

APPENDIX B
Michigan State Transportation Commission Policy on Noise and
MDOT's *Procedures and Rules for Implementation*



STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
LANSING

JENNIFER M. GRANHOLM
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The enclosed package contains the State Transportation Commission's Policy on Noise Abatement (Guidance Document 10136), as well as the Michigan Department of Transportation's (MDOT) *Procedures and Rules for Implementation* of this policy. The *Procedures and Rules for Implementation* defines the requirements for a site to be considered for noise abatement under both the Type I and Type II Noise Mitigation Programs. This new policy went into effect on July 19, 2002 (revised on July 31, 2003), and includes changes in both mitigation programs from the 1996 policy. One change delineated in both programs will require local authorities to have compatible land use zoning and/or building regulations in-place precluding future noise abatement needs before they will be considered for a current noise abatement project. This is the only major change to the Type I Program, a federally mandated program, which requires MDOT to consider noise mitigation for new construction and capacity improvement projects. The policy states that MDOT must follow all federal laws, regulations and guidelines for Type I noise abatement, and the promulgated rules define the exact operating parameters MDOT has established to meet federal guidelines.

The Type II Program is a voluntary program in which MDOT participates. It has changed substantially. Please review all the rules to be sure the site for which you are applying meets the requirements. For example, local governments or authorities are required to provide 10 percent of the total cost for noise abatement. Local authorities will be required to apply annually for a specific site and provide data on that site. From those applications, a formula will be used to assign a priority number to each site. The derived formula provides potential mitigation to the greatest number of the most severely affected residences, using the least amount of money. The higher the priority number, the more likely mitigation may be provided. The application form referred to in the *Procedures and Rules for Implementation*, along with instructions for completing it, is available at <http://www.mdot.state.mi.us/webforms/public/1871.pdf>. Application forms must be received by October 1, 2008, to be considered for fiscal year 2011 funding. Once the evaluation process has been completed, you will be notified of your eligibility.

If you have any questions or require additional information, please do not hesitate to contact our Construction and Technology Support Area's Environmental Noise Group at 517-322-6138.

Sincerely,

Brenda J. O'Brien, P.E.
Engineer of Construction and Technology

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	COMMISSION POLICY	IDENTIFIER		EFFECTIVE DATE	
		10136		July 31, 2003	
		SUPERCEDES DATED			
		July 19, 2002			
RESPONSIBLE ORGANIZATION: Executive Bureau					
SUBJECT: Noise Abatement					

Federal environmental regulation 23 CFR 772 defines two types of projects. Type I is “a proposed federal or federal-aid 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” (23 CFR 772.5[h]). If noise impacts are identified, noise abatement measures must be considered and implemented where reasonable and feasible. The Michigan Department of Transportation (MDOT) follows all Federal laws, regulations, and guidelines for Type I noise abatement.


Type II, or voluntary, abatement is a proposed federal or federal-aid highway project for noise abatement on an existing highway.

This policy addresses Type II noise abatement to limit the intrusion of highway noise into adjacent residential areas to reasonably achievable levels consistent with the U.S. Department of Transportation’s Code of Federal Regulations (CFR), and taking into consideration MDOT’s life-cycle cost analysis and safety requirements, as well as other technical and financial implications. To achieve this objective the Michigan State Transportation Commission (Commission) supports the following four approaches to alleviate traffic noise impacts:

1. ***Reduction of Noise at the Source.*** Reduction of traffic noise by design or treatment of the road surface is the most cost-effective noise control available to MDOT. Within the group of noise abatements that are reasonable and feasible under 23 CFR 772, and after MDOT’s life-cycle cost analysis has selected a pavement type and other technical and financial constraints, MDOT will use the quietest surface texture available when repaving/reconstructing a freeway in residential areas.

2. ***Noise Abatement.*** MDOT will attempt to locate, design, construct and operate state highways to minimize the intrusion of traffic noise into adjacent areas. When noise impacts occur, they may be attenuated by the most reasonable and prudent means.

MDOT will construct Type II sound walls only in years when MDOT’s Road and Bridge Program, excluding maintenance, exceeds \$1.0 billion, adjusted to the Consumer Price Index (CPI) using 2002 as the base year. MDOT will not spend more than one half of one percent of the budget on sound walls. MDOT will give priority to those communities where the freeway was constructed through an existing neighborhood and where 80 percent or more of the existing residential units were there prior to the construction of the freeway. Communities must make application to MDOT and provide a local match of 10 percent of the cost of the sound wall.

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3. ***Encouraging Compatible Adjacent Land Use.*** Cities and counties have the power to control development by adoption of land-use plans and zoning, and by subdivision, building or housing regulations. The Commission encourages those who plan and develop land, and local governments controlling development or planning land use near known freeway locations, to exercise their powers and responsibility to minimize the effect of highway vehicle noise through appropriate land-use control. Where such land-use regulations are not in place, cities, townships and counties will not be eligible for MDOT noise mitigation assistance.

