

## Sub-Part 8501 – Planning

### Chapter 03010 Highway Noise Studies

#### Purpose

- 100 Provides policies and procedures to implement the Mississippi Department of Transportation (MDOT) **Highway Traffic Noise Policy**, which was approved by the Federal Highway Administration, *23 Code of Federal Regulations Part 772 (23 CFR 772)*, on November 25, 1996.
- 101 Noise considerations are a part of the planning, design, and construction of highways. The planning phase considers alternate alignments to minimize noise impacts; the design phase considers site-specific measures of noise impacts; and during construction, emphasis is on minimizing disruption from construction noise. This policy will address both phases.

#### PURPOSE

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- 201 Noise considerations are a part of the planning, design, and construction of highways. The planning phase considers alternate alignments to minimize noise impacts; the design phase considers site-specific measures of noise impacts; and during construction, emphasis is on minimizing disruption from construction noise.
- 202 Two project types are specified in 23 CFR 772 as follows: Type I - defined as “a proposed Federal or Federalaid highway project for the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes”; Type II - defined as “a proposed Federal or Federal-aid highway project for noise abatement on an existing highway”. A Highway Traffic Noise Impact Study must be conducted for all Type I projects. The MDOT does not develop or implement Type II projects.
- 203 If during highway project construction noise impact is expected to occur, abatement measures to be considered include traffic management measures; alteration of horizontal and vertical alignments; acquisition of property rights for construction of noise barriers; construction of noise barriers; acquisition of property or interest therein to serve as buffer

zones; and noise insulation of public use or nonprofit institutional structures to meet interior standards.

- 204 The option presently given the most frequent consideration by MDOT and FHWA for abating noise impacts is the construction of noise barriers on highway rights-of-way in the area between the shoulder and the right-of-way limits. 23 CFR 772.11(e) requires that “before adoption of a final environmental impact statement or finding of no significant impact, the highway agency shall identify noise abatement measures which are reasonable and feasible and which are likely to be incorporated in the project”. MDOT considers the detailed policies and procedures contained in SECTION V of this document to be consistent with FHWA guidance and with 23 CFR 772.
- 205 Proper planning, design, and construction of highways can help reduce the impact of highway traffic noise; however, much of the burden for reducing highway traffic noise impact should involve control of vehicular noise at the source and proper land use planning and development to minimize noise sensitive development near highways. Since MDOT does not have any authority over vehicular noise or land use planning and development, MDOT can only encourage local, state, and Federal agencies having authority over vehicular noise, land use planning, and development to help reduce highway noise impact.

## I. HIGHWAY TRAFFIC NOISE IMPACT STUDY

- 300 MDOT will conduct a Highway Traffic Noise Impact Study for each alternative of Type I projects under detailed study. This study will be re-evaluated and updated during each subsequent phase of project development. The study will include the following:
1. **Identification of existing and planned noise sensitive land uses.** An inventory will be made of all existing activities, developed lands, and undeveloped lands for which development is planned, designed, and programmed, which may be affected by noise from the proposed highway. Proposed development will be considered planned, designed, and programmed on the date of issuance of building permits.
  2. **Determination of existing noise levels.** The determination of existing noise levels at the existing and planned noise sensitive land uses will be made by measuring and/or predicting Leq noise levels for the traffic characteristics which yield the worst hourly traffic noise impact on a regular basis. Normally at least one measurement will be made for every 20 noise sensitive land uses identified. Each house, church, school, apartment building, etc, will normally be considered to be a separate noise sensitive land use; however, several trailer houses in a trailer park or several businesses in the same building may be considered to be a single noise sensitive land use. Each measurement will be made for a period of at least fifteen minutes with an ANSI-Type 2 or better sound level meter or analyzer. Predictions will be made using a prediction method approved by the FHWA.
  3. **Prediction of design year noise levels.** The Leq noise levels will be predicted at existing and planned noise sensitive land uses for each alternative under detailed consideration including the no build alternative. The predictions will be made using a

prediction method approved by the FHWA. The predictions will be made for the traffic characteristics which yield the worst hourly traffic noise impact on a regular basis.

4. **Determination of traffic noise impacts.** Traffic noise impact will be determined at each existing and planned noise sensitive land use by comparing the predicted design year noise level with the Noise Abatement Criteria (NAC) of 23 CFR 772 and with the existing noise level. If the predicted design year noise level approaches (comes within 1 dBA) or exceeds the NAC noise impact will occur. Noise impact will also occur if the predicted design year noise level substantially exceeds the existing noise level (15 dBA or greater).
5. **Examination and evaluation of alternative noise abatement measures for reducing or eliminating noise impacts.** Noise abatement measures such as traffic management measures, changes in horizontal and vertical alignments, acquisition of property for buffer zones, noise insulation of public use or nonprofit institutional structures and construction of noise barriers will be considered. The feasibility and reasonableness of noise barriers is covered in detail in Section V.
6. **Preparation of noise study report.** A detailed noise study report will be prepared if noise impact is expected to occur at any locations along the route of the proposed project. If noise impact is not expected to occur in the vicinity of the proposed project, a short summary type noise study report will be prepared. The following will normally be included in a detailed noise study report:
  - INTRODUCTION
  - SUMMARY OF RESULTS
  - FUNDAMENTALS OF SOUND AND NOISE
  - NOISE IMPACT CRITERIA
  - NOISE LEVEL MEASUREMENTS
  - NOISE LEVEL ESTIMATES
  - TRAFFIC
  - EXISTING NOISE ENVIRONMENT
  - DESIGN YEAR NO-BUILD ALTERNATIVE NOISE ENVIRONMENT
  - DESIGN YEAR BUILD ALTERNATIVE NOISE ENVIRONMENT
  - TRAFFIC NOISE ABATEMENT
  - CONSTRUCTION NOISE ABATEMENT
  - FHWA POLICY REGARDING LAND USE DEVELOPMENT AND FUTURE NOISE ABATEMENT
  - TABLE NO. 1 EXTERIOR NOISE LEVELS
  - TABLE NO. 2 TRAFFIC DATA AND Leq CONTOURS
  - MAP PROPOSED PROJECT

