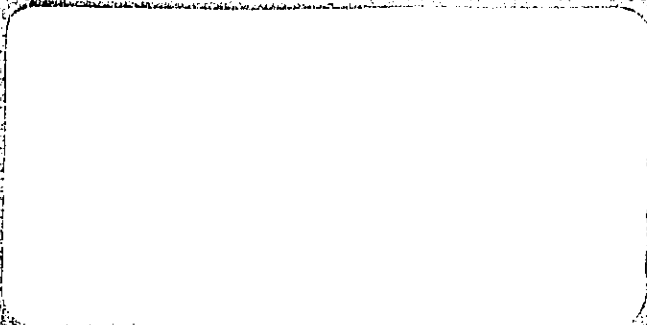


11-76-01

11-N-486



Science Applications International Corporation

NOISE IMPACT EVALUATION MANUAL

TASK 1

August 2, 1985

Submitted to:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Submitted by:

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
8400 Westpark Drive
McLean, Virginia 22102

1. INTRODUCTION

EPA is required to review EISs involving major Federal actions significantly affecting the quality of the human environment under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Noise impact is one of the parameters that EPA reviews in the EIS review process. The purpose of this work assignment is to prepare a comprehensive noise impact evaluation guidance manual for the EPA EIS reviewers to promote more consistent and effective response to noise impacts in EISs.

This report is the product of Task 1. In Task 1, SAIC reviewed over 75 documents dealing with EPA, FHWA, FAA AND HUD's noise programs. We interviewed representatives from FHWA and FAA. The result is a summary of each agency's noise policy, noise impact criteria, and mitigation measures. Exhibit D of this report also lists States and local communities that have adopted noise criteria and/or regulations.

The primary emphasis of the report is on transportation-related agencies since the majority of EISs with noise impacts are primarily highway and airport projects. Evaluating the noise impacts of the overall project are discussed in more detail than the specific noise standards for a particular aircraft or vehicle.

Other products of the work assignment will be a detailed guidance document and bibliography of key references.

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2. FEDERAL HIGHWAYS ADMINISTRATION (FHWA) NOISE POLICY

2.1 AUTHORITY

- Aid* (PL 91-005)
- (1) 23 U.S.C. 109(h), 109(i): Federal Highway Act of 1970 requires the secretary of Transportation to develop and promulgate noise standards for the planning and design of Federal-aid highways.
 - (2) 42 U.S.C. 4331, 4332
 - (3) 49 CFR 1.48(b)

2.2 REGULATION

23 CFR Part 772.

Procedures for Abatement of Highway Traffic Noise and Construction Noise.

2.3 PURPOSE

To provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in planning and design of highways pursuant to Title 23, United States Code.

2.4 NOISE POLICY OVERVIEW

The regulation requires that noise abatement measures be considered when a noise impact is identified during the development of a new project. A noise impact is defined as the condition when the predicted traffic noise levels approach or exceed the noise abatement criteria, or when predicted traffic noise levels substantially exceed the existing noise levels. The Act, 23 U.S.C., 109(i) is not definitive in stating that certain highway noise levels must be met, rather, noise is to be considered in light of other factors to ensure that the best public interest is preserved. The policy is, therefore, structured to leave the judgement to State Highway Agencies and the FHWA. The following sections discuss the components of FHWA's policy on noise impacts. A complete document of FHWA 7-7-3, which implements 23 CFR 772, is included in Exhibit A.

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2.4.1 Analysis of Traffic Noise Impacts and Abatement Measures

FHWA requires a noise analysis to include the following for each alternative:

- Identification of existing activities, developed and undeveloped lands which may be affected by noise from the highway
- Prediction of traffic noise levels
- Determination of existing noise levels
- Determination of traffic noise impacts
- Examination and evaluation of alternative noise abatement measures

2.4.2 Noise Abatement

In determining and abating traffic noise impacts, primary consideration is to be given to exterior areas. Only where there are no exterior activities affected by the traffic noise, will the interior criterion be considered. Table 1 lists the FHWA's interior and exterior noise criterion.

The plans and specifications of a highway project will not be approved by FHWA unless those noise abatement measures which are reasonable and feasible are incorporated into the plans and specifications to reduce or eliminate the noise impact on existing activities, developed lands, or undeveloped lands for which development is planned, designed, and programmed.

The noise abatement measures listed below may be incorporated in Type I (proposed new Federal or Federal-aid highway project or significant highway alteration) or Type II projects (proposed Federal or Federal-aid highway noise abatement).

- Traffic management measures
- Alteration of horizontal and vertical alignments
- Acquisition of property rights for construction of noise barriers
- Construction of noise barriers

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TABLE 1 - Noise Abatement Criteria

Hourly A-Weighted Sound Level - decibels (dBA) ^{1/}

<u>Activity Category</u>	<u>Leq(h)</u>	<u>L10(h)</u>	<u>Description of Activity Category</u>
A	57 (Exterior)	60 (Exterior)	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 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

^{1/}Either L₁₀(h) or Leq(h) (but not both) may be used on a project.

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- Acquisition of real property or interests therein to serve as a buffer zone (Type I project only)
- Noise insulation of public use or nonprofit institutional structures.

2.4.3 Traffic Noise Prediction

In predicting noise levels and assessing noise impacts, traffic characteristics which will yield the worst hourly traffic noise impact on a regular basis for the design year shall be used. The traffic noise prediction method used in any noise analysis is required to meet the following conditions.

1. The methodology is consistent with the methodology in the FHWA Highway Traffic Noise Prediction Model (Report No. FHWA-RD-77-108).
2. The prediction method uses noise emission levels obtained from one of the following:
 - (a) National Reference Energy Mean Emission Levels as a Function of Speed
 - (b) Determination of reference energy mean emission levels in "Sound Procedures for Measuring Highway Noise: Final Report," Report No. DP-45-1R.

2.5 COMPLIANCE WITH NEPA

FHWA noise policy for planned highways is implemented as a portion of the overall environmental assessment process required for Federal actions by the National Environmental Policy Act of 1969 (NEPA). Portions of this process for highway noise are also based on the Federal-Aid Highway Act of 1970. The general assessment process is shown in Figure 1 to consist of several key decisions, investigate actions, and documentation. Upon initiation of a Federal-aid highway project by a state highway authority, the state authority and FHWA arrive at key official determinations regarding the project nature and extent. The type of noise impact investigation and report that will be required for the project is determined by these decisions.

3. FEDERAL AVIATION ADMINISTRATION

3.1 AUTHORITY

- (1) 49 U.S.C. 1341(a), 1348, 1354(a) 1421, and 1431: Federal Aviation Act of 1958, as amended, created the Federal Aviation Agency and provides for the regulation and promotion of civil aviation so as to foster its development and safety and to assure the safe and efficient use of air space.
- (2) 49 U.S.C. 106(g), Pub. L. 99-449
- (3) 49 U.S.C. 2102, 2102, 2103(a), and 2104(a)&(b): Aviation Safety and Noise Abatement Act of 1979, as amended, directs the Administrator to make judgements on whether an airport operator's noise capability program is consistent with obtaining the goal of noise level exposure reduction. P/ 96-193
- (4) 49 U.S.C. 2201 et. seq.: Airport and Airway Improvement Act of 1982.

3.2 REGULATION

- 14 CFR 36 Noise Standards (airplane)
- 14 CFR 91.301 Operating Noise Limits
- 14 CFR 150 Airport Noise Compatibility Planning.

3.3 NATIONAL ENVIRONMENTAL POLICY ACT RESPONSIBILITIES

FAA compliance with the NEPA is controlled by FAA Order 1050.1^P, Policies and Procedures for Considering Environmental Impacts. The FAA has determined ^{+ FAA Order 1050.1^P Airport} that approval or disapproval of airport noise compatibility programs are "categorical exclusions" to the requirements for environmental assessment under Order 1050.1C. The Aviation Safety and Noise Abatement Act (ASNA) requires an airport noise compatibility program to be either approved or disapproved within 180 days of receipt or it will be automatically approved. Development of a noise exposure map or noise compatibility program does not replace an environmental assessment but can be used in the preparation of such an assessment. Environmental assessment leading to a finding of no significant impact or to an environmental impact statement must still be

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conducted, where required by applicable procedures, prior to taking any Federal implementing action such as grant approvals or covered air traffic actions. Although the 180-day time constraint does not permit the normal federal Environmental Impact Assessment process, consideration of the potential impacts remains an integral part of the planning process. Airport operators should fully consider environmental as well as noise and land use consequences in developing an airport noise compatibility program.

Though EPA has no jurisdictional authority on the review of noise exposure map or land use compatibility program, regional staff should be aware of and get involved with the development of such a program.

3.4 PURPOSE

To reduce existing noncompatible land uses around airports and to prevent the introduction of additional noncompatible land uses through the cooperative efforts of all those involved.

3.5 POLICY OVERVIEW

Federal Aviation Regulation (FAR) Part 150 works as a compliment to FAR Part 36, Federal Aviation Administration Noise Standards. Part 36 contains noise certification standards for most airplane types. It has no provisions to control either the operations or number of operations at an airport to stabilize or reduce noise impacts. The land use controls as provided for in Part 150 will integrate the gains in reduced aircraft noise emissions from Part 36 into an overall noise compatibility program.

The regulation establishes a single system for the measurement of airport and background noise, a single system for determining the exposure of individuals to airport noise, and a standardized airport noise compatibility planning program. The planning program includes (1) provision for the development and submission to the FAA of Noise Exposure Maps and Noise Compatibility Programs by airport operators; (2) standard noise units, methods

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and analytical techniques for use in airport assessments; (3) identification of land uses that are normally compatible (or noncompatible with various levels of noise around airports; and (4) procedures and criteria for FAA approval or disapproval of noise compatibility programs by the administrator.

A complete document of Part 150 is included in Exhibit B. The following are the major elements of the regulation.

3.5.1 Identification of Land Uses

Determination of land use must be based on professional planning criteria and procedures utilizing comprehensive, or master, land use planning, zoning, and building and site designing, as appropriate.

3.5.2 Noise Exposure Maps and Related Descriptions

The noise exposure map submitted by an airport operator must identify each noncompatible land use in each area depicted. The map and related documentation must be developed and prepared in accordance with Appendix A contained in the regulation. In Appendix A noise definition and measurement procedures are described, noise contours and land uses, use of computer prediction model (Integrated Noise Model), and identification of public agencies and planning agencies are defined. A table listing land use compatibility with yearly day-night average sound levels and mathematical description of day-night average sound level are included.

3.5.3 Noise Compatibility Program

A noise compatibility program must be submitted after FAA notice of acceptability of a noise exposure map. Each noise compatibility program must be developed and prepared in accordance with Appendix B of the regulation or an FAA-approved equivalent, and should contain:

- Noise exposure map
- Description and analysis of the alternative measures
- Program measures proposed to reduce or eliminate present and future noncompatible land uses

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- Description of public participation
- Actual and anticipated effects of the program
- Effects of proposed future actions by the airport proprietor
- Summary of public comments
- Implementation plan
- Provision for revision

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4. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
(HUD) NOISE ABATEMENT AND CONTROL

4.1 AUTHORITY

Specific authorities for noise abatement and control are contained in :

- (1) The Noise Control Act of 1972 (Pub. L. 92-574) which directs Federal agencies to administer their programs in ways which reduce noise pollution.
- (2) The Quiet Communities Act of 1978 (Pub. L. 95-609) which amended Pub. L. 92-574.
- (3) The General Services Administration, Federal Management Circular 75-2: Compatible Land Uses of Federal Airfields prescribes the Executive Branch's general policy with respect to achieving compatible land uses on either public or privately owned property at or in the vicinity of Federal airfields.
- (4) Section 1113 of the Housing and Urban Development Act of 1965 (Pub. L. 89-117) directs the Secretary "* * * to determine feasible methods of reducing the economic loss and hardships suffered by homeowners as a result of the depreciation in the value of their properties following the construction of airports in the vicinity of their homes, including a study of feasible methods of insulating such homes from the noise of aircraft."

4.2 PURPOSE

The Department of Housing and Urban Development finds that noise is a major source of environmental pollution which represents a threat to the serenity and quality of life in population centers and that noise exposure may be a cause of adverse physiological and psychological effects as well as economic losses.

The purpose of HUD's noise abatement and control policy is to:

- (1) Call attention to the threat of noise pollution;
- (2) Encourage the control of noise at its source in cooperation with other Federal departments and agencies;

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- (3) Encourage land use patterns for housing and other noise sensitive urban needs that will provide a suitable separation between them and major noise sources;
- (4) Generally prohibit HUD support for new construction of noise sensitive uses on sites having unacceptable noise exposure.
- (5) Provide policy on the use of structural and other noise attenuation measures where needed; and
- (6) Provide policy to guide implementation of various HUD programs.

4.3 GENERAL POLICY

It is HUD's general policy to provide minimum national standards applicable to HUD programs to protect citizens against excessive noise in their communities and places of residence. The following is a list of the areas covered by HUD's policy. See Section 51.101 of Exhibit C for a more detailed discussion.

1. Comprehensive planning assistance
2. Community Development Block Grants
3. HUD support for new construction
4. HUD support for existing construction
5. HUD support of modernization and rehabilitation
6. Research, guidance and publications
7. Construction equipment, building equipment and appliances
8. Exterior noise goals (DNL ∇ 55dB)
9. Interior noise goals (DNL ∇ 45dB)
10. Acoustical privacy in multifamily buildings

4.4 CRITERIA AND STANDARDS

The following standards apply to all areas listed in Section 4.3.

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4.4.1 Measure of External Noise Environments

Day-night average sound level (DNL) or (L_{dN}), is the 24-hour average sound level obtained after addition of 10 decibels to sound levels in the night from 10 pm to 7 am.

4.4.2 Loud Impulsive Sounds

The DNL produced by the loud impulsive sounds such as explosions or sonic booms, shall have 8 decibels added to it in assessing the acceptability of the site. The C-weighted day-night average sound level (L_{Cdn}) may be used without the 8 decibel addition. See Section 51.106 of Appendix C for more detail.

4.4.3 Exterior Standards

Acceptable noise levels must not exceed 65dB at a distance of 2 meters (6.5 feet) from the building housing noise sensitive activities or the building setback line nearest the predominant noise source. Normally unacceptable levels are above 65 dB but not over 75 dB. Unacceptable levels exceed 75dB. Section 51.104 of Appendix C discusses the special requirements and/or approvals for unacceptable levels including additional noise attenuation or environmental review.

4.5 RESPONSIBILITIES

HUD has the following responsibilities regarding noise impact.

4.5.1 Authority to Approve Projects

Acceptable noise levels as discussed in Section 3.4.3, are approved by program personnel in the field offices. Projects with normally unacceptable levels must be approved by the HUD Regional Administrator. The Regional Office to the Assistant Secretary for Community Planning and Development must approve projects or portions of projects with unacceptable noise levels.

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4.5.2 Surveillance of Noise Problem Areas

HUD field staff maintain surveillance of potential noise problem areas and provide advice early in the planning processes to insure that applicants' site choices are consistent with HUD policies and standards.

4.5.3 Notice to Applicants

HUD provides information to project applicants to apprise them of HUD's standards and to identify any potential problems.

4.5.4 Technical Assistance

Technical assistance is available from the Office of Community Planning and Development and the Office of Policy Development and Research.

4.5.5 Interdepartmental Coordination

HUD Regional Administration are required to foster coordination between HQ and field offices as well as other Federal agencies. HUD staff is required to use the acceptability standards in commenting on EISs.

EXHIBIT A - FHWA

Federal-Aid Highway Program Manual, 7-7-3

FHWA Organization Chart

Field Regions of FHWA

FHWA Regional Office Noise Contacts

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U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

FEDERAL-AID HIGHWAY PROGRAM MANUAL

VOLUME	7	RIGHT-OF-WAY AND ENVIRONMENT
CHAPTER	7	ENVIRONMENT
SECTION	3	PROCEDURES FOR ABATEMENT OF HIGHWAY TRAFFIC NOISE AND CONSTRUCTION NOISE

Transmittal 348
August 9, 1982
HEV-30

- Par. 1. Purpose
2. Authority
3. Noise Standards
4. Definitions
5. Applicability
6. Analysis of Traffic Noise Impacts and Abatement Measures
7. Noise Abatement
8. Federal Participation
9. Information for Local Officials
10. Traffic Noise Prediction
11. Construction Noise
Table 1 - Noise Abatement Criteria
Appendix A - National Reference Energy Mean Emission Levels as a Function of Speed

1. **PURPOSE.** **To provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways approved pursuant to Title 23, United States Code (U.S.C.).*
2. **AUTHORITY.** *23 U.S.C. 109(h), 109(i); 42 U.S.C. 4331, 4332; and 49 CFR 1.48(b).*

confusion between
23 CFR 772
Manual 772

*Regulatory material is italicized and appears in the Federal Register under 23 CFR Part 772.

