

NEBRASKA DEPARTMENT OF ROADS

NOISE ANALYSIS AND ABATEMENT POLICY FOR FEDERAL-AID TYPE I PROJECTS

MAY, 1998

The Department of Road's Noise Policy is meant to be consistent with FHWA's Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR Part 772). This policy is established by the authority of the Director-State Engineer, Deputy Director of Engineering, and the Division Engineer of the Project Development Division. By memo of June 12, 1995, all state highway agencies must adopt written statewide noise policies that have been approved by FHWA.

Where the FHWA Noise Standards allow a state flexibility in establishing its own policies and practices while maintaining consistency with the standards, the following shall be the policies of the Department in application of these standards:

1. It is the policy of the Department to reduce excessive noise from highway traffic where feasible and economically reasonable on Type I projects. (Type I project is defined as a proposed Federal or Federal-Aid highway project for the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through lanes).
2. Locations for traffic noise analyses can be selected based on their representativeness of the entire residential area to be studied.
3. Traffic noise analysis will be done for developed lands and for undeveloped lands if development is planned, designed and programmed. This analysis will be in the noise study report to be included in the environmental document. For the purpose of deciding which areas should receive a noise analysis, development will be deemed to be planned, designed and programmed on the date noise-sensitive land use, such as a residence, school, church, hospital, library, etc., received a plat approval from the local agency.
4. For purposes of establishing the date on which the public is officially notified of the adoption of the location of a proposed Federal-Aid highway project, the date of FHWA approval of the final environmental document will so establish that date. After this date, the Department is still responsible for analyzing changes in traffic noise impacts, when appropriate, but the Department is no longer responsible for providing noise abatement for new development which occurs adjacent to the proposed highway project.

5. A summary of the environmental document will be read at the public hearing. Included in the summary will be the noise impacts created by the proposed project. Views of the impacted residents will be gathered and become part of the hearing transcript. These views will be a major factor in choosing sites to be considered for noise abatement. Notification of the public hearing should be accomplished by informational signs placed in the neighborhood, flyers, and a notice published in the local newspaper.
6. Existing noise levels are determined by field measurement or estimated by applying a traffic noise prediction model when the noise is predominantly due to highway traffic.
7. Future traffic noise levels are determined using traffic parameters expected 20 years after project completion (design year) as inputs in applying the current FHWA traffic noise prediction model or an approved alternative predictive methodology.
8. The Department will include recommendations for buffer zones to minimize future noise impacts in its environmental documents to city and county planning agencies. Final Noise Summary Reports (see page 8) will be provided to all city and county agencies responsible for planning and issuing building permits. The report is to influence their planning and zoning decisions by making clear their responsibility to plan a noise-compatible development for the area.
9. When there is a need for controlling construction noise in a sensitive location, the Construction Division will develop a plan for inclusion in the contract specifications.
10. See page 9 for noise analysis and abatement flow chart.

The Department of Roads will employ the following policy to determine the need, feasibility, and reasonableness of noise abatement at the affected sites within all Federal-Aid Type I projects and Federal-Aid projects that create new traffic noise impacts. The term “decibels,” as used in this policy, refers to A-weighted sound levels.

1. Noise impacts will be documented when any of the following conditions exist for any of the activity categories listed in the noise abatement criteria (NAC) table contained in 23 CFR Part 772.
 - A. When the predicted design-year noise levels approach or exceed the noise abatement criteria (NAC). The Department has established that a noise level of one decibel less than the NAC in the FHWA Noise Standards constitutes “approaching” the NAC.
 - B. It has additionally been established that predicted noise levels of 15 dBA or more above existing levels “substantially exceed” existing levels for purposes of interpreting the FHWA noise

standards. Absolute noise levels are an additional consideration in assessing the degree of impact associated with this increase in noise level.

2. Noise abatement will not be considered for developed areas where no highway project is proposed.
3. Noise abatement must be considered for all identified traffic noise impacts, even in commercial and industrial areas, however unless special conditions exist, it generally will not be considered reasonable to provide abatement for impacted commercial or industrial areas.
4. The Department of Roads will identify site candidates for noise abatement and include them in the CE, EA, or EIS. However, the final determination of whether or not a site receives noise abatement will occur when the final plans for the project are completed.

