

APPENDIX C – NOISE MODELING OUTPUTS

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)
HVAC leq (day)	70.0	@	50	hard	6	5	0.00	60.1	@	157
HVAC Leq (night)	70.0	@	50	hard	6	5	0.00	55.1	@	279

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. 176 and 177 of FTA 2018.

Computation of the ground factor is based on the equation presented in Table 4-26 on pg. 86 of FTA 2018, where the distance of the reference noise level can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

Sources:

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: <http://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf> Accessed: March 5, 2020.



Traffic Noise Spreadsheet Calculator

Project: Stockton Boulevard Specific Plan

Number	Name	Segment Description and Location		Existing Conditions (2016)	2040 Conditions	Δ Existing – Project Conditions
		From	To			
Summary of Net Changes						
1	Stockton Blvd	Alhambra Boulevard	34th Street	63.1	64.5	1.4
2	Stockton Blvd	34th Street	US 50 On Ramp	64.7	65.3	0.6
3	Stockton Blvd	US 50 On Ramp	US 50 Off Ramp	65.0	65.6	0.6
4	Stockton Blvd	US 50 Off Ramp	T Street	64.5	65.4	0.9
5	Stockton Blvd	T Street	39th Street	64.7	65.6	0.9
6	Stockton Blvd	39th Street	UC Davis Health Dept. Dwy	65.2	65.9	0.7
7	Stockton Blvd	UC Davis Health Dept. Dwy	X Street	65.1	65.9	0.8
8	Stockton Blvd	X Street	Y Street	63.6	66.1	2.5
9	Stockton Blvd	Y Street	2nd Avenue	63.6	66.1	2.4
10	Stockton Blvd	2nd Avenue	Broadway	64.9	64.3	-0.7
11	Stockton Blvd	Broadway	11th Avenue	65.9	64.6	-1.3
12	Stockton Blvd	11th Avenue	14th Avenue	65.3	64.3	-1.0
13	Stockton Blvd	14th Avenue	San Francisco Boulevard	66.0	65.8	-0.2
14	Stockton Blvd	San Francisco Boulevard	21st Avenue	64.6	64.6	0.0
15	Stockton Blvd	21st Avenue	Fruitridge Road	64.5	64.8	0.3
16	Stockton Blvd	Fruitridge Road	McMahon Drive	67.3	68.1	0.8
17	Stockton Blvd	McMahon Drive	Lemon Hill Avenue	66.7	67.4	0.7
18	Stockton Blvd	Lemon Hill Avenue	Dias Avenue	67.2	67.9	0.8
19	Stockton Blvd	Dias Avenue	Elder Creek Road	66.9	67.6	0.7
20	Stockton Blvd	Elder Creek Road	Fowler Avenue	67.4	67.9	0.5
21	Stockton Blvd	Fowler Avenue	65th Street	67.2	67.7	0.5
22	65th St	US 50 Off Ramp	4th Avenue	70.4	70.9	0.5
23	65th St	4th Avenue	Broadway	70.4	70.6	0.2
24	65th St	Broadway	San Joaquin Street	69.4	69.2	-0.2
25	65th St	San Joaquin Street	14th Avenue	69.3	69.2	-0.2
26	65th St	14th Avenue	18th Avenue	70.6	69.3	-1.4
27	65th St	18th Avenue	21st Avenue	70.6	69.3	-1.4
28	65th St	21st Avenue	Sacramento County Cemetery	70.0	68.6	-1.4
29	65th St	Sacramento County Cemetery	Fruitridge Road	70.0	68.6	-1.4