4. ***Noise Abatement by Others.*** The Commission encourages developers and local governments to coordinate their efforts to mitigate highway noise. This effort must be done without encroachment of MDOT's property right-of-way unless it is determined to be necessary, and authority granted to permit others to construct a sound barrier in the state's right-of-way. The barrier's design must meet MDOT's geometric, structural, safety and maintenance standards. MDOT shall assume no review authority or responsibility of any kind for the structural integrity or the effectiveness of a sound barrier constructed by others.

MDOT will monitor noise mitigation best practices in other states and provide an activity report to the Commission annually.

The Department shall develop instructions for the implementation of this policy.
Adopted by the Michigan State Transportation Commission on July 31, 2003.

**MICHIGAN DEPARTMENT OF TRANSPORTATION'S
Procedures and Rules for Implementation
of
State Transportation Commission Policy 10136
Noise Abatement**

The following contains the procedures and rules for implementation of the Michigan Department of Transportation (MDOT) Commission Policy 10136, dated July 31, 2003. These rules are based on the Federal Highway Administration's (FHWA) *Highway Traffic Noise Analysis and Abatement Policy and Guidance* document of June 1995.

Definitions

Application

The request for Type II noise abatement.

Benefiting Dwelling Unit

A dwelling unit receiving 5 dBA Leq noise reduction or more.

Date of Public Knowledge

The date that the freeway construction project's final environmental analysis and documentation (i.e., Categorical Exclusion [CE], Finding of No Significant Impact [FONSI], or Record of Decision [ROD]) was approved by FHWA.

dBA

An A-weighted sound level on the logarithmic scale.

Dwelling Unit

Any room or set of rooms used as a living space by one or more persons. Public use areas such as parks, schools, libraries, and churches shall be counted as 10 dwelling units for each occurrence when they are within or adjacent to residential dwelling unit boundaries.

Feasible

This term refers to engineering considerations, such as can a noise barrier be built given the topography of the location; can a substantial noise reduction be achieved given certain access, drainage, safety, or maintenance requirements; are other noise sources present in the area? While every reasonable effort should be made to obtain a substantial noise reduction, a noise abatement measure is not feasible if it cannot achieve at least a 5 dBA noise reduction.

Leq

The ambient or steady state sound level. An averaging technique is used to produce an equivalent continuous sound level, Leq. For example, if a one hour sound measurement were taken and all the higher levels that occurred were used to fill in all the lower levels so the sound level would be the same for the whole hour, the result would be an equivalent sound level for one hour or Leq 1 h.

Noise Abatement Criteria (NAC)

See Appendix A.

Noise Impact

Where noise levels are one dBA below or greater than the federal noise abatement criteria, as shown in Appendix A, or are expected to increase 10 dBA above existing noise levels for existing conditions, as measured with a sound level meter.

Planned Development

A planned, designed, and programmed development where a building permit has been issued.

Reasonable

A noise mitigation project will be considered reasonable if the comparative construction cost will be \$38,060 or less (in 2007 dollars) per benefiting dwelling unit. Additionally, the local jurisdiction(s) must have entered into the required agreements with MDOT regarding maintenance, land use policy, and funding participation. A majority of the affected residents must be in favor of abatement.

If during final design, the project cost becomes not reasonable (construction costs exceed the total benefited amount of \$38,060 per unit), the local jurisdiction(s) will be asked if they wish to increase their financial participation in the noise abatement project to cover the excess cost per dwelling unit (the amount over \$38,060 per unit), or have noise abatement dropped from further consideration.

Substantial Noise Reduction

A ten dBA Leq sound level reduction for at least one receptor.

Type I Projects

A Type I project is a proposed federal-aid project for the construction of a highway on a new location or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes. State highway agencies are then required by federal regulations to perform a noise analysis and mitigate noise impacts where feasible and reasonable.

Type II Projects

A Type II project is a federal-aid project for noise abatement along existing highways at residential locations that were in existence prior to 1976. The following conditions must exist:

- Eighty percent of the dwelling units within 500 feet of a limited access highway preceded the highway or the last pre-1976 major capacity improvement.
- Zoning and building regulations are in place to preclude future noise abatement needs.
- The majority of the residents are in favor of noise abatement.

If noise abatement measures were previously determined to be unreasonable or unfeasible as part of a Type I project, the application will not be considered. Participation by MDOT is subject to State Transportation Commission Policy 10136, dated July 31, 2003.

