

APPENDIX 7: VTRANS NOISE ANALYSIS AND ABATEMENT POLICY



U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION ONE

P. O. BOX 568
MONTPELIER, VERMONT 05601

REC'D

AUG 20 1997

FEDERAL LIAISON
August 6, 1997
IN REPLY REFER TO:

Mr. Glenn M. Gershaneck
Secretary, Agency of Transportation
Montpelier, Vermont

Dear Mr. Gershaneck:

Re: Noise Policy

We have reviewed your Agency's Noise Policy as submitted by Mr. John Narowski's letter dated July 18, 1997. We find that the policy meets our requirement that each State Highway Agency adopt a written statewide noise policy. Vermont Agency of Transportation's Noise Policy is hereby approved.

Our understanding of the following two items is:

- Section 8, 4th bullet - As long as there can be consideration of abatement in special cases under Section 9 "Extenuating Circumstances" where 10 dBA may not be achieved, the use of at least a 10 dBA reduction is acceptable.

- Section 8, 6th bullet - As long as Section 9 can be invoked in special cases where the impacts are especially severe and/or the receptors are extraordinarily sensitive, a higher unit cost may be considered.

Thank you for the cooperation and effort of your staff in developing this policy.

Sincerely yours,

Frederick H. Downs

Frederick H. Downs
Division Administrator

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Sec'y	_____ Deputy S _____
Motor Vehicles	_____
Project Development	_____
Planning	_____
Constr & Maint	_____
Administration	_____
Legal	_____ Special Proj _____
RAPT	_____ Action _____
Central Files	_____
Due Date	_____
Technical Services	_____

cc: Region One w/attachment



STATE OF VERMONT
AGENCY OF TRANSPORTATION

133 State Street, Administration Building
Montpelier, Vermont 05633-5011



Mr. Frederick Downs
Division Administrator
Federal highway Administration
PO Box 568
Montpelier, VT 05602

ATTN: Mark Richter

SUBJECT: Final VAOT Noise Policy document

Dear Mr. Downs:

Herewith please find the Vermont Agency of Transportation's Noise Policy document. This document has been extensively reviewed and revised since the original draft was transmitted in July 1996.

We believe that this addresses the requirements of the FHWA Washington office that 'all state transportation agencies shall establish formal Noise analysis and abatement policies'.

Please advise us, upon approval of this document.

Sincerely,

John Narowski, Environmental Section Engineer
By: Dennis Benjamin, Environmental Specialist

**VERMONT AGENCY OF TRANSPORTATION
NOISE ANALYSIS AND ABATEMENT POLICY**
July 1997

1. PURPOSE AND SCOPE

The Vermont Agency of Transportation (VAOT) has established this Noise Analysis and Abatement Policy for the purpose of providing a basis for statewide uniformity in the analysis of transportation generated sound, the identification of potential transportation project impacts, and the implementation of noise abatement measures determined to be reasonable and feasible.

The Policy also addresses the requirements of US Code of Federal Regulations Title 23 Ch.I Part 772, and the US DOT Federal Highway Administration (FHWA) memorandum of June 12, 1995, requiring a formal noise policy.

The policy shall apply to all proposed federal, federally aided, or VAOT Type I projects involving construction of highways.

The development and implementation of Type II projects is not required by Federal law or by Federal regulations. The VAOT does not have, or intend to establish, a Type II project program as of the date of this policy.

2. COORDINATION

It is VAOT policy to coordinate with federal, state and local governmental authorities during development of VAOT projects. That coordination involves meetings and exchanges of correspondence, including provision of copies of design and environmental documentation. Environmental documentation includes determinations regarding the potential, or absence of potential, for highway traffic noise impacts; and when potential is indicated, determinations made regarding the reasonableness and feasibility of abatement.

The VAOT will coordinate with town and municipal governments to encourage the practice of compatible land use development. Noise prevention and control can only be accomplished through shared responsibility. Local governments must regulate development in such a way that noise sensitive uses are prevented in areas adjacent to highways, or so that developments are planned, designed and constructed so as to eliminate or minimize noise effects.

3. PUBLIC INVOLVEMENT

It is VAOT policy to conduct public meetings and hearings early in the project development process, in order to gather input from effected communities. The VAOT solicits and considers input, received from the local government and from individual residents, during the project development and design process. The opinions of effected residents are considered in reaching determinations regarding the feasibility and reasonableness of noise abatement measures.

4. IDENTIFICATION OF RECEPTORS

The VAOT has adopted the Noise Abatement Criteria (NAC) found in 23CFR 772, shown on Table 1. The Noise Abatement Criteria establish exposure thresholds for consideration of abatement based upon land use activity categories. Therefore, potentially sensitive receptors will be determined by predominant land use activity.

The VAOT will identify potentially sensitive receptors within project corridors, which are on or along developed land. The VAOT will also identify potentially sensitive receptors on undeveloped land for which development is planned, provided such development includes activity sites of the types described in the NAC and provided that state and local permits for the development have been acquired or applied for on or before commencement of the noise analysis.

5. DETERMINATION OF EXISTING SOUND LEVELS

Existing sound levels shall be determined by methodologies and procedures described in the FHWA guide titled "Sound Procedures for Measuring Highway Noise, Final Report", or by appropriate technically equivalent methodologies.

6. ANALYSES

Analyses may be performed for sound levels at actual, or proposed, VAOT right-of-way (ROW) limits, adjacent to potentially sensitive receptors; or at such locations, beyond VAOT ROW limits, as exhibit frequent human use of the types shown in the NAC. In the case of planned, designed and programmed developments, analyses may be performed at VAOT ROW limits, or at locations identified, from said development plans, as potentially sensitive receptor sites.

Analyses, whether by nomograph, current FHWA highway traffic noise prediction model(s), or narrative documentation, shall contain factual evidence to support determination(s) of potential impact or non-impact.

A potential noise impact is identified when projected future traffic sound levels approach or exceed the NAC; or when projected future traffic sound levels substantially exceed existing sound levels.

Analyses indicating potential impact shall also contain factual evidence to support determinations regarding whether reasonable and feasible abatement measures exist or do not exist.

The date of public knowledge for a Federal-aid highway project shall be the date of approval of the final NEPA documentation for a project. There-after the VAOT will perform noise analyses for such re-evaluations as may be required under NEPA, but the VAOT will not be responsible for providing noise abatement for new development in the vicinity of the approved project.

7. PROJECTION OF FUTURE SOUND LEVELS

Future sound levels shall be projected by predictive modeling utilizing the values and parameters of the current version of the AFHWA Highway Traffic Noise Prediction Model³, or by an appropriate technically equivalent methodology.

8. CONSIDERATION OF TRAFFIC NOISE ABATEMENT

When a potential impact is identified, the VAOT will consider noise abatement measures and make a determination regarding the feasibility and reasonableness of such measures. The VAOT will only provide noise abatement measures which are reasonable and feasible.

Feasibility depends primarily upon engineering considerations, such as:

- X Given the topography of the location can a barrier be built ?
- X Given construction, drainage, access, safety, snow removal, and maintenance requirements, or other technical constraints, can an effective barrier be built?
- X Given other noise sources present in the area can an effective barrier be built? It is not feasible to implement noise abatement measures that do not achieve at least a 5-dBA reduction.

Reasonableness is a subjective criterion, therefore findings based upon common sense and good judgement shall be cited in determinations. Appropriate factors for consideration should include, but not be limited to, the following:

- X Can substantial noise reduction be provided? - Noise abatement measures may not be reasonable unless a substantial noise reduction can be achieved. A substantial noise reduction is a reduction of at least 10 dBA for at least one first-row receiver.
- X How many potential receptors will benefit ? - Noise abatement measures may not be reasonable if only one receptor will benefit. The method used to determine degree of benefit should account for all units, including each residence, individual apartment or condo unit, individual mobile home, etc. A receptor must have a sound reduction of at least 5 dBA to benefit from abatement.
- X Can abatement be achieved at a reasonable cost ? - Noise abatement measures may not be reasonable if the cost per receptor benefited is high. A reasonable cost per receptor should not exceed \$20,000. For purposes of estimating the cost of highway noise barriers a figure in the vicinity of \$20 per square foot of barrier should be used.
- X What are the views of the neighborhood impacted ? - Noise abatement measures may not be reasonable if the majority of the community oppose them. Input from public hearings and from local government should be discussed in formal determinations.
- X Are the sound levels much higher in one area than in others ? - Greater consideration should be given to areas where high (greater than 75dBA Leq) traffic noise levels already exist or are expected to occur; or where the effect of an increase, relative to an existing ambient sound level, is substantial (see figure 1).
- X Are there differences in the types of developments impacted ? - Greater consideration should be given to areas impacted by a project on new location, than areas impacted by alterations on an existing highway. Areas that were close to highways prior to enactment of the states land use and development control law

(Act 250, effective April 4, 1970) should receive greater consideration than areas developed close to highways without consideration of noise effects by the developer or the community.

- X Are there potential negative environmental effects associated with abatement ? - Noise abatement measures which involve impact trade-offs are not likely to be considered reasonable. For instance, it would not be reasonable to build a noise abatement berm through a wetland.

9. EXTENUATING CIRCUMSTANCES

There may be instances where unusual conditions warrant special consideration, relative to noise impacts and/or abatement measures, such as: receptors that are extremely noise sensitive, sites where severe noise impacts are predicted, or sites containing unique resources. Extenuating circumstances will be considered on an individual basis. Final determinations in such cases will be the responsibility of the Secretary of the VAOT.

10. DEFINITIONS

- X A Type I project \cong shall mean: a proposed federal, federally aided, or state highway project for the construction of a highway on new location, or physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through traffic lanes.
- X A Type II project \cong shall mean: a proposed federal, federally aided, or state highway project for the purpose of noise abatement on an existing highway, which is not associated with any Type I improvement in the latest approved Statewide Transportation Improvement Program (STIP).
- X A Potentially Sensitive Receptors \cong shall mean: outdoor locations where highway traffic noise may affect frequent human activities of the types identified in the NAC. If no frequent outdoor activity areas are present, interior living or work areas may be considered, as identified in the NAC.
- X A Noise Abatement Criteria (NAC) \cong shall be as shown on Table 1 of these guidelines.
- X A Approval of - NEPA documentation \cong shall mean the date of signature of: a Categorical Exclusion, a Finding of No Significant Impact for an Environmental Assessment, or a Record of Decision for an Environmental Impact Statement.
- X A Leq \cong shall mean: a calculated, steady, sound level which would produce the same total acoustic energy as that contained in varying sound levels, for a period of time.
- X A Leq (h) shall mean a specific hourly value of Leq, usually the design hour.
- X A L10" shall mean a sound level, which is not exceeded for ninety percent of a particular time period.
- X "Approach" shall mean at or within 1 dBA below the NAC.
- X "Substantially exceed existing noise levels" shall mean an increase relative to existing ambient sound levels, which has substantial effect. Refer to the chart in Figure 1.
- X A Abatement \cong shall mean: measures capable of providing a reduction in highway

traffic noise of at least 5dBA. A substantial noise reduction is a reduction of at least 10 dBA for at least one first-row receiver. Abatement measures may not be reasonable in instances where no substantial noise reduction can be achieved.

TABLE 1 - NOISE ABATEMENT CRITERIA
Hourly A-Weighted Sound Level in Decibels (dBA)*

Category	Leq(h)	L10(h)	Description of Activity types for Category
A	57	60	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	70	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, hotels, motels, schools, libraries, churches, and hospitals.
C	72	75	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52**	55**	Residences, hotels, motels, schools, libraries, churches, hospitals, public meeting rooms and auditoriums.

* Either Leq (h) or L10 (h) (but not both) may be used on a project. Existing noise levels will be determined using FHWA's current noise measurement procedures (e.g., "Sound Procedures for Measuring Highway Noise, Final Report").

** Interior sound levels. All others are exterior sound levels.

FIGURE 1
Effects of Increase