30	65th St	Fruitridge Road	McMahon Drive	69.4	68.3	-1.1
31	65th St	McMahon Drive	Lemon Hill Avenue	69.7	68.7	-1.0
32	65th St	Lemon Hill Avenue	Elder Creek Road	69.6	68.5	-1.1
33	65th St	Elder Creek Road	53rd Avenue	69.7	68.8	-0.9
34	65th St	53rd Avenue	Stockton Boulevard	66.7	65.8	-0.9
35	65th St	65th Street	Walmart Dwy	64.3	63.7	-0.6
36	65th St	Walmart Dwy	Sky Pkwy	64.5	63.9	-0.6
37	65th St	65th Street	Florin Road	64.1	63.4	-0.7
38	Martin Luther King Jr Blvd	Broadway	Keith B Kenny K8 School	59.6	60.7	1.1
39	Martin Luther King Jr Blvd	Keith B Kenny K8 School	14th Avenue	59.0	59.8	0.8
40	Martin Luther King Jr Blvd	14th Avenue	21st Avenue	61.2	62.1	0.9
41	Martin Luther King Jr Blvd	21st Avenue	26th Avenue	61.6	62.7	1.1
42	Martin Luther King Jr Blvd	26th Avenue	Fruitridge Road	60.8	61.8	1.0
43	Martin Luther King Jr Blvd	Fruitridge Road	Highway 99	62.3	63.2	0.9
44	47th Ave	Highway 99	44th Street	68.0	68.8	0.8
45	47th Ave	44th Street	Sampson Boulevard	67.3	68.1	0.8
46	47th Ave	Sampson Boulevard	Steiner Drive	66.8	67.5	0.7
47	47th Ave	Steiner Drive	Stockton Boulevard	66.2	66.8	0.6
48	Elder Creek Rd	Stockton Boulevard	65th Street	66.8	67.7	0.9
49	41st Ave	Highway 99	44th Street	45.6	50.0	4.4
50	Lemon Hill Ave	44th Street	Sampson Boulevard	43.0	45.5	2.5
51	Lemon Hill Ave	Sampson Boulevard	Dewey Boulevard	47.6	50.1	2.5
52	Lemon Hill Ave	Dewey Boulevard	Stockton Boulevard	54.8	56.0	1.2
53	Lemon Hill Ave	Stockton Boulevard	65th Street	47.9	49.9	2.0
54	Fruitridge Rd	Highway 99 Off Ramp	Martin Luther King Jr Blvd.	67.5	68.0	0.5
55	Fruitridge Rd	Martin Luther King Jr Blvd.	Mendocino Boulevard	67.4	68.5	1.1
56	Fruitridge Rd	Mendocino Boulevard	Del Norte Boulevard	67.4	68.5	1.1
57	Fruitridge Rd	Del Norte Boulevard	44th Street	67.3	68.3	1.0
58	Fruitridge Rd	44th Street	Ethel Way	67.4	68.2	0.8
59	Fruitridge Rd	Ethel Way	Lawrence Drive	66.7	67.4	0.8
60	Fruitridge Rd	Lawrence Drive	Stockton Boulevard	66.7	67.4	0.8
61	Fruitridge Rd	Stockton Boulevard	58th Street	64.8	64.8	0.0
62	Fruitridge Rd	58th Street	61st Street	63.7	63.6	-0.1
63	Fruitridge Rd	61st Street	65th Street	65.3	65.2	-0.1
64	21st Ave	Stockton Boulevard	53rd Street	61.1	62.0	0.9
65	21st Ave	53rd Street	58th Street	59.3	60.7	1.4
66	21st Ave	58th Street	65th Street	58.6	59.5	0.9
67	12th Ave	Highway 99 On Ramp	3rd Street	60.1	60.8	0.7
68	12th Ave	3rd Street	36th Street	56.1	57.5	1.4
69	12th Ave	36th Street	Martin Luther King Jr Blvd.	56.1	57.5	1.4
70	14th Ave	Martin Luther King Jr Blvd.	East Nicholas Avenue	62.8	64.5	1.6

71	14th Ave	East Nicholas Avenue	Stockton Boulevard	61.9	64.0	2.1
72	14th Ave	Stockton Boulevard	50th Street	63.2	66.4	3.2
73	14th Ave	50th Street	53rd Street	61.4	66.1	4.7
74	14th Ave	53rd Street	58th Street	58.9	63.9	5.0
75	14th Ave	58th Street	Tallac Shopping Mall	61.5	65.0	3.5
76	14th Ave	Tallac Shopping Mall	65th Street	61.6	64.9	3.3
77	Broadway	Stockton Boulevard	50th Street	58.9	63.7	4.8
78	Broadway	50th Street	53rd Street	59.1	64.1	5.0
79	Broadway	53rd Street	59th Street	61.2	64.2	3.0
80	Broadway	59th Street	61st Street	60.8	63.4	2.6
81	Broadway	61st Street	65th Street	62.0	63.7	1.8