3. NOISE STANDARDS. *The highway traffic noise prediction requirements, noise analyses, noise abatement criteria, and requirements for informing local officials in this directive constitute the noise standards mandated by 23 U.S.C. 109(i). All highway projects which are developed in conformance with this directive shall be deemed to be in conformance with the Federal Highway Administration (FHWA) noise standards.*

4. DEFINITIONS

- a. Design Year - *the future year used to estimate the probable traffic volume for which a highway is designed. A time, 10 to 20 years, from the start of construction is usually used.*
- b. Existing Noise Levels - *the noise, resulting from the natural and mechanical sources and human activity, considered to be usually present in a particular area.*
- c. L₁₀ - *the sound level that is exceeded 10 percent of the time (the 90th percentile) for the period under consideration.*
- d. L₁₀(h) - *the hourly value of L₁₀.*
- e. Leq - *the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same period.*
- f. Leq(h) - *the hourly value of Leq.*
- g. Traffic Noise Impacts - *impacts which occur when the predicted traffic noise levels approach or exceed the noise abatement criteria (Table 1), or when the predicted traffic noise levels substantially exceed the existing noise levels.*
- h. Type I Projects - *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-traffic lanes.*
- i. Type II Projects - *a proposed Federal or Federal-aid highway for noise abatement on an existing highway.*

5. APPLICABILITY

- a. Type I Projects. This directive applies to all Type I projects unless it is specifically indicated that a section applies only to Type II projects.
- b. Type II Projects. The development and implementation of Type II projects are not mandatory requirements of 23 U.S.C. 109(i) and are, therefore, not required by this directive. When Type II projects are proposed for Federal-aid highway participation at the option of the highway agency, the provisions of paragraphs 6, 8, and 11 of this directive shall apply.

6. ANALYSIS OF TRAFFIC NOISE IMPACTS AND ABATEMENT MEASURES

- a. The highway agency shall determine and analyze expected traffic noise impacts and alternative noise abatement measures to mitigate these impacts, giving weight to the benefits and cost of abatement, and to the overall social, economic and environmental effects.
- b. The traffic noise analysis shall include the following for each alternative under detailed study:
 - (1) identification of existing activities, developed lands, and undeveloped lands for which development is planned, designed and programmed, which may be affected by noise from the highway;
 - (2) prediction of traffic noise levels;
 - (3) determination of existing noise levels;
 - (4) determination of traffic noise impacts; and
 - (5) examination and evaluation of alternative noise abatement measures for reducing or eliminating the noise impacts.
- c. Highway agencies proposing to use Federal-aid highway funds for Type II projects shall perform a noise analysis of sufficient scope to provide information needed to make the determination required by paragraph 8a of this directive.

7. NOISE ABATEMENT

- a. *In determining and abating traffic noise impacts, primary consideration is to be given to exterior areas. Abatement will usually be necessary only where frequent human use occurs and a lowered noise level would be of benefit.*
- b. *In those situations where there are no exterior activities to be affected by the traffic noise, or where the exterior activities are far from or physically shielded from the roadway in a manner that prevents an impact on exterior activities, the interior criterion shall be used as the basis of determining noise impacts.*
- c. *If a noise impact is identified, the abatement measures listed in paragraph 8c of this directive must be considered.*
- d. *When noise abatement measures are being considered, every reasonable effort shall be made to obtain substantial noise reductions.*
- e. *Before adoption of a final environmental impact statement or finding of no significant impact, the highway agency shall identify:*
 - (1) *noise abatement measures which are reasonable and feasible and which are likely to be incorporated in the project, and*
 - (2) *noise impacts for which no apparent solution is available.*
- f. *The views of the impacted residents will be a major consideration in reaching a decision on the abatement measures to be provided.*
- g. *The plans and specifications will not be approved by FHWA unless those noise abatement measures which are reasonable and feasible are incorporated into the plans and specifications to reduce or eliminate the noise impact on existing activities, developed lands, or undeveloped lands for which development is planned, designed, and programmed.*

8. FEDERAL PARTICIPATION

- a. *Federal funds may be used for noise abatement measures where:*
- (1) *a traffic noise impact has been identified,*
 - (2) *the noise abatement measures will reduce the traffic noise impact, and*
 - (3) *the overall noise abatement benefits are determined to outweigh the overall adverse social, economic, and environmental effects and the costs of the noise abatement measures.*
- b. *For Type II projects, noise abatement measures will not normally be approved for those activities and land uses which come into existence after May 14, 1978. However, noise abatement measures may be approved for activities and land uses which come into existence after May 14, 1978, provided local authorities have taken measures to exercise land use control over the remaining undeveloped lands adjacent to highways in the local jurisdiction to prevent further development of incompatible activities.*
- c. *The noise abatement measures listed below may be incorporated in Type I and Type II projects to reduce traffic noise impacts. The costs of such measures may be included in Federal-aid participating project costs with the Federal share being the same as that for the system on which the project is located, except that Interstate construction funds may only participate in Type I projects:*
- (1) *traffic management measures (e.g., traffic control devices and signing for prohibition of certain vehicle types, time-use restrictions for certain vehicle types, modified speed limits, and exclusive land designations),*
 - (2) *alteration of horizontal and vertical alignments,*
 - (3) *acquisition of property rights (either in fee or lesser interest) for construction of noise barriers,*

- (4) construction of noise barriers (including landscaping for esthetic purposes) whether within or outside the highway right-of-way. Interstate construction funds may not participate in landscaping,
- (5) acquisition of real property or interests therein (predominately unimproved property) to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise. This measure may be included in Type I projects only, and
- (6) noise insulation of public use or nonprofit institutional structures.

d. There may be situations where (1) severe traffic noise impacts exist or are expected, and (2) the abatement measures listed above are physically infeasible or economically unreasonable. In these instances, noise abatement measures other than those listed in paragraph 8a of this directive may be proposed for Types I and II projects by the highway agency and approved by the Regional Federal Highway Administrator on a case-by-case basis when the conditions of paragraph 8a of this directive have been met.

9. INFORMATION FOR LOCAL OFFICIALS. In an effort to prevent future traffic noise impacts on currently undeveloped lands, highway agencies shall inform local officials within whose jurisdiction the highway project is located of the following:

- a. The best estimation of future noise levels (for various distances from the highway improvement) for both developed and undeveloped lands or properties in the immediate vicinity of the project,
- b. Information that may be useful to local communities to protect future land development from becoming incompatible with anticipated highway noise levels, and
- c. eligibility for Federal-aid participation for Type II projects as described in paragraph 8b of this directive.

10. TRAFFIC NOISE PREDICTION

- a. *Any traffic noise prediction method is approved for use in any noise analysis required by this directive if it generally meets the following two conditions:*
- (1) *The methodology is consistent with the methodology in the FHWA Highway Traffic Noise Prediction Model (Report No. FHWA-RD-77-108).*
 - (2) *The prediction method uses noise emission levels obtained from one of the following:*
 - (a) *National Reference Energy Mean Emission Levels as a Function of Speed (Appendix A).*
 - (b) *Determination of reference energy mean emission levels in "Sound Procedures for Measuring Highway Noise: Final Report," Report No. DP-45-1R.*
- b. *In predicting noise levels and assessing noise impacts, traffic characteristics which will yield the worst hourly traffic noise impact on a regular basis for the design year shall be used.*

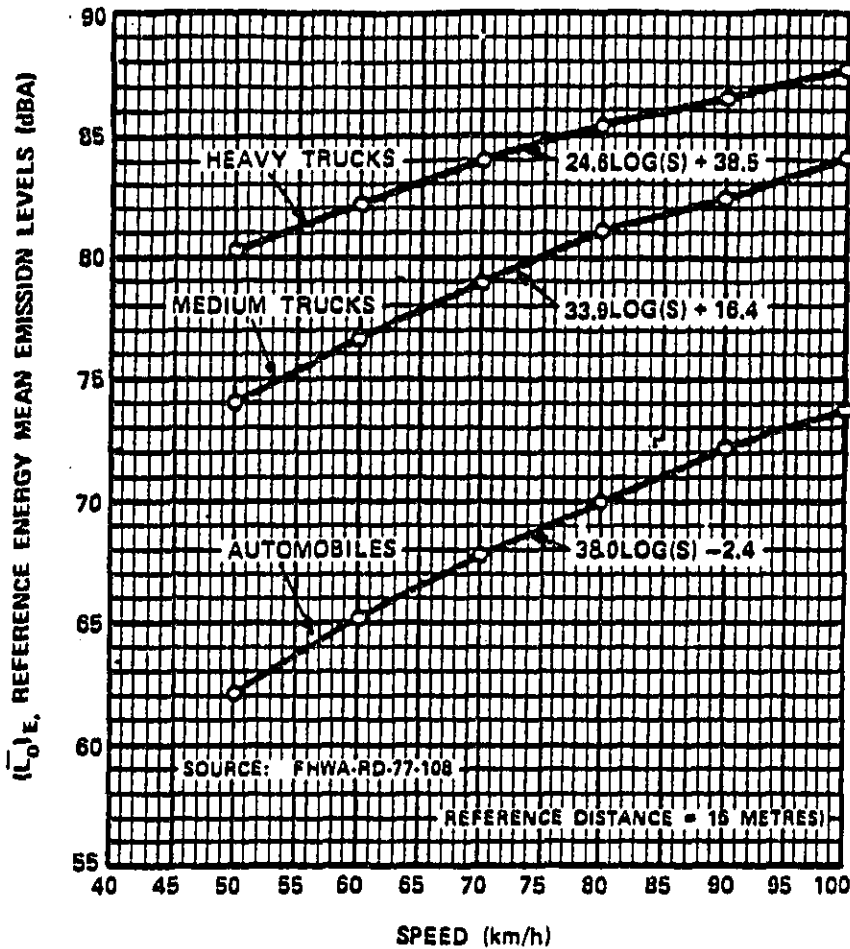
11. CONSTRUCTION NOISE. *The following general steps are to be performed for all Types I and II projects:*

- a. *Identify land uses or activities which may be affected by noise from construction of the project. The identification is to be performed during the project development studies.*
- b. *Determine the measures which are needed in the plans and specifications to minimize or eliminate adverse construction noise impacts to the community. This determination shall include a weighing of the benefits achieved and the overall adverse social, economic, and environmental effects and the costs of the abatement measures.*
- c. *Incorporate the needed abatement measures in the plans and specifications.*

TABLE 1 - Noise Abatement Criteria
Hourly A-Weighted Sound Level - decibels (dBA) 1/

<u>Activity Category</u>	<u>Leq(h)</u>	<u>L10(h)</u>	<u>Description of Activity Category</u>
A	57 (Exterior)	60 (Exterior)	Land 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 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

1/ Either L10(h) or Leq(h) (but not both) may be used on a project.

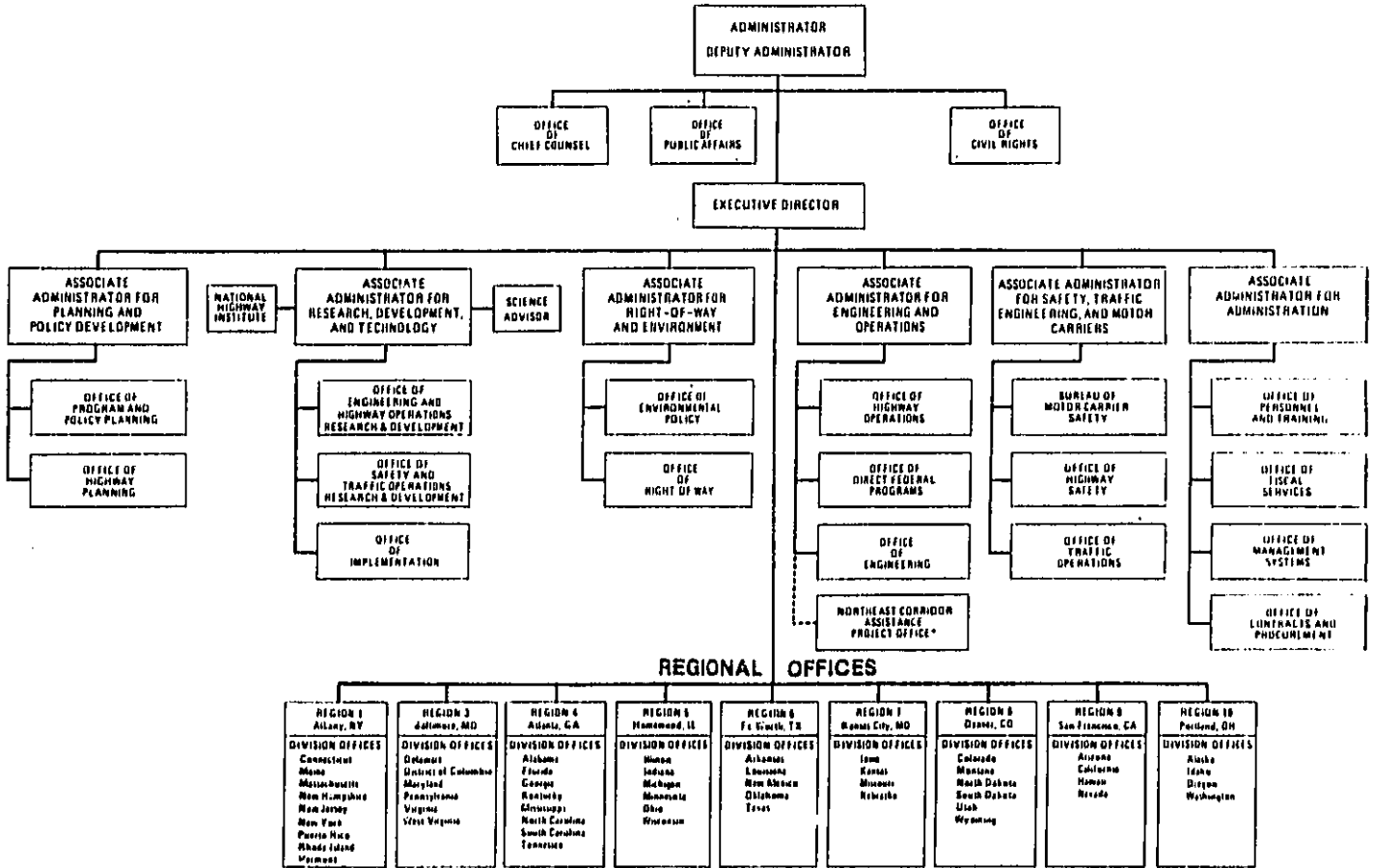


LEGEND:

1. AUTOMOBILES: ALL VEHICLES WITH TWO AXLES AND FOUR WHEELS.
2. MEDIUM TRUCKS: ALL VEHICLES WITH TWO AXLES AND SIX WHEELS.
3. HEAVY TRUCKS: ALL VEHICLES WITH THREE OR MORE AXLES.

