Appendix F

Noise Measurement Data and
Noise Modeling Calculations

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 2: Site A
Measurement Date: 8/26/2018-8/27/2018
Project Name: Tahoe XC

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	27.2	525	0	0	1	0	0	525
1:00	28.0	631	0	0	1	0	0	631
2:00	29.6	912	0	0	1	0	0	912
3:00	31.0	1,259	0	0	1	0	0	1,259
4:00	29.7	933	0	0	1	0	0	933
5:00	30.9	1,230	0	0	1	0	0	1,230
6:00	38.7	7,413	0	0	1	0	0	7,413
7:00	39.7	9,333	1	0	0	9,333	0	0
8:00	38.1	6,457	1	0	0	6,457	0	0
9:00	45.1	32,359	1	0	0	32,359	0	0
10:00	40.3	10,715	1	0	0	10,715	0	0
11:00	42.1	16,218	1	0	0	16,218	0	0
12:00	40.5	11,220	1	0	0	11,220	0	0
13:00	39.0	7,943	1	0	0	7,943	0	0
14:00	37.9	6,166	1	0	0	6,166	0	0
15:00	38.7	7,413	1	0	0	7,413	0	0
16:00	39.3	8,511	1	0	0	8,511	0	0
17:00	40.2	10,471	1	0	0	10,471	0	0
18:00	45.6	36,308	1	0	0	36,308	0	0
19:00	42.9	19,498	0	1	0	0	19,498	0
20:00	40.0	10,000	0	1	0	0	10,000	0
21:00	35.9	3,890	0	1	0	0	3,890	0
22:00	32.6	1,820	0	0	1	0	0	1,820
23:00	32.3	1,698	0	0	1	0	0	1,698
Sum of Sound Power during Period wo/penalty						163,115	33,389	16,421
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						163,115	100,167	164,213

Total Daily Sound Power, with penalties	427,494
Hours per Day	24
Average Hourly Sound Power, with penalties	17,812
CNEL	42.5

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	525
0	1	0	631
0	1	0	912
0	1	0	1,259
0	1	0	933
0	1	0	1,230
0	1	0	7,413
1	0	9,333	0
1	0	6,457	0
1	0	32,359	0
1	0	10,715	0
1	0	16,218	0
1	0	11,220	0
1	0	7,943	0
1	0	6,166	0
1	0	7,413	0
1	0	8,511	0
1	0	10,471	0
1	0	36,308	0
1	0	19,498	0
1	0	10,000	0
1	0	3,890	0
0	1	0	1,820
0	1	0	1,698
Sum of Sound Power during Period wo/penalty		196,504	16,421
Log Factor for Penalty (i.e., 10*log(x))		1	10
Sound Power during Period with penalty		196,504	164,213

Total Daily Sound Power, with penalties	360,716
Hours per Day	24
Average Hourly Sound Power, with penalties	15,030
Ldn	41.8

Notes:
Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.
Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.
Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:
California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 2: Site A
Measurement Date: 8/26/2018-8/27/2018
Project Name: Tahoe XC

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	31.7	1,479	0	0	1	0	0	1,479
1:00	29.4	871	0	0	1	0	0	871
2:00	23.0	200	0	0	1	0	0	200
3:00	25.3	339	0	0	1	0	0	339
4:00	24.6	288	0	0	1	0	0	288
5:00	29.0	794	0	0	1	0	0	794
6:00	34.2	2,630	0	0	1	0	0	2,630
7:00	39.0	7,943	1	0	0	7,943	0	0
8:00	38.6	7,244	1	0	0	7,244	0	0
9:00	40.9	12,303	1	0	0	12,303	0	0
10:00	37.9	6,166	1	0	0	6,166	0	0
11:00	40.1	10,233	1	0	0	10,233	0	0
12:00	44.3	26,915	1	0	0	26,915	0	0
13:00	46.0	39,811	1	0	0	39,811	0	0
14:00	39.9	9,772	1	0	0	9,772	0	0
15:00	41.6	14,454	1	0	0	14,454	0	0
16:00	42.1	16,218	1	0	0	16,218	0	0
17:00	41.9	15,488	1	0	0	15,488	0	0
18:00	41.4	13,804	1	0	0	13,804	0	0
19:00	40.9	12,303	0	1	0	0	12,303	0
20:00	34.2	2,630	0	1	0	0	2,630	0
21:00	33.7	2,344	0	1	0	0	2,344	0
22:00	32.4	1,738	0	0	1	0	0	1,738
23:00	33.6	2,291	0	0	1	0	0	2,291
Sum of Sound Power during Period wo/penalty						180,352	17,277	10,630
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						180,352	51,832	106,301

Total Daily Sound Power, with penalties	338,485
Hours per Day	24
Average Hourly Sound Power, with penalties	14,104
CNEL	41.5

