
Appendix C Noise Model

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor at Threshold Noise Level (feet)	Noise Threshold (L_{eq} dBA)
Sensitive Receptor	50	87.3

Ground Type	Soft
Source Height	8
Receiver Height	5
Ground Factor ²	0.63

Predicted Noise Level ³	L_{max} dBA at 50 feet ²	L_{eq} dBA at 50 feet ³	Usage Factor ²
Dozer	85	81	0.4
Excavator	85	81	0.4
Paving Equipment	85	82	0.5
Scraper	85	81	0.4

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)⁴

87.3

Combined Predicted Noise Level (L_{max} dBA at 50 feet)⁵

91.0

Sources:

¹ Obtained from Table 9.1 of the Federal Highway Administration Construction Noise Handbook, 2006

² Based on Table 4-26 from Federal Transit Noise and Vibration Impact Assessment Manual, 2018 (pg 86)

³ Based on the following from the Federal Transit Noise and Vibration Impact Assessment Manual, 2018 (Equation 7-1, pg 177)

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

Where:

$L_{eq}(\text{equip})$ = L_{eq} at a receiver from the operation of a single piece of equipment over a specified time period (dBA)

E.L. = Emission Level at reference distance of 50 ft (dBA)

U.F. = Usage Factor (FTA 2018, pg 177)

G = Constant that accounts for topography and ground effects (FTA 2018, pg 86)

D = Distance from source to receiver (feet)

⁵ Assume usage factor of 1 for all equipment