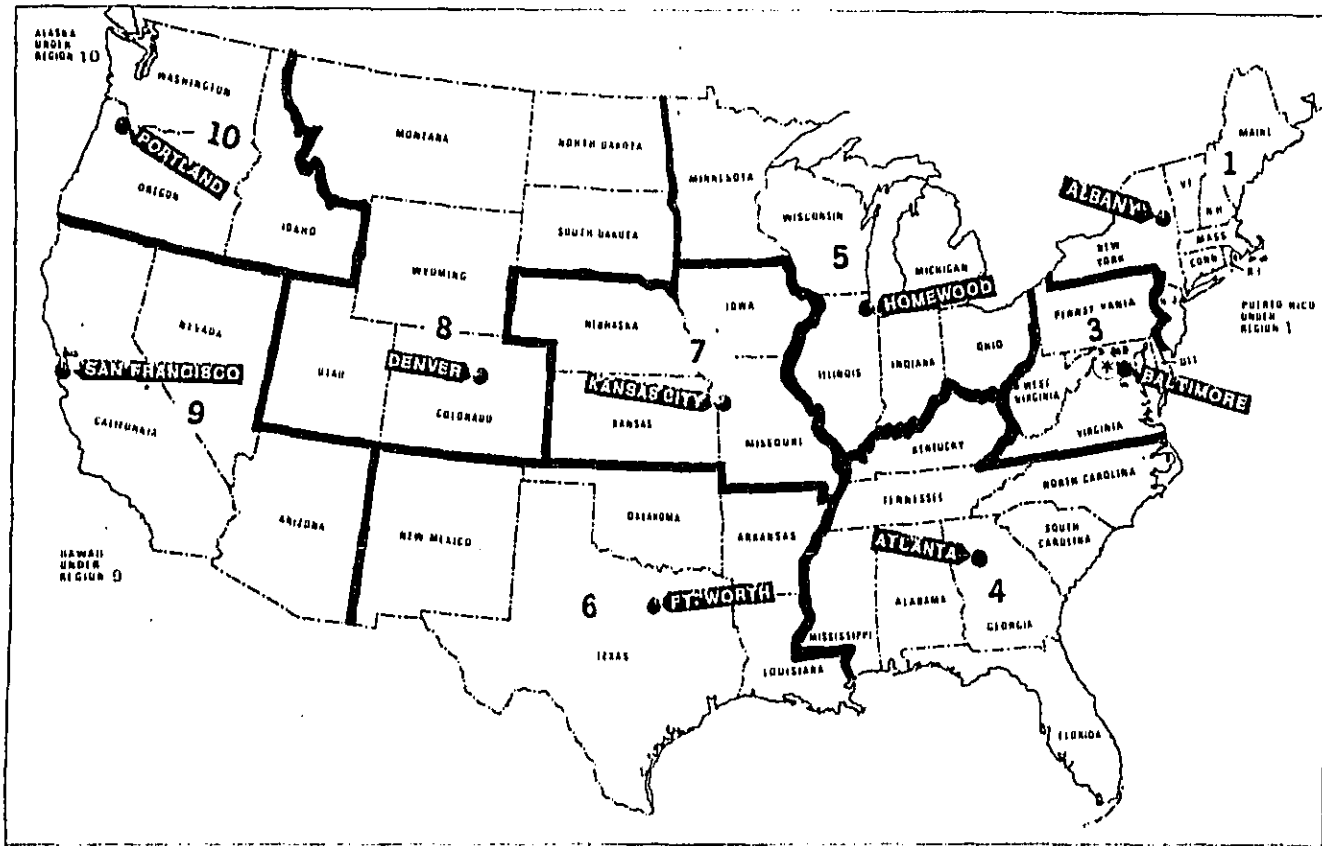
**National Reference Energy Mean Emission
Levels as a Function of Speed**

FEDERAL HIGHWAY ADMINISTRATION



*Provides institutional, technical and professional support to FRA

Field Regions of the Federal Highway Administration



↑ Washington, D.C. Headquarters

● Field Region Headquarters

NOTE: FHWA Region 1 Conforms to Standard Regions 1 and 2

FHWA REGIONAL OFFICE NOISE CONTACTS

REGION 1

HQ W/O REVIEWER: STEVE RONNING, 426-4093*

<u>REGIONAL OFFICE</u>	Dan Reagan, Dir.	562-4253
	Bruce Mattson	562-4277
	Ed Newhard	562-4278
	Doug Conlan	562-4279

CONNECTICUT

NEW YORK

MAINE

PUERTO RICO

MASSACHUSETTS

RHODE ISLAND

NEW HAMPSHIRE

VERMONT

NEW JERSEY

REGION 3

HQ W/O REVIEWER: BRUCE TURNER, 426-0106

<u>REGIONAL OFFICE</u>	Bob Gatz, Dir.	922-3742
	Bill Hall	922-3648
	John Webster	922-2542

DELAWARE

VIRGINIA

DISTRICT OF COLUMBIA

WEST VIRGINIA

MARYLAND

EASTERN DIRECT FEDERAL

PENNSYLVANIA

* FTS

REGION 4

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REGIONAL OFFICE

Del Luckow, Dir. 257-4997
Bill VanLuchene 257-4067

ALABAMA

MISSISSIPPI

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TENNESSEE

REGION 5

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Ron Rogers, Dir.	926-5236
Ken Bechtel	926-5236

IOWA

MISSOURI

KANSAS

NEBRASKA



August 2, 1985

U.S. Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

ATTENTION: MR. ED VEST, PROJECT OFFICER

REFERENCE: EPA CONTRACT NO. 68-03-6253, WORK ASSIGNMENT NO. 0-2
SAIC PROJECT NO. 2-813-07-326-02

Dear Mr. Vest:

Attached are four (4) copies of the first deliverable under WA 0-2. As noted in our progress report, we have compressed the schedule due to the delay in getting started. This deliverable, as well as the final deliverable, will be completed two weeks ahead of schedule.

This deliverable represents work conducted under Task 1 - Information Gathering. SAIC reviewed about 75 documents and interviewed the FHWA and FAA staff dealing with noise impacts. We have prepared agency summaries for those agencies as well as for HUD. The introduction to the report addresses EPA's role in noise impact reviews.

We have begun work on Task 2 - Basic Noise Guidance Document Development. A revised outline for the guidance manual is shown in Attachment 2. We expect to have a draft prepared for your review by the week of September 10, 1985. Please contact me if you have any questions regarding this deliverable.

Sincerely,

Cindy V. Hughes
Cindy V. Hughes
Work Assignment Manager

CVH/mls
Attachments

cc: Mary O'Donnell

NOISE Handbook

1. 3 ring format
2. Arrangement of laws, regs + exhibits
3. [Short summary]
- *4. FAA need to pull section from 5050.4 page 28
47. e(1) Noise
85. a. rule 80
5. EPA Noise Policy statement
- *6. NOISE Regulation Report -
 - ① Pull off reference to Bureau of National Affairs
 - ② drop all state Regs
 - ③ give cites for other all state laws + regs - state good source of noise regulation
7. Appropriate sections of laws
- *8. Attach 2^{to} 1050.1D dated 12-2-83
- *9. Where to put Regional contacts etc
Appendix or up front

ATTACHMENT 2
NOISE EIS REVIEW GUIDE

1. Introduction
 - 1.1 Purpose
 - 1.2 Applicability/NEPA Process
 - 1.3 How to Use the Review Guide
2. Noise Policies and Regulations
 - 2.1 Federal Highways, Administration
 - Authority
 - Regulation
 - Compliance with NEPA
 - Policy Overview
 - Analysis of Traffic Noise Impacts and Abatement Measures
 - Noise Abatement
 - Traffic Noise Prediction
 - 2.2 Federal Aviation Administration
 - Authority
 - Regulation
 - Compliance with NEPA
 - Purpose
 - Policy Overview
 - Identification
 - Noise Exposure Maps and Related Descriptions
 - Noise Compatibility Program
 - 2.3 Department of Housing and Urban Development
 - Authority
 - Purpose
 - General Policy
 - Criteria and Standards
 - Measure of External Noise Environments
 - Loud Impulsive Sounds
 - Exterior Standards

*In Can Form this guide
must have
① EPA policy staff on
noise remains (in general
not agency specific?).
② summary of "essence" of
each agency chapter
③ Guided on how to do a
expanded
chapter 6?*

- WDR

*See you on
the 3rd*

3. Primer on Noise

3.1 What is Noise

- Receiver
- Propagation
- Source

3.2 Physics of Sound

- Terminology
- Basic Properties of Sound Waves

3.3 Measurement of Environmental Noise-Sound Descriptions

- A - Weighted Sound Level
- Sound Exposure Level
- Equivalent Sound Level (Leq) L^{10}
- Day-Night Sound Level (DNL)

3.4 Environmental Effects of Noise

- Annoyance
- Community Response
- Effects on Domestic Animals and Wildlife

3.5 Health Effects

- The Hearing Mechanism
- Noise-Induces Hearing Loss
- Non-Auditory Health Effects

4. Primer on Noise Models

4.1 Federal Highway Administration

- Applications
- Input Parameters

4.2 Federal Aviation Administration

- Applications
- Input Parameters

4.3 U.S. Airforce

- Applications
- Input Parameters

of A I DM Revision

*OSWING INM
AREA
Avenue
Baltimore
MD*

5. Noise Abatement

5.1 Highway Projects

- Traffic Management
- Alignment Changes
- Buffer Zones
- Noise Barriers / Berms
- Vegetation
- Noise Insulation

5.2 Airport Projects

- Compatible Land Use through Zoning
- Noise Barriers, berms
- Curfews
- Noise Abatement Takeoff or Approach Procedures

5.3 Case Studies

6. EIS Review Checklist

- Identification of Sensitive Receptors
- Analysis of Impacts
- Analysis of Abatement Alternatives
- Reasonableness of Recommended Actions
- Unmitigated Areas
- Construction Noise
- Local Coordination

7. Glossary

8. Appendices

9. References

306 not notifiable
but still should separate
the distance as much as possible

AFCU 2 p. 95
Aviation
Noise

REGION 8

HQ W/O REVIEWER: HERMAN RODRIGO, 426-4093

REGIONAL OFFICE

Frank Allison, Dir. 776-3330
Bob Jacobsen 776-3329
Bill Evans 776-3330

COLORADO

UTAH

MONTANA

WYOMING

NORTH DAKOTA

CENTRAL DIRECT FEDERAL

SOUTH DAKOTA

REGION 9

HQ W/O REVIEWER: MIKE SAUNDERS, 426-4093

REGIONAL OFFICE

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Jay Bates 454-7003
Dan Harris 454-7002

ARIZONA

HAWAII

CALIFORNIA

NEVADA

REGION 10

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REGIONAL OFFICE

Ernest Valach, Dir. 423-2061
Irv Lloyd 423-2061

ALASKA

WASHINGTON

IDAHO

WESTERN DIRECT FEDERAL

OREGON

EXHIBIT B - FAA

15 CFR Part 150

FAA Regions and Regional Offices

FAA Regional Noise Abatement Officers

SAIC

Federal Register

Tuesday
December 18, 1984

Part V

Department of Transportation

Federal Aviation Administration

14 CFR Parts 11 and 150

Airport Noise Compatibility Planning;
Development and Submission of Airport
Operator's Noise Exposure Map and
Noise Compatibility Planning Program;
Final Rule and Request for Comments

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

(Docket No. 18891; Amdt. No. 11-25;
Revision of Part 150)

14 CFR Parts 11 and 150

**Airport Noise Compatibility Planning;
Development and Submission of
Airport Operator's Noise Exposure
Map and Noise Compatibility Planning
Program**

AGENCY: Federal Aviation
Administration (FAA), DOT.

ACTION: Final rule; request for
comments.

SUMMARY: This final rule revises and makes final the FAA's interim rule that prescribes requirements for airport operators who choose to submit noise exposure maps and develop airport noise compatibility planning programs to the FAA. This regulation is needed to implement portions of the Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 2101 *et seq.*). It amends the interim rule adopted on January 19, 1981 (46 FR 8318). The revisions reflect, in part, comments invited and received following promulgation of the interim rule.

DATES: Effective date of this amendment is January 18, 1985. Comments must be received on or before June 14, 1985.

ADDRESSES: Send comments on the rule in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AEE-204), Docket No. 18891, 800 Independence Avenue, SW., Washington, D.C. 20597. Or deliver comments in duplicate to: FAA Rules Docket, Room 916, 800 Independence Avenue, SW., Washington, D.C.

Comments may be examined in the Rules Docket, weekdays except Federal Holidays, between 8:30 a.m. and 5:00 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. Richard Tedrick, Noise Policy and Regulatory Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591, telephone (202) 755-9027.

SUPPLEMENTARY INFORMATION: The purpose of these regulations is to implement portions of Title I of the Aviation Safety and Noise Abatement Act of 1979 as amended (49 U.S.C. 2101 *et seq.*, the "ASNA Act"). These final regulations amend and make final the interim regulations promulgated January 19, 1981 (published in 46 FR 8318, January 26, 1981). That interim rule was

issued in order to meet the statutory deadline to prescribe regulations by February 24, 1981. Although the interim rule was based largely on Notice No. 70-24 (41 FR 51522), full implementation of the statutory dictates required certain provisions in the rule that varied in some respects from those proposed in the notice. Accordingly, comments were invited on the interim rule based on the rule text and experience under the rule. A number of interested persons submitted written comments to the public regulatory docket. All comments received have been reviewed and considered in the issuance of this final rule. They are discussed below.

Comments Invited

The FAA has determined that it is appropriate to adopt this revision of Part 150 without additional public notice and comment on the text thereof. In view of the fact that the FAA has already received comments on the interim rule and that, except for a shift of certain review functions within the FAA, the changes in Part 150 are all either editorial or clarifying in nature, notice and public procedure are unnecessary. In addition, the FAA has been ordered by the United States Court of Appeals for the District of Columbia Circuit (*People of the State of Illinois v. Langhorne Bond*, No. 81-1317, September term, 1983) to promulgate final regulations governing airport noise abatement planning and noise assessment methodology no later than December 18, 1984.

DOT Regulatory Policies and Procedures (44 FR 11034; February 23, 1979) provide that, to the maximum extent possible, DOT operating administrations should provide notice and an opportunity to comment to the public on regulations, even when not required to do so by statute. The DOT policy further provides that prior notice may be foregone when it can reasonably be anticipated that such action will not result in the receipt of useful information. In such a case the initiating office, nevertheless, is to provide notice and opportunity to comment subsequent to the final regulation. This procedure will assure that continued public participation is allowed and also permit the FAA to assure compliance with the judicial deadlines. Accordingly, interested persons are invited to submit such written data, views, or arguments as they may desire regarding this amendment. Communications should identify the regulatory docket and be submitted in duplicate to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments on this amendment must

submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 18891." All comments submitted will be available for examination in the Rules Docket both before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

Synopsis of the Final Rule

As provided under the ASNA Act, these regulations apply to any "public use airport" as defined by Section 502(17) of the Airport and Airway Improvement Act of 1982. It should be noted that, although Part 150 specifies requirements that must be met when submitting noise exposure maps and airport noise compatibility planning programs to the FAA, the submission of these maps and programs is completely voluntary.

These proposed amendments also incorporate changes required by amendments to the ASNA Act, Docket comments received during the February 23, 1981 through December 31, 1981 comment period, and the practical experience gained by the FAA in implementing the program. FAA's internal processing of Part 150 submissions are modified to simplify the airport operator's procedural requirements and to place primary review responsibility in the FAA's regional offices.

Overview of the Changes

As required by the Act, the regulations as revised establish a single system of measuring aircraft noise and a single system for determining the exposure of individuals to noise in the vicinity of airports. The regulations as revised also establish a standardized airport noise compatibility planning program, including: (1) Voluntary development and submission to the FAA of noise exposure maps and noise compatibility programs by airport operators; (2) standard noise methodologies and units; (3) identification of land uses that are normally compatible (or noncompatible) with various levels of noise around airports; and (4) the procedures and criteria for preparation and submission of noise exposure maps and noise compatibility programs.

This rule changes the administrative process to be followed by the FAA when it receives a noise exposure map or airport noise compatibility program (or their revisions) from an airport operator in accordance with the ASNA

Act. Airport operators volunteering to participate in the program submit five copies of their noise exposure maps, noise compatibility programs, and their revisions to the Director of the FAA Regional Office having jurisdiction over the area in which the airport is located. If the submission conforms to the applicable requirements, it is received by the FAA and a notice of receipt is published in the Federal Register. Submissions which do not conform, will be returned by the Regional Director to the airport operator for further consideration and development to comply with Part 150.

The Regional Director (or designee) conducts the necessary evaluations of noise compatibility programs and, within the prescribed time period, recommends to the Administrator whether to approve or disapprove the program. The region is provided broad discretion to conduct the evaluation and to follow the necessary procedures to ensure that the decision will be made efficiently and on a well-informed and reasoned basis. Some of the evaluation criteria are prescribed under section 104 of the ASNA Act, but in other situations, such as those relating to flight procedures or affecting the safe and efficient use of the navigable airspace, the FAA will apply appropriate policy and program criteria to the matters presented by the program. The FAA considers only one program at a time for any specific airport; if a program is already under review, it will have to be revised or withdrawn by the applicant before the FAA will review another program. Except for specific situations, each revised program will be considered under the proposed rule as a new program. Under prescribed conditions, an approval may be revoked or modified for cause after notice to the airport operator. Determinations become effective upon issuance and continue until revoked or modified.

