

**Kathleen VanPrice**

Environmental Process and  
Documentation Section  
WisDOT Central Office  
944 Vanderperren Way  
Green Bay, WI 54304-5344  
(920) 492-7175  
[Kathie.vanprice@dot.wi.gov](mailto:Kathie.vanprice@dot.wi.gov)

# Noise Barriers: What You Should Know

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## Noise barrier process

At the start of certain state highway projects, the Wisconsin Department of Transportation (WisDOT) determines noise impacts and evaluates possible mitigation measures, such as noise barriers. These projects are called Type I projects (additional information about Type I projects can be found on the opposite side of this brochure). After careful evaluation and a voting process, WisDOT installs noise barriers as part of Type I projects to minimize noise impacts.

Enclosed are frequently asked questions about noise barriers and their answers. This will help you understand WisDOT policy for installing noise barriers and how adjacent landowners and residents are involved.



Noise barrier on residential side.

## What do noise barriers look like?

Here's a sampling of noise barriers in Wisconsin communities.



I-39/90/94 at Cottage Grove Road near Madison.



Gray non-textured noise barrier

# FAQs

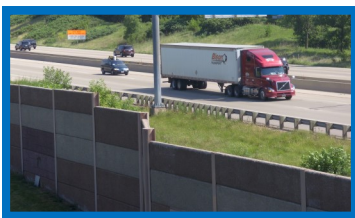
## Q. Why does WisDOT build noise barriers?

A. WisDOT's written noise policy requires a determination of noise impacts and evaluation of possible mitigation measures as part of a proposed Type I project.

## Q. What is a Type I project?

A. Type I projects include:

- Construction of a highway on a new location
- Physical alteration of an existing highway (that substantially changes either the horizontal or the vertical alignment)
- The addition of a through traffic lane or auxiliary lane that is 2500' or greater
- The addition or relocation of an interchange lane or ramp added to a quadrant to complete an existing partial interchange
- Restriping existing pavement to add a through lane
- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza



I-39/90/94 at Buckeye Road near Madison.

## Q. How does WisDOT determine when to provide noise abatement?

A. The latest version of the Traffic Noise Model (TNM)<sup>®</sup> is used to predict future traffic sound levels. Impacted locations are then considered for noise abatement measures.

## Q. What is an impacted receptor?

- A. An impacted receptor/listener or common use area is one with:
- A predicted future traffic sound level which approaches or exceeds the WisDOT Noise Level Criteria (NLC) for Considering Barriers for different land use categories. NLC is divided into land use categories that include residential areas, serene/quiet lands, parks, schools, hotels, offices, etc.
  - Or when predicted future traffic sound levels exceed existing levels by 15 decibels (dB) or more.

## Q. What measures to mitigate for the impact are considered?

- A. Project teams evaluate:
- Potential design and traffic modifications including prohibiting trucks or changing the horizontal or vertical alignment
  - Berms
  - Reasonable/feasible noise barriers

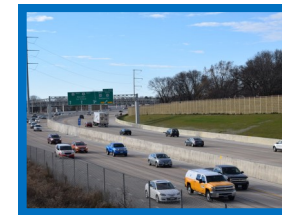
## Q. What does reasonable mean?

A. For a noise barrier to be reasonable, the total cost may not exceed \$50,000 per benefited receptor. To be considered benefitted, a receptor must receive a minimum of eight (8) dB noise reduction. In addition, a minimum of one (1) receptor or common use area must

achieve the department's noise reduction design goal of nine (9) dB.

## Q. What does feasible mean?

A. For a noise abatement measure to be feasible, a minimum of one impacted receptor or common use area must achieve a five (5) dB noise reduction. In addition, abatement that is feasible must be constructible, compatible with the project purpose and need, meet design criteria and guidance and not result in other impacts that would offset noise reduction benefits.



Madison Beltline (US 12/14) at Seminole Highway.

## Q. Does the public have any input?

A. Yes. A public involvement meeting is conducted to provide an opportunity to learn about proposed reasonable and feasible Type I project barrier(s) and ask questions about the construction determination process

## Q. Who determines if the barrier will be constructed?

A. The decision to construct a Type I project barrier determined to be reasonable and feasible, also known as "likely to be incorporated", is done through a vote by the benefited receptors. A proposed Type I project barrier must receive a vote of support from a simple majority of all votes cast by the benefited receptors to be constructed.

## Q. What types of barriers are there?

A. Noise barriers are typically made of pre-cast, composite, sound-absorptive panels that can have different texture looks and colors.

## Q. How is the barrier height determined?

A. The TNM<sup>®</sup> Model determines the height of the Type I project barrier needed to provide the required noise reduction to be considered reasonable and feasible.

## Q. How effective are noise barriers?

A. Effectiveness depends on the distance between the impacted receptor and the barrier. For areas located directly behind a barrier, providing an eight (8) dB reduction, the noise level will be cut in half. This benefit decreases as a listener moves farther away from the barrier and is typically negligible at distances greater than 300 feet.

## Q. How much do noise barriers cost?

A. Current construction costs average \$30 per square foot. The typical height required for an eight (8) dB reduction is 16 feet. With these figures, a barrier would cost approximately \$2.5 million per mile per side of road.

## Q. Who pays for noise barriers?

A. Federal and state highway money is used for noise barrier construction.

## Q. Who is responsible for noise barrier maintenance?

A. WisDOT