Traffic Noise Spreadsheet Calculator



Project: Stockton Boulevard Specific Plan				Input										Output				
Noise Level Descriptor: CNEL Site Conditions: Hard Traffic Input: ADT Traffic K-Factor: 10																		
Number	Name	Segment Description and Location		ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃				
		From	To			Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve		% Night	75 dBA	70 dBA	65 dBA	60 dBA
Existing Conditions (2016)																		
1	Stockton Blvd	Alhambra Boulevard	34th Street	20,785	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.1	7	21	65	207
2	Stockton Blvd	34th Street	US 50 On Ramp	29,428	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.7	9	29	92	292
3	Stockton Blvd	US 50 On Ramp	US 50 Off Ramp	31,492	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.0	10	31	99	313
4	Stockton Blvd	US 50 Off Ramp	T Street	28,506	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.5	9	28	90	283
5	Stockton Blvd	T Street	39th Street	29,519	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.7	9	29	93	293
6	Stockton Blvd	39th Street	UC Davis Health Dept. Dwy	33,706	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.2	11	33	106	335
7	Stockton Blvd	UC Davis Health Dept. Dwy	X Street	32,733	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.1	10	33	103	325
8	Stockton Blvd	X Street	Y Street	22,831	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.6	7	23	72	227
9	Stockton Blvd	Y Street	2nd Avenue	23,302	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.6	7	23	73	232
10	Stockton Blvd	2nd Avenue	Broadway	31,437	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.9	10	31	99	312
11	Stockton Blvd	Broadway	11th Avenue	26,711	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.9	12	39	123	390
12	Stockton Blvd	11th Avenue	14th Avenue	23,320	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.3	11	34	108	340
13	Stockton Blvd	14th Avenue	San Francisco Boulevard	27,342	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.0	13	40	126	399
14	Stockton Blvd	San Francisco Boulevard	21st Avenue	19,806	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.6	9	29	91	289
15	Stockton Blvd	21st Avenue	Fruitridge Road	19,533	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.5	9	28	90	285
16	Stockton Blvd	Fruitridge Road	McMahon Drive	25,532	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.3	17	54	169	536
17	Stockton Blvd	McMahon Drive	Lemon Hill Avenue	22,263	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.7	15	47	148	467
18	Stockton Blvd	Lemon Hill Avenue	Dias Avenue	24,749	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.2	16	52	164	519
19	Stockton Blvd	Dias Avenue	Elder Creek Road	23,227	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.9	15	49	154	487
20	Stockton Blvd	Elder Creek Road	Fowler Avenue	26,274	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	17	55	174	551
21	Stockton Blvd	Fowler Avenue	65th Street	25,129	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.2	17	53	167	527
22	65th St	US 50 Off Ramp	4th Avenue	52,683	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	70.4	35	111	350	1105
23	65th St	4th Avenue	Broadway	52,512	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	70.4	35	110	348	1102
24	65th St	Broadway	San Joaquin Street	41,796	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.4	28	88	277	877
25	65th St	San Joaquin Street	14th Avenue	40,770	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.3	27	86	270	855
26	65th St	14th Avenue	18th Avenue	39,508	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	70.6	37	116	367	1160
27	65th St	18th Avenue	21st Avenue	39,508	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	70.6	37	116	367	1160
28	65th St	21st Avenue	Sacramento County Cemetry	34,027	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	70.0	32	100	316	999
29	65th St	Sacramento County Cemetry	Fruitridge Road	34,027	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	70.0	32	100	316	999
30	65th St	Fruitridge Road	McMahon Drive	29,648	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.4	28	87	275	871
31	65th St	McMahon Drive	Lemon Hill Avenue	32,099	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.7	30	94	298	943
32	65th St	Lemon Hill Avenue	Elder Creek Road	31,157	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.6	29	91	289	915
33	65th St	Elder Creek Road	53rd Avenue	31,822	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.7	30	93	295	934
34	65th St	53rd Avenue	Stockton Boulevard	31,822	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.7	15	46	147	464
35	65th St	Walmart Dwy	Walmart Dwy	18,525	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.3	9	27	85	270
36	65th St	Walmart Dwy	Sky Pkwy	19,205	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.5	9	28	89	280
37	65th St	65th Street	Florin Road	17,443	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.1	8	25	80	254
38	Martin Luther King Jr Blvd	Broadway	Keith B Kenny K8 School	9,179	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.6	3	9	29	91
39	Martin Luther King Jr Blvd	Keith B Kenny K8 School	14th Avenue	8,081	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.0	3	8	25	80
40	Martin Luther King Jr Blvd	14th Avenue	21st Avenue	13,268	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.2	4	13	42	132
41	Martin Luther King Jr Blvd	21st Avenue	26th Avenue	14,583	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.6	5	14	46	145
42	Martin Luther King Jr Blvd	26th Avenue	Fruitridge Road	12,125	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.8	4	12	38	120
43	Martin Luther King Jr Blvd	Fruitridge Road	Highway 99	17,275	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.3	5	17	54	172
44	47th Ave	Highway 99	44th Street	30,057	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.0	20	63	199	631
45	47th Ave	44th Street	Sampson Boulevard	25,472	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.3	17	53	169	534