In framing the ASNA Act, the Congress reaffirmed the FAA's responsibilities to review local actions for flight safety and for economic burden. Under ASNA, the proposal of restrictions or other actions under a noise compatibility program is entirely discretionary on the part of the airport operator; however, review of the operator's proposal by the FAA for safety and economic burden is not optional. Once submitted to the FAA, each noise compatibility program must be scrutinized and be approved or disapproved under all of the criteria in section 104 of the ASNA Act.

Administrative Process

This rule describes the revised administrative process the FAA will follow when it receives a noise exposure map or airport noise compatibility program (and their revisions) in accordance with the requirements of the ASNA Act. As previously indicated, the Director of the FAA Region in which the airport is situated has, through delegation from the Administrator, the primary responsibility for administering the Part 150 airport noise compatibility planning program. The FAA Region will evaluate the submission and will coordinate any aspects of the noise program affecting other agency programs.

The process provides for notice to the public of the receipt of each airport "noise exposure map" and "noise compatibility program" by publication in the Federal Register when, based on a preliminary review, the requirements for those submissions are satisfied. It provides a means for timely and thorough evaluation by the FAA of the measures presented in each program to ensure an informed and reasoned determination on whether that program should be approved. That decision is based on the program itself, information presented or developed during the evaluation, and other information available to the agency.

The administrative process does not include adversary pleadings or proceedings in which interested persons submit their complaints, evidence, or arguments for a "record" of hearing as the sole basis upon which the Administrator's determination on a program will be made. Instead, Section 103(a)(1) of the ASNA Act provides that, before a Noise Exposure Map is submitted to the FAA, it be prepared "in consultation with any public agencies and planning agencies in the area surrounding the airport." FAA's role is then simply to approve or disapprove a subsequent program within the 180-day time set by Congress. Section 104(b) of the ASNA Act requires the Administrator to approve or disapprove each program submitted in accordance with the Act (except those measures relating to flight procedures) within 180 days after it is received or, upon failure to do so, the program is "deemed" to be approved. Except for those measures relating to flight procedures, the Administrator must approve a program if the measures to be undertaken under the program: (1) Would not create an undue burden on interstate or foreign commerce, (2) are reasonably consistent with obtaining the goal of reducing existing noncompatible land uses and

preventing the introduction of additional noncompatible land uses, and (3) the program provides for its revision made necessary by a revised noise exposure map. Clearly, those decisions do not preempt local authority or responsibility for land use decisions.

Program measures relating to proposals for revised flight procedures for noise control or abatement purposes were treated separately from other measures under the ASNA Act, and the interim regulation, in view of their potential impact on air safety and on the efficient and prudent management of the Nation's air transportation system. As specified herein, FAA determinations relating to the use of flight procedures for noise control purposes may be issued either in connection with the decisions made on other portions of the program or they may be issued separately. The FAA recognizes that a proposal concerning flight procedures may be an integral part of a noise compatibility program so that it would be difficult to approve the program if the flight procedures are considered separately. Consequently, the FAA intends to conduct its evaluation of flight procedures together with, and at the same time as, its evaluation of the rest of the program and to issue its determinations at the same time within the 180 days, whenever possible. It is only when further extensive evaluation may be necessary relative to flight procedures which cannot be accomplished within the 180 days allowed for program approval or disapproval that the FAA will issue a separate determination. A separate determination on flight procedures will then be made within an indefinite, but reasonable, time after receipt of the program.

Section 104(a) of the ASNA Act specifically excludes (from the 180-day rule) those portions of a program that "relate to" flight procedures, not just the flight procedures themselves.

An airport operator may revise or withdraw a noise compatibility program at any time before a determination is issued on that program by the Administrator; in addition, the Regional Director may terminate evaluation of the program immediately upon notice of the intent to revise or withdraw a program. A revised program will be treated as a new program and a new 180-day review period will begin unless the Regional Director finds that, in light of the overall program, the modifications can be evaluated separately and integrated into the unmodified portions of the program without exceeding the 180-day review period or creating an undue workload or

expense to the Government. The FAA will evaluate only one program at a time for any one airport.

Discussion of Comments on the Interim Rule

As previously stated, interested persons have been afforded the opportunity to participate in development of all aspects of this rulemaking by submitting written comments to the public regulatory docket. The period for submitting comments closed December 31, 1981. All comments received have been reviewed and considered in the issuance of this final rule.

Twenty public comments were received in response to the notice contained in the interim rule (Docket No. 16729); about half supported the interim rule as published, while the others contained specific suggestions and recommendations for change. In addition to comments directly on the rule, several commenters took the opportunity to comment on other aspects of the ASNA Act.

The assignment of specific responsibilities for local airport noise control planning and implementation to the local airport proprietor, users' groups, planning agencies, and the FAA received considerable discussion. The general consensus among those responding in support of the interim rule procedures was that, without a regulation, many airport noise problems will be overlooked until they are beyond the point of simple or effective solution. Although a majority of individuals responding to the docket were in agreement that the development of noise plans by airport proprietors was a desirable goal, many specific and significant objections to individual sections of the interim rule were raised. The primary objections were with those sections dealing with the interactions between groups and the consultations required as a condition of approval by the FAA. While the commenters seldom agreed on what should be required, it was possible to discern a consensus that the provisions of the interim rule were too vague and indistinct to be really useful guidance.

The comments received in public Docket No. 16729 are discussed below. They are grouped by broad categories of issues.

Safety Reviews

One commenter was concerned with the scope of safety reviews of actions that may be proposed by airport proprietors under FAR Part 150. A trade association of U.S. airlines asserted that the present text restricts the safety

reviews to "flight procedures." It was suggested that safety involves other areas, such as displaced thresholds, reverse thrust usage, and glide slopes.

The FAA certainly agrees that the matters listed by the commenter are deserving of safety reviews if and when such actions are proposed for implementation. However, it should be noted that they are already included in FAR Part 150. The definition of flight procedures in § 150.7 includes "any requirements, limitations, or other actions affecting the operation of aircraft in the air or on the ground." This final rule continues the use of the general definition of flight procedures in order to avoid inserting a list of specific actions. Such lists tend to be exclusionary and need more frequent revision.

Aircraft Operational Controls vs. Land Use Controls

This docket received several comments regarding the emphasis that should be placed on aircraft operational controls or limitations relative to emphasis on land use controls. One commenter stated that "greater emphasis should be placed on flight procedures which diminish aircraft noise at its source or lessen its impact on noise sensitive areas." Another commenter stated that land use controls and off-airport construction techniques with limited aircraft operational modifications would be acceptable but remained opposed to aircraft noise restrictions beyond those already required by FAR Part 36. The commenter continued that "it would be serious error on the part of FAA to adopt a policy that encourages local airport operators to establish additional noise restrictions and thus adversely impact the fleet transition process." This final rule will not limit, in any way, FAA's close review of proposed operating restrictions with respect to the impact of such proposals or the fleet transition process.

It is not the intent of the FAA through FAR Part 150 to encourage one noise abatement alternative over another but through the very process set forth in Part 150 to provide a reasonable planning and implementation approach to ensure that maximum noise abatement benefits are derived in a manner that does not place an undue burden on air commerce, is not discriminatory, and does not adversely affect the safe and efficient use of airspace. The Part 150 process provides a voluntary avenue for airport proprietors to gain Federal approval of noise abatement proposals.

Level of Federal Involvement in Local Planning

One commenter observed that most airports serving air transportation have been in existence for a long time with known incompatible land uses in the airport environs. The commenter believes that there are few situations where political, social, and financial conditions would permit conversion of these uses to compatible ones. Two commenters expressed concern about the degree of Federal involvement as stated in the interim regulation and the effect it may have on diminishing local responsibilities relative to noise controls. One of these, the American Association of Airport Executives, complained that attempts by local proprietors to protect the citizens from noise have run afoul of Federal action through the courts or otherwise citing restraint of trade or discrimination. On the other hand, the Air Transport Association (ATA) argued for the establishment of its proposed national aircraft noise abatement program which would preclude FAA approval of plans which unduly affect interstate commerce, jeopardize safety, unjustly discriminate or interfere with safe and efficient use of airspace. ATA's proposal would allow for local involvement by initiation of a plan by the local proprietor and opportunity for public review.

FAA proposes to support the ATA position with respect to factors which should not be allowed and has provided for them in the Program Standards section of Appendix B and in paragraph 150.35(b) on program approval.

Voluntary vs. Mandatory Planning

Nine comments were received on whether or not Part 150 should require at least some airport proprietors to submit noise exposure maps and noise computability programs. For instance, the city of Chamblee, Georgia, stated that all airports with an Airport Operating Certificate should be required to submit their noise maps and programs as a condition for their certification, that any airport with noncompatible uses should be required to hold advertised public hearings during the plan development process, and should receive Federal assistance with respect to the costs incurred in developing these plans. The Attorney General of the State of Illinois went further and suggested that Part 150 should be revised to allow citizens and communities that are severely noise impacted to require the airport operator to engage in the noise abatement planning programs. FAA

encourages all affected communities to participate in the land use and related compatibility planning process, but does not wish to interfere in local decisions concerning which local government body should exercise legal jurisdiction over such planning.

On the other hand, the City of Syracuse, New York, and agencies of several states (Alaska, Arizona, and Maryland) supported voluntary participation in the Part 150 process. They felt that a uniform national requirement for the preparation and submission of noise maps and programs, whether or not the airport had a demonstrable noise problem, would be burdensome and unnecessary. The FAA agrees with this position. Further, the ASNA Act requires that the process be voluntary. Therefore, that principle is maintained in the final rule.

The Department of Law of the State of New York, however, expressed concern that the voluntary nature of Part 150 could lead to noncompliance and to subsequent undermining of the purpose and intent of the rule. They urged some strengthening of sanctions, either positive or negative, to encourage wider use of the Part 150 process. The FAA shares the expressed concern and believes the New York suggestion to be appropriate. Nothing in the ASNA Act or other statutes prohibits the government from encouraging airport operators to participate. In fact, the ASNA Act, itself, provides that certain legal protections exist for those airport operators submitting maps, and authorizes grants of funds for airport noise compatibility planning and for projects to carry out approved noise compatibility programs.

Of particular concern are those airport operators who, in the name of noise abatement, consider only some of the alternatives and some of the economic impacts of those alternatives, and then proceed with a particular course of action without full and public consultation with the FAA and other affected parties. In this regard the ATA suggested that noise program submissions should not be approved without demonstrations of attempts to balance noise mitigation with burden on interstate commerce, promotion of competition, energy conservation, undue discrimination, efficient use of airspace, cost benefits, and other trades. The FAA believes that, as currently adopted, the Part 150 process permits this. The final rule does not limit FAA's ability to consider these factors.

Review of Existing Local Noise Control and Planning Actions

Several commenters had questions or made statements regarding the relationship between existing local plans or actions regarding noise abatement and how they would relate to or fit in with the Part 150 program objectives.

Part 150 submissions of compatibility can be logical extensions to existing local plans and programs. Separate from this proposal, the FAA has funded and otherwise participated in airport noise abatement and land use compatibility planning under the ADAP Planning Grant Program. Many of these planning efforts are conducted in such a manner that, with minor modifications, the resultant plans would qualify for submission under Part 150. There are provisions in this rule to waive certain requirements of the rule for those locations which began their studies prior to the end of the fiscal year in which the interim rule was issued.

In summary, the ASNA Act and Part 150 set forth an appropriate means of defining the noise problem, determining the wide range of affected interests, ensuring broad public and aeronautical participation, and, finally, balancing all of these interests to assure a reasonable, nonarbitrary, and nondiscriminatory result. That result must be consistent with the airport proprietor's broad duties under the constitution and its specific duties under applicable airport development grants.

Relation to Airport Proprietor's Responsibility

As stated above, Part 150, like the ASNA Act itself, does not place a duty on airport operators to submit noise compatibility programs to the FAA, or to refrain from implementing programs unless they are approved by the FAA. In this sense, the provisions of Part 150 are not mandatory. However, the FAA believes that the provisions of Part 150, like those in the ASNA Act, are essential to the attainment of an adequate weighing and balancing of air transportation and air commerce objectives against the myriad of social, community, and other real interests that may be affected by airport noise. In addition, it is clear from the legislative history of the Act that the Congress intended to establish a standardized framework for ensuring that localized airport noise restrictions are based on a broad base of information and are thus reasonable, fair, and responsive to the needs of both air commerce and the community.

The FAA, therefore, views Part 150, or a process similar to it (whether or not the process is approved by the FAA), as setting forth the kind of rational decision-making procedure that is appropriate to meet the test of reasonableness set forth by the United States Court of Appeals for the Second Circuit in *British Airways Board, et al. v. Port Authority of New York and New Jersey*, 558 F.2d 2075 (1977). In that case, the Court noted that the Federal government conceded that it may not preempt airport proprietors from promulgating their own noise regulations (as is also stated in Part 150), but then went on to consider what limits, if any, apply to the airport proprietor who seeks to restrict the use of its airport for noise purposes. The Court noted the pervasive scheme of FAA regulation of aircraft operation and noise abatement, and set the stage for its conclusion as follows: "Implicit in the Federal scheme of noise regulations, which accords to local airport proprietors the critical responsibility for controlling permissible noise levels in the vicinity of their airports, is the assumption that their responsibility will be exercised in a fair, reasonable and nondiscriminatory manner." (558 F.2d 82). The Court considered both the airport proprietor's liability for noise damages flowing from *Griggs v. Allegheny County*, 360 U.S. 84 (1962) and the wide range of air commerce responsibility and activities that are covered by the protective mantle of preemption (citing *City of Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 824, (1973)), and then struck a reasoned accommodation between each of these conflicting interests. Accordingly, the Court held that the Port Authority " . . . is vested only with the power to promulgate reasonable, nonarbitrary and nondiscriminatory regulations that establish acceptable noise levels for the airport and its immediate environs. Any other conduct by an airport proprietor would frustrate the (aviation) statutory scheme and unconstitutionally burden the commerce Congress sought to foster." (588 F.2d 84).

The Court also noted that the duty to act reasonably is further stated in Federal airport development grants which, pursuant to 49 U.S.C. 1718(a)(1), provide that the Federally funded airport will be "available for public use on fair and reasonable terms and without unjust discrimination" (558 F.2d 84).

In summary, the ASNA Act and Part 150 set forth an appropriate means of defining the noise problem, determining the wide range of affected interests,

ensuring broad public and aeronautical participation, and, finally, balancing all of these interests in a manner that is needed to assure a reasonable, nonarbitrary, and nondiscriminatory result that is consistent with the airport proprietor's broad duties under the constitution and its specific duties under applicable airport development grants.

This duty is carried forward, without change under the Airport and Airway Improvement Act of 1982 (at 49 U.S.C. 2210).

Public Involvement

Two commenters proposed that proponents actively seek public involvement in the review of noise compatibility programs rather than merely passively await public comment. Another commenter recommended that the rule emphasize that a "critically important purpose of noise compatibility planning" is to provide for direct involvement in the planning process; it was stated that successful efforts require a thorough understanding of the legal responsibilities (and limits) of the parties involved. It was further recommended that this involvement take place early in the process when there is still opportunity to develop mutually acceptable plans and that more explicit instructions be given regarding citizen participation generally. FAA agrees with these comments and has revised § 150.23(d) accordingly.

One commenter proposed that a formal docket be established upon receipt of a noise exposure map to provide a means for filing written comments and assuring adequate consideration and that all comments received should be included in submissions of noise compatibility programs. This commenter suggested that a summary could be substituted, but only if the commenters (to the noise exposure map docket) agreed that it was fair representation of their comments. Since the responsibility for local coordination of draft noise exposure maps and draft noise compatibility programs rests with the airport operator and with local public and planning agencies (See Sections 103 and 104 of the ASNA Act), FAA does not agree that an FAA or other Federal docket is appropriate. The proposed rule does require, for both the submission of noise exposure maps and noise compatibility programs, a signed statement by the airport operator stating that full coordination with responsible local public agencies has been accomplished (See § 150.23 (d) and (e)). The procedures set forth for evaluation of the program in § 150.33 include ample provision for FAA to confer with

affected parties and otherwise ascertain the validity of the material submitted. Nothing in the rule would prevent any party from pointing out to FAA any aspects of the program he or she feels should have a bearing on final disposition.