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	1,479
0	1	0	871
0	1	0	200
0	1	0	339
0	1	0	288
0	1	0	794
0	1	0	2,630
1	0	7,943	0
1	0	7,244	0
1	0	12,303	0
1	0	6,166	0
1	0	10,233	0
1	0	26,915	0
1	0	39,811	0
1	0	9,772	0
1	0	14,454	0
1	0	16,218	0
1	0	15,488	0
1	0	13,804	0
1	0	12,303	0
1	0	2,630	0
1	0	2,344	0
0	1	0	1,738
0	1	0	2,291
Sum of Sound Power during Period wo/penalty		197,629	10,630
Log Factor for Penalty (i.e., 10*log(x))		1	10
Sound Power during Period with penalty		197,629	106,301

Total Daily Sound Power, with penalties	303,930
Hours per Day	24
Average Hourly Sound Power, with penalties	12,664
Ldn	41.0

Notes:
Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.
Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.
Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:
California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 1: Site D
Measurement Date: 8/23/2018-8/24/2018
Project Name: Tahoe XC

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	29.6	912	0	0	1	0	0	912
1:00	27.7	589	0	0	1	0	0	589
2:00	27.9	617	0	0	1	0	0	617
3:00	24.1	257	0	0	1	0	0	257
4:00	27.5	562	0	0	1	0	0	562
5:00	32.5	1,778	0	0	1	0	0	1,778
6:00	35.6	3,631	0	0	1	0	0	3,631
7:00	38.5	7,079	1	0	0	7,079	0	0
8:00	38.2	6,607	1	0	0	6,607	0	0
9:00	42.9	19,498	1	0	0	19,498	0	0
10:00	41.1	12,882	1	0	0	12,882	0	0
11:00	44.1	25,704	1	0	0	25,704	0	0
12:00	46.4	43,652	1	0	0	43,652	0	0
13:00	40.8	12,023	1	0	0	12,023	0	0
14:00	42.6	18,197	1	0	0	18,197	0	0
15:00	44.7	29,512	1	0	0	29,512	0	0
16:00	42.7	18,621	1	0	0	18,621	0	0
17:00	41.9	15,488	1	0	0	15,488	0	0
18:00	42.2	16,596	1	0	0	16,596	0	0
19:00	39.6	9,120	0	1	0	0	9,120	0
20:00	34.9	3,090	0	1	0	0	3,090	0
21:00	35.6	3,631	0	1	0	0	3,631	0
22:00	32.8	1,905	0	0	1	0	0	1,905
23:00	29.6	912	0	0	1	0	0	912
Sum of Sound Power during Period wo/penalty						225,860	15,841	11,163
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						225,860	47,524	111,634

Total Daily Sound Power, with penalties	385,017
Hours per Day	24
Average Hourly Sound Power, with penalties	16,042
CNEL	42.1

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	912
0	1	0	589
0	1	0	617
0	1	0	257
0	1	0	562
0	1	0	1,778
0	1	0	3,631
1	0	7,079	0
1	0	6,607	0
1	0	19,498	0
1	0	12,882	0
1	0	25,704	0
1	0	43,652	0
1	0	12,023	0
1	0	18,197	0
1	0	29,512	0
1	0	18,621	0
1	0	15,488	0
1	0	16,596	0
1	0	9,120	0
1	0	3,090	0
1	0	3,631	0
0	1	0	1,905
0	1	0	912
Sum of Sound Power during Period wo/penalty		241,701	11,163
Log Factor for Penalty (i.e., 10*log(x))		1	10
Sound Power during Period with penalty		241,701	111,634

Total Daily Sound Power, with penalties	353,334
Hours per Day	24
Average Hourly Sound Power, with penalties	14,722
Ldn	41.7

Notes:
Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.
Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.
Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:
California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 1: Site D
Measurement Date: 8/24/2018-8/25/2018
Project Name: Tahoe XC

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	30.2	1,047	0	0	1	0	0	1,047
1:00	38.4	6,918	0	0	1	0	0	6,918
2:00	23.1	204	0	0	1	0	0	204
3:00	24.6	288	0	0	1	0	0	288
4:00	26.4	437	0	0	1	0	0	437
5:00	31.4	1,380	0	0	1	0	0	1,380
6:00	34.0	2,512	0	0	1	0	0	2,512
7:00	35.4	3,467	1	0	0	3,467	0	0
8:00	34.0	2,512	1	0	0	2,512	0	0
9:00	34.7	2,951	1	0	0	2,951	0	0
10:00	38.1	6,457	1	0	0	6,457	0	0
11:00	38.7	7,413	1	0	0	7,413	0	0
12:00	42.6	18,197	1	0	0	18,197	0	0
13:00	47.1	51,286	1	0	0	51,286	0	0
14:00	55.1	323,594	1	0	0	323,594	0	0
15:00	42.8	19,055	1	0	0	19,055	0	0
16:00	44.0	25,119	1	0	0	25,119	0	0
17:00	40.8	12,023	1	0	0	12,023	0	0
18:00	40.3	10,715	1	0	0	10,715	0	0
19:00	39.5	8,913	0	1	0	0	8,913	0
20:00	34.4	2,754	0	1	0	0	2,754	0
21:00	34.1	2,570	0	1	0	0	2,570	0
22:00	34.0	2,512	0	0	1	0	0	2,512
23:00	29.5	891	0	0	1	0	0	891
Sum of Sound Power during Period wo/penalty						482,788	14,237	16,190
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						482,788	42,711	161,899

