

## 4. NOISE SCREENING PROCEDURE

The noise screening procedure is designed to identify locations where a project may cause noise impact. If no noise-sensitive land uses are present within a defined area of project noise influence, then no further noise assessment is necessary. This approach allows the focusing of further noise analysis on locations where impacts are likely. The screening procedure takes account of the noise impact criteria, the type of project and noise-sensitive land uses. For screening purposes, all noise-sensitive land uses are considered to be in a single category.

### 4.1 SCREENING DISTANCES

The distances given in Table 4-1 delineate a project's noise study area. The areas defined by the screening distances are meant to be sufficiently large to encompass all potentially impacted locations. They were determined using relatively high-capacity scenarios for a given project type. Data used in the calculations are listed in Table 4-2 as assumptions based on operations of a given project type and using the lowest threshold of impact, 50 dB, from the criteria curves in Figure 3-1. These distances can be scaled up or down for different sized projects by use of the methodology in Chapter 5, General Noise Assessment. FTA provides an Excel spreadsheet program to assist in these adjustments. The Federal Railroad Administration horn noise model is used to develop the screening distance at commuter rail grade crossings where horns and warning bells are used.<sup>(1)</sup>

The noise screening procedure is applicable to all types of transit projects. The types of projects listed in Table 4-1 cover nearly all of the kinds of projects expected to undergo environmental assessment. Clarification can be obtained from FTA on any special cases that are not represented in the table.

## **4.2 STEPS IN SCREENING PROCEDURE**

The screening method works as follows:

- Determine the type of project and locate on Table 4-1.
- Review assumptions in Table 4-2. Make adjustments in screening distances to suit the project through the use of the methodology in Chapter 5, or the FTA spreadsheet model. The appropriate screening distance is where the project noise reaches 50 dBA for the descriptor shown.
- Determine the appropriate column under Screening Distance in Table 4-1. If buildings occur in the sound paths, then use the distances under Intervening Buildings. Otherwise use the distances under "Unobstructed".
- Note the distance in feet for that project in Table 4-1, or in the adjusted values obtained from Step 2. Apply this distance from the guideway centerline or nearest right-of-way line on both sides of a highway or access road. For small fixed facilities apply the distance from the center of the noise-generating activity. In the case of a fixed facility spread out over a large area, apply the distance from the outer boundary of the proposed project site.
- Within the distance noted above, locate any of the noise-sensitive land uses listed in Table 3-2.
- If it is determined that none of the listed land uses are within the distances noted in Table 4-1, then no further noise analysis is needed. On the other hand, if one or more of the noise-sensitive land uses are within the screening distances noted in Table 4-1, as adjusted, then further analysis is needed and the procedure described in Chapter 5 is followed.

<b>Table 4-1. Screening Distances for Noise Assessments</b>			
<b>Type of Project</b>		<b>Screening Distance* (ft)</b>	
		<b>Unobstructed</b>	<b>Intervening Buildings</b>
<b>Fixed Guideway Systems:</b>			
Commuter Rail Mainline		750	375
Commuter Rail Station	With Horn Blowing	1,600	1,200
	Without Horn Blowing	250	200
Commuter Rail-Highway Crossing with Horns and Bells		1,600	1,200
Rail Rapid Transit		700	350
Rail Rapid Transit Station		200	100
Light Rail Transit		350	175
Access Roads		100	50
Low- and Intermediate-Capacity Transit	Steel Wheel	125	50
	Rubber Tire	90	40
	Monorail	175	70
Yards and Shops		1000	650
Parking Facilities		125	75
Access Roads		100	50
Ancillary Facilities			
Ventilation Shafts		200	100
Power Substations		250	125
<b>Bus Systems:</b>			
Busway		500	250
BRT on exclusive roadway		200	100
Bus Facilities	Access Roads	100	50
	Transit Mall	225	150
	Transit Center	225	150
	Storage & Maintenance	350	225
	Park & Ride Lots w/Buses	225	150
<b>Ferry Boat Terminals:</b>		300	150
*Measured from centerline of guideway/roadway for mobile sources; from center of noise-generating activity for stationary sources.			

<b>Table 4-2. Assumptions for Screening Distances for Noise Assessments</b>				
<b>Type of Project</b>		<b>Operations</b>	<b>Speeds</b>	<b>Descriptor</b>
<b><i>Fixed Guideway Systems:</i></b>				
Commuter Rail Mainline		66 day /12 night; 1 loco, 6 cars	55 mph	Ldn
Commuter Rail Station	With Horn Blowing	22 day / 4 night	N/A	Ldn
	W/O Horn Blowing	22 day / 4 night	N/A	Ldn
Commuter Rail-Highway Crossing with Horns and Bells		22 day / 4 night	55 mph	Ldn
Rail Rapid Transit		220 day / 24 night; 6-car trains	50 mph	Ldn
Rail Rapid Transit Station		220 day / 24 night	20 mph	Ldn
Light Rail Transit		150 day / 18 night; 2 artic veh.	35 mph	Ldn
Access Roads to Stations		1000 cars, 12 buses	35 mph	PH Leq*
Low- and Intermediate-Capacity Transit	Steel Wheel	220 day / 24 night	30 mph	Ldn
	Rubber Tire	220 day / 24 night	30 mph	Ldn
	Monorail	220 day / 24 night	30 mph	Ldn
Yards and Shops		20 train movements	N/A	PH Leq
Parking Facilities		1000 cars	N/A	PH Leq
Access Roads to Parking		1000 cars	35 mph	PH Leq
<b>Ancillary Facilities</b>				
Ventilation Shafts		Rapid Transit in Subway	50 mph	Ldn
Power Substations		Sealed shed, air conditioned	N / A	Ldn
<b><i>Bus Systems:</i></b>				
Busway		30 buses, 120 automobiles	50 mph	PH Leq
BRT on exclusive roadway		30 buses	35 mph	PH Leq
Bus Facilities	Access Roads	1000 cars	35 mph	PH Leq
	Transit Mall	20 buses	N/A	PH Leq
	Transit Center	20 buses	N/A	PH Leq
	Storage & Maintenance	30 buses	N/A	PH Leq
	Park & Ride Lots w/Buses	1000 cars, 12 buses	N/A	PH Leq
<b><i>Ferry Boat Terminals:</i></b>		8 boats with horns used in normal docking cycle	N/A	PH Leq

\* PH Leq = hour of maximum transit activity

## REFERENCES

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1. U.S. Department of Transportation, Federal Railroad Administration. "Final Environmental Impact Statement: Interim Final Rule for the Use of Locomotive Horns at Highway-Rail Grade Crossings; Technical Supplement to DEIS and Chapter 3.4," Office of Railroad Development, Washington, D.C., December 5, 2003. Also see: <http://www.fra.dot.gov/downloads/RRDev/hornmodel.xls>.