In response to comments recommending that the FAA specify the form and nature of consultation and mandate public meetings at critical stages during development of a plan, FAA believes that the methods for ensuring proper coordination at the local level should be left entirely to local government. Accordingly, these comments are not accepted.

One commenter suggested that "states" be specifically included as among the public agencies with whom airport operators consult in the process of developing noise exposure maps and compatibility programs. FAA agrees and proposes to revise §§ 150.21(b) and 150.23(c) accordingly.

Internal Review and Approval Processes Within FAA

The FAA agrees with the recommendation of several commenters that more authority be given to FAA regional offices in the review and approval process. The proposed rule reflects changes which give the FAA Regional Directors primary responsibility for program review and approval with FAA Regional Airports Divisions having a central role in coordination of FAA's review of noise exposure maps and compatibility programs. However, specific overview is to be retained in FAA headquarters and approvals by the Administrator.

The Air Transport Association (ATA) has recommended specific changes in Subpart C regarding the internal review process and factors to be considered. For the most part, FAA agrees with these suggestions and has made changes accordingly. FAA cannot accept ATA's recommendation relative to limiting automatic approval, after the 180-day review period, only to those options strictly under local control. The final regulation reflects the provisions in the law as regards those items which are exempt from the automatic approval provisions (i.e., items related to flight procedures).

Funding Availability for Noise Planning

Several commenters indicated the strong need for noise abatement funding. One respondent made the point that a positive step of encouragement of sponsor participation in the Part 150 program would be the attractiveness or probability of funding through the Federal grant program. Another

commenter said that, without the good prospect of funding, many of these plans would be counterproductive and even frustrating to the public. This would include loss of credibility to the aviation industry because of the real possibility that the Part 150 process would generate public expectations of noise relief with no guarantees of the funding to implement the measures that would produce that relief.

There is no commitment within Part 150 to provide for the funding of particular projects, nor is there any guarantee that any part of an approved compatibility program will be funded on the Federal level. There is nothing in Part 150 that prohibits local or state funding of projects recommended in approved compatibility programs.

Land Use Compatibility Table

One commenter stated a belief that land uses are not inherently incompatible with specific noise levels. It should be noted that there is no intent to preempt local determinations concerning land use compatibility for noise purposes. We believe that the Land Use Compatibility Table used in the interim regulation, and retained in the final rule, is fair, that it represents the best available information on the subject, and that it fully meets the requirements of the ASNA Act. Like other parts of the rule, it is not intended to replace site specific determinations by local authorities or to supplant other appropriate criteria for use in local programs. Instead, the Table identifies consistent national guidelines for the resolution of airport noise compatibility problems and for needs arising out of the ASNA Act.

The FAA appreciates the intent of another commenter's suggestion that certain changes be made to Part 150 Land Use Compatibility Guidelines to make them more consistent with the Federal Interagency Committee on Urban Noise Guidelines. Specifically, the commenter requested that the Table pick up a note in the Guidelines that states in part that "although local conditions may require residential use, it is discouraged (between L_{dn} 65 and 70 dB) and strongly discouraged (between L_{dn} 70 and 75 dB)." While it is FAA policy to advise against new residential development within the L_{dn} 65 dB contour, the purpose of the Table is to set a clear unambiguous national guidance for the purpose of potential funding of subsequent projects. Since the proposed language would make it less clear as to which situations meet the guidelines and which do not, the note has not been accepted.

Background Noise

Two comments were received on the impact of other (nonairport) noise sources on airport noise compatibility programs. The Arizona Department of Transportation expressed the view that where other noise sources are causing problems in conjunction with airport noise, the airport noise compatibility program should take this into account. They point out that some land uses are incompatible with major arterial streets or with certain industries, as well as with some airport noise levels. In the FAA's opinion, this fact is, or should be, a major consideration in the development of any airport noise compatibility program. No airport is conceived in a vacuum or operated in isolation. Rather, each airport is designed and operated to serve the unique needs of the communities around it. This is historically a major goal of responsible noise planning. Instead, such planning ideally seeks to integrate the airport with its environs by employing land uses that complement airport activities but which are not disturbed by normal airport operations. Obviously, at some airports compatible land uses could include areas for high-noise industrial activities and might also include transportation corridors. Thus, the FAA agrees with the comment that noise compatibility programs should take into account ambient noise levels. However, it is also apparent that there are many airports and communities where it would be unnecessary for the Federal Government to require precise measurements or estimates of ambient noise. Therefore, the FAA maintains the policy that, for purposes of FAR Part 150 maps and programs, no land use shall be identified as noncompatible where the self-generated cumulative noise from that use and/or the ambient noise from other nonairport and nonairport uses is equal to or greater than the cumulative noise from aircraft and airport sources.

The second comment concerning background noise levels expressed the opinion that it would be difficult to determine such ambient noise levels without noise monitoring systems, since the Integrated Noise Model and other computer models do not generally estimate nonaircraft noise. In part, the FAA agrees but does not propose to make noise monitoring systems mandatory.

During the drafting of the interim FAR Part 150, the FAA carefully considered use of a method proposed by the U.S. Environmental Protection Agency (EPA). The EPA proposal included among other things methods for measuring or computing what they called the

"community background noise level."

While the FAA rejected the proposal to require the use of this method, nothing in the interim FAR Part 150 or in this final rule precludes an airport proprietor from using it in appropriate situations. Another accepted quick handbook method of estimating ambient noise due to other transportation sources such as railway or roadway is the Department of Housing and Urban Development (HUD) "Interim Noise Assessment Guidelines." This is a worksheet method that gives a close approximation of probable noise due to other sources. However, the FAA agrees with the commenter that it is generally more accurate to determine background noise levels by measurement. This does not mean that the FAA endorses or recommends for this purpose permanently installed noise monitoring systems at fixed points throughout each community surrounding every airport. Certainly such systems serve a valued function in many communities. For instance, the FAA maintains a system for the two federally-owned airports in the Washington, D.C. area. From this and other experience, the FAA believes that small portable systems, possibly even sound level meters, are more appropriate for the determination of nonaircraft levels in broad areas.

Alternative Contour Methods

One commenter suggested that smaller general aviation airports should be allowed to develop noise exposure contours by using simplified procedures. Specifically, the suggestion was to use procedures published by the FAA several years ago in Report No. FAA-AS-75-1 entitled, *Developing Noise Exposure Contours for General Aviation Airports*.

The FAA agrees in part with the suggestion. The interim text of Sec. A150.103 required the use of an approved computer program, such as the FAA's Integrated Noise Model (INM). After consideration of the suggestion, it now appears that this language was too restrictive in requiring the use of only computer programs. Accordingly, the text of Sec. A150.1 is broadened to include any approved equivalent. It should be noted that approval of any proposed equivalent will be contingent upon its capability to produce essentially the same results (contours) as the INM computer program, from standardized technical information input about the airport, its operations, and environs. Generally, the burden to demonstrate equivalency to the FAA will be with the applicant. However, the FAA will maintain a list of programs

and other methods that have been already approved.

Report No. FAA-AS-75-1 has been examined to see whether it produces equivalent results to the INM. Report FAA-AS-75-1 was developed a number of years ago with the intent that it be used to provide a simplified method to estimate noise for purposes of depicting impacts associated with an environmental assessment for proposed airport development at non air carrier airports. The latest FAA guidance on environmental impact threshold criteria allows the report to be used as a rough estimate to determine if there is the potential for serious noise impacts, and, if not, to produce contours for general aviation airports. The method lacks flexibility and is overly conservative (i.e., tends to overpredict impact). Because of the flexibility which is required to analyze noise abatement procedures fully and the degree of accuracy desired under Part 150, use of this particular handbook method would not be acceptable as an equivalent.

Another commenter noted that the interim rule does not recognize that there may be prior local or state requirements that conflict with the new regulation. He cited the example of one state that required the preparation of DNL noise contours for certain airports. According to the commenter, these maps "have been developed using a variety of methods more-or-less different from the INM of the rule." He suggested that FAR Part 150 should be amended to allow for continued use of these other methods for consistency.

The FAA disagrees with this suggestion and believes that continued use of methods which do not reflect the state-of-the-art in noise prediction is undesirable and would work to the airport operator's detriment since older models tend to overpredict noise contours when compared to newer models. However, the FAA recognizes the burden involved in requiring work to be redone as new models come on line and, therefore, proposes to accept as an "FAA-approved equivalent" the use of a noise methodology which represented an equivalent to the INM state-of-the-art at the time the noise exposure maps and noise compatibility programs were prepared, provided that the contours are shown using DNL. One of the primary thrusts of Title I of the ASNA Act was to require the FAA to standardize the methodology used in the reporting and evaluation of aircraft and airport noise. Although participation in the FAR Part 150 noise compatibility planning process is, under ASNA, voluntary on the part of airport proprietors, the establishment of

"a single system for determining the exposure of individuals to noise which results from the operations of an airport" is not discretionary for the FAA. Instead, the FAA is required to establish this single system by regulation for the purpose of approval of noise compatibility proposals, even though no person is required to apply for, or have, such approval. Thus, the requirement is not just to compute or calculate contours in standardized units of L_{dn} but to compute or calculate those contours in a consistent and uniform manner and to compare the land uses within those contours against a national guideline.

Revision of Noise Exposure Map

Several commenters expressed confusion regarding the contents of the submittal documentation of the noise exposure map, especially the 1985 or 5-year map. They further indicated that it was unclear when a map must be revised. A primary point of confusion was in the definition of "substantial new noncompatible land use" in Section 103 of ASNA and that of "significant" in Section 107 of the same Act. The FAA agrees that these points were unclear and need further explanation.

As indicated in Section 103 of ASNA, a noise exposure map is required to be revised when any change in airport operation would create any substantial new noncompatible use in any area surrounding the airport. "Substantial new noncompatible use" is now defined in Section 150.21(d). Another comment questioned whether the requirement for revision applies to the current map, the 1985 or 5-year map, or both. Section 150.21(d) indicates that, so long as the change in airport operation does not exceed the 1985 or 5-year forecast map to the extent that it would create a substantial new noncompatible use (as defined therein) with respect to that map, no revision is necessary. The 1985 or 5-year map remains in submitted status even after the year 1985 or subsequent year has passed, until it is required to be revised because of a substantial new noncompatible use with respect to that map.

Sections 150.21 (g) and (h) have been added to clarify the relationship of Section 107 of ASNA to the process described in Part 150. The term "significant" in Section 107(a) of ASNA is defined in relationship to the revision of the noise exposure map.

Other Comments

In addition to the comment already noted, the Attorney General of the State of Illinois made other comments related to matters in litigation that were not

comments on the substance of the interim rule.

SECTION-BY-SECTION ANALYSIS OF THE CHANGES TO THE RULE

The final rule establishing the FAA's "Airport Noise Control and Abatement Planning" program is a revision of the interim Part 150 to the Federal Aviation Regulations (14 CFR Part 150). This part, as revised, consists of three subparts and two technical appendixes described as follows:

Subpart A—General Provisions

Section 150.1 is Entitled "Scope and Purpose"

The applicability of Part 150 is specified in § 150.3. As prescribed in the amended ASNA Act, it now covers the airport noise compatibility planning activities of operators of all public use airports not used exclusively by helicopters, as defined in the amended ASNA Act; e.g., any public airport, any privately owned reliever airport, and any privately owned airport which is determined by the Secretary to enplane annually 2,500 or more passengers and receive scheduled passenger service of aircraft which is used or to be used for public purposes. The FAA will receive and evaluate submissions of noise programs from any of the covered airports in order to provide the benefits of the planning, evaluation, and FAA advice to those airport operators wishing to participate. By so doing, the rule covers approximately 2,800 airports.

Section 150.5 specifies the limitations of Part 150. Subsections (a), (b), and (c) have nonsubstantive changes made for clarification. A new subsection (d) is added to clarify that responsibility for the interpretation of the effects and placement of noise contours upon specific adjacent land uses lies with appropriate local governments rather than with the FAA.

Section 150.7 prescribes the definitions of certain terms used in Part 150. Other special usages of terms are provided in those appendixes in which the term appears.

The word "airport" is now defined to cover all public use airports not used exclusively by helicopters, as defined in Section 101(1) of the ASNA Act as amended.

A Part 150 "airport operator" is changed to comply with the amended ASNA Act.

"Noise exposure maps" has the unnecessary requirement for topographic data deleted, and has other changes for clarification.

"Noncompatible land use," also has minor changes for clarification.

Section 150.9 contains the designation of standardized noise systems prescribed under section 102 of the ASNA Act. "Uses of land which are normally compatible . . ." has been moved to a new § 150.11 and changed for clarification. References to FAA approved equivalents in subsections (a) and (b) have been moved to a new subsection (c) and expanded for clarification.

Section 150.11 incorporations by reference, has been renumbered, § 150.13. Minor changes have been made for clarification and the addresses in subsection (e) have been updated.

Subpart B—Development of Noise Exposure Maps and Noise Compatibility Programs

Subpart B of Part 150 prescribes the substantive and procedural standards for airport operators wishing to develop original or revised noise exposure maps (and the related descriptions of projected airport operations) and proposed noise compatibility programs. It also describes the response of FAA Regional Directors in receiving submissions and in publishing notices in the Federal Register.

Section 150.21 covers noise exposure maps and the related documentation under § 103 of the ASNA Act. Section (b) is changed to reflect the new administrative procedures by directing that all copies of airport operator submissions be sent to the FAA Regional Directors.

Section (a)(1) is changed to reflect the passing of the 1982 calendar year and now requires the future data forecast for the fifth calendar year beginning after the date of submission. Additional technical changes are made to both subsections (1) and (2) to clarify the information actually needed.

Section 150.21(b) is changed to clarify the existing requirements for consultation in the preparation of noise exposure maps and to require submission of basic documentation of that consultation. Some of these requirements were previously included in subsection 150.21(e).

Section 150.21(c) is changed to reflect the new administrative procedures and for clarification.

Section 150.21(d), which indicates the circumstances under which an acceptable map must be revised because of changes in airport operations that would create any substantial, new noncompatible land uses, has been expanded to more clearly delineate these circumstances.

For purposes of Part 150, a change in airport operation which creates a

substantial new noncompatible use is an increase in the yearly day-night average sound level of L_{dn} 1.5 dB or greater as a result of aircraft operations which either cause a land area to become noncompatible for the first time or increases the noncompatibility of a previous noncompatible area. The requirement in § 150.21(d) for revision of the noise exposure map is related to the definition of "significant" changes in Section 107(a) of ASNA. When an airport realizes a "significant" change in the type or frequency of aircraft operations, in airport layout, in flight patterns, or in nighttime operations which either individually or cumulatively results in a L_{dn} 1.5 dB increase in noncompatibility, that change would create a "substantial new noncompatible use" and triggers this need for a map revision. This, of course, leaves the responsibility for monitoring these factors on the airport operator.

A revised map is not required if the changes increase the contours of the existing map but are still within the parameters of either the 1985 or 5-year forecast map so that, while the contours may be larger than or different from the map of existing conditions, they are not larger than or different from the forecast conditions. The FAA believes that this situation reflects the fact that the noise contours are changing just as the airport operator had forecast and that this forecast map has been available for public review; therefore, no revision is necessary. It is only when changes in airport operations (i.e., type and/or frequency of aircraft operations, number of nighttime operations, flight patterns, or airport layout) would cause the noise contours to increase in a way that is larger than or different from the forecast conditions and on an order of magnitude that would create a "substantial" (again, defined as an increase of L_{dn} 1.5 dB or more) new noncompatible use as defined in Part 150 definitions that a revised map is required. Changes in land uses or demographics in the area around the airport do not automatically require the submission of a revised map. At some point in the future, when the forecast year has been reached or passed, no revised map is necessary until changes in airport operations create substantial, new noncompatible uses. Comments are invited on whether revised noise exposure maps should be required when local ambient noise levels are substantially changed or the changes result in new noncompatible uses. The FAA will review comments on this issue and will consider further action, if appropriate. Revised noise exposure maps are treated the same,

both substantively and procedurally, under Part 150 as initial submissions of maps.

