

# **APPENDIX E**

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Noise Modeling and Results



**Appendix B**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Baseline 2013  
**Ground Type :** Soft  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :**  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	Segment		Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
		From	To										
27	104	East of Sacramento	Amador County Line	2,300	55	100	93.1	1.4	5.5	87		13	
28	104	Amador County Line	East of Michigan Bar Road	4,150	55	100	93.1	1.4	5.5	87		13	
29	104	East of Michigan Bar Road	West of Jct. Rte. 124 South (lone)	9,400	55	100	93.6	1.6	4.8	87		13	
30	104	West of Jct. Rte. 124 South (lone)	North of SR 88	3,521	55	100	94.8	1.4	3.8	87		13	
31	104	North of SR 88	West of Jct. Rte. 49 (Martell)	5,100	55	100	94.8	1.4	3.8	87		13	
32	Ridge Rd	West of Jct. Rte. 49 (Martell)	East of Old Ridge Road	11,942	55	100	94.8	1.4	3.8	87		13	
33	Ridge Rd	East of Old Ridge Road	West of New York Ranch Road	11,083	55	100	91	1.7	7.3	87		13	
34	Ridge Rd	West of New York Ranch Road	West of Climax Road	7,518	55	100	91	1.7	7.3	87		13	
35	Ridge Rd	West of Climax Road	East of Climax Road	6,006	55	100	91	1.7	7.3	87		13	
36	Ridge Rd	East of Climax Road	West of SR 88	6,134	55	100	91	1.7	7.3	87		13	
37	124	West of SR 88	North of Jct. Rte. 88 (near lone)	5,000	55	100	91.6	1.8	6.6	87		13	
38	124	North of Jct. Rte. 88 (near lone)	South of Washington (on Church St, lone)	6,000	55	100	91.6	1.8	6.6	87		13	
39	124	South of Washington (on Church St, lone)	South of Sutter lone Rd	3,700	55	100	93.1	1.6	5.3	87		13	
40	124	South of Sutter lone Rd	North of Sutter lone Rd	3,700	55	100	93.1	1.6	5.3	87		13	
41	124	North of Sutter lone Rd	South of Jct. Rte. 16, Waites Station	3,800	55	100	93.1	1.6	5.3	87		13	

**Appendix B**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Baseline 2013  
**Metric (Leq, Ldn, CNEL) :** Ldn

Segment	Roadway	Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
27	104	East of Sacramento	Amador County Line	57.1	46.0	55.8	59.7	21	44	96	206	443
28	104	Amador County Line	East of Michigan Bar Road	59.6	48.5	58.4	62.3	30	66	142	305	657
29	104	East of Michigan Bar Road	West of Jct. Rte. 124 South (Ione)	63.2	52.6	61.4	65.6	51	110	237	511	1100
30	104	West of Jct. Rte. 124 South (Ione)	North of SR 88	59.0	47.8	56.1	61.0	25	54	117	252	542
31	104	North of SR 88	West of Jct. Rte. 49 (Martell)	60.6	49.4	57.7	62.6	32	69	150	322	694
32	Ridge Rd	West of Jct. Rte. 49 (Martell)	East of Old Ridge Road	64.3	53.1	61.4	66.3	57	122	264	568	1224
33	Ridge Rd	East of Old Ridge Road	West of New York Ranch Road	63.8	53.6	63.9	67.1	64	137	296	637	1373
34	Ridge Rd	West of New York Ranch Road	West of Climax Road	62.1	51.9	62.2	65.4	49	106	228	492	1060
35	Ridge Rd	West of Climax Road	East of Climax Road	61.2	51.0	61.2	64.4	42	91	197	424	913
36	Ridge Rd	East of Climax Road	West of SR 88	61.2	51.1	61.3	64.5	43	93	199	430	926
37	124	West of SR 88	North of Jct. Rte. 88 (near Ione)	60.4	50.4	60.0	63.4	36	79	169	365	786
38	124	North of Jct. Rte. 88 (near Ione)	South of Washington (on Church St, Ione)	61.2	51.2	60.8	64.2	41	89	191	412	887
39	124	South of Washington (on Church St, Ione)	South of Sutter Ione Rd	59.1	48.6	57.7	61.7	28	61	130	281	605
40	124	South of Sutter Ione Rd	North of Sutter Ione Rd	59.1	48.6	57.7	61.7	28	61	130	281	605
41	124	North of Sutter Ione Rd	South of Jct. Rte. 16, Waites Station	59.3	48.7	57.9	61.8	29	62	133	286	616

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Baseline 2013  
**Ground Type :** Soft  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :**  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	16	East of Sacramento	Amador County Line	6,300	55	100	92.4	2.4	5.2	87		13	
2	16	Amador County Line	West of Old Sacramento Rd	7,650	55	100	92.4	2.4	5.2	87		13	
3	16	West of Old Sacramento Rd	West of Latrobe Rd	7,116	55	100	92.4	2.4	5.2	87		13	
4	16	West of Latrobe Rd	East of Jct. 124 South	9,000	55	100	92.4	2.4	5.2	87		13	
5	26	South of Jct. Rte. 88	Amador County Line	2,400	55	100	94	0.5	5.5	87		13	
6	49	North of Calaveras County	Amador County Line	5,800	55	100	91.9	2.5	5.6	87		13	
7	49	Amador County Line	South of Jct. Rte. 88 North (Martell)	17,400	55	100	91.9	2.5	5.6	87		13	
8	49	South of Jct. Rte. 88 North (Martell)	North of Jct. Rte. 104 West (Martell)	17,800	55	100	93.6	2	4.4	87		13	
9	49	North of Jct. Rte. 104 West (Martell)	North of Main St (Old Hwy 49) near Amador City	6,603	55	100	94.3	1.7	4	87		13	
10	49	North of Main St (Old Hwy 49) near Amador City	South of Jct. Rte. 16 West Central House	10,700	55	100	91.8	2.2	6	87		13	
11	49	South of Jct. Rte. 16 West Central House	South of Bush Street (Plymouth)	8,700	55	100	91.8	2.2	6	87		13	
12	49	South of Bush Street (Plymouth)	North of Miller Way (Plymouth)	1,887	55	100	90.5	6.9	2.6	87		13	
13	49	North of Miller Way (Plymouth)	El Dorado County Line	2,000	55	100	90.5	6.9	2.6	87		13	
14	88	East of San Joaquin County	Amador County Line	8,700	55	100	92	1.2	6.8	87		13	
15	88	Amador County Line	West of SR 124	7,700	55	100	92	1.2	6.8	87		13	
16	88	West of SR 124	East of Buena Vista Rd	7,900	55	100	97.7	0.3	2	87		13	
17	88	East of Buena Vista Rd	East of SR 104 West	11,200	55	100	97.7	0.3	2	87		13	
18	88	East of SR 104 West	West of SR 104 (East)	13,300	55	100	97.7	0.3	2	87		13	
19	88	West of SR 104 (East)	West of Jct. Rte. 49 (Martell)	13,000	55	100	97.7	0.3	2	87		13	
20	88	West of Jct. Rte. 49 (Martell)	East of Court Street	8,293	55	100	94.3	1.6	4.1	87		13	
21	88	East of Court Street	West of Ridge Rd (Pine Grove)	11,308	55	100	94.3	1.6	4.1	87		13	
22	88	West of Ridge Rd (Pine Grove)	East of Ridge Road (Pine Grove)	17,200	55	100	93.6	1.4	5	87		13	
23	88	East of Ridge Road (Pine Grove)	West of Tiger Creek Road	6,300	55	100	93.6	1.4	5	87		13	
24	88	West of Tiger Creek Road	West of Inspiration Drive	3,850	55	100	93.6	1.4	5	87		13	
25	88	West of Inspiration Drive	West of Mormon Emigrant Trail	2,600	55	100	92.5	1.7	5.8	87		13	
26	88	West of Mormon Emigrant Trail	West of Kirkwood Meadows Drive	2,750	55	100	92.5	1.7	5.8	87		13	

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Baseline 2013  
**Metric (L<sub>d</sub>)**

