

APPENDIX D: CALCULATION WORKSHEETS FOR NOISE ANALYSIS

SIA PLAN UPDATE

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Traffic Noise Spreadsheet Calculator



Project: **Sunset Industrial Area - Existing Conditions**

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

Segment Description and Location				Input										Output					
Number	Name	From	To	ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics						Ldn, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃				
						Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	50 dBA
1	Whitney Ranch Pkwy	Wildcat Blvd	Spring Creek Dr	2,506	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	53.7	8	18	38	82	176
2	Industrial Ave	Twelve Bridges	Athens Ave	9,092	50	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.1	30	64	137	296	638
3	Twelve Bridges Dr	Fieldstone Dr	E Joiner Pkwy	11,559	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.3	23	49	105	226	487
4	Hwy 65	Twelve Bridges	Sunset Blvd	51,000	65	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	73.0	158	341	734	1582	3409
5	Athens Ave	Fiddymment Rd	Industrial Ave	7,300	55	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	62.4	31	67	143	309	666
6	Fiddymment Rd	E Catlett Rd	Sunset Blvd	2,386	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	54.9	10	21	46	99	213
7	Sunset Blvd	Industrial Rd	Hwy 65	3,835	30	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	52.3	7	14	31	66	142

*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.

Attenuation Calculations for Line 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)
UPRR line (based on Lincoln GP)	70.0	@	900	soft	6	5	0.65	60.0	@	3627
UPRR line (based on Lincoln GP) (East of UPRR)	70.0	@	900	soft	6	5	0.65	68.9	@	1055
Traffic Along SR65 (West of Hwy)	70.0	@	158	soft	6	5	0.65	56.4	@	1055
Traffic Along SR65 (900 ft west of UPRR)	70.0	@	158	soft	6	5	0.65	52.0	@	1955

Notes:

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

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

Computation of the ground factor is based on the equation presented in Figure 6-23 on pg. 6-23 of FTA 2006, 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). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Attenuation Calculations for Stationary Noise Sources

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

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

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

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

STEP 3: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level			Attenuation Characteristics				Attenuated Noise Level at Receptor		
	noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	noise level (dBA)	@	distance (ft)
Landfill Operations	59.0	@	2,000	soft	6	5	0.65	60.0	@	1834
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
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							0.66			
							0.66			
							0.66			

Notes:

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

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

Computation of the ground factor is based on the equation presented in Figure 6-23 on pg. 6-23 of FTA 2006, 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).

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Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available:

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