Total Daily Sound Power, with penalties	687,399
Hours per Day	24
Average Hourly Sound Power, with penalties	28,642
CNEL	44.6

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	1,047
0	1	0	6,918
0	1	0	204
0	1	0	288
0	1	0	437
0	1	0	1,380
0	1	0	2,512
1	0	3,467	0
1	0	2,512	0
1	0	2,951	0
1	0	6,457	0
1	0	7,413	0
1	0	18,197	0
1	0	51,286	0
1	0	323,594	0
1	0	19,055	0
1	0	25,119	0
1	0	12,023	0
1	0	10,715	0
1	0	8,913	0
1	0	2,754	0
1	0	2,570	0
0	1	0	2,512
0	1	0	891
Sum of Sound Power during Period wo/penalty		497,025	16,190
Log Factor for Penalty (i.e., 10*log(x))		1	10
Sound Power during Period with penalty		497,025	161,899

Total Daily Sound Power, with penalties	658,925
Hours per Day	24
Average Hourly Sound Power, with penalties	27,455
Ldn	44.4

Notes:
Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.
Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.
Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:
California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 1: Site D
Measurement Date: 8/25/2018-8/26/2018
Project Name: Tahoe XC

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	28.5	708	0	0	1	0	0	708
1:00	26.9	490	0	0	1	0	0	490
2:00	25.3	339	0	0	1	0	0	339
3:00	25.3	339	0	0	1	0	0	339
4:00	27.7	589	0	0	1	0	0	589
5:00	29.1	813	0	0	1	0	0	813
6:00	34.0	2,512	0	0	1	0	0	2,512
7:00	35.3	3,388	1	0	0	3,388	0	0
8:00	40.2	10,471	1	0	0	10,471	0	0
9:00	39.7	9,333	1	0	0	9,333	0	0
10:00	42.7	18,621	1	0	0	18,621	0	0
11:00	47.4	54,954	1	0	0	54,954	0	0
12:00	43.6	22,909	1	0	0	22,909	0	0
13:00	40.9	12,303	1	0	0	12,303	0	0
14:00	40.2	10,471	1	0	0	10,471	0	0
15:00	42.7	18,621	1	0	0	18,621	0	0
16:00	43.4	21,878	1	0	0	21,878	0	0
17:00	41.5	14,125	1	0	0	14,125	0	0
18:00	42.2	16,596	1	0	0	16,596	0	0
19:00	41.4	13,804	0	1	0	0	13,804	0
20:00	35.3	3,388	0	1	0	0	3,388	0
21:00	32.8	1,905	0	1	0	0	1,905	0
22:00	35.7	3,715	0	0	1	0	0	3,715
23:00	30.6	1,148	0	0	1	0	0	1,148
Sum of Sound Power during Period wo/penalty						213,670	19,098	10,652
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						213,670	57,293	106,525

Total Daily Sound Power, with penalties	377,488
Hours per Day	24
Average Hourly Sound Power, with penalties	15,729
CNEL	42.0

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	708
0	1	0	490
0	1	0	339
0	1	0	339
0	1	0	589
0	1	0	813
0	1	0	2,512
1	0	3,388	0
1	0	10,471	0
1	0	9,333	0
1	0	18,621	0
1	0	54,954	0
1	0	22,909	0
1	0	12,303	0
1	0	10,471	0
1	0	18,621	0
1	0	21,878	0
1	0	14,125	0
1	0	16,596	0
1	0	13,804	0
1	0	3,388	0
1	0	1,905	0
0	1	0	3,715
0	1	0	1,148
Sum of Sound Power during Period wo/penalty		232,767	10,652
Log Factor for Penalty (i.e., 10*log(x))		1	10
Sound Power during Period with penalty		232,767	106,525

Total Daily Sound Power, with penalties	339,292
Hours per Day	24
Average Hourly Sound Power, with penalties	14,137
Ldn	41.5

Notes:
Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.
Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.
Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:
California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 1: Site D
Measurement Date: 8/26/2018-8/27/2018
Project Name: Tahoe XC