NOISE ABATEMENT CRITERIA

5. When noise abatement is considered on a project, several criteria should be examined to determine the feasibility and reasonableness of constructing noise abatement devices on a site-by-site basis.
 - A. Feasibility deals with engineering considerations. A noise abatement device is not feasible unless the insertion loss (reduction in highway noise at a point 10 feet from a residence) is at least a 5-decibel average. The following items will be considered in order to determine the 5-decibel average reduction.
 - (1) Can a minimum 5-decibel average noise reduction be achieved for the topography at the affected site location, given certain drainage and maintenance requirements?
 - (2) Can the exposed height of a noise wall (except for short lengths) be built 16 feet or less?
 - (3) Can the noise barrier be located beyond the clear recovery zone or be incorporated into existing highway barriers?
 - (4) Does the site location lack other significant noise sources?

B. Reasonableness is a more subjective criterion and should reflect that common sense and good judgment were used in arriving at a decision. A preliminary determination of reasonableness will include the following items and each item will be given a rating from 1 to 4 as noted:

(1) The noise abatement must be cost effective. Cost effectiveness is defined as dollars per benefitted residence. (Benefitted residence is defined as receiving at least a 3 dBA reduction.)

<\$18,000/residence = 4;
\$18,000 - \$23,000/residence = 3;
\$23,000 - \$28,000/residence = 2;
\$28,000 - \$30,000/residence = 1

(2) The change in computed noise levels between the design year and existing will equal or exceed 3 decibels (a barely perceptible change).

>3 decibels = 4;
3 decibels = 3;
2 decibels = 2;
<2 decibels = 1

(3) The percentage of existing residences or platted development which preceded the FHWA approval of the environmental document for the INITIAL highway project.

>80% = 4;
50 - 80% = 3;
30 - 50% = 2;
<30% = 1

(4) It is considered ineffective to provide noise abatement on a highway with partial or no control of access.

Full control of access = 4;
½ mile access control = 2;
1/4 mile access control = 1;
<1/4 mile access control = 0

6. Explanation of Noise Abatement Checklist

A. If any of the feasibility Items 1-4 in Section 5A (on the Noise Abatement Checklist) are checked "NO", the site will be considered not feasible. If the site is considered not feasible, then a reasonable analysis will not be done.

- B. Quantification of each of the reasonableness criteria explained on Page 4 should produce a more objective, supportable, and easily explained decision. If reasonability Item 1 on Page 4 is above \$30,000, the site will be considered not reasonable. If the total score is below ten, the site will be considered not reasonable.
- C. When it is determined that it would be feasible to provide noise abatement for a site, and a preliminary determination has been made that abatement would be reasonable, a public informational meeting will be held as part of the process for a final determination of whether abatement would be reasonable. The benefitted residents will be given an opportunity to vote. “Benefitted Residents” are those whose backyard or sideyard activity areas are directly behind and adjacent to the noise abatement device and, thus, will receive a perceivable noise reduction from the device.
- D. Noise abatement will be provided only if the benefitted residents support the proposal. “Support” means at least 75 percent of the benefitted property owners voting in favor of the proposed noise abatement. If the benefitted property owners vote to reject construction of a noise abatement device, their area will not be reconsidered for future noise abatement.
- E. Where noise barriers are not feasible, the use of landscaping will be considered to provide visual screening of privacy but no physical noise reduction.

NOISE ABATEMENT CHECKLIST

Project No.: _____
 Location: _____
 Control No.: _____
 Date: _____

FEASIBILITY

	YES	NO
1. Can a 5-decibel noise reduction be achieved?	_____	_____
2. Can the exposed height of a noise wall be built 16 feet or less?	_____	_____
3. Can a barrier be located beyond the clear recovery zone?	_____	_____
4. Does the site lack other significant noise sources?	_____	_____

PRELIMINARY REASONABLENESS

4 = High Reasonableness
 1 = Low Reasonableness

1. Cost per residence?
2. Future design year level 3-decibels greater than existing?
3. Housing development preceded initial highway construction?
4. Control of access?

