.2	56

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**Noise Contour Output**

Project #: 2013-194  
 Description: Cumulative Plus Project Heavenly Summer Epic  
 Ldn/CNEL: CNEL  
 Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	US 50	Loop Road to Kingsbury Way	18	39	84	182	392
2	US 50.	Loop Road to Casino Core	15	33	71	154	331
3	US 50.	Casino Core to Stateline Ave	16	34	74	159	342
4	US 50.	Stateline Ave to Friday Ave	17	36	78	168	363
5	US 50.	Friday Ave to Park Ave	17	36	78	168	362
6	US 50	Park Ave to Pioneer Trail	20	42	91	196	422
7	US 50	Pioneer Trail to Ski Run Blvd	16	34	73	158	340
8	Pioneer Trail	South of US 50	8	18	38	83	179
9	Park Ave	West of US 50	3	7	15	31	68
10	Park Ave	East of US 50	5	12	25	54	116