Section 150.21(f) has been renumbered § 150.21(e).

Section 150.21(f) has been added to reflect Section 107 of ASNA which deals with circumstances under which a person who acquires a property interest in an area surrounding an airport for which a noise exposure map has been submitted shall be entitled to recover damages with respect to noise attributable to the airport.

In new § 150.21(g) the term "significant", in Section 107(a) of ASNA is defined for Part 150 in relation to a change or increase that would result in a substantial, new noncompatible use. This serves to tie together the requirement to revise the noise exposure map with the significant circumstances expressed in Section 107(a) so that the two will occur in unison.

Section 150.23 governs Part 150 noise compatibility programs and their revisions, pursuant to portions of section 104 of the ASNA Act. Any Part 150 airport operator, who has submitted a noise exposure map, may submit to the FAA a "noise compatibility program."

Section 150.23(a) has been revised to reflect the new administrative procedures. Section 150.23(b) has been renumbered as (c) and a new paragraph (b) inserted to clarify acceptance and review sequence when a map and a program are submitted together. The FAA will not begin the 180-day formal review period for the program until after the FAA has had an opportunity to review the map and has found it in compliance with the applicable requirements.

Section 150.23(c), which gives requirements for developing and preparing noise compatibility programs, is expanded to include the requirements for an FAA-approved equivalent. These requirements are also delineated in Appendix B under Sec. B150.9 and are further described in this preamble under the analysis of that section.

As with the noise exposure maps, it is the FAA's intention to require as little modification as possible of documents prepared under previously funded or approved programs for acceptance under Part 150, where consistent with the need to ensure full equivalency.

Section 150.23(d) is renumbered (e) and a new (d) is added. It covers opportunity for public involvement and is in response to the comments received. FAA will not intervene in the consultative process used by local government.

Section 150.23(e) contains a description of the minimum content of a noise compatibility program. Subsection (1) is simplified for clarity. Subsection (4) is changed to place additional emphasis on citizen participation in response to the comments received. Other changes are made for additional clarity. Subsection (5) is changed to clarify the need to prevent the introduction of additional noncompatible uses from future airport operations. Subsection (7) is changed to clarify the documentation requirements for public comments. Subsection (8) is changed to add the estimated costs of proposals as a requirement. Subsection (9) is changed to clarify the requirements for revision of the program.

Subpart C—Evaluation and Determination of Effects of Noise Compatibility Programs

Subpart C of Part 150 describes the procedure followed and general criteria applied by the FAA to determine the pertinent effects of proposed noise compatibility programs and whether the proposed program should be approved or disapproved.

Section 150.31 prescribes the procedure and initial response of the FAA when it receives (from a Part 150 airport operator) a noise compatibility program. Section 150.31(a) is changed so that the Regional Director acknowledges to the airport operator receipt of five copies of the program and conducts a preliminary review of the submission. Section 150.31(b) is renumbered (c) and a new (b) is added. If based on the preliminary review the Regional Director finds that it does not conform to the application requirements of Part 150, it will be returned to the airport operator for reconsideration.

Section 150.31(c), which covers acceptable programs and the FAA's requirements for publication of a Federal Register notice is clarified, is brought into conformance with the revised administrative procedures, and reduced in bulk.

Section 150.31(d) has been added to clarify the starting date of the mandated 180-day approval period.

Section 150.33 describes the process for evaluation of the programs. It is clarified, brought into conformance with the revised administrative procedures, and reduced in bulk. In conducting the evaluation, the Regional Director (or designee) will take the lead and have the primary responsibility. It is expected that the FAA Regional Airports Divisions will have a central role in the program reviews since they maintain

basic working relationships with airport operators, have experience with airport noise planning studies done prior to Part 150, and have responsibility for the airport grant program which may provide funding for noise planning and noise projects. The region will send two copies of each program which has been accepted on the basis of preliminary review to FAA headquarters. Detailed internal FAA guidance or orders will be issued to the regional offices.

establishing criteria for approval of noise compatibility programs. Specific overview is to be retained by FAA headquarters offices to assure overall quality and uniformity of the reviews and a uniform high quality for approved programs. Approval of a program must be by the Administrator (Section 150.35(b)). Any headquarters comments will be sent to the region to incorporate in its review. The Regional Director (or designee) may, to the extent considered necessary, confer with other officials, persons, and agencies which may have responsibilities or information pertinent to the issues.

Section 150.35 governs the issuance of determinations on noise compatibility programs. Section 150.35(a) now includes the provision that no conditional approvals be given and clarifies the program items which are not subject to the 180-day rule. Section 150.35(d) clarifies the criteria for revision of a program. It also incorporates former § 150.23(c). Sections 150.35 (d) through (f) are renumbered. Section 150.35(d) is changed to add two conditions under which an FAA approval of a program or a portion thereof may be rescinded: when a term or condition of the program or its approval is violated, and when a flight procedure or other FAA action upon which the approved program is dependent is subsequently disapproved or rescinded by the FAA. Section 150.35(e) is revised for clarification.

Appendix A—Noise Exposure Map Development

Appendix A to Part 150 contains the technical description and standards constituting the methodology for developing acceptable airport noise exposure maps. Section A150.5(b) and its accompanying Table 1, "Tolerances Allowed on the A-Weighting Characteristics for Type 2 Meters," were redundant and have been deleted. Section A150.5(c) has been renumbered (b) and technical corrections have been made. This section is also changed to clarify that the computer based noise prediction program used must be either the FAA's Integrated Noise Model (INM) or an FAA approved equivalent.

Additional technical corrections have been made to Sections A150.1(b) and A150.3(b). Section A150.5(a) is changed to clarify the types of sound measuring equipment which must be used.

Section A150.101 prescribes the content requirements for noise exposure maps, while Sections A150.101 (a) and (b) have technical corrections. Section A150.101(c) is changed for clarification. Section A150.101(e) is changed for clarification, subsection (8) which was redundant is deleted, and subsection (9) is renumbered. A new subsection (9) has been added to clarify the scale and graphic quality of the maps. Location of historic preservation sites, which had been previously overlooked, has been added to the items in subsection (8).

New section A150.101(f) excepts noise exposure maps prepared in connection with studies which were either Federally funded or Federally approved and commenced before October 1, 1981, from having to be modified in certain specific respects to comply with Part 150. Such studies include Airport Noise Control and Land Use Compatibility (ANCLUC) studies, airport master plans, site selection studies, and environmental impact statements and findings of no significant impact. The date October 1, 1981, reflects the FAA's intention to apply this exception to studies begun before the end of the fiscal year in which the interim Part 150 was issued.

As previously noted, Appendix A, Table 1, identifies the land uses which are normally compatible with the various exposure levels of individuals to noise. The table has been changed to give schools their own subcategory, to recognize their usual close relationship to residential areas and to not appear to encourage their location in a noisier environment than for residential. The footnote to Table 1 has been changed to clarify the local responsibility in determining the relationship between specific properties and specific noise contours. Technical changes have been made to the key and notes to the table for clarification.

Section A150.105 has been simplified for clarity.

Appendix B—Airport Noise Compatibility Program Development

Appendix B to Part 150 prescribes the content and technical methodology for developing airport noise compatibility programs. Those programs set forth the specific measures the airport operator (or other person or agency responsible) has taken, or proposes to take, in light of the noise exposure map for that airport, to reduce existing noncompatible land

uses and to prevent the introduction of additional noncompatible uses.

Section B150.1(h), which states the purposes of a noise compatibility program, has been rewritten for additional clarity and to state better the purpose as defined by the ASNA Act.

Section B150.3 has been rewritten to indicate clearly the need for an accurate and complete noise exposure map as the basis for determining the need for a noise compatibility program and for developing a responsive compatibility program.

Section B150.5(a) is revised to include reduction of the probability of the establishment of additional noncompatible uses.

Section B150.5 (e), (f), and (g) are added to comply fully with the requirements of the ASNA Act.

Sections B150.7 (a) and (b) have been reorganized for increased clarity. Section B150.7(c) has been added to require clear identification of the agencies responsible for implementing the program and the agreed upon schedule.

New Section B150.9 is similar, but not identical, to Section A150.10(f). Section B150.9 excepts noise compatibility programs prepared in connection with studies which were either Federally funded or Federally approved and which commenced before October 1, 1981, from having to be modified in certain specific respects to comply with Part 150. The list of exceptions is somewhat different from and shorter than the list of exceptions for noise exposure maps. Ambient noise levels and estimates of numbers of people impacted are considered by the FAA to be more critical for program purposes than for maps, and so these have not been excepted from programs. Airport operators may submit to the FAA previously prepared programs with adequate supplemental documentation for those items not excepted to meet the requirements of Part 150.

Regulatory Impact Evaluation

The FAA conducted a detailed regulatory evaluation which is included in the regulatory docket. This evaluation reviews all changes to Part 150. FAA determined that this rule is consistent with the objectives of Executive Order 12291 as part of the President's Regulatory Reform Program to reduce regulatory burdens on the public. This rule imposes no additional costs on the Federal Government.

The amendments in this rule will provide benefits in the aggregate to the aviation industry and the general public. These amendments provide benefits to

revision by deleting unnecessary requirements, updating and clarifying the text, and raising certain documentation requirements. The regulations are more concise and easier to understand. In addition, the final Part 150 is expected to provide several other benefits to the general public, including: consistency and a more logical progression of the rules, reduced complexity and streamlining of the approval process for maps and programs. These changes provide a regulation that is easier to read and understand. Additionally, it reduces the amount of study time for persons who are responsible for knowing and complying with the regulation. No additional costs result from the rule changes.

Regulatory Flexibility Determination

As detailed in the evaluation, all but one of the changes to Part 150 are editorial or clarifying changes. This one would shift primary responsibility for review of maps and programs from FAA headquarters to the Regional Director. This change results in improved governmental efficiency.

Therefore, it is certified that the revised rule will not have significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Environmental Analysis

Pursuant to Department of Transportation "Policies and Procedures for Considering Environmental Impacts" (FAA Order 1050.1D), a Finding of No Significant Impact has been made. The changes incorporated in this final rule (which are primarily organizational, administrative, and clarifying), do not significantly affect the quality of the human environment.

Paperwork Reduction Act

Information collection requirements contained in this regulation (sections 9d, 12, and 20) have been approved by the Office of Management and Budget under the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511) and have been assigned OMB control number 2120-0517.

Conclusions

All but one of these amendments are either editorial or clarifying in nature. One amendment is administrative and shifts responsibility for certain review functions within the FAA. For these reasons the FAA has determined that this document involves a regulation which is not major under Executive Order 12201. However, since this document concerns a matter on which

there is substantial public interest, it is considered to be significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Since the amendments are editorial, clarifying and administrative, resulting in no substantial costs or cost savings, it is certified that under the criteria of the Regulatory Flexibility Act this final rule will not have a significant economic impact on a substantial number of small entities. A copy of the regulatory evaluation may be examined in the regulatory docket or obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

List of Subjects

14 CFR Part 11, Reporting and recordkeeping requirements.

14 CFR Part 150

Airports, Noise control.

The Final Rule

Accordingly, the Federal Aviation Regulations (14 CFR Parts 11 and 150) are amended, effective January 12, 1985, as follows:

PART 11—[AMENDED]

1. By amending § 11.101 of Part 11 by adding at the end of the table in paragraph (b) the following:

§ 11.101 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

(b) ***

14 CFR part or section identified and described	Current OMB control No.
Section 150.21 and 150.23	2120-0517

2. By revising Part 150 to read as follows:

PART 150—AIRPORT NOISE COMPATIBILITY PLANNING

Subpart A—General Provisions

- Sec.
- 150.1 Scope and purpose.
- 150.2 Applicability.
- 150.5 Limitations of this part.
- 150.7 Definitions.
- 150.9 Designation of noise systems.
- 150.11 Identification of land uses.
- 150.13 Incorporations by reference.

Subpart B—Submission of Noise Exposure Maps and Noise Compatibility Programs

- 150.21 Noise exposure maps and descriptions of projected operations.
- 150.23 Noise compatibility programs.

Subpart C—Evaluations and Determinations of Effects of Noise Compatibility Programs

- Sec.
- 150.31 Preliminary review; acknowledgments.
- 150.32 Evaluation of programs.
- 150.33 Determinations; publications; effectivity.

Appendix A—Noise Exposure Maps
Appendix B—Noise Compatibility Programs

Authority: Secs. 301(a), 307, 313(a), 801, and 811, Federal Aviation Act of 1958, as amended (49 U.S.C. 1341(a), 1348, 1354(a), 1421, and 1431); 49 U.S.C. 106(g) (Revised, Pub. L. 97-448, January 12, 1983); Secs. 101, 102, 103(a), and 104 (a) and (b), Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 2101, 2102, 2103(a), and 2104 (a) and (b)); 49 CFR 1.47 (part); and Airport and Airway Improvement Act of 1982 (49 U.S.C. 2201 et seq.).

Subpart A—General Provisions

§ 150.1 Scope and purpose.

This part prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. It prescribes single systems for— (a) measuring noise at airports and surrounding areas that generally provides a highly reliable relationship between projected noise exposure and surveyed reaction of people to noise; and (b) determining exposure of individuals to noise that results from the operations of an airport. This part also identifies those land uses which are normally compatible with various levels of exposure to noise by individuals. It provides technical assistance to airport operators, in conjunction with other local, State, and Federal authorities, to prepare and execute appropriate noise compatibility planning and implementation programs.

§ 150.2 Applicability.

This part applies to the airport noise compatibility planning activities of the operators of "public use airports," not used exclusively by helicopters, as that term is used in Section 101(1) of the ASNA Act as amended (49 U.S.C. 2101) and as defined in section 503(17) of the Airport and Airway Improvement Act of 1982 (49 U.S.C. 2202).

§ 150.5 Limitations of this part.

(a) Pursuant to the ASNA Act (49 U.S.C. 2101 et seq.), this part provides for airport noise compatibility planning and land use programs necessary to the purposes of those provisions. No submittal of a map, or approval or disapproval, in whole or part, of any

map or program submitted under this part is a determination concerning the acceptability or unacceptability of that land use under Federal, State, or local law.

(b) Approval of a noise compatibility program under this part is neither a commitment by the FAA to financially assist in the implementation of the program, nor a determination that all measures covered by the program are eligible for grant-in-aid funding from the FAA.

(c) Approval of a noise compatibility program under this part does not by itself constitute an FAA implementing action. A request for Federal action or approval to implement specific noise compatibility measures may be required, and an FAA decision on the request may require an environmental assessment of the proposed action, pursuant to the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*) and applicable regulations, directives, and guidelines.

(d) Acceptance of a noise exposure map does not constitute an FAA determination that any specific parcel of land lies within a particular noise contour. Responsibility for interpretation of the effects of noise contours upon adjacent land uses, including the relationship between noise contours and specific properties, rests with the sponsor or with other state or local government.

§ 150.7 Definitions.

As used in this part, unless the context requires otherwise, the following terms have the following meanings:

"Airport" means any public use airport, not exclusively used by helicopters, as defined by the ASNA Act, including: (a) Any airport which is used or to be used for public purposes, under the control of a public agency, the landing area of which is publicly owned; (b) any privately owned reliever airport; and (c) any privately owned airport which is determined by the Secretary to enplane annually 2,500 or more passengers and receive scheduled passenger service of aircraft, which is used or to be used for public purposes.

"Airport noise compatibility program" and "program" mean that program, and all revisions thereto, reflected in documents (and revised documents) developed in accordance with Appendix B of this part, including the measures proposed or taken by the airport operator to reduce existing noncompatible land uses and to prevent the introduction of additional noncompatible land uses within the area.

"Airport Operator" means, the operator of an airport as defined in the ASNA Act.

"ASNA Act" means the Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 2101 *et seq.*).

"Average sound level" means the level, in decibels, of the mean-square, A-weighted sound pressure during a specified period, with reference to the square of the standard reference sound pressure of 20 micropascals.

"Compatible land use" means the use of land that is identified under this part as normally compatible with the outdoor noise environment (or an adequately attenuated noise level reduction for any indoor activities involved) at the location because the yearly day-night average sound level is at or below that identified for that or similar use under Appendix A (Table 1) of this part.

"Day-night average sound level" (DNL) means the 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between midnight and 7 a.m., and between 10 p.m., and midnight, local time." The symbol for DNL is L_{dn} .

"Noise exposure map" means a scaled, geographic depiction of an airport, its noise contours, and surrounding area developed in accordance with section A150.101 of Appendix A of this part, including the accompanying documentation setting forth the required descriptions of forecast aircraft operations at that airport during the fifth calendar year beginning after submission of the map, together with the ways, if any, those operations will affect the map (including noise contours and the forecast land uses).

"Noise level reduction" (NLR) means the amount of noise level reduction in decibels achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

"Noncompatible land use" means the use of land that is identified under this part as normally not compatible with the outdoor noise environment (or an adequately attenuated noise reduction level for the indoor activities involved at the location) because the yearly day-night average sound level is above that identified for that or similar use under Appendix A (Table 1) of this part.

"Regional Director" means the Director of the FAA Region having responsibility for the geographic area in which the airport in question is located.

"Restriction affecting flight procedures" means any requirement, limitation, or other action affecting the

operation of aircraft, in the air or on the ground.

"Sound exposure level" means the level, in decibels, of the time integral of squared A-weighted sound pressure during a specified period or event, with reference to the square of the standard reference sound pressure of 20 micropascals and a duration of one second.

"Yearly day-night average sound level" (YDNL) means the 365-day average, in decibels, day-night average sound level. The symbol for YDNL is also L_{dn} .

§ 150.9 Designation of noise systems.

For purposes of this part, the following designations apply:

(a) The noise at an airport and surrounding areas covered by a noise exposure map must be measured in A-weighted sound pressure level (L_A) in units of decibels (dBA) in accordance with the specifications and methods prescribed under Appendix A of this part.

(b) The exposure of individuals to noise resulting from the operation of an airport must be established in terms of yearly day-night average sound level (YDNL) calculated in accordance with the specifications and methods prescribed under Appendix A of this part.

(c) Uses of computer models to create noise contours must be in accordance with the criteria prescribed under Appendix A of this part.

§ 150.11 Identification of land uses.

For the purposes of this part, uses of land which are normally compatible or noncompatible with various noise exposure levels to individuals around airports must be identified in accordance with the criteria prescribed under appendix A of this part. Determination of land use must be based on professional planning criteria and procedures utilizing comprehensive, or master, land use planning, zoning, and building and site designing, as appropriate. If more than one current or future land use is permissible, determination of compatibility must be based on that use most adversely affected by noise.

§ 150.13 Incorporations by reference.

(a) *General.* This part prescribes certain standards and procedures which are not set forth in full text in the rule. Those standards and procedures are hereby incorporated by reference and were approved for incorporation by reference by the Director of the Federal

Register under 5 U.S.C. 552(a) and 1 CFR Part 51.

(b) *Changes to incorporated matter.* Incorporated matter which is subject to subsequent change is incorporated by reference according to the specific reference and to the identification statement. Adoption of any subsequent change in incorporated matter that affects compliance with standards and procedures of this part will be made under 14 CFR Part 11 and 1 CFR Part 51.

(c) *Identification statement.* The complete title or description which identifies each published matter incorporated by reference in this part is as follows:

International Electrotechnical Commission (IEC) Publication No. 178, entitled "Precision Sound Level Meters," dated 1972.

(d) *Availability for purchase.* Published material incorporated by reference in this part may be purchased at the price established by the publisher or distributor at the following mailing addresses:

IEC publications:

(1) The Bureau Central de la Commission Electrotechnique Internationale, 1, rue de Varembe, Geneva, Switzerland.

(2) American National Standards Institute, 1430 Broadway, New York, NY 10018.

(e) *Availability for inspection.* A copy of each publication incorporated by reference in this part is available for public inspection at the following locations:

(1) FAA Office of the Chief Counsel, Rules Docket, Room 916, Federal Aviation Administration Headquarters Building, 800 Independence Avenue, SW., Washington, D.C. 20591.

(2) Department of Transportation, Branch Library, Room 930, Federal Aviation Administration Headquarters Building, 800 Independence Avenue, SW., Washington, D.C. 20591.

(3) The respective Regional Offices of the Federal Aviation Administration as follows:

(i) New England Regional Office, 12 New England Executive Park, Burlington, Massachusetts 01803.

(ii) Eastern Regional Office, Federal Building, John F. Kennedy (JFK) International Airport, Jamaica, New York 11430.

(iii) Southern Regional Office, 3400 Norman Berry Drive, East Point, Georgia (P.O. Box 20636, Atlanta, Georgia) 30320.

(iv) Great Lakes Regional Office, 2300 East Devon, Des Plaines, Illinois 60018.

(v) Central Regional Office, 601 East 12th Street, Kansas City, Missouri 64106.

(vi) Southwest Regional Office, 4400 Blue Mound Road, (P.O. Box 1808), Fort Worth, Texas 76101.

(vii) Northwest Mountain Regional Office, 17900 Pacific Highway, South, C-8890A, Seattle, Washington 98168.

(viii) Western Pacific Regional Office, 15000 Aviation Boulevard, Hawthorne, California (P.O. Box 92007, Worldway Postal Center, Los Angeles) 90001.

(ix) Alaskan Regional Office, 701 "C" Street, Box 14, Anchorage, Alaska 99513.

(x) European Office, 15, Rue de la Loi (3rd Floor) B1040 Brussels, Belgium.

(4) The Office of the Federal Register, Room 8401, 1100 "L" Street, NW., Washington, D.C.

Subpart B—Development of Noise Exposure Maps and Noise Compatibility Programs

§ 150.21 Noise exposure maps and related descriptions.

(a) Each airport operator may after completion of the consultations and public procedure specified under paragraph (b) of this section submit to the Regional Director five copies of the noise exposure map (or revised map) which identifies each noncompatible land use in each area depicted on the map, as of the date of submission, and five copies of a map each with accompanying documentation setting forth—

(1) The noise exposure based on forecast aircraft operations at the airport for the fifth calendar year beginning after the date of submission (based on reasonable assumptions concerning future type and frequency of aircraft operations, number of nighttime operations, flight patterns, airport layout including any planned airport development, planned land use changes, and demographic changes in the surrounding areas); and

(2) The nature and extent, if any, to which those forecast operations will affect the compatibility and land uses depicted on the map.

(b) Each map, and related documentation submitted under this section must be developed and prepared in accordance with Appendix A of this part, or an FAA approved equivalent, and in consultation with states, and public agencies and planning agencies whose area, or any portion of whose area, of jurisdiction is within the L_{50} , 85 dB contour depicted on the map, FAA regional officials, and other Federal officials having local responsibility for land uses depicted on the map. This consultation must include regular aeronautical users of the airport. The airport operator shall certify that it has afforded interested persons adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the draft

noise exposure map and descriptions of forecast aircraft operations. Each map and revised map must be accompanied by documentation describing the consultation accomplished under this paragraph and the opportunities afforded the public to review and comment during the development of map. One copy of all written comments received during consultation shall also be filed with the Regional Director.

(c) The Regional Director acknowledges receipt of noise exposure maps and descriptions and indicates whether they are in compliance with the applicable requirements. The Regional Director publishes in the Federal Register a notice of compliance for each such noise exposure map and description, identifying the airport involved. Such notice includes information as to when and where the map and related documentation are available for public inspection.

(d) If, after submission of a noise exposure map under paragraph (a) of this section, any change in the operation of the airport would create any "substantial, new noncompatible use" in any area depicted on the map beyond that which is forecast for the fifth calendar year after the date of submission, the airport operator shall, in accordance with this section, promptly prepare and submit a revised noise exposure map. A change in the operation of an airport creates a substantial new noncompatible use if that change results in an increase in the yearly day-night average sound level of 1.5 dB or greater in either a land area which was formerly compatible but is thereby made noncompatible under Appendix A (Table 1), or in a land area which was previously determined to be noncompatible under that Table and whose noncompatibility is now significantly increased. Such updating of the map shall include a reassessment of those areas excluded under Sec. 150.101(e)(5) of Appendix A because of high ambient noise levels. If the five-year forecast map is based on assumptions involving recommendations in a noise compatibility program which are subsequently disapproved by the FAA, a revised map must be submitted if revised assumptions would create a substantial, new noncompatible use not indicated on the initial five-year map. Revised noise exposure maps are subject to the same requirements and procedures as initial submissions of noise exposure maps under this Part.

(e) Each map, or revised map, and description of consultation and opportunity for public comment submitted to the FAA, must be certified

as true and complete under penalty of 18 U.S.C. 1001.

(f) (1) The ASNA Act provides, in Section 107(a) (49 U.S.C. 2107(a)), that: no person who acquires property or an interest therein after the date of enactment of the Act in an area surrounding an airport with respect to which a noise exposure map has been submitted under Section 103 of the Act shall be entitled to recover damages with respect to the noise attributable to such airport if such person had actual or constructive knowledge of the existence of such noise exposure map unless, in addition to any other elements for recovery of damages, such person can show that—

(i) A significant change in the type or frequency of aircraft operations at the airport; or

(ii) A significant change in the airport layout; or

(iii) A significant change in the flight patterns; or

(iv) A significant increase in nighttime operations; occurred after the date of the acquisition of such property or interest therein and that the damages for which recovery is sought have resulted from any such change or increase."

(2) The Act further provides in Section 107(b), (49 U.S.C. 2107(b)): That for this purpose, "constructive knowledge" shall be imputed, at a minimum, to any person who acquires property or an interest therein in an area surrounding an airport after the date of enactment of the Act if—

(i) Prior to the date of such acquisition, notice of the existence of a noise exposure map for such area was published at least three times in a newspaper of general circulation in the county in which such property is located; or

(ii) A copy of such noise exposure map is furnished to such person at the time of such acquisition.

(g) For this purpose, the term "significant" in paragraph (f) of this section means that change or increase in one or more of the four factors which results in a "substantial new noncompatible use" as defined in § 150.21(d), affecting the property is issue. Responsibility for applying or interpreting this provision with respect to specific properties rests with local government.

§ 150.23 Noise compatibility programs.

(a) Any airport operator who has submitted an acceptable noise exposure map under § 150.21 may, after FAA notice of acceptability and other consultation and public procedure specified under paragraphs (b) and (c) of this section, as applicable, submit to the

Regional Director five copies of a noise compatibility program.

(b) An airport operator may submit the noise compatibility program at the same time as the noise exposure map. In this case, the Regional Director will not begin the statutory 180-day review period (for the program) until after FAA reviews the noise of the applicable requirements.

(c) Each noise compatibility program must be developed and prepared in accordance with Appendix B of this part, or an FAA approved equivalent, and in consultation with FAA regional officials, the officials of the state and of any public agencies and planning agencies whose area, or any portion or whose area, of jurisdiction within the L_{50} 65 dB noise contours is depicted on the noise exposure map, and other Federal officials having local responsibility of land uses depicted on the map. Consultation with FAA regional officials shall include, to the extent practicable, informal agreement from FAA on proposed new or modified flight procedures. For air carrier airports, consultation must include any air carriers and, to the extent practicable, other aircraft operators using the airport. For other airports, consultation must include, to the extent practicable, aircraft operators using the airport.

(d) Prior to and during the development of a program, and prior to submission of the resulting draft program to the FAA, the airport operator shall afford adequate opportunity for the active and direct participation of the states, public agencies and planning agencies in the areas surrounding the airport, aeronautical users of the airport, and the general public to submit their views, data, and comments on the formulation and adequacy of that program.

(e) Each noise compatibility program submitted to the FAA must consist of at least the following:

(1) A copy of the noise exposure map and its supporting documentation as found in compliance with the applicable requirements by the FAA, per § 150.21(c).

(2) A description and analysis of the alternative measures considered by the airport operator in developing the program, together with a discussion of why each rejected measure was not included in the program.

(3) Program measures proposed to reduce or eliminate present and future noncompatible land uses and a description of the relative contribution of each of the proposed measures to the overall effectiveness of the program.

(4) A description of public participation and the consultation with officials of public agencies and planning agencies in areas surrounding the airport, FAA regional officials and other Federal officials having local responsibility for land uses depicted on the map, any air carriers and other users of the airport.

(5) The actual or anticipated effect of the program on reducing noise exposure to individuals and noncompatible land uses and preventing the introduction of additional noncompatible uses within the area covered by the noise exposure map. The effects must be based on expressed assumptions concerning the type and frequency of aircraft operations, number of nighttime operations, flight patterns, airport layout including planned airport development, planned land use changes, and demographic changes within the L_{50} 65 dB noise contours.

(6) A description of how the proposed future actions may change any noise control or compatibility plans or actions previously adopted by the airport proprietor.

(7) A summary of the comments at any public hearing on the program and a copy of all written material submitted to the operator under paragraphs (c) and (d) of this section, together with the operator's response and disposition of those comments and materials to demonstrate the program is feasible and reasonably consistent with obtaining the objectives of airport noise compatibility planning under this part.

(8) The period covered by the program, the schedule for implementation of the program, the persons responsible for implementation of each measure in the program, and, for each measure, documentation supporting the feasibility of implementation, including any essential governmental actions, costs, and anticipated sources of funding, that will demonstrate that the program is reasonably consistent with achieving the goals of airport noise compatibility planning under this part.

(9) Provision for revising the program if made necessary by revision of the noise exposure map.

Subpart C—Evaluations and Determinations of Effects of Noise Compatibility Programs

§ 150.31 Preliminary review: acknowledgments.

(a) Upon receipt of a noise compatibility program submitted under § 150.23, the Regional Director acknowledges to the airport operator

receipt of the program and conducts a preliminary review of the submission.

(b) If, based on the preliminary review, the Regional Director finds that the submission does not conform to the requirements of this part, he disapproves and returns the unacceptable program to the airport operator for reconsideration and development of a program in accordance with this Part.

(c) If, based on the preliminary review, the Regional Director finds that the program conforms to the requirements of this part, the Regional Director publishes in the Federal Register a notice of receipt of the program for comment which indicates the following:

(1) The airport covered by the program, and the date of receipt.

(2) The availability of the program for examination in the offices of the Regional Director and the airport operator.

(3) That comments on the program are invited and, will be considered by the FAA.

(d) The date of signature of the published notice of receipt starts the 180-day approval period for the program.

§ 150.33 Evaluation of programs.

(a) The FAA conducts an evaluation of each noise compatibility program and, based on that evaluation, either approves or disapproves the program. The evaluation includes consideration of proposed measures to determine whether they—

(1) May create an undue burden on interstate or foreign commerce (including unjust discrimination);

(2) Are reasonably consistent with obtaining the goal of reducing existing noncompatible land uses and preventing the introduction of additional noncompatible land uses; and

(3) Include the use of new or modified flight procedures to control the operation of aircraft for purposes of noise control, or affect flight procedures in any way.

(b) The evaluation may also include an evaluation of those proposed measures to determine whether they may adversely affect the exercise of the authority and responsibilities of the Administrator under the Federal Aviation Act of 1958, as amended.

(c) To the extent considered necessary, the FAA may—

(1) Confer with the airport operator and other persons known to have information and views material to the evaluation;

(2) Explore the objectives of the program and the measures, and any

alternative measures, for achieving the objectives.

(3) Examine the program for developing a range of alternatives that would eliminate the reasons, if any, for disapproving the program.

(4) Convene an informal meeting with the airport operator and other persons involved in developing or implementing the program for the purposes of gathering all facts relevant to the determination of approval or disapproval of the program and of discussing any needs to accommodate or modify the program as submitted.

(d) If requested by the FAA, the airport operator shall furnish all information needed to complete FAA's review under (c).

(e) An airport operator may, at any time before approval or disapproval of a program, withdraw or revise the program. If the airport operator withdraws or revises the program or indicates to the Regional Director, in writing, the intention to revise the program, the Regional Director terminates the evaluation and notifies the airport operator of that action. That termination cancels the 180-day review period. The FAA does not evaluate a second program for any airport until any previously submitted program has been withdrawn or a determination on it is issued. A new evaluation is commenced upon receipt of a revised program, and a new 180-day approval period is begun, unless the Regional Director finds that the modification made, in light of the overall revised program, can be integrated into the unmodified portions of the revised program without exceeding the original 180-day approval period or causing undue expense to the government.

§ 150.36 Determinations; publications; effectivity.

