Frequently Asked Questions

Why is MoDOT building sound walls instead of roads?

MoDOT looks at the environmental impacts of roadway projects and at all alternatives to minimize those impacts. Sound walls are a way to minimize the increased noise that these projects create. MoDOT would also lose federal funding if it did not look at the environmental impacts of its projects.

Noise is an environmental impact.

Why do some areas get sound walls and others don't?

A sound study is done whenever MoDOT adds through lanes, a new road or changes the alignment of a roadway. We can only build walls in those locations where all the criteria are met. It would be fiscally irresponsible for MoDOT to build walls that don't meet the criteria.

Why can't you just plant trees or build a berm?

Landscaping or berms for sound abatement is just not feasible in many areas. A group of trees would have to be over 100 feet thick and very dense to provide the 7 decibel reduction necessary to be classified as sound abatement. Earthen berms can effectively diminish sound, but require a large swath of land. Vertical walls are most often the only cost-effective option for reducing noise.

Sound Walls

The Why, When and Where with Road Construction

Missouri Department of Transportation
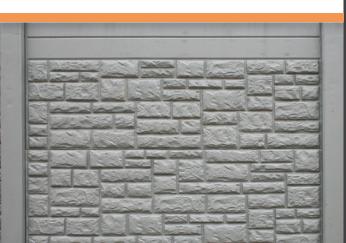
P.O. Box 270
Jefferson City, MO 65102
1-888-ASK-MODOT

Why Build Sound Walls?

The Federal Highway Administration (FHWA) requires MoDOT to complete a sound study for noise abatement any time it plans to add through lanes to an existing highway, construct a new roadway or change the location of a road.

Sound walls are not analyzed unless noise levels are 66 decibels (dBA) for property owners next to a highway. At this noise level, it is difficult to hear normal speech. Effective sound walls can reduce noise levels up to 10 dBA. The decibel scale is exponential; meaning a 10 dBA decrease will cut loudness in half. However, sound walls will not completely eliminate traffic noise but can lessen the volume of the constant hum of traffic for those closest to the highway.

MoDOT's noise policy is based on federal guidelines and regulations for determining where and when sound walls can be placed. All MoDOT sound mitigation criteria (see chart) must be met for a sound wall to be constructed. If all of the criteria are met, the walls can be funded as part of the highway construction project.
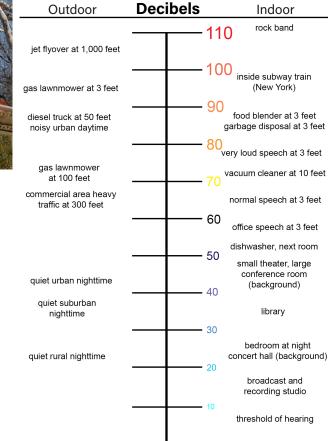
Sound Wall Location

Whether a sound wall should be located at the MoDOT property line or closer to the road depends on where it would be most effective in blocking the noise. MoDOT's first choice is to locate sound walls about five feet inside the public right-of-way, which allows room for installation, maintenance and drainage. However, when residences are lower than the roadway, the sound walls need to be closer to the roadway noise source to be effective. The location and height of the wall is determined in the same study that determines when walls are warranted. The wall must be build on state property.

Common Noise Levels

Outdoor	Decibels	Indoor
	110	rock band
jet flyover at 1,000 feet	100	inside subway train (New York)
gas lawnmower at 3 feet	90	food blender at 3 feet garbage disposal at 3 feet
diesel truck at 50 feet noisy urban daytime	80	very loud speech at 3 feet
gas lawnmower at 100 feet	70	vacuum cleaner at 10 feet
commercial area heavy traffic at 300 feet	60	normal speech at 3 feet
		office speech at 3 feet
	50	dishwasher, next room
quiet urban nighttime	40	small theater, large conference room (background)
quiet suburban nighttime	30	library
		bedroom at night concert hall (background)
quiet rural nighttime	20	broadcast and recording studio
	10	threshold of hearing

Noise Policy Criteria

- Predicted noise levels exceed 66dBA in residential areas
- Sound wall must provide minimum 7dBA reduction in outdoor living space for all of the first-row properties
- Maximum 20' height limit for safety
- Can be built on state property and meet safety criteria and maintenance needs
- Majority of benefitted owners and residents must vote in favor of the wall
- Size of the wall may not exceed 1,300 square feet per benefitted property

Property Owner / Resident Approval

Those people who live immediately adjacent to the highway and who are benefitted will be asked to vote whether or not they desire the wall. These benefitted property owners will be given information about the general location, height and look of the wall. If a majority want the wall, the wall will be constructed, provided all of the other sound wall criteria are met. If a majority of benefitted owners/residents do not want the wall, then it will not be built.