Appendix D

Noise Modeling Data

Traffic Noise Spreadsheet Calculator

Project: Highway 59 Landfill Valley Fill Project

Noise Level Descriptor: CNEL
Site Conditions: Soft
Traffic Input: Peak
Traffic K-Factor: 12

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							Distance to Contour, (feet)[3]			
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, (dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing plus Project																		
1	2014 Existing	Oakdale Road	Landfill Entrance	265	55	50	50	93%	6%	1%	80%	15%	5%	62.9	17	36	78	169
2	2020 Future No Project	Oakdale Road	Landfill Entrance	511	55	50	50	93%	6%	1%	80%	15%	5%	65.8	26	56	121	262
3	2020 Future plus Project	Oakdale Road	Landfill Entrance	513	55	50	50	93%	6%	1%	80%	15%	5%	65.8	26	57	122	262
4	2035 Future No Project	Oakdale Road	Landfill Entrance	1106	55	50	50	93%	6%	1%	80%	15%	5%	69.1	44	94	203	438
5	2035 Future Project	Oakdale Road	Landfill Entrance	1110	55	50	50	93%	6%	1%	80%	15%	5%	69.2	44	95	204	439
6	2014 Existing	Bellevue Road	Landfill Entrance	304	55	50	50	93%	6%	1%	80%	15%	5%	63.5	19	40	86	185
7	2020 Future No Project	Bellevue Road	Landfill Entrance	507	55	50	50	93%	6%	1%	80%	15%	5%	65.7	26	56	121	260
8	2020 Future plus Project	Bellevue Road	Landfill Entrance	537	55	50	50	93%	6%	1%	80%	15%	5%	66.0	27	58	126	270
9	2035 Future No Project	Bellevue Road	Landfill Entrance	984	55	50	50	93%	6%	1%	80%	15%	5%	68.6	41	87	188	405
10	2035 Future Project	Bellevue Road	Landfill Entrance	1048	55	50	50	93%	6%	1%	80%	15%	5%	68.9	42	91	196	422
11	2014 Existing	Bellevue Road	(South)	364	55	50	50	93%	6%	1%	80%	15%	5%	64.3	21	45	97	209
12	2020 Future No Project	Bellevue Road	(South)	590	55	50	50	93%	6%	1%	80%	15%	5%	66.4	29	62	134	288
13	2020 Future plus Project	Bellevue Road	(South)	600	55	50	50	93%	6%	1%	80%	15%	5%	66.5	29	63	135	291
14	2035 Future No Project	Bellevue Road	(South)	1120	55	50	50	93%	6%	1%	80%	15%	5%	69.2	44	95	205	442
15	2035 Future Project	Bellevue Road	(South)	1142	55	50	50	93%	6%	1%	80%	15%	5%	69.3	45	96	208	447

*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.

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			Attenuated Noise Level at Receptor		
	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Large Dozer	87.0	@	25	30.58	@	1900
Loaded Trucks	86	@	25	29.58	@	1900
Rock Breaker	83.0	@	25	26.58	@	1900
Jackhammer	79.000	@	25	22.58	@	1900
Small Dozer	58.0	@	25	1.58	@	1900

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			Attenuated Noise Level at Receptor		
	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Large Dozer	0.089	@	25	0.0001	@	1900
Loaded Trucks	0.076	@	25	0.0001	@	1900
Rock Breaker	0.059	@	25	0.0001	@	1900
Jackhammer	0.035	@	25	0.0001	@	1900
Small Dozer	0.003	@	25	0.000005	@	1900

Notes:

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

Sources:

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