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	28.2	661	0	0	1	0	0	661
1:00	27.0	501	0	0	1	0	0	501
2:00	25.8	380	0	0	1	0	0	380
3:00	22.0	158	0	0	1	0	0	158
4:00	23.8	240	0	0	1	0	0	240
5:00	30.2	1,047	0	0	1	0	0	1,047
6:00	39.2	8,318	0	0	1	0	0	8,318
7:00	37.6	5,754	1	0	0	5,754	0	0
8:00	40.6	11,482	1	0	0	11,482	0	0
9:00	40.0	10,000	1	0	0	10,000	0	0
10:00	42.1	16,218	1	0	0	16,218	0	0
11:00	41.3	13,490	1	0	0	13,490	0	0
12:00	40.5	11,220	1	0	0	11,220	0	0
13:00	44.8	30,200	1	0	0	30,200	0	0
14:00	46.7	46,774	1	0	0	46,774	0	0
15:00	48.0	63,096	1	0	0	63,096	0	0
16:00	47.8	60,256	1	0	0	60,256	0	0
17:00	44.7	29,512	1	0	0	29,512	0	0
18:00	43.0	19,953	1	0	0	19,953	0	0
19:00	35.3	3,388	0	1	0	0	3,388	0
20:00	33.8	2,399	0	1	0	0	2,399	0
21:00	34.1	2,570	0	1	0	0	2,570	0
22:00	33.7	2,344	0	0	1	0	0	2,344
23:00	29.0	794	0	0	1	0	0	794
Sum of Sound Power during Period wo/penalty						317,953	8,358	14,444
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						317,953	25,073	144,438

Total Daily Sound Power, with penalties	487,464
Hours per Day	24
Average Hourly Sound Power, with penalties	20,311
CNEL	43.1

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	661
0	1	0	501
0	1	0	380
0	1	0	158
0	1	0	240
0	1	0	1,047
0	1	0	8,318
1	0	5,754	0
1	0	11,482	0
1	0	10,000	0
1	0	16,218	0
1	0	13,490	0
1	0	11,220	0
1	0	30,200	0
1	0	46,774	0
1	0	63,096	0
1	0	60,256	0
1	0	29,512	0
1	0	19,953	0
1	0	3,388	0
1	0	2,399	0
1	0	2,570	0
0	1	0	2,344
0	1	0	794
Sum of Sound Power during Period wo/penalty		326,311	14,444
Log Factor for Penalty (i.e., 10*log(x))		1	10
Sound Power during Period with penalty		326,311	144,438

Total Daily Sound Power, with penalties	470,749
Hours per Day	24
Average Hourly Sound Power, with penalties	19,615
Ldn	42.9

Notes:
Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.
Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.
Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:
California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Construction Source Noise Prediction Model: Tuolumne

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	1,218	50.0
Residence 1	370	61.8
Alt A	120	74.7
NT School	335	62.9

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Front End Loader	80	0.4
Grader	85	0.4
Dozer	85	0.4

Ground Type	soft
Source Height	8
Receiver Height	5
Ground Factor[2]	0.63

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Front End Loader	76.0
Grader	81.0
Dozer	81.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.7

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	1,757	50.0
Residence 1	370	65.8
Alt A	120	78.6
NT School	335	66.9

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Grader	85	1
Front End Loader	80	1
Dozer	85	1
		1
		1

Ground Type	soft
Source Height	8
Receiver Height	5
Ground Factor[2]	0.63

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Grader	85.0
Front End Loader	80.0
Dozer	85.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
88.6

