

Federal Transit Administration Noise Impact Criteria

The criteria in the FTA Guidance Manual for Transit Noise and Vibration Impact Assessment are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. The amount that the transit project is allowed to change the overall noise environment is reduced with increasing levels of existing noise. The FTA Noise Impact Criteria groups noise sensitive land uses into the following three categories:

- Category 1: Buildings or parks where quiet is an essential element of their purpose.
- Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.
- Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches and office buildings.

L_{dn} is used to characterize noise exposure for residential areas (Category 2) and maximum 1-hour L_{eq} during the period that the facility is in use is used for other noise sensitive land uses such as school buildings (Categories 1 and 3).

There are two levels of impact included in the FTA criteria. The interpretation of these two levels of impact are summarized below:

- **Severe Impact:** Severe noise impacts are considered "significant" as this term is used in the National Environmental Policy Act (NEPA) and implementing regulations. Noise mitigation will normally be specified for severe impact areas unless there is no practical method of mitigating the noise.
- **Impact:** In this range, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-indoor sound insulation, and the cost effectiveness of mitigating noise to more acceptable levels.

The noise impact criteria for transit operations are summarized in Table 1. The first column shows the existing noise exposure and the remaining columns show the additional noise exposure caused by the transit project that is necessary for the two levels of impact. The future noise exposure would be the combination of the existing noise exposure and the additional noise exposure caused by the transit project. Table 2 gives the information from Table 1 in a slightly different form, in terms of the allowable increase in cumulative noise exposure (noise from existing sources plus project noise) as a function of existing noise exposure. As the existing noise exposure increases, the amount of the allowable increase in the overall noise exposure caused by the Project decreases. The noise impact criteria for transit operations are also summarized in Figure 1.

Table 1FTA Noise Impact Criteria
(all noise levels in dBA)

Existing Noise Exposure L_{eq} or L_{dn} ⁽¹⁾	Project Noise Exposure Impact Thresholds, L_{dn} or L_{eq} ⁽¹⁾			
	Category 1 or 2 Sites		Category 3 Sites	
	<i>Impact</i>	<i>Severe Impact</i>	<i>Impact</i>	<i>Severe Impact</i>
<43	Amb.+10	Amb.+15	Amb.+15	Amb.+20
43-44	52	58	57	63
45	52	58	57	63
46-47	53	59	58	64
48	53	59	58	64
49-50	54	59	59	64
51	54	60	59	65
52-53	55	60	60	65
54	55	61	60	66
55	56	61	61	66
56	56	62	61	67
57-58	57	62	62	67
59-60	58	63	63	68
61-62	59	64	64	69
63	60	65	65	70
64	61	65	66	70
65	61	66	66	71
66	62	67	67	72
67	63	67	68	72
68	63	68	68	73
69	64	69	69	74
70	65	69	70	74
71	66	70	71	75
72-73	66	71	71	76
74	66	72	71	77
75	66	73	71	78
76-77	66	74	71	79
>77	66	75	71	80

Note:

(1) L_{dn} is used for land uses where nighttime sensitivity is a factor; Daytime L_{eq} is used for land use involving only daytime activities.

Table 2FTA Noise Impact Criteria
(all noise levels in dBA)

Existing Noise Exposure L_{eq} or L_{dn} ⁽¹⁾	Allowable Cumulative Noise Level Increases, L_{eq} or L_{dn} ⁽¹⁾			
	Category 1 or 2 Sites		Category 3 Sites	
	<i>Impact</i>	<i>Severe Impact</i>	<i>Impact</i>	<i>Severe Impact</i>
45	8	14	12	19
46	7	13	12	18
47	7	12	11	17
48	6	12	10	16
49	6	11	10	16
50	5	10	9	15
51	5	10	8	14
52	4	9	8	14
53	4	8	7	13
54	3	8	7	12
55	3	7	6	12
56	3	7	6	11
57	3	6	6	10
58	2	6	5	10
59	2	5	5	9
60	2	5	5	9
61	1.9	5	4	9
62	1.7	4	4	8
63	1.6	4	4	8
64	1.5	4	4	8
65	1.4	4	3	7
66	1.3	4	3	7
67	1.2	3	3	7
68	1.1	3	3	6
69	1.1	3	3	6
70	1.0	3	3	6
71	1.0	3	3	6
72	0.8	3	2	6
73	0.6	2	1.8	5
74	0.5	2	1.5	5
75	0.4	2	1.2	5

Note:

(1) L_{dn} is used for land uses where nighttime sensitivity is a factor; Daytime L_{eq} is used for land use involving only daytime activities.