46	47th Ave	Sampson Boulevard	Steiner Drive	22,801	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.8	15	48	151	478
47	47th Ave	Steiner Drive	Stockton Boulevard	19,925	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.2	13	42	132	418
48	Elder Creek Rd	Stockton Boulevard	65th Street	16,463	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.8	15	48	153	483
49	41st Ave	Highway 99	44th Street	532	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	45.6			1	4
50	Lemon Hill Ave	44th Street	Sampson Boulevard	295	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	43.0			1	2
51	Lemon Hill Ave	Sampson Boulevard	Dewey Boulevard	849	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	47.6		1	2	6
52	Lemon Hill Ave	Dewey Boulevard	Stockton Boulevard	2,070	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	54.8	1	3	10	30
53	Lemon Hill Ave	Stockton Boulevard	65th Street	909	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	47.9		1	2	6
54	Fruitridge Rd	Highway 99 Off Ramp	Martin Luther King Jr Blvd.	26,533	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.5	18	56	176	557
55	Fruitridge Rd	Martin Luther King Jr Blvd.	Mendocino Boulevard	26,449	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	18	55	175	555
56	Fruitridge Rd	Mendocino Boulevard	Del Norte Boulevard	26,449	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	18	55	175	555
57	Fruitridge Rd	Del Norte Boulevard	44th Street	25,679	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.3	17	54	170	539
58	Fruitridge Rd	44th Street	Ethel Way	26,009	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	17	55	173	546
59	Fruitridge Rd	Ethel Way	Lawrence Drive	22,082	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.7	15	46	146	463
60	Fruitridge Rd	Lawrence Drive	Stockton Boulevard	22,082	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.7	15	46	146	463
61	Fruitridge Rd	Stockton Boulevard	58th Street	14,330	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.8	10	30	95	301
62	Fruitridge Rd	58th Street	61st Street	11,292	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.7	7	24	75	237
63	Fruitridge Rd	61st Street	65th Street	16,048	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.3	11	34	106	337
64	21st Ave	Stockton Boulevard	53rd Street	8,857	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.1	4	13	41	129
65	21st Ave	53rd Street	58th Street	5,790	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.3	3	8	27	84
66	21st Ave	58th Street	65th Street	4,958	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	58.6	2	7	23	72
67	12th Ave	Highway 99 On Ramp	3rd Street	14,873	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.1	3	10	32	101
68	12th Ave	3rd Street	36th Street	5,925	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.1	1	4	13	40
69	12th Ave	36th Street	Martin Luther King Jr Blvd.	5,925	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.1	1	4	13	40
70	14th Ave	Martin Luther King Jr Blvd.	East Nicholas Avenue	9,155	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.8	6	19	61	192
71	14th Ave	East Nicholas Avenue	Stockton Boulevard	7,420	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.9	5	16	49	156
72	14th Ave	Stockton Boulevard	50th Street	9,884	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.2	7	21	66	207
73	14th Ave	50th Street	53rd Street	6,598	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.4	4	14	44	138
74	14th Ave	53rd Street	58th Street	3,715	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	58.9	2	8	25	78
75	14th Ave	58th Street	Tallac Shopping Mall	6,758	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.5	4	14	45	142
76	14th Ave	Tallac Shopping Mall	65th Street	6,949	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.6	5	15	46	146
77	Broadway	Stockton Boulevard	50th Street	7,900	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	58.9	2	8	25	78
78	Broadway	50th Street	53rd Street	8,147	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.1	3	8	26	81
79	Broadway	53rd Street	59th Street	13,318	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.2	4	13	42	132
80	Broadway	59th Street	61st Street	12,120	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.8	4	12	38	120
81	Broadway	61st Street	65th Street	15,778	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.0	5	16	50	157

