FDM 23-10-1 Guidelines

July 28, 2011

Regardless of the type of environmental document required for a project, some level of noise impact discussion is necessary. However, the analysis detail and method in which it is reported may differ.

1.1 Type I Projects

A Type I project is defined as;

1. The construction of a highway on new location; or,
2. The physical alteration of an existing highway where there is either:
    1. Substantial horizontal alteration – The project halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or,
    2. Substantial vertical alteration – The project removes shielding therefore exposing the line-of-sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor; or,
3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a High-Occupancy Vehicle (HOV) lane, High-Occupancy Toll (HOT) lane, bus lane, or truck climbing lane; or,
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or,
5. The addition or relocation of an interchange lane(s) or ramp(s) added to a quadrant to complete an existing partial interchange; or,
6. Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane; or,
7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza.
8. If a project is determined to be a Type I project under this definition then the entire project area as defined in the environmental document is a Type I project.

    Care should be exercised in scoping a proposed project to ensure that the termini of the project evaluated in the environmental document only include actions meeting the definition of a Type I project. For example, a proposal to relocate an interchange ramp should not be included as part of an environmental document being used to evaluate a pavement replacement project even if that interchange is located between the termini of the pavement replacement project.

1.2 WisDOT Retrofit Projects

WisDOT Retrofit Projects are state-funded, stand-alone noise abatement projects on an existing highway, proposed and constructed as identified in the Wisconsin Noise Barrier Study, Summary Report, May 29, 1990. Also known as the WisDOT Retrofit Noise Barrier Program.

WisDOT does not have a federally-funded Type II program.

1.3 Type III Projects

Type III projects are projects that do not meet Type I or WisDOT Retrofit Project criteria. Type III projects do not require a detailed analysis. Standard verbiage (see FDM 23-45-5) should be used in the environmental document for Type III projects.

1.4 Type I Projects Requiring a Detailed Analysis

The purpose of conducting a detailed noise analysis for a Type I project is to determine the comparative impacts of the proposed action to assist in selecting the preferred alternative and to consider design modifications that may mitigate impacts as required.

Proposed Type I projects require a detailed project analysis for noise with the following exception;

1. The addition of a new or substantial alteration of a weigh station, rest stop or ride-share lot requires some level of noise analysis. The determination of the appropriate level of noise analysis shall be

made in consultation with the Central Office Noise Engineer and the FHWA Wisconsin Division Office (if federal funding is used for the project).

To fulfill the detailed analysis requirements for Type I projects, existing sound levels must be determined by measurement and/or by computer modeling (see FDM 23-20-5, FDM 23-20-10, and FDM 23-25-5). Future sound levels are predicted by implementing the FHWA model (see FDM 23-25-1 and FDM 23-25-5). Noise impacts are then determined from the existing and future sound levels (see FDM 23-30-1).

Traffic volumes and geometric data are obtained within the project limits. For the complete analysis, use the worst case (see FDM 23-15-1) traffic condition for the existing year and the design year. The vehicle mix for both years must be compiled into a minimum of three categories: automobiles, medium trucks, and heavy trucks (buses and motorcycles will also be categorized if the numbers are substantial). Receptors must be located at representative sites in the project area. A description of this process is detailed in FDM 23-25-1 and FDM 23-25-5.

Once the existing and future sound levels are established, the impact of the sound upon the receptors and the criteria for which mitigation should be considered must be determined according to FDM 23-30-1. Abatement can be evaluated using FDM 23-25-5 and FDM 23-35-10.

1.5 WisDOT Retrofit Projects Requiring a Detailed Analysis

All proposed WisDOT Retrofit Projects being initiated as part of the Wisconsin Noise Barrier Study require a detailed noise analysis.

To fulfill the detailed analysis requirements for WisDOT Retrofit Projects, existing sound levels must be determined by measurement and/or by computer modeling (see FDM 23-20-5, FDM 23-20-10, and FDM 23-25-5). Abatement is then evaluated using FDM 23-35-5 and FDM 23-35-10.

1.6 Construction Noise Analysis

A construction noise analysis must also be undertaken (see FDM 23-40-1).

1.7 Notification of Local Officials

Notification of local officials must occur, as appropriate (see FDM 23-50-1).