Segment	Roadway	Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	16	East of Sacramento	Amador County Line	61.4	52.7	60.0	64.1	40	87	187	404	870
2	16	Amador County Line	West of Old Sacramento Rd	62.3	53.5	60.8	64.9	46	99	213	460	990
3	16	West of Old Sacramento Rd	West of Latrobe Rd	62.0	53.2	60.5	64.6	44	94	203	438	944
4	16	West of Latrobe Rd	East of Jct. 124 South	63.0	54.2	61.5	65.6	51	110	238	512	1104
5	26	South of Jct. Rte. 88	Amador County Line	57.3	41.7	56.0	59.8	21	45	97	209	449
6	49	North of Calaveras County	Amador County Line	61.0	52.5	59.9	63.9	39	84	181	390	840
7	49	Amador County Line	South of Jct. Rte. 88 North (Martell)	65.8	57.3	64.7	68.6	81	175	376	811	1747
8	49	South of Jct. Rte. 88 North (Martell)	North of Jct. Rte. 104 West (Martell)	66.0	56.4	63.8	68.3	77	166	358	772	1663
9	49	North of Jct. Rte. 104 West (Martell)	North of Main St (Old Hwy 49) near Amador City	61.7	51.4	59.0	63.8	39	84	180	389	837
10	49	North of Main St (Old Hwy 49) near Amador City	South of Jct. Rte. 16 West Central House	63.7	54.6	62.9	66.6	59	128	276	594	1279
11	49	South of Jct. Rte. 16 West Central House	South of Bush Street (Plymouth)	62.8	53.7	62.0	65.7	52	111	240	517	1115
12	49	South of Bush Street (Plymouth)	North of Miller Way (Plymouth)	56.1	52.0	51.7	58.5	17	37	80	172	371
13	49	North of Miller Way (Plymouth)	El Dorado County Line	56.4	52.3	52.0	58.8	18	39	83	179	386
14	88	East of San Joaquin County	Amador County Line	62.8	51.1	62.5	65.8	53	114	245	527	1136
15	88	Amador County Line	West of SR 124	62.3	50.5	62.0	65.3	49	105	226	486	1047
16	88	West of SR 124	East of Buena Vista Rd	62.7	44.6	56.8	63.7	38	82	177	381	820
17	88	East of Buena Vista Rd	East of SR 104 West	64.2	46.1	58.3	65.2	48	104	223	480	1035
18	88	East of SR 104 West	West of SR 104 (East)	64.9	46.9	59.1	66.0	54	116	250	539	1161
19	88	West of SR 104 (East)	West of Jct. Rte. 49 (Martell)	64.8	46.8	59.0	65.9	53	114	246	531	1143
20	88	West of Jct. Rte. 49 (Martell)	East of Court Street	62.7	52.1	60.1	64.9	45	98	211	454	978
21	88	East of Court Street	West of Ridge Rd (Pine Grove)	64.1	53.5	61.5	66.2	56	120	259	558	1203
22	88	West of Ridge Rd (Pine Grove)	East of Ridge Road (Pine Grove)	65.8	54.7	64.2	68.3	77	166	357	769	1656
23	88	East of Ridge Road (Pine Grove)	West of Tiger Creek Road	61.5	50.3	59.8	63.9	39	85	183	394	848
24	88	West of Tiger Creek Road	West of Inspiration Drive	59.3	48.2	57.7	61.8	28	61	132	283	611
25	88	West of Inspiration Drive	West of Mormon Emigrant Trail	57.6	47.3	56.6	60.4	23	49	106	227	490
26	88	West of Mormon Emigrant Trail	West of Kirkwood Meadows Drive	57.8	47.6	56.8	60.6	24	51	110	236	509

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Baseline 2006  
**Ground Type :** Soft  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :**  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	Segment		Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
		From	To										
1	Buena Vista Road	County Line	East of Coal Mine Road	795	45	100	97.5	1.5	1	87		13	
2	Buena Vista Road	East of Coal Mine Road	North of Jackson Valley Road	1,564	45	100	97.5	1.5	1	87		13	
3	Buena Vista Road	North of Jackson Valley Road	South of Highway 88	1,906	45	100	97.5	1.5	1	87		13	
4	Buena Vista Road	South of Highway 88	South of Highway 124	2,060	45	100	97.5	1.5	1	87		13	
5	Bunker Hill Road	South of New Chicago Road	South of New Chicago Road	59	45	100	97.5	1.5	1	87		13	
6	Butte Mtn Rd	East of Clinton Rd	Clinton Rd	628	45	100	97.5	1.5	1	87		13	
7	Camanche Parkway	San Joaquin County Line	Camanche Road	1,195	45	100	97.5	1.5	1	87		13	
8	Camanche Road	North of Camanche Parkway	Buena Vista	808	45	100	97.5	1.5	1	87		13	
9	Camanche Road	South of Jackson Valley Road	South of Jackson Valley Road	1,658	45	100	97.5	1.5	1	87		13	
10	Carbondale Road	North of Michigan Bar Road	Old Lambert Rd	169	45	100	97.5	1.5	1	87		13	
11	Climax Road	East of Ridge Road	West of Highway 88	1,820	45	100	97.5	1.5	1	87		13	
12	Climax Road	West of Highway 88	West of Highway 88	1,069	45	100	97.5	1.5	1	87		13	
13	Clinton Road	North of Butte Mtn Rd	West of Butte Mtn Cutoff	473	45	100	97.5	1.5	1	87		13	
14	Eureka Road	East of Sutter Hill Rd	West of Old Ridge Road	2,475	45	100	97.5	1.5	1	87		13	
15	Fiddletown Road	East of Shenandoah Road	East of Hale Road	1,610	45	100	97.5	1.5	1	87		13	
16	Fiddletown Road	East of Hale Road	Shake Ridge Rd	592	45	100	97.5	1.5	1	87		13	
17	Jackson Gate Road	East of Highway 49	China Graveyard Rd	2,209	45	100	97.5	1.5	1	87		13	
18	Jackson Valley Rd (west)	South of SR 88	Camanche Road	640	45	100	97.5	1.5	1	87		13	
19	Jackson Valley Road	Camanche Road	East of Buena Vista	1,294	45	100	97.5	1.5	1	87		13	
20	Jackson Valley Rd (east)	East of Buena Vista	South of SR 88	1,492	45	100	97.5	1.5	1	87		13	
21	Latrobe Road	North of Highway 16	South of Old Sacramento	1,860	45	100	97.5	1.5	1	87		13	
22	Latrobe Road	South of Old Sacramento	At County Line	2,510	45	100	97.5	1.5	1	87		13	
23	Michigan Bar Road	North of Highway 16	At County Line	2,001	45	100	97.5	1.5	1	87		13	
24	Mt. Zion Road	South of Highway 88	South of Highway 88	417	45	100	97.5	1.5	1	87		13	
25	New York Ranch Road	South of Ridge Road	North of Court St	6,791	45	100	97.5	1.5	1	87		13	
26	Old Ridge Road	East of Eureka Road	North of Ridge Rd	2,511	45	100	97.5	1.5	1	87		13	
27	Old Sacramento Road	West of Plymouth City Limits	East of Latrobe Road	878	45	100	97.5	1.5	1	87		13	
28	Old Stockton Rd	North of SR 88	South of Cook Rd	266	45	100	97.5	1.5	1	87		13	

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Baseline 2006  
**Metric (Leq, Ldn, CNEL) :** Ldn

Segment	Roadway	Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Buena Vista Road	County Line	East of Coal Mine Road	50.2	40.3	43.0	51.3	6	12	26	57	122
2	Buena Vista Road	East of Coal Mine Road	North of Jackson Valley Road	53.1	43.2	46.0	54.2	9	19	41	89	191
3	Buena Vista Road	North of Jackson Valley Road	South of Highway 88	54.0	44.1	46.8	55.1	10	22	47	101	218
4	Buena Vista Road	South of Highway 88	South of Highway 124	54.3	44.4	47.2	55.4	11	23	50	107	230
5	Bunker Hill Road	South of New Chicago Road	South of New Chicago Road	38.9	29.0	31.7	40.0	1	2	5	10	22
6	Butte Mtn Rd	East of Clinton Rd	Clinton Rd	49.1	39.3	42.0	50.3	5	10	22	48	104
7	Camanche Parkway	San Joaquin County Line	Camanche Road	51.9	42.1	44.8	53.1	7	16	34	74	160
8	Camanche Road	North of Camanche Parkway	Buena Vista	50.2	40.4	43.1	51.4	6	12	27	57	123
9	Camanche Road	South of Jackson Valley Road	South of Jackson Valley Road	53.4	43.5	46.2	54.5	9	20	43	92	199
10	Carbondale Road	North of Michigan Bar Road	Old Lambert Rd	43.4	33.6	36.3	44.6	2	4	9	20	43
11	Climax Road	East of Ridge Road	West of Highway 88	53.8	43.9	46.6	54.9	10	21	46	98	212
12	Climax Road	West of Highway 88	West of Highway 88	51.4	41.6	44.3	52.6	7	15	32	69	148
13	Clinton Road	North of Butte Mtn Rd	West of Butte Mtn Cutoff	47.9	38.0	40.8	49.0	4	9	19	40	86
14	Eureka Road	East of Sutter Hill Rd	West of Old Ridge Road	55.1	45.2	47.9	56.2	12	26	56	121	260
15	Fiddletown Road	East of Shenandoah Road	East of Hale Road	53.2	43.3	46.1	54.3	9	19	42	91	195
16	Fiddletown Road	East of Hale Road	Shake Ridge Rd	48.9	39.0	41.7	50.0	5	10	22	46	100
17	Jackson Gate Road	East of Highway 49	China Graveyard Rd	54.6	44.7	47.5	55.7	11	24	52	112	241
18	Jackson Valley Rd (west)	South of SR 88	Camanche Road	49.2	39.3	42.1	50.3	5	11	23	49	105
19	Jackson Valley Road	Camanche Road	East of Buena Vista	52.3	42.4	45.1	53.4	8	17	36	78	169
20	Jackson Valley Rd (east)	East of Buena Vista	South of SR 88	52.9	43.0	45.8	54.0	9	19	40	86	185
21	Latrobe Road	North of Highway 16	South of Old Sacramento	53.9	44.0	46.7	55.0	10	21	46	100	215
22	Latrobe Road	South of Old Sacramento	At County Line	55.2	45.3	48.0	56.3	12	26	56	122	262
23	Michigan Bar Road	North of Highway 16	At County Line	54.2	44.3	47.0	55.3	10	23	49	105	225
24	Mt. Zion Road	South of Highway 88	South of Highway 88	47.4	37.5	40.2	48.5	4	8	17	37	79
25	New York Ranch Road	South of Ridge Road	North of Court St	59.5	49.6	52.3	60.6	24	51	110	236	509
26	Old Ridge Road	East of Eureka Road	North of Ridge Rd	55.2	45.3	48.0	56.3	12	26	56	122	262
27	Old Sacramento Road	West of Plymouth City Limits	East of Latrobe Road	50.6	40.7	43.4	51.7	6	13	28	60	130
28	Old Stockton Rd	North of SR 88	South of Cook Rd	45.4	35.5	38.3	46.5	3	6	13	27	59