*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: Stockton Boulevard Specific Plan

Noise Level Descriptor: CNEL
 Site Conditions: Hard
 Traffic Input: ADT
 Traffic K-Factor: 10

Segment Description and Location				Input										Output				
Number	Name	From	To	ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃				
						Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve		% Night	75 dBA	70 dBA	65 dBA	60 dBA
2040 Conditions																		
1	Stockton Blvd	Alhambra Boulevard	34th Street	28,412	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.5	9	28	89	282
2	Stockton Blvd	34th Street	US 50 On Ramp	34,045	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.3	11	34	107	338
3	Stockton Blvd	US 50 On Ramp	US 50 Off Ramp	36,221	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.6	11	36	114	360
4	Stockton Blvd	US 50 Off Ramp	T Street	35,236	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.4	11	35	111	350
5	Stockton Blvd	T Street	39th Street	36,125	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.6	11	36	114	359
6	Stockton Blvd	39th Street	UC Davis Health Dept. Dwy	39,387	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.9	12	39	124	391
7	Stockton Blvd	UC Davis Health Dept. Dwy	X Street	39,158	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.9	12	39	123	389
8	Stockton Blvd	X Street	Y Street	40,796	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.1	13	41	128	405
9	Stockton Blvd	Y Street	2nd Avenue	40,850	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.1	13	41	128	406
10	Stockton Blvd	2nd Avenue	Broadway	26,983	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.3	8	27	85	268
11	Stockton Blvd	Broadway	11th Avenue	19,605	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.6	9	29	90	286
12	Stockton Blvd	11th Avenue	14th Avenue	18,633	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.3	9	27	86	272
13	Stockton Blvd	14th Avenue	San Francisco Boulevard	25,852	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.8	12	38	119	377
14	Stockton Blvd	San Francisco Boulevard	21st Avenue	19,929	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.6	9	29	92	291
15	Stockton Blvd	21st Avenue	Fruitridge Road	20,737	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.8	10	30	96	302
16	Stockton Blvd	Fruitridge Road	McMahon Drive	30,915	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.1	21	65	205	649
17	Stockton Blvd	McMahon Drive	Lemon Hill Avenue	26,203	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	17	55	174	550
18	Stockton Blvd	Lemon Hill Avenue	Dias Avenue	29,480	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.9	20	62	196	618
19	Stockton Blvd	Dias Avenue	Elder Creek Road	27,299	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.6	18	57	181	573
20	Stockton Blvd	Elder Creek Road	Fowler Avenue	29,373	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.9	19	62	195	616
21	Stockton Blvd	Fowler Avenue	65th Street	28,086	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.7	19	59	186	589
22	65th St	US 50 Off Ramp	4th Avenue	58,875	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	70.9	39	124	391	1235
23	65th St	4th Avenue	Broadway	54,661	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	70.6	36	115	363	1147
24	65th St	Broadway	San Joaquin Street	39,764	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.2	26	83	264	834
25	65th St	San Joaquin Street	14th Avenue	39,295	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.2	26	82	261	824
26	65th St	14th Avenue	18th Avenue	28,825	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.3	27	85	268	846
27	65th St	18th Avenue	21st Avenue	28,825	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	69.3	27	85	268	846
28	65th St	21st Avenue	Sacramento County Cemetry	24,556	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.6	23	72	228	721
29	65th St	Sacramento County Cemetry	Fruitridge Road	24,556	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.6	23	72	228	721
30	65th St	Fruitridge Road	McMahon Drive	22,983	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.3	21	67	213	675
31	65th St	McMahon Drive	Lemon Hill Avenue	25,212	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.7	23	74	234	740
32	65th St	Lemon Hill Avenue	Elder Creek Road	24,114	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.5	22	71	224	708
33	65th St	Elder Creek Road	53rd Avenue	25,788	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.8	24	76	239	757
34	65th St	53rd Avenue	Stockton Boulevard	25,788	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.8	12	38	119	376
35	65th St	65th Street	Walmart Dwy	16,123	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.7	7	24	74	235
36	65th St	Walmart Dwy	Sky Pkwy	16,880	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.9	8	25	78	246
37	65th St	65th Street	Florin Road	14,934	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.4	7	22	69	218
38	Martin Luther King Jr Blvd	Broadway	Keith B Kenny K8 School	11,961	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.7	4	12	38	119
39	Martin Luther King Jr Blvd	Keith B Kenny K8 School	14th Avenue	9,646	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.8	3	10	30	96
40	Martin Luther King Jr Blvd	14th Avenue	21st Avenue	16,405	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.1	5	16	52	163
41	Martin Luther King Jr Blvd	21st Avenue	26th Avenue	18,609	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.7	6	18	58	185
42	Martin Luther King Jr Blvd	26th Avenue	Fruitridge Road	15,373	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.8	5	15	48	153
43	Martin Luther King Jr Blvd	Fruitridge Road	Highway 99	21,155	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.2	7	21	66	210
44	47th Ave	Highway 99	44th Street	36,069	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.8	24	76	239	757
45	47th Ave	44th Street	Sampson Boulevard	30,824	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.1	20	65	204	647

