

# Appendix F

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## Noise Calculations

## Noise Calculations for Airport Perimeter Dike FEMA and Seismic Improvement Project

Mechanical-Construction Airport Site		
Construction Equipment 1 (Drill Rig)	95	dBa at 50 feet
Construction Equipment 2 (Excavator/Dozer/Paver/Roller)	85	dBa at 50 feet
<i>Combined Daytime Noise at 50 feet (Ltotal at 50 feet)</i>	95.4	dBa
$L_{total}=10 \log(10^{L1/10}+10^{L2/10})$		

### Noise Threshold Limits and Distances from Project Sites to those Limits for Construction Equipment by Technique

Noise Threshold	Threshold Level	Distance to Leq Threshold from Middle of Project Site (feet)
	- Leq (dBA)	Mechanical
Sensitive Receptors	100	29.5
	75	524.4
Source: FTA 2018		

Noise Level at Nearest Sensitive Receptor	Distance (ft)	Noise Level
Commercial Property Along Harbor Bay Parkway	400	77.4

### Vibration Source Levels for Construction Equipment (FTA 2018)

Equipment	PPV at 25 feet	VBA
Large Bulldozer	0.089	87

### Vibration Calculations with Equations for Vibration-Causing Equipment for Project Site

Threshold	Distance to Threshold from Middle of Project Site (feet)	Notes
$PPV=PPV_{ref} * (25/d)^{1.5}$	20.5	Building damage threshold (sensitive buildings)
	42.8	Human Perception (80 VdB)

**Noise Calculations for Airport Perimeter Dike FEMA and Seismic Improvement Project**

<b>Mechanical-Construction NPORDS Site</b>		
Construction Equipment 2 (Excavator/Dozer/Paver/Roller)	85	dBa at 50 feet
Construction Equipment 2 (Excavator/Dozer/Paver/Roller)	85	dBa at 50 feet
<u>Combined Daytime Noise at 50 feet (Ltotal at 50 feet)</u>	88.0	dBa
$L_{total} = 10 \log(10^{L_1/10} + 10^{L_2/10})$		

**Noise Threshold Limits and Distances from Project Sites to those Limits for Construction Equipment by Technique**

<b>Noise Threshold</b>	<b>Threshold Level - Leq (dBA)</b>	<b>Distance to Leq Threshold from Middle of Project Site (feet)</b>
		<b>Mechanical</b>
Sensitive Receptors	100	12.6
	75	223.6
Source: FTA 2018		

<b>Noise Level at Nearest Sensitive Receptor</b>	<b>Distance (ft)</b>	<b>Noise Level</b>
Spunkmeyer Field	200	76.0
Corica Park golf Course	500	68.0