

Appendix D
Noise Modeling

This spreadsheet calculates traffic noise levels based on TNM Version 2.5 Lookup Tables.

**** Type in yellow cells only.**

Traffic Data:	Units:
<input checked="" type="checkbox"/> Enter ADT Traffic	<input type="checkbox"/> Metric
<input checked="" type="checkbox"/> Enter Loudest-hour Traffic	<input checked="" type="checkbox"/> English

Calculate



Link	Roadway	Segment Location	Hard or Soft Ground (H or S)	BARRIER		
				Present 1=yes	Height min. 7 ft. max. 32 ft.	Distance 35 ft. or 100 ft.
1	All Construction Traffic, Ccommutes	All	H			
2	All Construction Traffic, Haul Trucks	All	H			

Total Daily Traffic Volumes (ADT)	Traffic Mix		Vehicle Speed mph max. 80
	Number #	Description	
8	12	All Cars, 50% before 7 AM	35
36	13	All Trucks, 50% before 7 AM	35

Sound Levels at Receiver Locations	
Distance feet, min. 33 max. 1000	dB Ldn
50	45.2
50	55.9

Construction Noise Analysis Table 1. Phase 1, Mobilization (installation of BMPs)

Equipment		Typical Level @ 50', dBA ¹	Usage Factor ^{1,2}	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Leq(h), dBA
Item No.	Description								
2	Backhoe	77.6	1	1	1	1	1470	hard	48.2
	Combined Equipment								48.2

Construction Noise Analysis Table 2. Phase 2, Soil Stabilization

Equipment		Typical Level @ 50', dBA ¹	Usage Factor ^{1,2}	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Leq(h), dBA
Item No.	Description								
18	Excavator	80.7	1	1	1	1	1,470	hard	51.3
13	Dozer	81.7	1	1	1	1	1,470	hard	52.3
	Combined Equipment								54.9

Construction Noise Analysis Table 3. Phase 3, Excavation and Offsite Disposal

Equipment		Typical Level @ 50', dBA ¹	Usage Factor ^{1,2}	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Leq(h), dBA
Item No.	Description								
18	Excavator	80.7	1	1	1	1	1,470	hard	51.3
13	Dozer	81.7	1	1	1	1	1,470	hard	52.3
	Combined Equipment								54.9

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use. Assumed to be 1 for all equipment as required for FTA General Assessment

Construction Noise Analysis Table 4. Phase 4, Backfilling and Grading

Equipment		Typical Level @ 50', dBA ¹	Usage Factor ^{1,2}	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Leq(h), dBA
Item No.	Description								
18	Excavator	80.7	1	1	1	1	1,470	hard	51.3
13	Dozer	81.7	1	1	1	1	1,470	hard	52.3
	Combined Equipment								54.9

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use. Assumed to be 1 for all equipment as required for FTA General Assessment