46	47th Ave	Sampson Boulevard	Steiner Drive	26,875	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.5	18	56	178	564
47	47th Ave	Steiner Drive	Stockton Boulevard	23,004	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.8	15	48	153	483
48	Elder Creek Rd	Stockton Boulevard	65th Street	20,170	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.7	19	59	187	592
49	41st Ave	Highway 99	44th Street	1,481	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	50.0		1	3	10
50	Lemon Hill Ave	44th Street	Sampson Boulevard	522	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	45.5			1	4
51	Lemon Hill Ave	Sampson Boulevard	Dewey Boulevard	1,516	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	50.1		1	3	10
52	Lemon Hill Ave	Dewey Boulevard	Stockton Boulevard	2,740	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.0	1	4	13	40
53	Lemon Hill Ave	Stockton Boulevard	65th Street	1,434	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	49.9		1	3	10
54	Fruitridge Rd	Highway 99 Off Ramp	Martin Luther King Jr Blvd.	29,794	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.0	20	63	198	625
55	Fruitridge Rd	Martin Luther King Jr Blvd.	Mendocino Boulevard	33,718	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.5	22	71	224	707
56	Fruitridge Rd	Mendocino Boulevard	Del Norte Boulevard	34,109	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.5	23	72	226	716
57	Fruitridge Rd	Del Norte Boulevard	44th Street	32,332	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.3	21	68	214	678
58	Fruitridge Rd	44th Street	Ethel Way	31,541	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.2	21	66	209	662
59	Fruitridge Rd	Ethel Way	Lawrence Drive	26,273	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	17	55	174	551
60	Fruitridge Rd	Lawrence Drive	Stockton Boulevard	26,273	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	17	55	174	551
61	Fruitridge Rd	Stockton Boulevard	58th Street	14,423	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.8	10	30	96	303
62	Fruitridge Rd	58th Street	61st Street	10,987	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.6	7	23	73	230
63	Fruitridge Rd	61st Street	65th Street	15,772	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.2	10	33	105	331
64	21st Ave	Stockton Boulevard	53rd Street	10,941	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.0	5	16	50	160
65	21st Ave	53rd Street	58th Street	8,051	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.7	4	12	37	117
66	21st Ave	58th Street	65th Street	6,107	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.5	3	9	28	89
67	12th Ave	Highway 99 On Ramp	3rd Street	17,537	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.8	4	12	38	119
68	12th Ave	3rd Street	36th Street	8,222	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	57.5	2	6	18	56
69	12th Ave	36th Street	Martin Luther King Jr Blvd.	8,222	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	57.5	2	6	18	56
70	14th Ave	Martin Luther King Jr Blvd.	East Nicholas Avenue	13,318	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.5	9	28	88	279
71	14th Ave	East Nicholas Avenue	Stockton Boulevard	12,007	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.0	8	25	80	252
72	14th Ave	Stockton Boulevard	50th Street	20,602	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.4	14	43	137	432
73	14th Ave	50th Street	53rd Street	19,509	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.1	13	41	129	409
74	14th Ave	53rd Street	58th Street	11,642	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.9	8	24	77	244
75	14th Ave	58th Street	Tallac Shopping Mall	15,243	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.0	10	32	101	320
76	14th Ave	Tallac Shopping Mall	65th Street	14,852	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.9	10	31	99	312
77	Broadway	Stockton Boulevard	50th Street	23,749	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.7	7	24	75	236
78	Broadway	50th Street	53rd Street	25,719	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.1	8	26	81	256
79	Broadway	53rd Street	59th Street	26,715	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.2	8	27	84	265
80	Broadway	59th Street	61st Street	21,843	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.4	7	22	69	217
81	Broadway	61st Street	65th Street	23,734	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.7	7	24	75	236

*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.