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Equipment Description	Acoustical Usage Factor (%)	Spec 721.560 Lmax @ 50ft (dBA slow)	Actual Measured Lmax @ 50ft (dBA slow)	No. of Actual Data Samples (count)	Spec 721.560 LmaxCalc	Spec 721.560 Leq	Distance	Actual Measured LmaxCalc	Actual Measured Leq
Auger Drill Rig	20	85	84	36	79.0	72.0	100	78.0	71.0
Backhoe	40	80	78	372	74.0	70.0	100	72.0	68.0
Bar Bender	20	80	na	0	74.0	67.0	100		
Blasting	na	94	na	0	88.0		100		
Boring Jack Power Unit	50	80	83	1	74.0	71.0	100	77.0	74.0
Chain Saw	20	85	84	46	79.0	72.0	100	78.0	71.0
Clam Shovel (dropping)	20	93	87	4	87.0	80.0	100	81.0	74.0
Compactor (ground)	20	80	83	57	74.0	67.0	100	77.0	70.0
Compressor (air)	40	80	78	18	74.0	70.0	100	72.0	68.0
Concrete Batch Plant	15	83	na	0	77.0	68.7	100		
Concrete Mixer Truck	40	85	79	40	79.0	75.0	100	73.0	69.0
Concrete Pump Truck	20	82	81	30	76.0	69.0	100	75.0	68.0
Concrete Saw	20	90	90	55	84.0	77.0	100	84.0	77.0
Crane	16	85	81	405	79.0	71.0	100	75.0	67.0
Dozer	40	85	82	55	79.0	75.0	100	76.0	72.0
Drill Rig Truck	20	84	79	22	78.0	71.0	100	73.0	66.0
Drum Mixer	50	80	80	1	74.0	71.0	100	74.0	71.0
Dump Truck	40	84	76	31	78.0	74.0	100	70.0	66.0
Excavator	40	85	81	170	79.0	75.0	100	75.0	71.0
Flat Bed Truck	40	84	74	4	78.0	74.0	100	68.0	64.0
Front End Loader	40	80	79	96	74.0	70.0	100	73.0	69.0
Generator	50	82	81	19	76.0	73.0	100	75.0	72.0
Generator (<25KVA, VMS s	50	70	73	74	64.0	61.0	100	67.0	64.0
Gradall	40	85	83	70	79.0	75.0	100	77.0	73.0
Grader	40	85	na	0	79.0	75.0	100		
Grapple (on Backhoe)	40	85	87	1	79.0	75.0	100	81.0	77.0
Horizontal Boring Hydr. Jac	25	80	82	6	74.0	68.0	100	76.0	70.0
Hydra Break Ram	10	90	na	0	84.0	74.0	100		
Impact Pile Driver	20	95	101	11	89.0	82.0	100	95.0	88.0
Jackhammer	20	85	89	133	79.0	72.0	100	83.0	76.0
Man Lift	20	85	75	23	79.0	72.0	100	69.0	62.0
Mounted Impact Hammer (	20	90	90	212	84.0	77.0	100	84.0	77.0
Pavement Scarafier	20	85	90	2	79.0	72.0	100	84.0	77.0
Paver	50	85	77	9	79.0	76.0	100	71.0	68.0
Pickup Truck	40	55	75	1	49.0	45.0	100	69.0	65.0
Pneumatic Tools	50	85	85	90	79.0	76.0	100	79.0	76.0
Pumps	50	77	81	17	71.0	68.0	100	75.0	72.0
Refrigerator Unit	100	82	73	3	76.0	76.0	100	67.0	67.0
Rivit Buster/chipping gun	20	85	79	19	79.0	72.0	100	73.0	66.0
Rock Drill	20	85	81	3	79.0	72.0	100	75.0	68.0
Roller	20	85	80	16	79.0	72.0	100	74.0	67.0
Sand Blasting (Single Nozzl	20	85	96	9	79.0	72.0	100	90.0	83.0
Scraper	40	85	84	12	79.0	75.0	100	78.0	74.0
Shears (on backhoe)	40	85	96	5	79.0	75.0	100	90.0	86.0
Slurry Plant	100	78	78	1	72.0	72.0	100	72.0	72.0
Slurry Trenching Machine	50	82	80	75	76.0	73.0	100	74.0	71.0
Soil Mix Drill Rig	50	80	na	0	74.0	71.0	100		
Tractor	40	84	na	0	78.0	74.0	100		
Vacuum Excavator (Vac-tru	40	85	85	149	79.0	75.0	100	79.0	75.0
Vacuum Street Sweeper	10	80	82	19	74.0	64.0	100	76.0	66.0
Ventilation Fan	100	85	79	13	79.0	79.0	100	73.0	73.0
Vibrating Hopper	50	85	87	1	79.0	76.0	100	81.0	78.0
Vibratory Concrete Mixer	20	80	80	1	74.0	67.0	100	74.0	67.0
Vibratory Pile Driver	20	95	101	44	89.0	82.0	100	95.0	88.0
Warning Horn	5	85	83	12	79.0	66.0	100	77.0	64.0
Welder / Torch	40	73	74	5	67.0	63.0	100	68.0	64.0

Source:
FHWA Roadway Construction Noise Model, January 2006. Table 9.1
U.S. Department of Transportation
CA/T Construction Spec. 721.560

Construction Source Noise Prediction Model: Tuolumne

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	1,218	50.0
Residence 1	200	68.8
	120	74.7

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Front End Loader	80	0.4
Grader	85	0.4
Dozer	85	0.4

Ground Type	soft
Source Height	8
Receiver Height	5
Ground Factor[2]	0.63

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Front End Loader	76.0
Grader	81.0
Dozer	81.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.7

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	1,757	50.0
Residence 1	200	72.8
	120	78.6

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Grader	85	1
Front End Loader	80	1
Dozer	85	1
		1
		1

Ground Type	soft
Source Height	8
Receiver Height	5
Ground Factor[2]	0.63

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Grader	85.0
Front End Loader	80.0
Dozer	85.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
88.6

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Equipment Description	Acoustical Usage Factor (%)	Spec 721.560 Lmax @ 50ft (dBA slow)	Actual Measured Lmax @ 50ft (dBA slow)	No. of Actual Data Samples (count)	Spec 721.560 LmaxCalc	Spec 721.560 Leq	Distance	Actual Measured LmaxCalc	Actual Measured Leq
Auger Drill Rig	20	85	84	36	79.0	72.0	100	78.0	71.0
Backhoe	40	80	78	372	74.0	70.0	100	72.0	68.0
Bar Bender	20	80	na	0	74.0	67.0	100		
Blasting	na	94	na	0	88.0		100		
Boring Jack Power Unit	50	80	83	1	74.0	71.0	100	77.0	74.0
Chain Saw	20	85	84	46	79.0	72.0	100	78.0	71.0
Clam Shovel (dropping)	20	93	87	4	87.0	80.0	100	81.0	74.0
Compactor (ground)	20	80	83	57	74.0	67.0	100	77.0	70.0
Compressor (air)	40	80	78	18	74.0	70.0	100	72.0	68.0
Concrete Batch Plant	15	83	na	0	77.0	68.7	100		
Concrete Mixer Truck	40	85	79	40	79.0	75.0	100	73.0	69.0
Concrete Pump Truck	20	82	81	30	76.0	69.0	100	75.0	68.0
Concrete Saw	20	90	90	55	84.0	77.0	100	84.0	77.0
Crane	16	85	81	405	79.0	71.0	100	75.0	67.0
Dozer	40	85	82	55	79.0	75.0	100	76.0	72.0
Drill Rig Truck	20	84	79	22	78.0	71.0	100	73.0	66.0
Drum Mixer	50	80	80	1	74.0	71.0	100	74.0	71.0
Dump Truck	40	84	76	31	78.0	74.0	100	70.0	66.0
Excavator	40	85	81	170	79.0	75.0	100	75.0	71.0
Flat Bed Truck	40	84	74	4	78.0	74.0	100	68.0	64.0
Front End Loader	40	80	79	96	74.0	70.0	100	73.0	69.0
Generator	50	82	81	19	76.0	73.0	100	75.0	72.0
Generator (<25KVA, VMS s	50	70	73	74	64.0	61.0	100	67.0	64.0
Gradall	40	85	83	70	79.0	75.0	100	77.0	73.0
Grader	40	85	na	0	79.0	75.0	100		
Grapple (on Backhoe)	40	85	87	1	79.0	75.0	100	81.0	77.0
Horizontal Boring Hydr. Jac	25	80	82	6	74.0	68.0	100	76.0	70.0
Hydra Break Ram	10	90	na	0	84.0	74.0	100		
Impact Pile Driver	20	95	101	11	89.0	82.0	100	95.0	88.0
Jackhammer	20	85	89	133	79.0	72.0	100	83.0	76.0
Man Lift	20	85	75	23	79.0	72.0	100	69.0	62.0
Mounted Impact Hammer (	20	90	90	212	84.0	77.0	100	84.0	77.0
Pavement Scarafier	20	85	90	2	79.0	72.0	100	84.0	77.0
Paver	50	85	77	9	79.0	76.0	100	71.0	68.0
Pickup Truck	40	55	75	1	49.0	45.0	100	69.0	65.0
Pneumatic Tools	50	85	85	90	79.0	76.0	100	79.0	76.0
Pumps	50	77	81	17	71.0	68.0	100	75.0	72.0
Refrigerator Unit	100	82	73	3	76.0	76.0	100	67.0	67.0
Rivit Buster/chipping gun	20	85	79	19	79.0	72.0	100	73.0	66.0
Rock Drill	20	85	81	3	79.0	72.0	100	75.0	68.0
Roller	20	85	80	16	79.0	72.0	100	74.0	67.0
Sand Blasting (Single Nozzl	20	85	96	9	79.0	72.0	100	90.0	83.0
Scraper	40	85	84	12	79.0	75.0	100	78.0	74.0
Shears (on backhoe)	40	85	96	5	79.0	75.0	100	90.0	86.0
Slurry Plant	100	78	78	1	72.0	72.0	100	72.0	72.0
Slurry Trenching Machine	50	82	80	75	76.0	73.0	100	74.0	71.0
Soil Mix Drill Rig	50	80	na	0	74.0	71.0	100		
Tractor	40	84	na	0	78.0	74.0	100		
Vacuum Excavator (Vac-tru	40	85	85	149	79.0	75.0	100	79.0	75.0
Vacuum Street Sweeper	10	80	82	19	74.0	64.0	100	76.0	66.0
Ventilation Fan	100	85	79	13	79.0	79.0	100	73.0	73.0
Vibrating Hopper	50	85	87	1	79.0	76.0	100	81.0	78.0
Vibratory Concrete Mixer	20	80	80	1	74.0	67.0	100	74.0	67.0
Vibratory Pile Driver	20	95	101	44	89.0	82.0	100	95.0	88.0
Warning Horn	5	85	83	12	79.0	66.0	100	77.0	64.0
Welder / Torch	40	73	74	5	67.0	63.0	100	68.0	64.0

Source:
FHWA Roadway Construction Noise Model, January 2006. Table 9.1
U.S. Department of Transportation
CA/T Construction Spec. 721.560

Distance Propagation Calculations for Stationary Sources of Ground Vibration

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.

— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level vibration level (VdB)	@	distance (ft)	Attenuated Noise Level at Receptor vibration level (VdB)	@	distance (ft)
large bull dozer	87.0	@	25	79.3	@	45

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level vibration level (PPV)	@	distance (ft)	Attenuated Noise Level at Receptor vibration level (PPV)	@	distance (ft)
large bull dozer	0.089	@	25	0.191	@	15

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 12-11 of FTA 2006. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Attenuation Calculations for Stationary Noise Sources

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 3: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level			Attenuation Characteristics				Attenuated Noise Level at Receptor		
	noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	noise level (dBA)	@	distance (ft)
Speaker (facing toward SR)	76.0	@	75	soft	12	5	0.60	59.1	@	335
Speaker (facing toward SR)	76.0	@	75	soft	12	5	0.60	58.0	@	370
Speaker (facing toward SR)	76.0	@	75	soft	12	5	0.60	70.7	@	120
Speaker Facing away MM (Alt A)	59.0	@	50.00	soft	12	5	0.60	49.1	@	120
Speaker Facing away MM (Project)	71.0	@	50.00	soft	12	5	0.60	49.5	@	335
Speaker Facing away MM (Project)	72.0	@	50	soft	12	5	0.60	49.4	@	370
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			

Notes:

Estimates of attenuated noise levels do not account for reductions from intervening barriers, including walls, trees, vegetation, or structures of any type.

Computation of the attenuated noise level is based on the equation presented on pg. 12-3 and 12-4 of FTA 2006.

Computation of the ground factor is based on the equation presentd in Figure 6-23 on pg. 6-23 of FTA 2006, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Traffic Noise Spreadsheet Calculator

Project:

Number	Segment Description and Location: Name	From	To	Existing	Existing + Project Conditions	Change	Cumulative Conditions	Cumulative +Project Conditions	Δ Cumulative – Cumulative + Project
Summary of Project Net Changes									
Winter Weekday									
1	Village Road, between Polaris Road and Country Club Drive			45.1	43.6	-1.5	#REF!	#REF!	#REF!
2	Old Mill Rd, North of SR 28			44.4	45.4	0.9	#REF!	#REF!	#REF!
3	Polaris Road from Village Drive to Old Mill Road			46.7	47.6	0.9	#REF!	#REF!	#REF!
4	Polaris Road , east of North Tahoe High School			49.5	50.3	0.8	#REF!	#REF!	#REF!
Winter Weekend							#REF!	#REF!	#REF!
1	Village Road, between Polaris Road and Country Club Drive			47.2	44.9	-2.3	#REF!	#REF!	#REF!
2	Old Mill Rd, North of SR 28			37.7	42.6	4.9	#REF!	#REF!	#REF!
3	Polaris Road from Village Drive to Old Mill Road			38.0	44.1	6.1	#REF!	#REF!	#REF!
4	Polaris Road , east of North Tahoe High School			40.7	46.4	5.6	#REF!	#REF!	#REF!
Summer Daily							#REF!	#REF!	#REF!
1	Village Road, between Polaris Road and Country Club Drive			44.3	36.9	-7.4	#REF!	#REF!	#REF!
2	Old Mill Rd, North of SR 28			45.7	44.6	-1.2	#REF!	#REF!	#REF!
3	Polaris Road from Village Drive to Old Mill Road			41.1	43.7	2.6	#REF!	#REF!	#REF!
4	Polaris Road , east of North Tahoe High School			40.7	47.2	6.4	#REF!	#REF!	#REF!
5	SR 28 in project vicinity			59.7	59.7	0.027	#REF!	#REF!	#REF!

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project:

Number	Segment Description and Location: Name	From	To	Existing	Existing + Alt	Change	Cumulative Conditions	Cumulative +Project Conditions	Δ Cumulative – Cumulative + Project
Summary of Project Net Changes									
Winter Weekday									
1	Village Road, between Polaris Road and Country Club Drive			45.1	45.8	0.7	#REF!	#REF!	#REF!
2	Old Mill Rd, North of SR 28			44.4	44.4	0.0	#REF!	#REF!	#REF!
3	Polaris Road from Village Drive to Old Mill Road			46.7	46.7	0.0	#REF!	#REF!	#REF!
4	Polaris Road , east of North Tahoe High School			49.5	49.5	0.0	#REF!	#REF!	#REF!
Winter Weekend							#REF!	#REF!	#REF!
1	Village Road, between Polaris Road and Country Club Drive			47.2	47.8	0.6	#REF!	#REF!	#REF!
2	Old Mill Rd, North of SR 28			37.7	37.7	0.0	#REF!	#REF!	#REF!
3	Polaris Road from Village Drive to Old Mill Road			38.0	38.0	0.0	#REF!	#REF!	#REF!
4	Polaris Road , east of North Tahoe High School			40.7	40.7	0.0	#REF!	#REF!	#REF!
						0.0			
Summer Daily							#REF!	#REF!	#REF!
1	Village Road, between Polaris Road and Country Club Drive			44.3	46.4	2.1	#REF!	#REF!	#REF!
2	Old Mill Rd, North of SR 28			45.7	45.7	0.0	#REF!	#REF!	#REF!
3	Polaris Road from Village Drive to Old Mill Road			41.1	41.1	0.0	#REF!	#REF!	#REF!
4	Polaris Road , east of North Tahoe High School			40.7	40.7	0.0	#REF!	#REF!	#REF!
5	SR 28 in project vicinity			59.7	59.7	0.0	#REF!	#REF!	#REF!

