

REBUILDING I-93 SALEM TO MANCHESTER



ENVIRONMENTAL MITIGATION Noise Abatement

Noise is defined as unwanted or excessive sound, determined by loudness, frequency and duration. Sound becomes unwanted when it interferes with normal activities such as sleep, work or recreation.

The Federal Highway Administration (FHWA) requires noise abatement measures to be considered when noise levels approach (are within one decibel), are at, or exceed FHWA noise abatement criteria, which is 67 decibels for residential areas and 72 decibels for commercial properties.

As a frame of reference, the sound of normal conversation from three feet away is the equivalent of 66 decibels. Typically, a sound wall reduces noise levels by five to ten decibels.

At this time, there are approximately 270 sites (mostly private homes) within the I-93 project area that are considered to be impacted by highway traffic noise. By 2020, it is expected that the number of affected sites will have increased to approximately 325.

Based on preliminary engineering, on a project-wide basis, over five miles (27,700 lineal feet, which equates to over one-fourth the total length of the project) of sound walls will be

erected in about a dozen locations to mitigate the current and anticipated increase in noise along the project corridor. As final engineering design progresses, the locations and height of the currently proposed sound walls will be further refined, and additional locations will be evaluated.



The use of sound walls is not always possible or practical at all impacted locations. In order for this noise abatement measure to be considered, the following criteria must be met:

- 1) The site must have predicted sound levels resulting in adverse noise impacts.
- 2) The sound wall must be able to provide a reduction of at least five decibels in sound levels.
- 3) It must be cost effective and feasible to construct.
- 4) It should not have a substantial impact on other resources, such as wetlands, historic properties or endangered species.

From an abutter perspective, sound walls serve a dual purpose of reducing both noise and visual impacts as the affected site is shielded from the noise source by blocking the line of sight, thus reducing the transmission of sound waves.

In some locations, and based on the work to be accomplished by individual construction contracts, early construction of proposed noise barriers will be considered in the construction sequencing so

that they can provide a reduction in subsequent construction noise. Typically, however, the noise barrier will need to be the last phase of construction due to the need for detours and proper construction sequencing.

The current design specification for sound walls in New Hampshire calls for concrete support posts and pressure treated wood panels. The NHDOT is evaluating other materials and designs to determine if there may be other choices for improved performance and longevity, greater cost effectiveness, and to lessen environmental impact.