**Sacramento Stockton Blvd Specific Plan
Model Estimated Average Daily Traffic Volume**

ID	Roadway	Segment
1	Stockton Blvd	Alhambra Blvd to 34th St
2	Stockton Blvd	34th St to US 50 On Ramp
3	Stockton Blvd	US 50 On Ramp to US 50 Off Ramp
4	Stockton Blvd	US 50 Off Ramp to T St
5	Stockton Blvd	T St to 39th St
6	Stockton Blvd	39th St to UC Davis Health Department Dwy
7	Stockton Blvd	UC Davis Health Department Dwy to X St
8	Stockton Blvd	X St to Y St
9	Stockton Blvd	Y St to 2nd Ave
10	Stockton Blvd	2nd Ave to Broadway
11	Stockton Blvd	Broadway to 11th Ave
12	Stockton Blvd	11th Ave to 14th Ave
13	Stockton Blvd	14th Ave to San Francisco Blvd
14	Stockton Blvd	San Francisco Blvd to 21st Ave
15	Stockton Blvd	21st Ave to Fruitridge Rd
16	Stockton Blvd	Fruitridge Rd to McMahan Dr
17	Stockton Blvd	McMahan Dr to Lemon Hill Ave
18	Stockton Blvd	Lemon Hill Ave to Dias Ave
19	Stockton Blvd	Dias Ave to Elder Creek Rd
20	Stockton Blvd	Elder Creek Rd to Fowler Ave
21	Stockton Blvd	Fowler Ave to 65th St
22	65th St	US-50 Off Ramp to 4th Ave
23	65th St	4th Ave to Broadway
24	65th St	Broadway to San Joaquin St
25	65th St	San Joaquin St to 14th Ave
26	65th St	14th Ave to 18th Ave
27	65th St	18th Ave to 21st Ave
28	65th St	21st Ave to Sacramento County Cemetry
29	65th St	Sacramento County Cemetry to Fruitridge Rd
30	65th St	Fruitridge Rd to McMahan Dr

**Sacramento Stockton Blvd Specific Plan
Model Estimated Average Daily Traffic Volume**

31	65th St	McMahon Dr to Lemon Hill Ave
32	65th St	Lemon Hill Ave to Elder Creek Rd
33	65th St	Elder Creek Rd to 53rd Ave
34	65th St	53rd Ave to Stockton Blvd
35	65th St	65th St to Walmart Dwy
36	65th St	Walmart Dwy to Sky Pkwy
37	65th St	65th St to Florin Rd
38	Martin Luther King Jr Blvd	Broadway to Keith B Kenny K8 School
39	Martin Luther King Jr Blvd	Keith B Kenny K8 School to 14th Ave
40	Martin Luther King Jr Blvd	14th Ave to 21st Ave
41	Martin Luther King Jr Blvd	21st Ave to 26th Ave
42	Martin Luther King Jr Blvd	26th Ave to Fruitridge Rd
43	Martin Luther King Jr Blvd	Fruitridge Rd to Hwy 99
44	47th Ave	Hwy 99 to 44th St
45	47th Ave	44th St to Sampson Blvd
46	47th Ave	Sampson Blvd to Steiner Dr
47	47th Ave	Steiner Dr to Stockton Blvd
48	Elder Creek Rd	Stockton Blvd to 65th St
49	41st Ave	Hwy 99 to 44th St
50	Lemon Hill Ave	44th St to Sampson Blvd
51	Lemon Hill Ave	Sampson Blvd to Dewey Blvd
52	Lemon Hill Ave	Dewey Blvd to Stockton Blvd
53	Lemon Hill Ave	Stockton Blvd to 65th St
54	Fruitridge Rd	Hwy 99 off ramp to Martin Luther King Jr Blvd
55	Fruitridge Rd	Martin Luther King Jr Blvd to Mendocino Blvd
56	Fruitridge Rd	Mendocino Blvd to Del Norte Blvd
57	Fruitridge Rd	Del Norte Blvd to 44th St
58	Fruitridge Rd	44th St to Ethel Way
59	Fruitridge Rd	Ethel Way to Lawrence Dr
60	Fruitridge Rd	Lawrence Dr to Stockton Blvd
61	Fruitridge Rd	Stockton Blvd east to 58th St

