

MDOT Highway Noise Analysis and Abatement Handbook

Special Notes *are in Italics*

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5.0 STEP 5 – Construction Noise Consideration

Construction noise should be addressed as part of the development of any transportation facility. Roadway construction is often conducted in proximity to residences and businesses and should be controlled and, if necessary, monitored in order to avoid excessive impacts. The reaction by a community to construction-generated noise can threaten construction schedules. In general, a project's schedule can be maintained by balancing the type, time of day, and duration of construction activities; considering the intent of local noise control requirements; and being proactive to community concerns.

For MDOT projects, potential construction-related noise impacts from transportation improvement projects should be evaluated on a project-by-project basis, considering land uses/activities identified, construction measures being used, and public concern. The level of analysis can range from qualitative to quantitative analyses, depending on the anticipated level of impact. Consult with the Lansing Office in determining the level of construction noise analysis and possible associated activities.

5.1 FHWA Roadway Construction Noise Model (RCNM)

To aid in the analysis of construction-related noise impacts, the FHWA has developed the FHWA Highway Construction Noise Handbook and the FHWA Roadway Construction Noise Model (RCNM) for the prediction of construction-related noise. This model is not required for use on federal-aid projects; however, it can be used for the prediction of construction noise during the EPE and PE Phases. The FHWA RCNM predicts noise from construction operations based on a compilation of empirical data and the application of acoustical propagation formulas. It enables the calculation of construction noise levels in more detail than manual methods while avoiding the need to collect extensive amounts of project-specific input data. The Highway Construction Noise Handbook and the RCNM are available online through the FHWA's Web site at:

http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook00.cfm

5.2 Source Control

In devising construction noise-control strategies, an important option is to control the noise at the source. By specifying and/or using less noisy equipment, the noise impacts produced by construction of a highway facility can be greatly reduced or even eliminated. Source control requirements may have the added benefit of promoting technological advances in the development of quieter equipment. Additional options to reduce anticipated construction-related noise impacts should focus on limiting the time of day or allowable duration for specific activities in noise-sensitive areas or planning construction staging-areas in a practical way, away from noise-sensitive areas and activities.

If the project activity includes any nighttime (10pm-7am) construction or demolition of any bridges at any location near a residential area, special measures should be considered to reduce the potential for sleep disruption. The FHWA Handbook also addresses nighttime construction activity.

NOTE – *Construction Noise-Related Coordination with Locals*

When construction noise is an issue, the Region should coordinate with the communities and local municipalities to establish periods of time when construction activities that cause high noise levels should not occur. Any time construction noise specifications are required to be included, detailed coordination is suggested with MDOT and the local municipality. The residents adjacent to the barriers will be notified 2 weeks prior to any barrier construction activity.

5.3 Construction Noise Documentation

Based on the degree of information available at this phase, the effects of construction noise should be documented in the Environmental Clearance document and Final Design Highway Traffic Noise Report. In doing so, the temporary nature of the impacts should be noted. An indication of the types of construction activities that can be anticipated and the noise levels typically associated with these activities can be obtained from existing literature or from the FHWA RCNM. Utilizing a common-sense approach, traffic noise analyses should identify measures to mitigate potential highway construction noise impacts. Low-cost, easy to implement measures should be incorporated into project plans and specifications (e.g., work-hour limits, equipment muffler requirements, location of haul roads, elimination of “tail gate banging,” reduction of backing up for equipment with alarms, community rapport, complaint mechanisms). For example, the following language may be incorporated:

“Construction of the proposed project will result in a temporary increase in the ambient noise level in the vicinity of the roadway. The construction contract specifications should require that the contractor adhere with all Federal, state, and local noise abatement and control requirements. Construction noise on this project should be controlled by measures including but not limited to having construction equipment in good repair and fitted with "manufacturer recommended" mufflers.”

or

“The Michigan Department of Transportation is committed to abatement of construction noise at the locations identified in (Table, Figure, Chart, etc.) contingent on the following considerations:

1. detailed construction noise analysis and design considerations during the PE Phase;
2. community input regarding sequence of operations and time and activity constraints;
3. site and source control of construction; and
4. safety and engineering aspects.

It is likely that the noise abatement measures for the identified construction noise-impacted areas will be carried out if found to be feasible and reasonable based on the contingencies listed above.”