## II. COORDINATION WITH LOCAL OFFICIALS

400 The lack of consideration of highway traffic noise in land use planning and development at the local level has added to the highway traffic noise problem. Many developments now experiencing high noise levels were constructed adjacent to major highways long

after these highways were proposed and constructed. Since MDOT does not have authority over land use planning and development, MDOT can only encourage local officials and developers to consider highway traffic noise in the planning, zoning, and development of property near existing and proposed highways.

- 401 In order to help local officials and developers consider highway traffic noise in the vicinity of proposed Type I projects, MDOT will include a copy of the noise study report in the Categorical Exclusion (CE), Environmental Assessment (EA), Finding of No Significant Impact (FONSI), or environmental Impact Statement (EIS) for the proposed project.

### III. FEASIBILITY AND REASONABLENESS OF NOISE BARRIERS FOR TYPE I HIGHWAY CONSTRUCTION PROJECTS FEASIBILITY

- 500 Feasibility deals with engineering considerations -- that is, can a substantial noise reduction be achieved given the conditions of a specific location. Is the ability to achieve noise reduction limited by: (1) topography; (2) access requirements for driveways, ramps, etc.; (3) the presence of local cross streets; or (4) other noise sources in the area, such as aircraft overflights? All these considerations affect the ability of noise barriers to achieve an actual noise reduction.

- 501 It is state policy that construction of a noise barrier is **NOT FEASIBLE** if a noise reduction of a least 5 dBA cannot be achieved.

### REASONABLENESS

- 502 Reasonableness is a more subjective criterion than feasibility. It implies that common sense and good judgment have been applied in arriving at a decision. Reasonableness should be based on a number of factors, with regard for all of the individual, specific circumstances of a particular project. It is state policy that the final determination of reasonableness will be made only after a careful and thorough consideration of a wide range of criteria. However, noise barriers will definitely not be built if a majority of affected residents do not want them.

- 503 The following criteria will normally be used to determine the reasonableness of a noise barrier:

1. Each barrier should reduce the noise level by at least 5 dBA at 4 or more residences that are expected to receive noise impact. It is state policy that construction of a noise barrier is **NOT REASONABLE** unless the noise barrier will reduce the noise level by at least 5 dBA at 4 or more residences that are expected to receive noise impact.
2. The residences were constructed or the building permits were issued before the date of public knowledge of the proposed highway project. It is state policy that construction of a noise barrier is **NOT REASONABLE** if the residences were not

constructed or the building permits were not issued before the date of public knowledge of the project. The date of public knowledge is the date the public is officially notified of the adoption of the location of a proposed highway project. This date is considered to be the date of approval of CEs, FONSI, or RODs when considering highway traffic noise and highway traffic noise abatement.

3. A majority of impacted residents who will benefit from the noise barrier want a noise barrier (conduct a public meeting for impacted residents who would benefit from a noise barrier, then conduct a survey or obtain a letter from local officials or a community group stating residents' desire; also, encourage local officials to include highway traffic noise in the land use planning process for added noise abatement consideration). It is state policy that construction of a noise barrier is **NOT REASONABLE** unless a majority of impacted residents who will benefit (a noise reduction of 5 dBA or more) from the noise barrier want a noise barrier even if all other criteria indicate that a noise barrier is reasonable.
4. The barrier cost is no more than \$20,000/residence. All residences with noise reductions of 5 dBA or more will be counted. Each apartment unit will be counted as 1 residence. The barrier cost will include the cost of construction (material and labor), the cost of additional right-of-way, the additional cost of relocating utilities, and any other costs associated with the barrier.
5. The housing development predated initial highway construction -- "most" impacted homes were built before construction of the present highway.
6. The future build noise levels are at least 66 dBA. Even if the noise levels are expected to increase by more than 15 dBA noise barriers should normally not be constructed unless the future build noise levels are at least 66 dBA.
7. The future build noise levels are at least 5 dBA greater than the existing noise levels.
8. The future build noise levels are at least 3 dBA greater than the future no-build noise levels.
9. Additional factors which can not be anticipated may also be considered in determining the reasonableness of a noise barrier, for example: (1) animal migratory paths; (2) existing zoning; (3) the potential for land use change in the area; (4) controls put in place by local officials to control incompatible development adjacent to highways; and (5) cultural resources such as historic places.

#### IV. EXTENUATING CIRCUMSTANCES

- 600 There may be extenuating circumstances where unique or unusual conditions warrant special consideration of highway traffic noise impacts and/or implementation of noise abatement measures. These circumstances could involve areas such as (1) those that are extremely noise-sensitive, (2) those where severe traffic noise impacts are anticipated, or (3) those containing Section 4(f) resources. Extenuating circumstances will be considered on an individual basis.
- 601 On June 18, 1996, the MDOT adopted a Highway Noise Policy. Also adopted within this policy is a Noise Barrier Evaluation form, which is the standard utilized by the

Department. This form may be obtained by contacting the State Planning Engineer at Post Office Box 1850, Jackson, MS 39215.