**Sacramento Stockton Blvd Specific Plan
Model Estimated Average Daily Traffic Volume**

62	Fruitridge Rd	58th St to 61st St
63	Fruitridge Rd	61st St to 65th St
64	21st Ave	Stockton Blvd to 53rd St
65	21st Ave	53rd St to 58th St
66	21st Ave	58th St to 65th St
67	12th Ave	Hwy 99 On Ramp to 3rd St
68	12th Ave	3rd St to 36th St
69	12th Ave	36th St to Martin Luther King Jr Blvd
70	14th Ave	Martin Luther King Jr Blvd to E Nicholas Ave
71	14th Ave	E Nicholas Ave to Stockton Blvd
72	14th Ave	Stockton Blvd to 50th St
73	14th Ave	50th St to 53rd St
74	14th Ave	53rd St to 58th St
75	14th Ave	58th St to Tallac Shopping Mall
76	14th Ave	Tallac Shopping Mall to 65th St
77	Broadway	Stockton Blvd to 50th St
78	Broadway	50th St to 53rd St
79	Broadway	53rd St to 59th St
80	Broadway	59th St to 61st St
81	Broadway	61st St to 65th St

Citation # Citations

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|----|--|--|
| 1 | Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60. | Caltrans Technical Noise Supplement. 2013 (September). Table (4-2), Pg 4-17. |
| 2 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60. | Caltrans Technical Noise Supplement. 2013 (September). Equation (4-5), Pg 4-17. |
| 3 | Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32. | FHWA 2004 TNM Version 2.5 |
| 4 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48. | FHWA 2004 TNM Version 2.5 |
| 5 | Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56. | Caltrans Technical Noise Supplement. 2013 (September). Equation (2-23), Pg 2-51, 52. |
| 6 | Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57. | Caltrans Technical Noise Supplement. 2013 (September). Equation (2-24), Pg 2-53. |
| 7 | Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53. | Caltrans Technical Noise Supplement. 2013 (September). Pg 2-57. |
| 8 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45. | FHWA 2004 TNM Version 2.5 |
| 9 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45. | FHWA 2004 TNM Version 2.5 |
| 10 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45. | FHWA 2004 TNM Version 2.5 |
| 11 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49. | FHWA 2004 TNM Version 2.5 |
| 12 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49. | FHWA 2004 TNM Version 2.5 |
| 13 | Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67 | |
| 14 | Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69 | |
| 15 | Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69 | |

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California Department of Transportation (Caltrans). 2009 (November). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed August 17, 2017.

California Department of Transportation (Caltrans). 2013 (September). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013A.pdf. Accessed August 17, 2017.

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Nighttime Construction (Leq)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L _{eq} dBA)	Equipment	Reference Emission Noise Levels (L _{max}) at 50 feet ¹	Usage Factor ¹
Threshold	377	60.0	Concrete Pump Truck	81	0.2
			Concrete Mixer Truck	79	0.4

Ground Type hard
Source Height 8
Receiver Height 5
Ground Factor² 0.00

Predicted Noise Level ³	L _{eq} dBA at 50 feet ³
Concrete Pump Truck	74.0
Concrete Mixer Truck	75.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
 77.6

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).

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

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 signs)	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. Jack	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 (hoe ram)	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 Nozzle)	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-truck)	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
chipper		75							

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)
Impact pile driver	112	@	25
Vibratory Roller	94	@	25

Attenuated Noise Level at Receptor		
vibration level (VdB)	@	distance (ft)
65.0	@	925
74.9	@	108

The Lv metric (VdB) is used to assess the likelihood for vibration to result in human annoyance.

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)
Impact pile driver	1.518	@	25
Vibratory Roller	0.210	@	25
Impact pile driver	1.518	@	25
Vibratory Roller	0.210	@	25

Attenuated Noise Level at Receptor		
vibration level (PPV)	@	distance (ft)
0.199	@	97
0.198	@	26
0.079	@	180
0.079	@	48

The PPV metric (in/sec) is used for assessing the likelihood for the potential of structural damage.

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 185 of FTA 2018. 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.

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment Manual. FTA Report No. 0123. Washington, D.C. Accessed: December 20, 2020. Page Available:

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf