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## Environment Other Laws and Requirements Highway Traffic Noise

[www.fhwa.dot.gov/federal-aidessentials](http://www.fhwa.dot.gov/federal-aidessentials)

*Assessing highway traffic noise is an important consideration on Federal-aid projects*



Local public agencies may encounter several areas of environmental law on a Federal-aid project. These areas address a project's effects on:

- The natural environment—including air and water quality, wetlands, wildlife, or endangered species
- The social environment—meaning elements that affect our quality of life
- Historic sites
- Parks and recreation areas

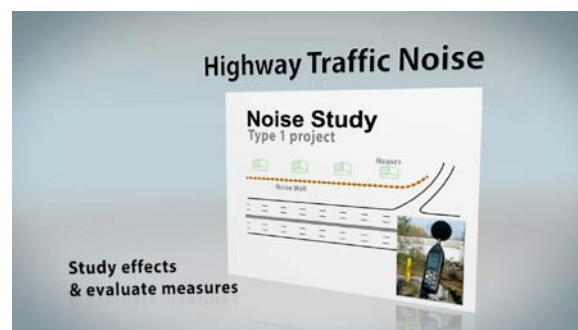
The National Environmental Policy Act, known as NEPA, provides a framework for environmental analyses, reviews, and a series of consultations.

NEPA's process "umbrella" covers a project's compliance with all pertinent Federal environmental laws.

While NEPA provides a coordinated environmental review process, the related environmental law specifies what an agency must do to comply with its particular requirements, which can vary widely.

For example, when agencies use Federal-aid funds to build or substantially alter a highway, known as a Type 1 project, they must study the potential effects of unwanted or excessive highway traffic noise.

If the study determines there will be an impact to a noise sensitive area, agencies must also evaluate measures to lessen the noise.



Let's take a look at steps agencies typically take when considering noise impacts from a project.

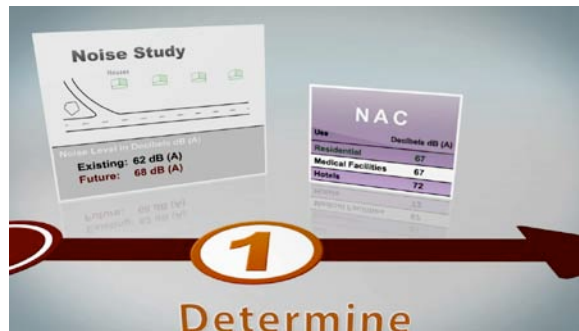
To start, agencies first determine if a noise impact will occur. To do that, a qualified employee or consultant conducts a noise study. Noise studies compare the existing conditions along the project corridor with predicted future noise levels resulting from your project. Studies also consider the existing and planned land use and the levels of noise appropriate for that use as defined in the Noise Abatement Criteria table, or NAC table.

The NAC table lists the abatement noise levels for selected land uses and is contained in the highway traffic noise regulation.

A traffic noise impact occurs when the predicted future traffic noise levels approach or exceed the noise abatement criteria. For example, a noise impact will occur for residential land use when the predicted future traffic noise level of 68 decibels exceeds the 67 decibels listed in the Noise Abatement Criteria table.

A traffic noise impact also occurs when the predicted future traffic noise levels substantially exceed the existing noise levels. The criteria for substantially exceeds is contained in each State's traffic noise policy.

If the study predicts that no impact will occur, the study is completed and shared with land use planning officials.



But if the study predicts a noise impact will occur, the noise specialist will evaluate noise abatement measures that would substantially reduce the highway noise.

Road realignment, earthen berms, and noise walls are examples of noise abatement measures.

Federal Highway Administration (FHWA) regulations require agencies to implement noise abatement measures that are both feasible and reasonable. The criteria for feasible and reasonable are contained in each State's traffic noise policy.

The long-term solution to unwanted highway noise is to restrict or prevent residential and other noise-sensitive land use near highways. Agencies can help avoid future problems by coordinating with the officials responsible for land use planning and by sharing the results of traffic noise studies.



To illustrate the process, let's consider a project that will add multiple lanes to an existing highway.

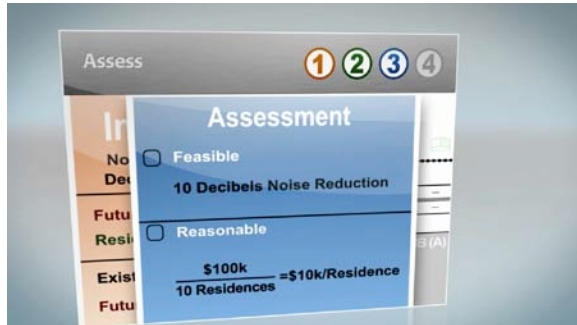
A traffic noise consultant identifies existing land uses and noise levels by visiting the project area and reviewing the project's engineering plans and land use maps. The consultant discovers the corridor is a highly developed residential area with multiple, single-family dwellings.

The consultant determines that existing traffic noise levels are 62 decibels for the ten residences adjacent to the existing highway. Using sophisticated modeling tools, the consultant anticipates that future noise levels at the same location will be 69 decibels.

The 69 decibels exceeds the noise abatement criteria for residential land use by two decibels and the State's traffic noise policy requires an evaluation of mitigation measures.

The consultant proposes and evaluates the effectiveness of a noise wall.

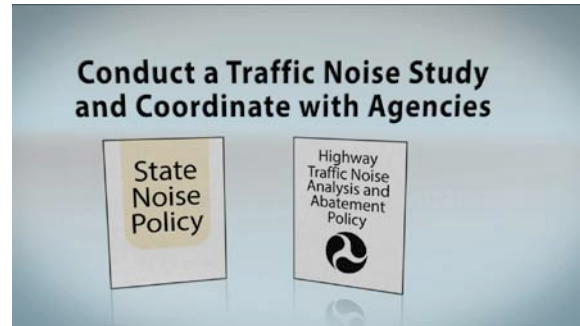
The noise wall will reduce future noise levels by an average of 10 decibels and is estimated to cost \$100,000. The cost-to-benefit ratio is \$10,000 per residence. Following the State's guidelines for noise abatement, this mitigation measure is determined to be both feasible and reasonable.



A design engineer adds to the plans a 300-foot-long by 10-foot-high noise wall and the agency sends a letter to the county planning office notifying it of the results of the study.

If your agency plans to use Federal-aid to build or substantially alter a highway, your agency will need to conduct a traffic noise study and coordinate with land use planning agencies.

To determine the criteria your State department of transportation will apply to determine if a noise impact will occur and when and how to abate traffic noise, consult your State's noise policy. Traffic noise specialists and consultants will also find valuable technical guidance in FHWA's Highway Traffic Noise Analysis and Abatement Policy.



### Web Resources

- Federal regulation covering procedures for abatement of highway traffic and construction noise  
<http://www.gpo.gov/fdsys/pkg/CFR-2011-title23-vol1/pdf/CFR-2011-title23-vol1-part772.pdf>
- FHWA guidance for applying Federal regulation on traffic noise analysis and abatement  
[http://www.fhwa.dot.gov/environment/noise/regulations\\_and\\_guidance/analysis\\_and\\_abatement\\_guidance/](http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/)
- Information on highway traffic noise problems and information on planning and construction of traffic noise barriers  
[http://www.fhwa.dot.gov/environment/noise/regulations\\_and\\_guidance/probr esp.cfm](http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/probr esp.cfm)
- Link to FHWA's Noise Barrier Design Handbook with information on materials, installation techniques and costs  
[http://www.fhwa.dot.gov/environment/noise/noise\\_barriers/design\\_construction/design/index.cfm](http://www.fhwa.dot.gov/environment/noise/noise_barriers/design_construction/design/index.cfm)

The content of this document is not a substitute for information obtained from State departments of transportation, appropriate FHWA Division Offices, and applicable laws. Scenarios have been simplified for emphasis and do not necessarily reflect the actual range of requirements applicable to the scenario or this topic. This document was created under contract number DTFH61-11-D-00025 by the Federal Highway Administration, U.S. Department of Transportation, and is offered to the public to heighten and focus awareness of Federal-aid requirements within the local public agencies community and reinforces the importance of these necessary policies, procedures, and practices.

This companion resource is the script content for the video production of the same name.