

4.15 Noise

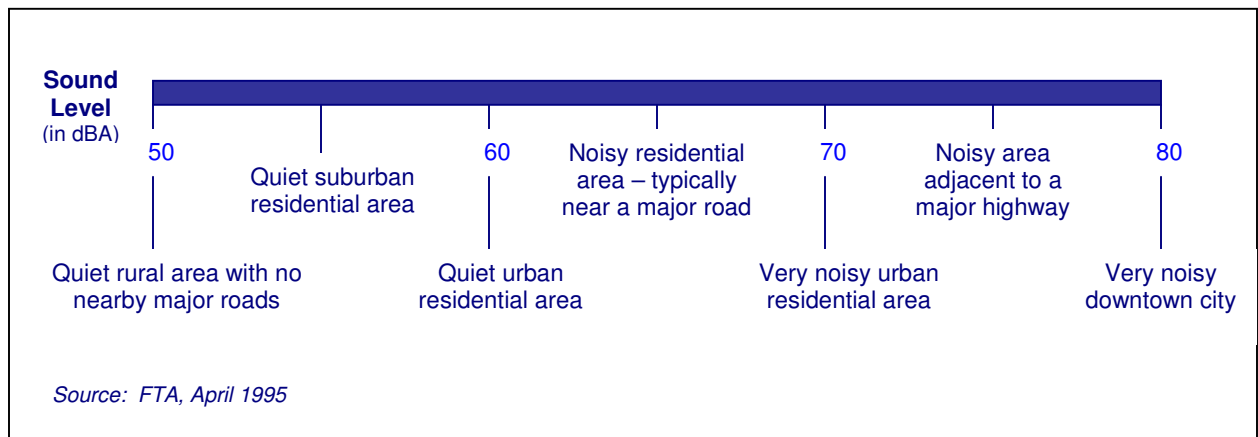
4.15.1 Introduction

This section presents the applicable noise standards and criteria, and determines whether or not a detailed analysis is required to identify project-related noise impacts.

4.15.2 Background

Environmental noise is defined as the sound in a community emanating from man-made sources such as automobiles, trucks, buses, aircraft, trains, and fixed industrial sources, or from natural sources such as animals and wind. Sound levels are measured in logarithmic units called decibels (dB). An overall measurement of sound results in a single decibel value that describes the sound environment, taking all frequencies (itches) into account. The human ear, however, does not sense all frequencies in the same manner. The “A”-weighted scale (expressed in dBA units) was developed to closely approximate the human sensory response from highway-related noise. A list of typical community sound levels is shown in Figure 4.15-1.

Figure 4.15-1 Typical Community Sound Levels



4.15.3 FTA Noise Impact Criteria

The U.S. Department of Transportation, Federal Transit Administration (FTA) has published the most recent guidance manual for the assessment of noise impacts in transportation projects, *Transit Noise and Vibration Impact Assessment*, April 1995. It is noted that FTA guidelines are not applicable to the proposed project since there would be no federal funding involved. Nevertheless, FTA guidelines were utilized in the study because there are no applicable state and local noise and vibration guidelines. The impact criteria for transit projects are expressed for the three following land use categories:

- Category 1:** Tracts of land where quiet is an essential element for their intended purpose. This category includes tracts of land set aside for serenity and quiet and such land uses as outdoor concert pavilions, as well as National Historical Landmarks with significant outdoor use.
- Category 2:** Residential – This category covers all residential land uses and any buildings where people sleep, such as hotels and hospitals.
- Category 3:** Institutional – This category includes schools, parks, libraries, cemeteries, and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading.

To determine the noise impacts from the proposed Meadowlands Railroad and Roadway Improvement Project the predicted project sound levels are compared to existing sound levels at noise sensitive locations throughout the corridor. For land uses involving primarily daytime activities, Category 1 and 3 uses, the descriptor L_{eq} is used. The equivalent continuous level, L_{eq} , is the logarithmic average of the varying sound levels during a defined period of time, normally one hour. For land uses where nighttime sensitivity is a factor, Category 2 uses, L_{dn} is used. L_{dn} applies a 10 dBA penalty to nighttime sound levels between the hours of 10:00 PM and 7:00 AM to account for the increased noise-sensitivity of people during nighttime hours, then logarithmically averages the sound levels over a 24-hour period.

These criteria do not apply to industrial or commercial areas since they are generally compatible with higher noise levels. Table 4.15-1 shows the range of project related sound levels that would cause an impact or severe impact in relation to the existing sound level.

Table 4.15-1 FTA Noise Impact Criteria (dBA)

Existing Noise Exposure*	Sound Level of Project Noise That Would Cause Impact/Severe Impact			
	Category 1 (in L _{eq}) or Category 2 (in L _{dn}) Sites		Category 3 Sites	
	Impact	Severe Impact	Impact	Severe Impact
47-48	53-59	>59	58-64	>64
49-50	54-59	>59	59-64	>64
51	54-60	>60	59-65	>65
52-53	55-60	>60	60-65	>65
54	55-61	>61	60-66	>66
55	56-61	>61	61-66	>66
56	56-62	>62	61-67	>67
57-58	57-62	>62	62-67	>67
59-60	58-63	>63	63-68	>68
61-62	59-64	>64	64-69	>69
63	60-65	>65	65-70	>70
64	61-65	>65	66-70	>70
65	61-66	>66	66-71	>71
66	62-67	>67	67-72	>72
67	63-67	>67	68-72	>72
68	63-68	>68	68-73	>73
69	64-69	>69	69-74	>74
70	65-69	>69	70-74	>74
71	66-70	>70	71-75	>75
72-73	66-71	>71	71-76	>76

* L_{eq} is used as the descriptor for Category 1 and 3 sites, and L_{dn} is used for Category 2 sites, where nighttime sensitivity is a factor.

Source: FTA's Transit Noise and Vibration Impact Assessment (April 1995).

4.15.3 Impact Screening

The FTA noise screening procedure identifies whether a project has the possibility of noise impact. FTA defines screening distances sufficiently large to encompass all potential impact areas. The screening distance for a commuter rail mainline is 750 feet, and for a commuter rail station is 450 feet. As discussed above, the land use categories discussed above do not cover industrial or commercial areas. Given the proposed project's location within the Meadowlands Sports Complex, there are no sensitive receptors such as residences or community facilities located within 750 feet of the proposed rail alignment, or 450 feet of the proposed station site. Due to the distance between the project and the sensitive receptors, the proposed project does not meet the criteria for potential impacts; therefore, no further analysis is warranted.