**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Baseline 2006  
**Ground Type :** Soft  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :**  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	Segment		Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
		From	To										
29	Rams Horn Grade	East of Volcano Road	Saath of Mt Rd	748	55	100	97.5	1.5	1	87		13	
30	Shakeridge Road	Pine Gulch and Oneto Road	Highway 88	1,594	55	100	97.5	1.5	1	87		13	
31	Shenandoah Road	North of Fiddletown Road	Near Dickson Road	3,057	55	100	97.5	1.5	1	87		13	
32	Shenandoah Road	Near Dickson Road	County line	2,525	55	100	97.5	1.5	1	87		13	
33	Shenandoah Road	At Post Mile Marker 8.00		2,022	55	100	97.5	1.5	1	87		13	
34	Steiner Road	North of Shenandoah Road	North of Shenandoah Road	403	55	100	97.5	1.5	1	87		13	
35	Stony Creek Road	West of Argonaut Lane	East of Bueana Vista Rd	293	55	100	97.5	1.5	1	87		13	
36	Stony Creeek Rd	East of Bueana Vista Rd	East of Bueana Vista Rd	911	55	100	97.5	1.5	1	87		13	
37	Sutter Creek Road	East of Pine Gulch	Main Street	480	55	100	97.5	1.5	1	87		13	

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Baseline 2006  
**Metric (Leq, Ldn, CNEL) :** Ldn

Segment	Roadway	Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
29	Rams Horn Grade	East of Volcano Road	Saath of Mt Rd	52.4	41.4	43.6	53.2	8	16	35	76	164
30	Shakeridge Road	Pine Gulch and Oneto Road	Highway 88	55.7	44.7	46.8	56.5	13	27	59	126	272
31	Shenandoah Road	North of Fiddletown Road	Near Dickson Road	58.5	47.5	49.7	59.3	19	42	90	195	420
32	Shenandoah Road	Near Dickson Road	County line	57.7	46.7	48.8	58.5	17	37	80	171	369
33	Shenandoah Road	At Post Mile Marker 8.00		56.7	45.7	47.9	57.5	15	32	69	148	319
34	Steiner Road	North of Shenandoah Road	North of Shenandoah Road	49.7	38.7	40.9	50.5	5	11	23	50	109
35	Stony Creek Road	West of Argonaut Lane	East of Bueana Vista Rd	48.3	37.3	39.5	49.2	4	9	19	41	88
36	Stony Creeek Rd	East of Bueana Vista Rd	East of Bueana Vista Rd	53.3	42.2	44.4	54.1	9	19	40	87	187
37	Sutter Creek Road	East of Pine Gulch	Main Street	50.5	39.4	41.6	51.3	6	12	26	57	122

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Proposed Project 2030  
**Ground Type :** Soft  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :**  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	From	Segment	To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	16	East of Sacramento	Amador County Line		12,683	55	100	92.4	2.4	5.2	87			13
2	16	Amadon County Line	West of Old Sacramento Rd		13,708	55	100	92.4	2.4	5.2	87			13
3	16	West of Old Sacramento Rd	West of Latrobe Rd		13,541	55	100	92.4	2.4	5.2	87			13
4	16	West of Latrobe Rd	East of Jct. 124 South		20,897	55	100	92.4	2.4	5.2	87			13
5	26	South of Jct. Rte. 88	Amador County Line		5,842	55	100	94	0.5	5.5	87			13
6	49	North of Calaveras County	Amador County Line		16,344	55	100	91.9	2.5	5.6	87			13
7	49	Amador County Line	South of Jct. Rte. 88 North (Martell)		30,147	55	100	91.9	2.5	5.6	87			13
8	49	South of Jct. Rte. 88 North (Martell)	North of Jct. Rte. 104 West (Martell)		32,834	55	100	93.6	2	4.4	87			13
9	49	North of Jct. Rte. 104 West (Martell)	North of Main St (Old Hwy 49) near Amador City		20,526	55	100	94.3	1.7	4	87			13
10	49	North of Main St (Old Hwy 49) near Amador City	South of Jct. Rte. 16 West Central House		21,465	55	100	91.8	2.2	6	87			13
11	49	South of Jct. Rte. 16 West Central House	South of Bush Street (Plymouth)		16,786	55	100	91.8	2.2	6	87			13
12	49	South of Bush Street (Plymouth)	North of Miller Way (Plymouth)		4,749	55	100	90.5	6.9	2.6	87			13
13	49	North of Miller Way (Plymouth)	El Dorado County Line		5,179	55	100	90.5	6.9	2.6	87			13
14	88	East of San Joaquin County	Amador County Line		18,146	55	100	92	1.2	6.8	87			13
15	88	Amador County Line	West of SR 124		17,941	55	100	92	1.2	6.8	87			13
16	88	West of SR 124	East of Buena Vista Rd		21,082	55	100	97.7	0.3	2	87			13
17	88	East of Buena Vista Rd	East of SR 104 West		25,311	55	100	97.7	0.3	2	87			13
18	88	East of SR 104 West	West of SR 104 (East)		30,037	55	100	97.7	0.3	2	87			13
19	88	West of SR 104 (East)	West of Jct. Rte. 49 (Martell)		34,552	55	100	97.7	0.3	2	87			13
20	88	West of Jct. Rte. 49 (Martell)	East of Court Street		27,631	55	100	94.3	1.6	4.1	87			13
21	88	East of Court Street	West of Ridge Rd (Pine Grove)		24,075	55	100	94.3	1.6	4.1	87			13
22	88	West of Ridge Rd (Pine Grove)	East of Ridge Road (Pine Grove)		38,841	55	100	93.6	1.4	5	87			13
23	88	East of Ridge Road (Pine Grove)	West of Tiger Creek Road		25,146	55	100	93.6	1.4	5	87			13
24	88	West of Tiger Creek Road	West of Inspiration Drive		16,408	55	100	93.6	1.4	5	87			13
25	88	West of Inspiration Drive	West of Mormon Emigrant Trail		1,167	55	100	92.5	1.7	5.8	87			13
26	88	West of Mormon Emigrant Trail	West of Kirkwood Meadows Drive		11,749	55	100	92.5	1.7	5.8	87			13

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
 Predicted Noise Levels



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Proposed Project 2030  
**Metric (Leq, Ldn, CNEL) :** Ldn

Segment	Roadway	From	Segment	To	Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
					Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	16	East of Sacramento	Amador County Line	Amador County Line	64.5	55.7	63.0	67.1	64	139	299	644	1387
2	16	Amadon County Line	West of Old Sacramento Rd	West of Old Sacramento Rd	64.8	56.0	63.3	67.5	68	146	315	678	1461
3	16	West of Old Sacramento Rd	West of Latrobe Rd	West of Latrobe Rd	64.7	56.0	63.3	67.4	67	145	312	673	1449
4	16	West of Latrobe Rd	East of Jct. 124 South	East of Jct. 124 South	66.6	57.9	65.2	69.3	90	194	417	898	1935
5	26	South of Jct. Rte. 88	Amador County Line	Amador County Line	61.2	45.5	59.9	63.7	38	81	175	377	813
6	49	North of Calaveras County	Amador County Line	Amador County Line	65.5	57.0	64.4	68.4	78	168	361	778	1675
7	49	Amador County Line	South of Jct. Rte. 88 North (Martell)	South of Jct. Rte. 88 North (Martell)	68.2	59.6	67.1	71.0	117	252	543	1169	2520
8	49	South of Jct. Rte. 88 North (Martell)	North of Jct. Rte. 104 West (Martell)	North of Jct. Rte. 104 West (Martell)	68.7	59.0	66.4	71.0	116	250	539	1161	2502
9	49	North of Jct. Rte. 104 West (Martell)	North of Main St (Old Hwy 49) near Amador City	North of Main St (Old Hwy 49) near Amador City	66.6	56.3	64.0	68.8	83	178	384	828	1784
10	49	North of Main St (Old Hwy 49) near Amador City	South of Jct. Rte. 16 West Central House	South of Jct. Rte. 16 West Central House	66.7	57.6	65.9	69.6	94	204	438	945	2035
11	49	South of Jct. Rte. 16 West Central House	South of Bush Street (Plymouth)	South of Bush Street (Plymouth)	65.7	56.5	64.8	68.6	80	173	372	802	1727
12	49	South of Bush Street (Plymouth)	North of Miller Way (Plymouth)	North of Miller Way (Plymouth)	60.1	56.0	55.7	62.6	32	69	148	319	687
13	49	North of Miller Way (Plymouth)	El Dorado County Line	El Dorado County Line	60.5	56.4	56.1	62.9	34	73	157	338	728
14	88	East of San Joaquin County	Amador County Line	Amador County Line	66.0	54.3	65.7	69.0	86	185	400	861	1855
15	88	Amador County Line	West of SR 124	West of SR 124	66.0	54.2	65.7	69.0	85	184	397	854	1841
16	88	West of SR 124	East of Buena Vista Rd	East of Buena Vista Rd	66.9	48.9	61.1	68.0	73	158	340	732	1578
17	88	East of Buena Vista Rd	East of SR 104 West	East of SR 104 West	67.7	49.7	61.9	68.8	83	178	384	827	1783
18	88	East of SR 104 West	West of SR 104 (East)	West of SR 104 (East)	68.5	50.4	62.6	69.5	93	200	430	927	1998
19	88	West of SR 104 (East)	West of Jct. Rte. 49 (Martell)	West of Jct. Rte. 49 (Martell)	69.1	51.0	63.2	70.1	102	219	473	1018	2194
20	88	West of Jct. Rte. 49 (Martell)	East of Court Street	East of Court Street	67.9	57.3	65.4	70.1	101	218	470	1013	2182
21	88	East of Court Street	West of Ridge Rd (Pine Grove)	West of Ridge Rd (Pine Grove)	67.3	56.7	64.8	69.5	92	199	429	924	1990
22	88	West of Ridge Rd (Pine Grove)	East of Ridge Road (Pine Grove)	East of Ridge Road (Pine Grove)	69.4	58.2	67.7	71.8	132	285	614	1323	2851
23	88	East of Ridge Road (Pine Grove)	West of Tiger Creek Road	West of Tiger Creek Road	67.5	56.3	65.8	69.9	99	213	460	990	2134
24	88	West of Tiger Creek Road	West of Inspiration Drive	West of Inspiration Drive	65.6	54.5	64.0	68.1	75	161	346	745	1605
25	88	West of Inspiration Drive	West of Mormon Emigrant Trail	West of Mormon Emigrant Trail	54.1	43.9	53.1	56.9	13	29	62	133	287
26	88	West of Mormon Emigrant Trail	West of Kirkwood Meadows Drive	West of Kirkwood Meadows Drive	64.1	53.9	63.1	66.9	62	134	289	622	1339

