

## **APPENDIX D: NOISE MODELING**

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Traffic Noise Spreadsheet Calculator



Project: SMUD HQCMP

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

Segment Description and Location				Input								Output						
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Distance to Directional Centerline, (feet) <sub>4</sub>		Traffic Distribution Characteristics					CNEL, (dBA) <sub>5,6,7</sub>	Distance to Contour, (feet) <sub>3</sub>				
						Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve		% Night	70 dBA	65 dBA	60 dBA	55 dBA
<b>Existing PM Peak Hour</b>																		
1	59th between T and S St			1089	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.0	16	50	159	502
2	59th between Folsom Boulevard and S St			1105	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.1	16	51	161	510
3	S St between 59th and 65th St			884	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.1	13	41	129	408
4	Folsom between 59th and 65th St			1649	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.8	24	76	241	761
5	65th between 4th Ave and US 50 EB Ramp			3231	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.7	47	149	471	1490
6	65th between US 50 WB Ramp and Q St			2067	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.8	30	95	301	953
7	65th between Q St and Folsom Blvd			2089	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.8	30	96	305	963

\*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: SMUD HQCMP

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

Segment Description and Location				Input									Output					
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Distance to Directional Centerline, (feet) <sub>4</sub>		Traffic Distribution Characteristics					CNEL, (dBA) <sub>5,6,7</sub>	Distance to Contour, (feet) <sub>3</sub>				
						Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve		% Night	70 dBA	65 dBA	60 dBA	55 dBA
<b>Existing Plus Project PM Peak Hour</b>																		
1	59th between T and S St			1111	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.1	16	51	162	512
2	59th between Folsom Boulevard and S St			1089	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.0	16	50	159	502
3	S St between 59th and 65th St			1057	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.9	15	49	154	488
4	Folsom between 59th and 65th St			1938	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.5	28	89	283	894
5	65th between 4th Ave and US 50 EB Ramp			3241	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.7	47	149	473	1495
6	65th between US 50 WB Ramp and Q St			2110	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.9	31	97	308	973
7	65th between Q St and Folsom Blvd			2136	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.9	31	99	312	985

\*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.

Citation # Citations

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| 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.     |
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| 8  | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45.   | FHWA 2004 TNM Version 2.5  |
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| 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 |  |

References

- California Department of Transportation (Caltrans). 2009 (November). Technical Noise Supplement. Available: [http://www.dot.ca.gov/hq/env/noise/pub/tens\\_complete.pdf](http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf). Accessed August 17, 2017.
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- Federal Highway Administration. 2004. Traffic Noise Model Version 2.5. Available: [https://www.fhwa.dot.gov/environment/noise/traffic\\_noise\\_model/tnm\\_v25/](https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/tnm_v25/). Accessed August 17, 2017.