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project:

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

	Segment Description and Location					Distance to Directional Centerline, (feet)4		Traffic Distribution Characteristics						Ldn,	Distance to Contour, (feet)3			
Number	**Name**	**From**	**To**	**ADT**	**Speed (mph)**	**Near**	**Far**	**% Auto**	**% Medium**	**% Heavy**	**% Day**	**% Eve**	**% Night**	**(dBA)5,6,7**	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
Existing Conditions																		
Weekday																		
1	Village Road, between Polaris Road and Country Club Drive			499	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	45.1	2	5	10	22
2	Old Mill Rd, North of SR 28			431	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	44.4	2	4	9	20
3	Polaris Road from Village Drive to Old Mill Road			728	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	46.7	3	6	13	28
4	Polaris Road , east of North Tahoe High School			1,370	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	49.5	4	9	20	43
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
Weekend					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
1	Village Road, between Polaris Road and Country Club Drive			815	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	47.2	3	7	14	30
2	Old Mill Rd, North of SR 28			91	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	37.7	1	2	3	7
3	Polaris Road from Village Drive to Old Mill Road			97	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	38.0	1	2	3	7
4	Polaris Road , east of North Tahoe High School			183	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	40.7	1	2	5	11
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

ASCENT ENVIRONMENTAL

Project:

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Number	Segment Description and Location: Name / From / To	Input: ADT	Speed (mph)	Distance to Directional Centerline, (feet)[4]: Near	Far	Traffic Distribution Characteristics: % Auto	% Medium	% Heavy	% Day	% Eve	% Night	Output: Ldn, (dBA)[5,6,7]	Distance to Contour, (feet)[3]: 70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																
Weekday																
1	Village Road, between Polaris Road and Country Club Drive	353	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	43.6	2	4	8	17
2	Old Mill Rd, North of SR 28	536	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	45.4	2	5	11	23
3	Polaris Road from Village Drive to Old Mill Road	895	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	47.6	3	7	15	32
4	Polaris Road , east of North Tahoe High School	1,642	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	50.3	5	10	22	48
5			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
Weekend			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
1	Village Road, between Polaris Road and Country Club Drive	475	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	44.9	2	5	10	21
2	Old Mill Rd, North of SR 28	279	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	42.6	1	3	7	15
3	Polaris Road from Village Drive to Old Mill Road	398	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	44.1	2	4	9	19
4	Polaris Road , east of North Tahoe High School	672	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	46.4	3	6	12	27
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
			35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project:

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Segment Description and Location				Input										Output				
						Distance to Directional Centerline, (feet)$_4$		Traffic Distribution Characteristics							Distance to Contour, (feet)$_3$			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	Ldn, (dBA)$_{5,6,7}$	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
Weekday																		
1	Village Road, between Polaris Road and Country Club Drive			593	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	45.8	2	5	11	24
2	Old Mill Rd, North of SR 28			431	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	44.4	2	4	9	20
3	Polaris Road from Village Drive to Old Mill Road			728	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	46.7	3	6	13	28
4	Polaris Road , east of North Tahoe High School			1,370	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	49.5	4	9	20	43
5					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
Weekend					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
1	Village Road, between Polaris Road and Country Club Drive			932	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	47.8	3	7	15	33
2	Old Mill Rd, North of SR 28			91	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	37.7	1	2	3	7
3	Polaris Road from Village Drive to Old Mill Road			97	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	38.0	1	2	3	7
4	Polaris Road , east of North Tahoe High School			183	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	40.7	1	2	5	11
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project:

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Segment Description and Location				Input											Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							Ldn,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night		(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																			
Daily																			
1	Village Road, between Polaris Road and Country Club Drive			414	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%		44.3	2	4	9	19
2	Old Mill Rd, North of SR 28			580	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%		45.7	2	5	11	24
3	Polaris Road from Village Drive to Old Mill Road			198	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%		41.1	1	3	5	12
4	Polaris Road , east of North Tahoe High School			183	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%		40.7	1	2	5	11
5	SR 28 in project vicinity			14,500	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%		59.716	21	44	96	206
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project:

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Segment Description and Location				Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						Ldn,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
Daily																		
1	Village Road, between Polaris Road and Country Club Drive			76	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	36.9	1	1	3	6
2	Old Mill Rd, North of SR 28			444	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	44.6	2	4	9	20
3	Polaris Road from Village Drive to Old Mill Road			364	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	43.7	2	4	8	18
4	Polaris Road , east of North Tahoe High School			808	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	47.2	3	6	14	30
5	SR 28 in project vicinity			14,590	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.743	21	45	96	207
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project:

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Segment Description and Location				Input										Output				
						Distance to Directional Centerline, (feet)$_4$		Traffic Distribution Characteristics						Ldn,	Distance to Contour, (feet)$_3$			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	(dBA)$_{5,6,7}$	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
Daily																		
1	Village Road, between Polaris Road and Country Club Drive			669	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	46.4	3	6	12	27
2	Old Mill Rd, North of SR 28			580	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	45.7	2	5	11	24
3	Polaris Road from Village Drive to Old Mill Road			198	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	41.1	1	3	5	12
4	Polaris Road , east of North Tahoe High School			183	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	40.7	1	2	5	11
5	SR 28 in project vicinity			14,580	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.7	21	45	96	207
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

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