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
 Model Input Sheet



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Proposed Project 2030  
**Ground Type :** Soft  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :**  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	From	Segment	To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
27	104	East of Sacramento	Amador County Line	Amador County Line	9,930	55	100	93.1	1.4	5.5	87		13	
28	104	Amador County Line	Amador County Line	East of Michigan Bar Road	7,907	55	100	93.1	1.4	5.5	87		13	
29	104	East of Michigan Bar Road	Amador County Line	West of Jct. Rte. 124 South (Ione)	20,109	55	100	93.6	1.6	4.8	87		13	
30	104	West of Jct. Rte. 124 South (Ione)	Amador County Line	North of SR 88	13,408	55	100	94.8	1.4	3.8	87		13	
31	104	North of SR 88	Amador County Line	West of Jct. Rte. 49 (Martell)	14,735	55	100	94.8	1.4	3.8	87		13	
32	Ridge Rd	West of Jct. Rte. 49 (Martell)	Amador County Line	East of Old Ridge Road	21,909	55	100	94.8	1.4	3.8	87		13	
33	Ridge Rd	East of Old Ridge Road	Amador County Line	West of New York Ranch Road	21,577	55	100	91	1.7	7.3	87		13	
34	Ridge Rd	West of New York Ranch Road	Amador County Line	West of Climax Road	18,326	55	100	91	1.7	7.3	87		13	
35	Ridge Rd	West of Climax Road	Amador County Line	East of Climax Road	15,453	55	100	91	1.7	7.3	87		13	
36	Ridge Rd	East of Climax Road	Amador County Line	West of SR 88	15,205	55	100	91	1.7	7.3	87		13	
37	124	West of SR 88	Amador County Line	North of Jct. Rte. 88 (near Ione)	3,898	55	100	91.6	1.8	6.6	87		13	
38	124	North of Jct. Rte. 88 (near Ione)	Amador County Line	South of Washington (on Church St, Ione)	6,867	55	100	91.6	1.8	6.6	87		13	
39	124	South of Washington (on Church St, Ione)	Amador County Line	South of Sutter Ione Rd	8,578	55	100	93.1	1.6	5.3	87		13	
40	124	South of Sutter Ione Rd	Amador County Line	North of Sutter Ione Rd	8,562	55	100	93.1	1.6	5.3	87		13	
41	124	North of Sutter Ione Rd	Amador County Line	South of Jct. Rte. 16, Waites Station	6,024	55	100	93.1	1.6	5.3	87		13	

Appendix E  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
 Predicted Noise Levels



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Proposed Project 2030  
**Metric (Leq, Ldn, Ldn)**

Segment	Roadway	From	Segment To	Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
				Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
27	104	East of Sacramento	Amador County Line	63.4	52.3	62.2	66.1	55	118	253	546	1176
28	104	Amador County Line	East of Michigan Bar Road	62.4	51.3	61.2	65.1	47	101	218	469	1010
29	104	East of Michigan Bar Road	West of Jct. Rte. 124 South (lone)	66.5	56.0	64.7	68.9	85	183	394	848	1827
30	104	West of Jct. Rte. 124 South (lone)	North of SR 88	64.8	53.6	61.9	66.8	61	132	285	614	1322
31	104	North of SR 88	West of Jct. Rte. 49 (Martell)	65.2	54.0	62.3	67.2	65	141	303	653	1408
32	Ridge Rd	West of Jct. Rte. 49 (Martell)	East of Old Ridge Road	67.0	55.7	64.0	69.0	85	183	395	851	1834
33	Ridge Rd	East of Old Ridge Road	West of New York Ranch Road	66.7	56.5	66.8	70.0	99	214	461	994	2141
34	Ridge Rd	West of New York Ranch Road	West of Climax Road	66.0	55.8	66.1	69.2	89	192	414	891	1920
35	Ridge Rd	West of Climax Road	East of Climax Road	65.3	55.1	65.3	68.5	80	171	369	795	1714
36	Ridge Rd	East of Climax Road	West of SR 88	65.2	55.0	65.3	68.4	79	170	365	787	1695
37	124	West of SR 88	North of Jct. Rte. 88 (near lone)	59.3	49.3	58.9	62.3	31	67	143	309	666
38	124	North of Jct. Rte. 88 (near lone)	South of Washington (on Church St, lone)	61.8	51.8	61.4	64.8	45	97	209	451	971
39	124	South of Washington (on Church St, lone)	South of Sutter lone Rd	62.8	52.3	61.4	65.4	49	106	228	492	1060
40	124	South of Sutter lone Rd	North of Sutter lone Rd	62.8	52.2	61.4	65.4	49	106	228	491	1059
41	124	North of Sutter lone Rd	South of Jct. Rte. 16, Waites Station	61.3	50.7	59.9	63.8	39	84	180	389	837

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Proposed Project 2030  
**Ground Type :** Soft  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :**  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	Buena Vista Road	County Line	East of Coal Mine Road	1,873	45	100	97.5	1.5	1	87		13	
2	Buena Vista Road	East of Coal Mine Road	North of Jackson Valley Road	2,701	45	100	97.5	1.5	1	87		13	
3	Buena Vista Road	North of Jackson Valley Road	South of Highway 88	6,440	45	100	97.5	1.5	1	87		13	
4	Buena Vista Road	South of Highway 88	South of Highway 124	7,020	45	100	97.5	1.5	1	87		13	
5	Bunker Hill Road	South of New Chicago Road	South of New Chicago Road	153	45	100	97.5	1.5	1	87		13	
6	Butte Mtn Rd	East of Clinton Rd	Clinton Rd	1,365	45	100	97.5	1.5	1	87		13	
7	Camanche Parkway	San Joaquin County Line	Camanche Road	10,236	45	100	97.5	1.5	1	87		13	
8	Camanche Road	North of Camanche Parkway	Buena Vista	9,054	45	100	97.5	1.5	1	87		13	
9	Camanche Road	South of Jackson Valley Road	South of Jackson Valley Road	10,779	45	100	97.5	1.5	1	87		13	
10	Carbondale Road	North of Michigan Bar Road	Old Lambert Rd	521	45	100	97.5	1.5	1	87		13	
11	Climax Road	East of Ridge Road	West of Highway 88	3,561	45	100	97.5	1.5	1	87		13	
12	Climax Road	West of Highway 88	West of Highway 88	1,067	45	100	97.5	1.5	1	87		13	
13	Clinton Road	North of Butte Mtn Rd	West of Butte Mtn Cutoff	1,138	45	100	97.5	1.5	1	87		13	
14	Eureka Road	East of Sutter Hill Rd	West of Old Ridge Road	2,156	45	100	97.5	1.5	1	87		13	
15	Fiddletown Road	East of Shenandoah Road	East of Hale Road	43,361	45	100	97.5	1.5	1	87		13	
16	Fiddletown Road	East of Hale Road	Shake Ridge Rd	1,597	45	100	97.5	1.5	1	87		13	
17	Jackson Gate Road	East of Highway 49	China Graveyard Rd	3,068	45	100	97.5	1.5	1	87		13	
18	Jackson Valley Rd (west)	South of SR 88	Camanche Road	1,668	45	100	97.5	1.5	1	87		13	
19	Jackson Valley Road	Camanche Road	East of Buena Vista	8,456	45	100	97.5	1.5	1	87		13	
20	Jackson Valley Rd (east)	East of Buena Vista	South of SR 88	17,000	45	100	97.5	1.5	1	87		13	
21	Latrobe Road	North of Highway 16	South of Old Sacramento	4,868	45	100	97.5	1.5	1	87		13	
22	Latrobe Road	South of Old Sacramento	At County Line	6,034	45	100	97.5	1.5	1	87		13	
23	Michigan Bar Road	North of Highway 16	At County Line	4,477	45	100	97.5	1.5	1	87		13	
24	Mt. Zion Road	South of Highway 88	South of Highway 88	1,874	45	100	97.5	1.5	1	87		13	
25	New York Ranch Road	South of Ridge Road	North of Court St	10,858	45	100	97.5	1.5	1	87		13	
26	Old Ridge Road	East of Eureka Road	North of Ridge Rd	2,259	45	100	97.5	1.5	1	87		13	
27	Old Sacramento Road	West of Plymouth City Limits	East of Latrobe Road	2,833	45	100	97.5	1.5	1	87		13	
28	Old Stockton Rd	North of SR 88	South of Cook Rd	544	45	100	97.5	1.5	1	87		13	