Total

SCORE					
4	3	2	1	0	Total Score
	+	+	+	+	=

DECISION

YES

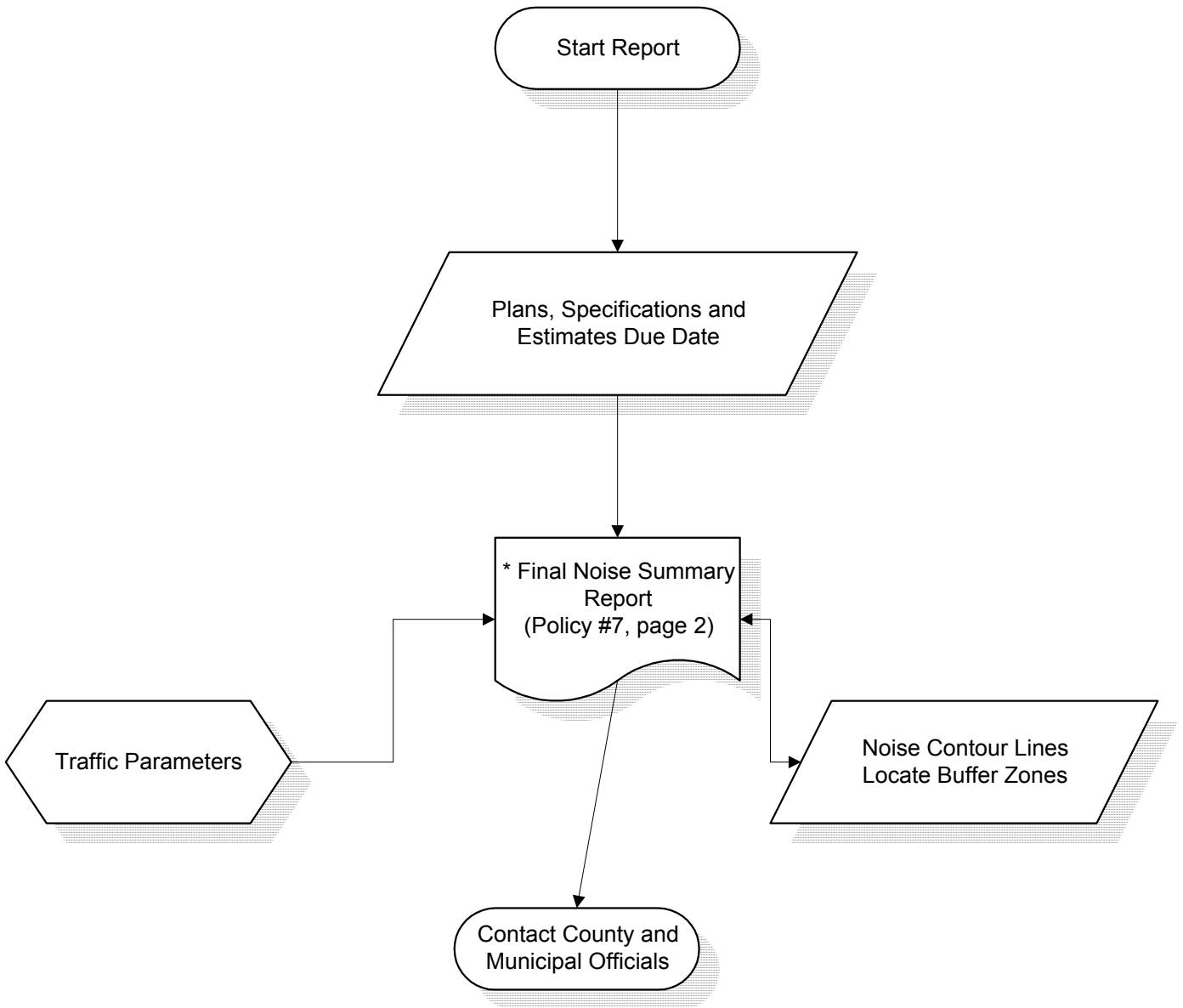
NO

Are barriers feasible?

Are barriers reasonable?

REASONS FOR DECISION:

FINAL NOISE SUMMARY REPORT PROCESS



* This report is to prevent future traffic noise impacts on currently undeveloped lands by providing estimates of future noise levels to local planning officials so as to protect future land development from becoming incompatible with anticipated highway noise levels.

NOISE ANALYSIS AND ABATEMENT PROCESS