Type I Projects Procedures and Rules

1. For a proposed highway project, a traffic noise analysis will be performed to determine if noise abatement is feasible and reasonable for developed land, undeveloped lands at planned development locations, and for local community land use planning.
2. Public meetings will be advertised in local news media and held in local facilities during the route location and planning stages of a roadway or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes, for the purpose of discussing the present and future environmental, social and economic impacts.
3. Comments on noise concerns will be solicited at public meetings from local residents, and officials of the jurisdiction(s) affected by the project. MDOT will use this information to draft the final environmental document. Once the final environmental document (i.e. CE, FONSI, or ROD) is approved by the FHWA, it is distributed to the local officials affected by the project to notify them of location approval. The FHWA approval date is the date of public knowledge.
4. If during final design the noise mitigation project is determined to be not reasonable, the local jurisdiction(s) will be asked if they wish to increase their financial participation in the noise abatement portion of the project to cover the cost per residence by the amount greater than \$38,060 as set forth in this document, or have noise abatement dropped from further consideration.
5. Noise abatement will only be provided when feasible and reasonable for residential land use locations, public land use (parks), and non-profit institutional facilities such as hospitals, libraries, schools, and churches. (Public use facilities will be equated to ten dwelling units each.)
6. All sites will be considered. However, it is generally known that commercial and industrial sites prefer that there be no interference with the view to their establishments. Therefore, when commercial and residential sites expected to convert to a commercial or industrial land use (e.g., some of the residential units have converted to commercial/industrial, or the area has been rezoned commercial) are found to be reasonable and feasible, they will be asked if they want noise abatement. If they do not want it, it will not be provided.
7. Where negative noise impacts are expected to occur, noise abatement will be considered and will be implemented if found feasible and reasonable for existing developments, and future developments were approved before the date of public knowledge. After the date of public knowledge, MDOT will not be responsible for providing noise abatement for

new developments. The provision of noise abatement for new developments becomes the responsibility of local governments and private developers.

8. All noise abatement will follow MDOT design standards.
9. MDOT will maintain the structural integrity of the noise abatement structure and will be responsible for the aesthetic condition of the structure on the freeway side only. The exception being that when the structure is on the residential side of a service road, MDOT will maintain the structural integrity for five years, but will not be responsible for either side of structure's aesthetic condition, including the surrounding grounds.
10. Local authorities must agree, through agreements, resolutions, or ordinances, to provide:
 - A share of the state and local funding based on population (per State of Michigan Act 51).
 - Aesthetic maintenance on the residential side of the structure, or on both sides when the structure is on the residential side of a service road.
 - Structural maintenance after five years when the structure is on the residential side of a service road.

Explanation of bullets two and three: These statements have been included because there is no right of way access to these walls for maintenance purposes.

Failure to meet all of the above requirements will make the noise abatement project unreasonable.

11. Where an extreme noise impact is identified (80 dBA Leq or greater), special consideration may be warranted. These sites will be considered on an individual basis.
12. The type of noise abatement feature must provide the benefiting dwellings with a reduction of 5 dBA Leq.

Type II Project Procedures and Rules

1. Applications (available at <http://www.mdot.state.mi.us/webforms/public/1871.pdf>) for Type II noise abatement projects will be considered by MDOT for each fiscal year when the road and bridge program exceeds \$1 billion, excluding routine maintenance. Applications must be renewed annually.
2. MDOT will analyze the area to determine the number of dwelling units impacted per guidelines defined in this document and estimate the cost of noise abatement. MDOT will furnish results of all noise analyses to local authorities.
3. A prioritized eligibility list will be developed using the following formula to rank sites for consideration.

$$\frac{\text{dBA above the NAC (see Appendix A)} \times \text{number of impacted dwelling units}}{\text{Total Cost} / \$100,000}$$

4. MDOT will develop noise abatement projects for the highest priority locations from the above annual list, within available funding limitations.
5. All noise abatement will follow MDOT design standards. Noise abatement will be provided along the shoulder only where a roadside barrier would otherwise be present.
6. MDOT will maintain the structural integrity of the noise abatement structure and will be responsible for the aesthetic condition of the structure on the freeway side only. The exception being that when the structure is on the residential side of a service road, MDOT will maintain the structural integrity for five years, but will not be responsible for either side of the structure's aesthetic condition.
7. If the project meets MDOT policy criteria, based on total project cost estimates, then local authorities, through agreements, resolutions, and/or ordinances, must agree to provide:
 - Ten percent of the cost of the noise abatement at the time of construction.
 - Aesthetic maintenance on the residential side of the structure or both sides when structure is on the residential side of a service road.
 - Structural maintenance after five years when the structure is on the residential side of a service road.
 - Have compatible land use zoning and/or building regulations in place precluding future noise abatement needs.

Failure to meet all of the above requirements will make the noise abatement project unreasonable.

Appendix A

Noise Abatement Criteria (NAC)¹			
Hourly A-Weighted Sound Level - decibels (dBA)*			
Activity Category	Leq(h)	L10(h)	Description of Activity Category
A	57 (Exterior)	60 (Exterior)	Lands of which serenity and quiet are of extraordinary significance, serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	70(Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.
* Either L10 (h) or Leq(h), but not both, may be used on a project.			

¹ Copied from FHWA publication *Highway Traffic Noise Analysis and Abatement Policy and Guidance* by the U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch, Washington, D.C., June 1995.