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Proposed Project 2030  
**Metric (Leq, Ldn, CNEL) :** Ldn

Segment	Roadway	Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Buena Vista Road	County Line	East of Coal Mine Road	53.9	44.0	46.7	55.0	10	22	46	100	216
2	Buena Vista Road	East of Coal Mine Road	North of Jackson Valley Road	55.5	45.6	48.3	56.6	13	28	59	128	275
3	Buena Vista Road	North of Jackson Valley Road	South of Highway 88	59.2	49.4	52.1	60.4	23	49	106	228	491
4	Buena Vista Road	South of Highway 88	South of Highway 124	59.6	49.7	52.5	60.7	24	52	112	242	520
5	Bunker Hill Road	South of New Chicago Road	South of New Chicago Road	43.0	33.1	35.9	44.1	2	4	9	19	41
6	Butte Mtn Rd	East of Clinton Rd	Clinton Rd	52.5	42.6	45.4	53.6	8	17	38	81	175
7	Camanche Parkway	San Joaquin County Line	Camanche Road	61.3	51.4	54.1	62.4	31	67	144	311	669
8	Camanche Road	North of Camanche Parkway	Buena Vista	60.7	50.8	53.6	61.9	29	62	133	286	617
9	Camanche Road	South of Jackson Valley Road	South of Jackson Valley Road	61.5	51.6	54.3	62.6	32	69	149	321	693
10	Carbondale Road	North of Michigan Bar Road	Old Lambert Rd	48.3	38.4	41.2	49.5	4	9	20	43	92
11	Climax Road	East of Ridge Road	West of Highway 88	56.7	46.8	49.5	57.8	15	33	71	154	331
12	Climax Road	West of Highway 88	West of Highway 88	51.4	41.6	44.3	52.6	7	15	32	69	148
13	Clinton Road	North of Butte Mtn Rd	West of Butte Mtn Cutoff	51.7	41.8	44.6	52.8	7	15	33	72	155
14	Eureka Road	East of Sutter Hill Rd	West of Old Ridge Road	54.5	44.6	47.3	55.6	11	24	51	110	237
15	Fiddletown Road	East of Shenandoah Road	East of Hale Road	67.5	57.6	60.4	68.7	81	175	377	813	1752
16	Fiddletown Road	East of Hale Road	Shake Ridge Rd	53.2	43.3	46.0	54.3	9	19	42	90	194
17	Jackson Gate Road	East of Highway 49	China Graveyard Rd	56.0	46.1	48.9	57.2	14	30	65	139	300
18	Jackson Valley Rd (west)	South of SR 88	Camanche Road	53.4	43.5	46.2	54.5	9	20	43	93	200
19	Jackson Valley Road	Camanche Road	East of Buena Vista	60.4	50.5	53.3	61.6	27	59	127	273	589
20	Jackson Valley Rd (east)	East of Buena Vista	South of SR 88	63.5	53.6	56.3	64.6	44	94	202	436	938
21	Latrobe Road	North of Highway 16	South of Old Sacramento	58.0	48.2	50.9	59.2	19	41	88	189	408
22	Latrobe Road	South of Old Sacramento	At County Line	59.0	49.1	51.8	60.1	22	47	101	218	470
23	Michigan Bar Road	North of Highway 16	At County Line	57.7	47.8	50.5	58.8	18	39	83	179	386
24	Mt. Zion Road	South of Highway 88	South of Highway 88	53.9	44.0	46.7	55.0	10	22	46	100	216
25	New York Ranch Road	South of Ridge Road	North of Court St	61.5	51.6	54.4	62.6	32	70	150	323	696
26	Old Ridge Road	East of Eureka Road	North of Ridge Rd	54.7	44.8	47.6	55.8	11	24	53	113	244
27	Old Sacramento Road	West of Plymouth City Limits	East of Latrobe Road	55.7	45.8	48.5	56.8	13	28	61	132	284
28	Old Stockton Rd	North of SR 88	South of Cook Rd	48.5	38.6	41.4	49.6	4	9	20	44	95



**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Model Input Sheet**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Proposed Project 2030  
**Ground Type :** Soft  
**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Ldn

**K Factor :**  
**Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
29	Rams Horn Grade	East of Volcano Road	Saath of Mt Rd	844	55	100	97.5	1.5	1	87			13
30	Shakeridge Road	Pine Gulch and Oneto Road	Highway 88	4,125	55	100	97.5	1.5	1	87			13
31	Shenandoah Road	North of Fiddletown Road	Near Dickson Road	6,178	55	100	97.5	1.5	1	87			13
32	Shenandoah Road	Near Dickson Road	County line	5,523	55	100	97.5	1.5	1	87			13
33	Shenandoah Road	At Post Mile Marker 8.00		4,817	55	100	97.5	1.5	1	87			13
34	Steiner Road	North of Shenandoah Road	North of Shenandoah Road	29	55	100	97.5	1.5	1	87			13
35	Stony Creek Road	West of Argonaut Lane	East of Bueana Vista Rd	1,381	55	100	97.5	1.5	1	87			13
36	Stony Creeek Rd	East of Bueana Vista Rd	East of Bueana Vista Rd	2,333	55	100	97.5	1.5	1	87			13
37	Sutter Creek Road	East of Pine Gulch	Main Street	1,732	55	100	97.5	1.5	1	87			13

**Appendix E**  
**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** Amador County GP Update  
**Project Number :** 06110052.01  
**Modeling Condition :** Proposed Project 2030  
**Metric (Leq, Ldn, CNI Ldn)**

Segment	Roadway	Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
29	Rams Horn Grade	East of Volcano Road	Saath of Mt Rd	52.9	41.9	44.1	53.8	8	18	38	83	178
30	Shakeridge Road	Pine Gulch and Oneto Road	Highway 88	59.8	48.8	51.0	60.6	24	51	110	238	512
31	Shenandoah Road	North of Fiddletown Road	Near Dickson Road	61.6	50.5	52.7	62.4	31	67	145	311	671
32	Shenandoah Road	Near Dickson Road	County line	61.1	50.1	52.2	61.9	29	62	134	289	623
33	Shenandoah Road	At Post Mile Marker 8.00		60.5	49.5	51.6	61.3	26	57	122	264	568
34	Steiner Road	North of Shenandoah Road	North of Shenandoah Road	38.3	27.3	29.4	39.1	1	2	4	9	19
35	Stony Creek Road	West of Argonaut Lane	East of Bueana Vista Rd	55.1	44.0	46.2	55.9	11	25	53	115	247
36	Stony Creeek Rd	East of Bueana Vista Rd	East of Bueana Vista Rd	57.3	46.3	48.5	58.2	16	35	76	163	350
37	Sutter Creek Road	East of Pine Gulch	Main Street	56.1	45.0	47.2	56.9	13	29	62	133	287

