

Answering Your Questions About Highway Traffic Noise

Measures to reduce traffic noise

There are many ways to reduce noise. Noise walls are one tool, but berms and highway design can help reduce noise as well. Sometimes, noise walls will not reduce the noise because of the location of the road. Each new road or modification of an existing road that adds capacity must be examined individually to determine what measures can be taken. This pamphlet will briefly describe how SCDOT determines when noise abatement will be provided and provides contact information if you have more questions.

The density of receptors and the distance from the roadway projects are among many factors considered when determining if a noise wall is reasonable and feasible.

When are noise walls considered?

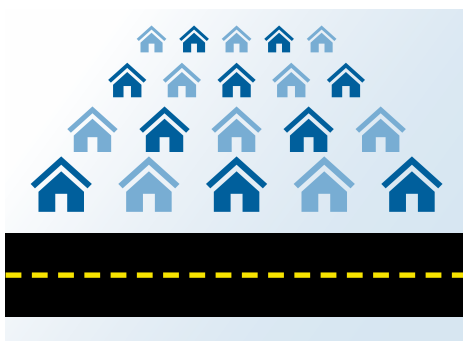
- Whenever a highway project uses federal funds and meets the Federal Highway Administration’s (FHWA’s) criteria of a Type I project, the potential for increased traffic noise—and how to reduce it—must be evaluated. For all Type I projects where traffic noise impacts are predicted, noise abatement (typically in the form of noise walls) must be considered.
- Potential traffic noise increases are evaluated for any building permitted before the “Date of Public Knowledge.”

The graphics below show examples of receptors and the distance from the roadway projects.

How is traffic noise evaluated?

- ▶ Using complex computer modeling, we predict expected noise changes at noise-sensitive locations along the project corridor for future traffic conditions.
- ▶ Then we must determine which noise-sensitive locations were permitted before the Date of Public Knowledge and, therefore, are eligible for noise reduction.
- ▶ If the anticipated noise increase is more than the level defined by SCDOT policy, we begin to consider possible ways to reduce the noise, such as with noise walls and earth berms, at all eligible locations.

High Density



A wall could reduce noise at many houses.

Low Density



The cost of the wall would be high when considering how few houses would benefit.

Distance



Although there are many houses, they are too far from the highway for a noise wall to reduce enough noise.

What is the “Date of Public Knowledge?”

This is the date that the public (and local government) is notified of the future path of the road and is the date of approval of the Categorical Exclusion (CE), the Finding of No Significant Impact (FONSI), or the Record of Decision (ROD).

Are there alternatives to noise walls?

Other options may also help reduce traffic noise. Some of these may be provided by SCDOT, and others are alternatives that might be considered by private developers or homeowners.

- Land use design—if homes are set back from the road or are separated from the road by other development, the noise levels may be lower.
- Noise berm (earth or other materials) and combination berm/wall systems.
- Types of vehicles/speed limits—noise can be reduced with lower speed limits and truck restrictions on a road. However, reducing the speed limit below the appropriate speed based on the design will have only a moderate effect on traffic noise and may actually increase the number of accidents on the roadway.
- Building insulation—noise insulation in buildings, such as replacing doors and windows or adding insulation to walls and attics.

How does SCDOT decide which communities get noise walls?

Once SCDOT has completed the technical evaluation, they also consider the following questions:

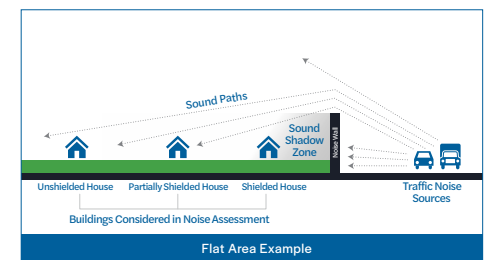
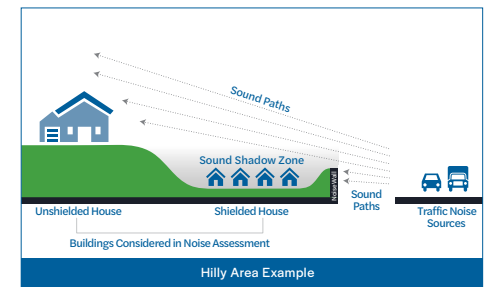
- Will a noise wall reduce the noise enough to justify its construction? Sometimes, a noise wall will not reduce the noise enough to be considered reasonable and/or feasible.
- Is a noise wall technically feasible? Every road is different, many factors are considered such as topography, safety, drainage, utilities, maintenance of the wall, and whether driveways and side road access will be impacted.
- How many people will hear a difference in noise? Is that number high enough to justify the cost? Sometimes, the cost is too high to build a wall when compared to the benefits received.
- Does a simple majority of property owners and tenants who receive a predicted noise level reduction due to construction of a noise wall actually want the wall? Public preference for or against a wall is obtained through a balloting process.
- Are alternatives to noise walls available?



When do noise walls work?

Sounds travels very much like water or light. It follows the easiest path over, under, and around things in its path. The further away from the source of the sound, the lower the noise.

Noise walls do not work if the source of the noise can be seen. The noise will simply travel through that opening much like water will flow through a crack in a dam. If a building is located higher than a noise wall, the noise will flow over the wall to the building.





The graphics above show two examples of noise walls located between buildings and a road. In both cases, the wall will shield one of the houses but will not shield them all. Noise walls do not completely eliminate all noise.

Where do I find more information about SCDOT’s traffic noise policy?

For more information about SCDOT’s noise policy and how it is applied, or about how noise is measured, call or email us. Detailed noise analysis information can also be found at www.scdot.org/business/environmental-toolshed.aspx or on the Federal Highway’s website, www.fhwa.dot.gov/environment/noise.



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