## Appendix E

### Truck Percentage Calculations - Caltrans

RTE	DIST	CNTY	POST	L	DESCRIPTION	VEHICLE	TRUCK AADT				Percentage Calculations			
				E		AADT	-----	By	Axle	-----	Directional		Average	
				G		TOTAL	2	3	4	5+	MT	HT	MT	HT
16	10	AMA	9.093	B	JCT. RTE. 124 SOUTH	8700	211	145	32	283	2.4%	5.3%	2.4%	5.2%
16	10	AMA	9.373	B	CENTRAL HOUSE, JCT. RTE. 49	9900	236	163	35	317	2.4%	5.2%		
26	10	AMA	4.644	B	JCT. RTE. 88	2300	12	48	5	74	0.5%	5.5%	0.5%	5.5%
49	10	AMA	4.029	B	JACKSON, SOUTH JCT. RTE. 88	18000	603	359	75	619	3.4%	5.9%	2.5%	5.6%
49	10	AMA	4.029	A	JACKSON, SOUTH JCT. RTE. 88	19000	331	295	54	669	1.7%	5.4%		
49	10	AMA	5.934	B	MARTELL, NORTH JCT. RTE. 88 WEST	18100	427	331	53	491	2.4%	4.8%	2.0%	4.4%
49	10	AMA	5.934	A	MARTELL, NORTH JCT. RTE. 88 WEST	12000	196	182	46	248	1.6%	4.0%		
49	10	AMA	6.98	A	SUTER CREEK, JCT. RTE. 104 WEST	16800	286	256	60	355	1.7%	4.0%	1.7%	4.0%
49	10	AMA	14.723	B	CENTRAL HOUSE, JCT. RTE. 16 WEST	11000	271	335	14	283	2.5%	5.7%	2.2%	6.0%
49	10	AMA	14.723	A	CENTRAL HOUSE, JCT. RTE. 16 WEST	11400	210	328	72	302	1.8%	6.2%		
49	10	AMA	22.116	O	AMADOR/EL DORADO COUNTY LINE	2200	152	18	7	32	6.9%	2.6%	6.9%	2.6%
88	10	AMA	5.527	B	JCT. RTE. 124 NORTH	9900	132	177	27	515	1.3%	7.3%	1.2%	6.8%
88	10	AMA	5.527	A	JCT. RTE. 124 NORTH	9000	98	166	25	375	1.1%	6.3%		
88	10	AMA	7.389	A	WEST JCT. RTE. 104	13600	38	95	20	160	0.3%	2.0%	0.3%	2.0%
88	10	AMA	14.25	B	JCT. RTE. 49	15200	275	297	26	300	1.8%	4.1%	1.6%	4.1%
88	10	AMA	14.292	A	JCT. RTE. 49	10900	161	203	37	200	1.5%	4.0%		
88	10	AMA	22.69	B	PINE GROVE, RIDGE ROAD	13500	214	309	42	381	1.6%	5.4%	1.4%	5.0%
88	10	AMA	22.69	A	PINE GROVE, RIDGE ROAD	22500	258	325	46	676	1.1%	4.7%		
88	10	AMA	R26.791	B	JCT RTE 26, RED CORRAL RD	10200	167	149	16	433	1.6%	5.9%	1.7%	5.8%
88	10	AMA	R26.791	A	JCT RTE 26, RED CORRAL RD	8100	142	120	11	334	1.8%	5.7%		
104	10	AMA	R5.766	B	IONE, JCT. RTE. 124 NORTH	8700	99	189	27	338	1.1%	6.4%	1.4%	5.5%
104	10	AMA	R5.766	A	IONE, JCT. RTE. 124 NORTH	10900	178	165	28	304	1.6%	4.6%		
104	10	AMA	R5.96	A	IONE, JCT. RTE. 124 SOUTH	5200	81	92	15	145	1.6%	4.8%	1.6%	4.8%
104	10	AMA	R8.201	B	JCT. RTE. 88	4550	48	83	9	50	1.1%	3.1%	1.4%	3.8%
104	10	AMA	8.386	A	JCT. RTE. 88	7100	117	184	18	115	1.6%	4.5%		
104	10	AMA	10.072	B	SUTTER CREEK, JCT. RTE. 49	5700	95	123	14	281	1.7%	7.3%	1.7%	7.3%
124	10	AMA	0	A	JCT. RTE. 88, IONE SOUTH	2900	52	38	7	147	1.8%	6.6%	1.8%	6.6%
124	10	AMA	2.291	B	IONE, WEST JCT RTE 104	3600	63	62	13	178	1.8%	7.0%	1.6%	5.3%
124	10	AMA	R2.291	A	IONE, WEST JCT RTE 104	2900	41	49	7	47	1.4%	3.6%		

**Appendix E**  
**Long-Term 24 Hour Continuous Noise Monitoring**  
**Model Input Sheet**



**Project:**  
**Date:**  
**Site:**

Hour	Leq	Lmax	L50	L90
10:00:00	40.3	66.11	34.14	30.74
11:00:00	46.9	58.25	33.89	28.99
12:00:00	42.02	70.17	32.18	29.56
13:00:00	35.41	55.36	31.79	29.37
14:00:00	40.58	68.13	33.64	30.25
15:00:00	40.39	69.52	32.32	29.58
16:00:00	37.74	62.07	31.29	28.9
17:00:00	42.09	59.5	33.7	29.45
18:00:00	36.36	63.27	30.32	27.02
19:00:00	35.53	51.91	30.8	27.23
20:00:00	36.92	58.76	27.95	24.63
21:00:00	29.87	48.09	27.25	24.11
22:00:00	35.08	63.52	28.79	25.18
23:00:00	28.74	37.86	27.25	24.32
0:00:00	30.58	44.21	28.72	25.76
1:00:00	33.11	43.81	30.85	27.39
2:00:00	30.07	43.6	28.58	25.79
3:00:00	30.63	47.79	27.86	25.59
4:00:00	35.28	52.64	29.79	26.72
5:00:00	38.15	58.39	36.61	32.67
6:00:00	40.7	65.39	35.83	32.29
7:00:00	45.13	72.14	36.84	33.25
8:00:00	43.37	59.8	39.46	34.79
9:00:00	43.02	56.64	41	36.06

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Averages</b>			
Leq	Lmax	L50	L90
41.5	61.3	33.1	29.6
35.4	50.8	30.5	27.3

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Uppermost-Level</b>			
Leq	Lmax	L50	L90
46.9	72.1	41.0	36.1
40.7	65.4	36.6	32.7

<b>Percentage of Energy</b>	
Daytime	87%
Nighttime	13%

<b>Calculated L<sub>dn</sub>, dBA</b>
43.4

**Appendix E**  
**Long-Term 24 Hour Continuous Noise Monitoring**  
**Model Input Sheet**



**Project:**  
**Date:**  
**Site:**

Hour	Leq	Lmax	L50	L90
15:00:20	49.59	75.48	39.21	34.89
16:00:00	47.08	65.32	44.14	39.13
17:00:00	50.19	82.76	37.2	34.39
18:00:00	39.57	55.58	36.94	33.87
19:00:00	48.08	61.15	47.11	34.74
20:00:00	40.78	59.69	38.27	35.41
21:00:00	37.17	49.26	36.04	33.27
22:00:00	35.88	51.01	34.56	31.55
23:00:00	32.86	45.06	31.31	26.87
0:00:00	31.56	54.02	29.62	26.4
1:00:00	31.56	51.75	26.71	24.48
2:00:00	31.93	49.21	27.07	25.33
3:00:00	35.48	55.45	31.23	27.05
4:00:00	34.76	48.8	32.55	27.45
5:00:00	44.21	70.3	40.08	35.23
6:00:00	44.66	60.41	42.55	39.44
7:00:00	47.65	64.55	44.14	41.09
8:00:00	47.57	65.58	40.87	37.27
9:00:00	44.69	62.73	38.43	34.51
10:00:00	48.4	68.23	37.14	34.15
11:00:00	44.3	62.58	37.06	34.45
12:00:00	40.02	60.81	37.07	34.49
13:00:00	38.84	54.73	37.39	34.88
14:00:00	48.62	73.05	37.05	34.29

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Averages</b>			
Leq	Lmax	L50	L90
46.5	64.1	39.2	35.4
39.1	54.0	32.9	29.3

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Uppermost-Level</b>			
Leq	Lmax	L50	L90
50.2	82.8	47.1	41.1
44.7	70.3	42.6	39.4

<b>Percentage of Energy</b>	
Daytime	90%
Nighttime	10%

<b>Calculated L<sub>dn</sub>, dBA</b>
47.6

**Appendix E**  
**Long-Term 24 Hour Continuous Noise Monitoring**  
**Model Input Sheet**



**Project:**  
**Date:**  
**Site:**

Hour	Leq	Lmax	L50	L90
16:00:00	50.38	70.89	39.22	34.47
17:00:00	55.7	81.28	38.25	33.41
18:00:00	49.49	72.35	36.74	31.49
19:00:00	47.73	70.21	34.24	29.56
20:00:00	49.99	78.69	36.12	31.42
21:00:00	47.79	75.01	36.48	32.45
22:00:00	44.96	73.79	35.89	32.95
23:00:00	43.35	68.11	32.78	30.06
0:00:00	35.37	58.34	31.81	29.66
1:00:00	32.24	49.95	29.3	27.79
2:00:00	32.23	52.92	29.42	27.78
3:00:00	34.87	63.15	29.06	27.17
4:00:00	37.92	62.26	29.92	26.31
5:00:00	45.84	65.39	40.5	34.09
6:00:00	49.75	74.89	39.85	34.22
7:00:00	49.28	71.29	40.53	34.67
8:00:00	50.46	70.94	39.06	32.6
9:00:00	48.56	70.03	36.63	31.5
10:00:00	46.44	67.6	35.6	31.35
11:00:00	54.7	83.77	38.45	33.33
12:00:00	49.11	69.85	41.2	36.18
13:00:00	49.58	73.8	39.8	36.03
14:00:00	49.49	69.78	40.6	36.93
15:00:00	51.4	80.03	40.74	37.09

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Averages</b>			
Leq	Lmax	L50	L90
50.8	73.7	38.2	33.5
43.5	63.2	33.2	30.0

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Uppermost-Level</b>			
Leq	Lmax	L50	L90
55.7	83.8	41.2	37.1
49.8	74.9	40.5	34.2

<b>Percentage of Energy</b>	
Daytime	90%
Nighttime	10%

**Calculated L<sub>dn</sub>, dBA**  


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 52.0

**Appendix E**  
**Long-Term 24 Hour Continuous Noise Monitoring**  
**Model Input Sheet**



**Project:**  
**Date:**  
**Site:**

Hour	Leq	Lmax	L50	L90
16:18:08	49.83	67.73	48.31	46.02
17:00:00	47.98	59.56	47.35	45.02
18:00:00	46.12	59.95	44.97	40.25
19:00:00	45.59	63.51	43.81	38.94
20:00:00	47.52	65.26	45.17	42.38
21:00:00	47.07	57.48	46.26	44.16
22:00:00	50.24	68.46	47.68	45.6
23:00:00	46.76	63.57	45.12	43.41
0:00:00	45.3	56.29	44.6	43.09
1:00:00	45.14	53.01	44.8	43.87
2:00:00	44.58	54.63	44.19	42.74
3:00:00	46.64	60.86	45.14	43.99
4:00:00	46.28	56.98	45.04	44.08
5:00:00	49.91	58.72	48.2	44.62
6:00:00	50.57	69.96	48.52	44.2
7:00:00	50.73	61.33	49.87	46.55
8:00:00	49.07	71.48	46.72	42.78
9:00:00	48.19	64.18	45.06	41.48
10:00:00	47.81	62.62	46.12	42.78
11:00:00	47.94	63.16	46.33	42.62
12:00:00	50.95	76.2	47.44	45.24
13:00:00	49.58	70.59	47.64	45.35
14:00:00	48.52	58.26	47.76	45.4
15:00:00	52.19	75.37	47.7	45.55

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Averages</b>			
Leq	Lmax	L50	L90
49.0	65.1	46.7	43.6
47.9	60.3	45.9	44.0

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Uppermost-Level</b>			
Leq	Lmax	L50	L90
52.2	76.2	49.9	46.6
50.6	70.0	48.5	45.6

<b>Percentage of Energy</b>	
Daytime	68%
Nighttime	32%

<b>Calculated L<sub>dn</sub>, dBA</b>
54.4

**Appendix E**  
**Long-Term 24 Hour Continuous Noise Monitoring**  
**Model Input Sheet**



**Project:**  
**Date:**  
**Site:**

Hour	Leq	Lmax	L50	L90
11:00:00	64.47	88.13	60.63	46.75
12:00:00	59.05	80.27	49.56	43.86
13:00:00	62.67	75.13	62.03	47.72
14:00:00	64.9	85.44	61.56	56.92
15:00:00	64.04	83.73	57.45	47.38
16:00:00	65.42	87.02	55.19	46.52
17:00:00	62.07	85.25	51.19	46
18:00:00	59.99	82.41	48.45	44.06
19:00:00	59.4	77.21	48.81	43.37
20:00:00	56.78	83.4	44.66	42.02
21:00:00	58.71	84.66	43.82	40.78
22:00:00	46.42	68.6	37.6	34.02
23:00:00	52.18	77.02	36.48	33.32
0:00:00	48.81	72.73	34.39	31.8
1:00:00	44.13	70.18	33.69	30.99
2:00:00	36.45	55.52	33.59	30.75
3:00:00	37.78	55.49	33.24	31.27
4:00:00	41.33	58.6	37.47	32.67
5:00:00	52.92	76.2	44.64	41.27
6:00:00	60.56	80.56	49.44	43.82
7:00:00	64.76	85.69	52.92	47.09
8:00:00	60.71	81.2	51.06	45.7
9:00:00	63.7	84.64	60.29	44.65
10:00:00	62.39	76.54	60.67	55.44

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Averages</b>			
Leq	Lmax	L50	L90
62.6	82.7	53.9	46.6
52.7	68.3	37.8	34.4

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

<b>Uppermost-Level</b>			
Leq	Lmax	L50	L90
65.4	88.1	62.0	56.9
60.6	80.6	49.4	43.8

<b>Percentage of Energy</b>	
Daytime	94%
Nighttime	6%

<b>Calculated L<sub>dn</sub>, dBA</b>
62.7



Instruction sheet for using the FRA horn noise model.

Cells in Blue are inputs.  
Cells in Green are lookup tables.  
Cells in Yellow are output.

Only cells in blue can be changed. The rest of the spreadsheet is locked and is not to be altered by the user. The four cells in dark blue can be changed, but they contain formulas critical to the operation of the spreadsheet. If they are changed, do not save the spreadsheet (or save it under a different name) or the formulas will be lost. Note that the spreadsheet may take a few seconds to update after any changes to the input (especially with slower computers).

1 Noise Situation: Use the lookup table to specify the horn sounding condition of interest.

2 Horn Lmax: The maximum A-weighted sound level of the train horn at 100 feet from the front of the train. If your Lmax is not at 100 feet, use the following converter to get the Lmax at 100 feet.

Your Lmax	110	dBa
Your distance	50	feet
Lmax at 100 feet	104	dBa

3 Horn Location on Locomotive: Use the lookup table to specify the location of the horns on the locomotives.

There are 4 options:

- 1 National average. Use this if the mix of horns is not known. It represents the national average of several thousand locomotives.
- 2 All front mounted: All the horns are located at the front of the locomotive.
- 3 All middle mounted: All the horns are mounted in the middle of the locomotive.
- 4 User defined percentage: If there is detailed knowledge about the horn location mix, use this and input the percentage of the front mounted horns in the blue input box in the lookup table.

4 Non Train Noise Environment: This represents the noise environment without any train noise (the background noise). Use the lookup table to determine the type of noise environment. A specific noise environment can be input, if the data is available. The values used for the non train noise environment are as follows:

Urban: 65 dBA Ldn  
Suburban: 55 dBA Ldn  
Rural: 45 dBA Ldn

5 Shielding: Use the lookup table to specify the type of shielding by the type of area where the grade crossing is located. Near grade crossings, shielding is generally provided by rows of buildings. Using no shielding is not recommended.

6 Length of Impact Area: This determines the length of the impact area along the tracks. The default is 1/4 mile. The 20 second and 15 second options calculate the distance based on the speed of the train, up to a maximum of 1/4 mile for higher speed trains.

7 Train Speed: The speed of the train, in miles per hour. There are separate entries for existing and future trains.

8 Existing and future numbers of Trains: Use this to input the number of trains at the crossing. You should input the number of trains in one direction only, do not sum both directions. The split between day and night trains assumes an even distribution over the entire 24 hours of the day. Night is considered to be 10 pm to 7 am and day is 7 am to 10 pm. The user can input specific numbers for the day and night trains in the dark blue boxes if the split is not uniform (for commuter rail systems, as an example), but do not save the spreadsheet (or save it as a different name) or the formulas in those boxes will be lost. If you do lose the formulas, the following are the formulas you should use in those four cells.

Cell C14: +C12\*15/24  
Cell C15: +C13\*15/24  
Cell C16: +C12\*9/24  
Cell C17: +C13\*9/24

9 Number of Cars: Enter the average number of cars, for both the existing and future cases.

10 Number of Locomotives: Enter the average number of locomotives, for both the existing and future cases.

11 Numeric Output: These two tables give the numeric output of the program. All distances are in feet.

Ldn 65 Contours Numeric Output: The first two numbers represent the distance perpendicular to the tracks to the Ldn 65 contour at the crossing, for both the existing and future conditions. The next two numbers represent the distance perpendicular to the tracks to the Ldn 65 contour at the halfway point of the horn zone. The final two numbers represent the distances along the track that define the half and full impact zone lengths.

Impact Zones Numeric Output: The first two numbers represent the distance perpendicular to the tracks to impact and severe impact at the crossing. The next two numbers represent the distance perpendicular to the tracks to the impact and severe impact at the halfway point of the horn zone. The final two numbers represent the distances along the track that define the half and full impact zone lengths.

12 Graphs: The graphs provide a visual means of comparing changes in the input parameters. Both scales remain constant, so you can do relative comparisons.

The Ldn 65 graph shows the existing (in blue) and the future (in red) Ldn 65 contours for the data provided by the user.

The Impact graph shows the impact (in blue) and the severe impact (in red) for the data provided by the user.

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	104
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	3
Shielding (Pick from List)	5
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	50
Future Train Speed (mph)	50
Number of Existing Trains in one Direction	4
Number of Future Trains in one Direction	4
Existing Number of Day Trains (7 am to 10 p.m.)	2.5
Future Number of Day Trains (7 am to 10 p.m.)	2.5
Existing Number of Night Trains (10 p.m. to 7 am)	1.5
Future Number of Night Trains (10 p.m. to 7 am)	1.5
Existing Average Number of Cars	40
Future Average Number of Cars	40
Existing Average Number of Locomotives	2
Future Average Number of Locomotives	2

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive	
National Average (50% front, 50% middle)	1
All Front Mounted	2
All Middle Mounted	3
User Defined	80 % front mounted horns
	4

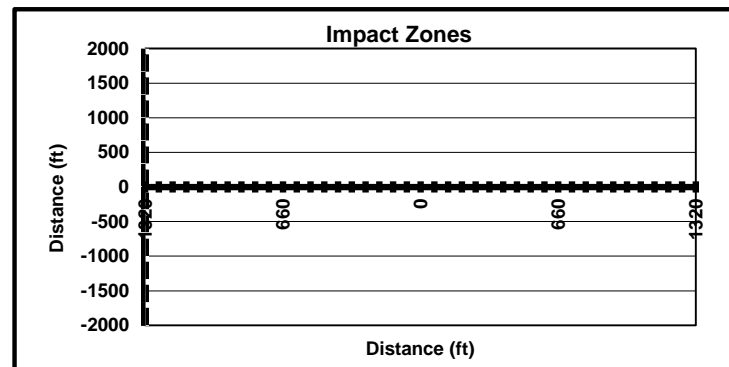
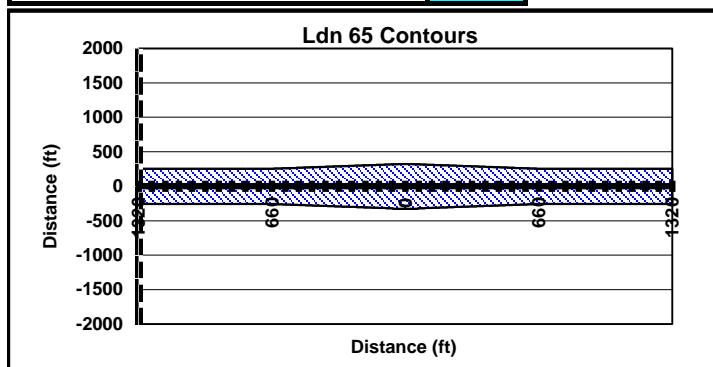
Non Train Noise Environment	
Urban	1
Suburban	2
Rural	3
User Defined Ldn =	50 dBA
	4

Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	325
Future 65 Ldn Contour at X-ing	325
Existing 65 Ldn Contour at 1/2 zone length	255
Future 65 Ldn Contour at 1/2 zone length	255
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660



Instruction sheet for using the FRA horn noise model.

Cells in Blue are inputs.  
Cells in Green are lookup tables.  
Cells in Yellow are output.

Only cells in blue can be changed. The rest of the spreadsheet is locked and is not to be altered by the user. The four cells in dark blue can be changed, but they contain formulas critical to the operation of the spreadsheet. If they are changed, do not save the spreadsheet (or save it under a different name) or the formulas will be lost. Note that the spreadsheet may take a few seconds to update after any changes to the input (especially with slower computers).

1 Noise Situation: Use the lookup table to specify the horn sounding condition of interest.

2 Horn Lmax: The maximum A-weighted sound level of the train horn at 100 feet from the front of the train. If your Lmax is not at 100 feet, use the following converter to get the Lmax at 100 feet.

Your Lmax	110	dBa
Your distance	50	feet
Lmax at 100 feet	104	dBa

3 Horn Location on Locomotive: Use the lookup table to specify the location of the horns on the locomotives.

There are 4 options:

- 1 National average. Use this if the mix of horns is not known. It represents the national average of several thousand locomotives.
- 2 All front mounted: All the horns are located at the front of the locomotive.
- 3 All middle mounted: All the horns are mounted in the middle of the locomotive.
- 4 User defined percentage: If there is detailed knowledge about the horn location mix, use this and input the percentage of the front mounted horns in the blue input box in the lookup table.

4 Non Train Noise Environment: This represents the noise environment without any train noise (the background noise). Use the lookup table to determine the type of noise environment. A specific noise environment can be input, if the data is available. The values used for the non train noise environment are as follows:

Urban: 65 dBA Ldn  
Suburban: 55 dBA Ldn  
Rural: 45 dBA Ldn

5 Shielding: Use the lookup table to specify the type of shielding by the type of area where the grade crossing is located. Near grade crossings, shielding is generally provided by rows of buildings. Using no shielding is not recommended.

6 Length of Impact Area: This determines the length of the impact area along the tracks. The default is 1/4 mile. The 20 second and 15 second options calculate the distance based on the speed of the train, up to a maximum of 1/4 mile for higher speed trains.

7 Train Speed: The speed of the train, in miles per hour. There are separate entries for existing and future trains.

8 Existing and future numbers of Trains: Use this to input the number of trains at the crossing. You should input the number of trains in one direction only, do not sum both directions. The split between day and night trains assumes an even distribution over the entire 24 hours of the day. Night is considered to be 10 pm to 7 am and day is 7 am to 10 pm. The user can input specific numbers for the day and night trains in the dark blue boxes if the split is not uniform (for commuter rail systems, as an example), but do not save the spreadsheet (or save it as a different name) or the formulas in those boxes will be lost. If you do lose the formulas, the following are the formulas you should use in those four cells.

Cell C14: +C12\*15/24  
Cell C15: +C13\*15/24  
Cell C16: +C12\*9/24  
Cell C17: +C13\*9/24

9 Number of Cars: Enter the average number of cars, for both the existing and future cases.

10 Number of Locomotives: Enter the average number of locomotives, for both the existing and future cases.

11 Numeric Output: These two tables give the numeric output of the program. All distances are in feet.

Ldn 65 Contours Numeric Output: The first two numbers represent the distance perpendicular to the tracks to the Ldn 65 contour at the crossing, for both the existing and future conditions. The next two numbers represent the distance perpendicular to the tracks to the Ldn 65 contour at the halfway point of the horn zone. The final two numbers represent the distances along the track that define the half and full impact zone lengths.

Impact Zones Numeric Output: The first two numbers represent the distance perpendicular to the tracks to impact and severe impact at the crossing. The next two numbers represent the distance perpendicular to the tracks to the impact and severe impact at the halfway point of the horn zone. The final two numbers represent the distances along the track that define the half and full impact zone lengths.

12 Graphs: The graphs provide a visual means of comparing changes in the input parameters. Both scales remain constant, so you can do relative comparisons.

The Ldn 65 graph shows the existing (in blue) and the future (in red) Ldn 65 contours for the data provided by the user.

The Impact graph shows the impact (in blue) and the severe impact (in red) for the data provided by the user.

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	3
Horn Lmax (dBA) @ 100 feet	104
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	3
Shielding (Pick from List)	5
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	50
Future Train Speed (mph)	50
Number of Existing Trains in one Direction	4
Number of Future Trains in one Direction	4
Existing Number of Day Trains (7 am to 10 p.m.)	2.5
Future Number of Day Trains (7 am to 10 p.m.)	2.5
Existing Number of Night Trains (10 p.m. to 7 am)	1.5
Future Number of Night Trains (10 p.m. to 7 am)	1.5
Existing Average Number of Cars	40
Future Average Number of Cars	40
Existing Average Number of Locomotives	2
Future Average Number of Locomotives	2

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive	
National Average (50% front, 50% middle)	1
All Front Mounted	2
All Middle Mounted	3
User Defined	80 % front mounted horns 4

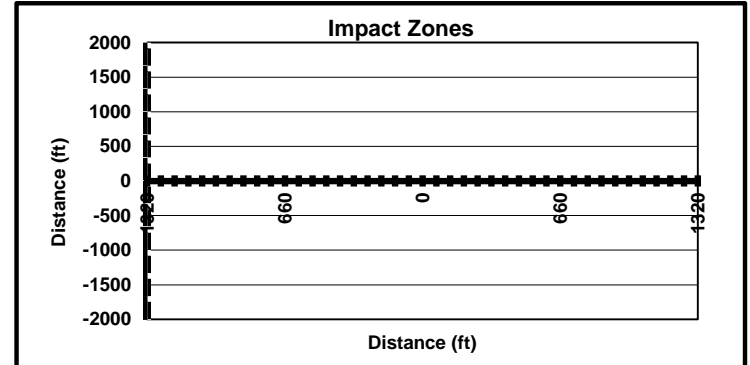
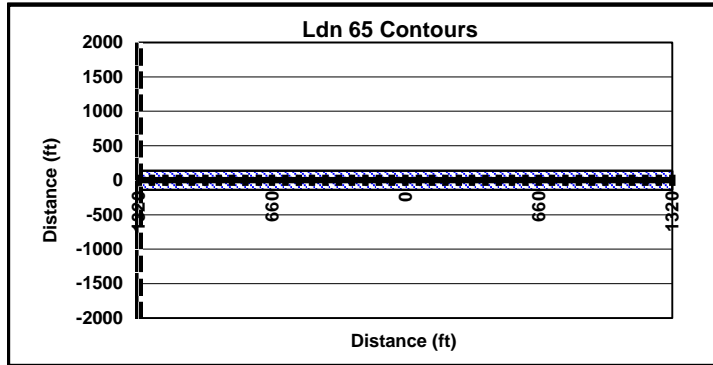
Non Train Noise Environment	
Urban	1
Suburban	2
Rural	3
User Defined Ldn =	50 dBA 4

Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	137
Future 65 Ldn Contour at X-ing	137
Existing 65 Ldn Contour at 1/2 zone length	137
Future 65 Ldn Contour at 1/2 zone length	137
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660



Appendix X2

**Project-Generated Construction Source Vibration Prediction Model**

San Joaquin River Restoration Program



<b>Location</b>	<b>Distance to Nearest Receiver in feet</b>	<b>Predicted Vibration Level (PPV)</b>	<b>Predicted Vibration Level (VdB)</b>	<b>Equipment</b>	<b>Reference Distance</b>	<b>PPV at 25 feet (in/sec)<sup>1</sup></b>	<b>Approximate Lv (VdB) at 25 feet<sup>2</sup></b>
Reach 1A	1000	0.038	79.5	Quarry Blasting	46	3.83	

Sources:

<sup>1</sup> Where PPV is the peak particle velocity

<sup>2</sup> Where Lv is the RMS velocity expressed in vibration decibels (VdB), assuming a crest factor of 4.

Source: Caltrans 2002, FTA 2006

**Appendix X2**  
**Project-Generated Construction Source Vibration Prediction Model**  
 CDCR DeWitt

<b>Location</b>	<b>Distance to Nearest Receiver in feet</b>	<b>Predicted Vibration Level (PPV)</b>	<b>Predicted Vibration Level (VdB)</b>	<b>Equipment</b>	<b>Reference Distance</b>	<b>PPV at 25 feet (in/sec)<sup>1</sup></b>	<b>Approximate Lv (VdB) at 25 feet<sup>2</sup></b>
On-Site Receiver	45	0.0369	79.3	Large Bulldozer	25	0.089	87

Sources:

<sup>1</sup> Where PPV is the peak particle velocity

<sup>2</sup> Where Lv is the RMS velocity expressed in vibration decibels (VdB), assuming a crest factor of 4.

Source: Caltrans 2002, FTA 2006