(a) The FAA issues a determination approving or disapproving each airport noise compatibility program (and revised program). Portions of a program may be individually approved or disapproved. No conditional approvals will be issued. A determination on a program acceptable under this part is issued within 180 days after the program is received under § 150.23 of this part or it may be considered approved, except that this time period may be exceeded for any portion of a program relating to the use of flight procedures for noise control purposes. A determination on portions of a program covered by the exceptions to the 180-day review period for approval will be issued within a reasonable time after receipt of the program. Determinations relating to the use of any flight procedure for noise

control purposes may be issued either in connection with the determination on other portions of the program or separately. Except as provided by this paragraph, no approval of any noise compatibility program, or any portion of a program, may be implied in the absence of the FAA's express approval.

(b) The Administrator approves programs under this part, if—

(1) It is found that the program measures to be implemented would not create an undue burden on interstate or foreign commerce (including any unjust discrimination) and are reasonably consistent with achieving the goals of reducing existing noncompatible land uses around the airport and of preventing the introduction of additional noncompatible land uses;

(2) The program provides for revision if made necessary by the revision of the noise map; and

(3) Those aspects of programs relating to the use of flight procedures for noise control can be implemented within the period covered by the program and without—

(i) Reducing the level of aviation safety provided;

(ii) Derogating the requisite level of protection for aircraft, their occupants and persons and property on the ground;

(iii) Adversely affecting the efficient use and management of the Navigable Airspace and Air Traffic Control Systems; or

(iv) Adversely affecting any other powers and responsibilities of the Administrator prescribed by law or any other program, standard, or requirement established in accordance with law.

(c) When a determination is issued, the Regional Director notifies the airport operator and publishes a notice of approval or disapproval in the Federal Register identifying the nature and extent of the determination.

(d) Approvals issued under this part for a program or portion thereof become effective as specified therein and may be withdrawn when one of the following occurs:

(1) The program or portion thereof is required to be revised under this part or under its own terms, and is not so revised;

(2) If a revision has been submitted for approval, a determination is issued on the revised program or portion thereof, that is inconsistent with the prior approval.

(3) A term or condition of the program, or portion thereof, or its approval is violated by the responsible government body.

(4) A flight procedure or other FAA action upon which the approved

program or portion thereof is dependent is subsequently disapproved, significantly altered, or rescinded by the FAA.

(5) The airport operator requests rescission of the approval.

(6) Impacts on flight procedures, air traffic management, or air commerce occur which could not be foreseen at the time of approval.

A determination may be sooner rescinded or modified for cause with at least 30 days written notice to the airport operator of the FAA's intention to rescind or modify the determination for the reasons stated in the notice. The airport operator may, during the 30-day period, submit to the Regional Director for consideration any reasons and circumstances why the determination should not be rescinded or modified on the basis stated in the notice of intent. Thereafter, the FAA either rescinds or modifies the determination consistent with the notice or withdraws the notice of intent and terminates the action.

(e) Determinations may contain conditions which must be satisfied prior to implementation of any portion of the program relating to flight procedures affecting airport or aircraft operations.

(f) Noise exposure maps for current and five year forecast conditions that are submitted and approved with noise compatibility programs are considered to be the new FAA accepted noise exposure maps for purposes of Part 150.

Appendix A—Noise Exposure Maps

Part A—General

Sec. A150.1 Purpose.

Sec. A150.3 Noise descriptors.

Sec. A150.5 Noise measurement procedures and equipment.

Part B—Noise Exposure Map Development

Sec. A150.101 Noise contours and land uses.

Sec. A150.103 Use of computer prediction model.

Sec. A150.105 Identification of public agencies and planning agencies.

Part C—Mathematical Descriptions

Sec. A150.201 General.

Sec. A150.203 Symbols.

Sec. A150.205 Mathematical computations.

Part A—General

Sec. A150. Purpose.

(a) This appendix establishes a uniform methodology for the development and preparation of airport noise exposure maps. That methodology includes a single system of measuring noise at airports for which there is a highly reliable relationship between projected noise exposure and surveyed reactions of people to noise along with a separate single system for determining the exposure of individuals to noise. It also identifies land uses which, for the purpose of

this part are considered to be compatible with various exposures of individuals to noise around airports.

(b) This appendix provides for the use of the FAA's Integrated Noise Model (INM) or an FAA approved equivalent, for developing standardized noise exposure maps and predicting noise impacts. Noise monitoring may be utilized by airport operators for data acquisition and data refinement, but is not required by this part for the development of noise exposure maps or airport noise compatibility programs. Whenever noise monitoring is used, under this part, it should be accomplished in accordance with Sec. A150.5 of this appendix.

Sec. A150.3 Noise descriptors.

(a) *Airport Noise Measurement.* The A-Weighted Sound Level, measured, filtered and recorded in accordance with Sec. A150.5 of this appendix, must be employed as the unit for the measurement of single event noise at airports and in the areas surrounding the airports.

(b) *Airport Noise Exposure.* The yearly day-night average sound level (YDNL) must be employed for the analysis and characterization of multiple aircraft noise events and for determining the cumulative exposure of individuals to noise around airports.

Sec. A150.5 Noise measurement procedures and equipment.

(a) Sound levels must be measured or analyzed with equipment having the "A" frequency weighting, filter characteristics, and the "slow response" characteristics as defined in International Electrotechnical Commission (IEC) Publication No. 179, entitled "Precision Sound Level Meters" as incorporated by reference in Part 150 under § 150.11. For purposes of this part, the tolerances allowed for general purpose, type 2 sound level meters in IEC 179, are acceptable.

(b) Noise measurements and documentation must be in accordance with accepted acoustical measurement methodology, such as those described in American National Standards Institute publication ANSI S1.13, dated 1971 as revised 1979, entitled "ANS—Methods for the Measurement of Sound Pressure Levels"; ARP No. 796, dated 1989, entitled "Measurement of Aircraft Exterior Noise in the Field"; "Handbook of Noise Measurement," Ninth Ed. 1980, by Arnold P.G. Peterson; or "Acoustic Noise Measurement," dated Jan. 1979, by J.R. Hassell and K. Zaveri. For purposes of this part, measurements intended for comparison to a State or local standard or with another transportation noise source (including other aircraft) must be reported in maximum A-weighted sound levels (L_{max}); for computation or validation of the yearly day-night average level (L_{day}), measurements must be reported in sound exposure level (L_{SEL}); as defined in Sec. A150.205 of this appendix.

Part B—Noise Exposure Map Development

Sec. A150.101 Noise contours and land uses.

(a) To determine the extent of the noise impact around an airport, airport proprietors

developing noise exposure maps in accordance with this part must develop L_{max} contours. Continuous contours must be developed for YDNL levels of 65, 70, and 75 (additional contours may be developed and depicted when appropriate). In those areas where YDNL values are 65 YDNL or greater, the airport operator shall identify land uses and determine land use compatibility in accordance with the standards and procedures of this appendix.

(b) Table 1 of this appendix describes compatible land use information for several land uses as a function of YDNL values. The ranges of YDNL values in Table 1 reflect the statistical variability for the responses of large groups of people to noise. Any particular level might not, therefore, accurately assess an individual's perception of an actual noise environment. Compatible or noncompatible land use is determined by comparing the predicted or measured YDNL values at a site with the values given. Adjustments or modifications of the descriptions of the land-use categories may be desirable after consideration of specific local conditions.

(c) Compatibility designations in Table 1 generally refer to the major use of the site. If other uses with greater sensitivity to noise are permitted by local government at a site, a determination of compatibility must be based on that use which is most adversely affected by noise. When appropriate, noise level reduction through incorporation of sound attenuation into the design and construction of a structure may be necessary to achieve compatibility.

(d) For the purpose of compliance with this part, all land uses are considered to be compatible with noise levels less than L_{max} 65 dB. Local needs or values may dictate further delineation based on local requirements or determinations.

(e) Except as provided in (f) below, the noise exposure maps must also contain and identify:

- (1) Runway locations.
- (2) Flight tracks.
- (3) Noise contours of L_{max} 65, 70, and 75 dB resulting from aircraft operations.
- (4) Outline of the airport boundaries.
- (5) Noncompatible land uses within the noise contours, including those within the L_{max} 65 dB contours. (No land use has to be identified as noncompatible if the self-generated noise from that use and/or the ambient noise from other nonaircraft and nonairport uses is equal to or greater than the noise from aircraft and airport sources.)
- (6) Location of noise sensitive public buildings (such as schools, hospitals, and health care facilities), and properties on or eligible for inclusion in the National Register of Historic Places.
- (7) Locations of any aircraft noise monitoring sites utilized for data acquisition and refinement procedures.
- (8) Estimates of the number of people residing within the L_{max} 65, 70, and 75 dB contours.
- (9) Depiction of the required noise contours over a land use map of a sufficient scale and quality to discern streets and other identifiable geographic features.

(f) Notwithstanding any other provision of this Part, noise exposure maps prepared in connection with studies which were either Federally funded or Federally approved and which commenced before October 1, 1981, are not required to be modified to contain the following items:

- (1) Flight tracks depicted on the map.
- (2) Use of ambient noise to determine land use compatibility.
- (3) The L_{dn} 70 dB noise contour and data related to L_{dn} 70 dB contour. When determinations on land use compatibility using Table 1 differ between L_{dn} 65-70 dB and

the L_{dn} 70-75 dB, determinations should either use the more conservative L_{dn} 70-75 dB column or reflect determinations based on local needs and values.
 (4) Estimates of the number of people residing within the L_{dn} 65, 70, and 75 dB contours.

TABLE 1.—LAND USE COMPATIBILITY* WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

Land use	Yearly day-night average sound level (L_{dn}) in decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(2)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(2)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(2)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(2)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(2)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock (farming and breeding)	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

Numbers in parentheses refer to notes.
 *The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land use and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land use.

KEY TO TABLE 1
 SLUCLM = Standard Land Use Code Manual.
 Y (Yes) = Land use and related structures compatible without restrictions.
 N (No) = Land use and related structures are not compatible and should be prohibited.
 NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
 25, 30, or 35 = Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

NOTES FOR TABLE 1
 (1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
 (2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
 (3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
 (4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
 (5) Land use compatible provided special sound reinforcement systems are installed.
 (6) Residential buildings require an NLR of 25.
 (7) Residential buildings require an NLR of 30.
 (8) Residential buildings not permitted.

Sec. A.150.100 Use of computer prediction model.

(a) The airport operator shall acquire the aviation operations data necessary to develop noise exposure contours using an FAA approved methodology or computer program, such as the Integrated Noise Model (INM). In considering approval of a methodology or computer program, key factors include the demonstrated capability to produce the required output and the public availability of the program or methodology to provide interested parties the opportunity to substantiate the results.

(b) The following information must be obtained for input to the calculation of noise exposure contours:
 (1) A map of the airport and its environs at an adequately detailed scale (not less than 1 inch to 6,000 feet) indicating runway length, alignments, landing thresholds, takeoff start-of-roll points, airport boundary, and flight tracks out to at least 30,000 feet from the end of each runway.
 (2) Airport activity levels and operational data which will indicate, on an annual average-daily-basis, the number of aircraft, by type of aircraft, which utilize each flight track, in both the standard daytime (0700-

2200 hours local) and nighttime (2200-0700 hours local) periods for both landings and takeoffs.
 (3) For landings—glide slopes, glide slope intercept altitudes, and other pertinent information needed to establish approach profiles along with the engine power levels needed to fly that approach profile.
 (4) For takeoffs—the flight profile which is the relationship of altitude to distance from start-of-roll along with the engine power levels needed to fly that takeoff profile; these data must reflect the use of noise abatement departure procedures and, if applicable, the

takeoff weight of the aircraft or some proxy for weight such as stage length.

(5) Existing topographical or airspace restrictions which preclude the utilization of alternative flight tracks.

(6) The government furnished data depicting aircraft noise characteristics (if not already a part of the computer program's stored data bank).

(7) Airport elevation and average temperature.

Sec. A150.103 Identification of public agencies and planning agencies.

(a) The airport proprietor shall identify each public agency and planning agency whose jurisdiction or responsibility is either wholly or partially within the L_{50} 65 dB boundary.

(b) For those agencies identified in (a) that have land use planning and control authority, the supporting documentation shall identify their geographic areas of jurisdiction.

Part C—Mathematical Descriptions

Sec. A150.201 General.

The following mathematical descriptions provide the most precise definition of the yearly day-night average sound level (L_{50}), the data necessary for its calculation, and the methods for computing it.

Sec. A150.202 Symbols.

The following symbols are used in the computation of L_{50} :

Measure (in dB)	Symbol
Average Sound Level, During Time T	L_T
Day-Night Average Sound Level (individual day)	L_{50}
Yearly Day-Night Average Sound Level	L_{50}
Sound Exposure Level	L_{50}

Sec. A150.205 Mathematical computations.

(a) Average sound level must be computed in accordance with the following formula:

$$L_T = 10 \log_{10} \left[\frac{1}{T} \int_0^T 10^{L_A(t)/10} dt \right] \quad (1)$$

where T is the length of the time period, in seconds, during which the average is taken; $L_A(t)$ is the instantaneous time varying A-weighted sound level during the time period T.

(1) Note: When a noise environment is caused by a number of identifiable noise

events, such as aircraft flyovers, average sound level may be conveniently calculated from the sound exposure levels of the individual events occurring within a time period T:

$$L_T = 10 \log_{10} \left[\frac{1}{T} \sum_{i=1}^n 10^{L_{AEi}/10} \right] \quad (2)$$

where L_{AEi} is the sound exposure level of the i-th event, in a series of n events in time period T, in seconds.

(2) Note: When T is one hour, L_T is referred to as one-hour average sound level.

(b) Day-night average sound level (individual day) must be computed in accordance with the following formula:

$$L_{dn} = 10 \log_{10} \left[\frac{1}{86400} \left(\int_{0000}^{2400} 10^{L_A(t)/10} dt + \int_{0000}^{1200} 10^{L_A(t)+10/10} dt + \int_{1200}^{2400} 10^{L_A(t)+10/10} dt \right) \right] \quad (3)$$

Time is in seconds, so the limits shown in hours and minutes are actually interpreted in seconds. It is often convenient to compute day-night average sound level from the one-hour average sound levels obtained during successive hours.

(c) Yearly day-night average sound level must be computed in accordance with the following formula:

$$L_{dn} = 10 \log_{10} \frac{1}{365} \sum_{i=1}^{365} 10^{L_{dn,i}/10} \quad (4)$$

where $L_{dn,i}$ is the day-night average sound level for the i -th day out of one year.

(d) Sound exposure level must be computed in accordance with the following formula:

$$L_{AE} = 10 \log_{10} \left(\frac{1}{t_0} \int_{t_1}^{t_2} 10^{L_A(t)/10} dt \right) \quad (5)$$

where t_0 is one second and $L_A(t)$ is the time-varying A-weighted sound level in the time interval t_1 to t_2 .

The time interval should be sufficiently large that it encompasses all the significant sound of a designated event.

The requisite integral may be approximated with sufficient accuracy by integrating $L_A(t)$ over the time interval during which $L_A(t)$ lies within 10 decibels of its maximum value, before and after the maximum occurs.

Appendix B—Noise Compatibility Programs

- Sec. B150.1 Scope and purpose.
- Sec. B150.3 Requirement for noise map.
- Sec. B150.5 Program standards.
- Sec. B150.7 Analysis of program alternatives.
- Sec. B150.9 Equivalent programs.

Sec. B150.1 Scope and purpose.

(a) This appendix prescribes the content and the methods for developing noise compatibility programs authorized under this part. Each program must set forth the measures which the airport operator (or other person or agency responsible) has taken, or proposes to take, for the reduction of existing noncompatible land uses and the prevention of the introduction of additional noncompatible land uses within the area covered by the noise exposure map submitted by the operator.

(b) The purpose of a noise compatibility program is:

(1) To promote a planning process through which the airport operator can examine and analyze the noise impact created by the operation of an airport, as well as the costs and benefits associated with various alternative noise reduction techniques, and the responsible impacted land use control jurisdictions can examine existing and forecast areas of noncompatibility and consider actions to reduce noncompatible uses.

(2) To bring together through public participation, agency coordination, and overall cooperation, all interested parties with their respective authorities and obligations, thereby facilitating the creation of an agreed upon noise abatement plan especially suited to the individual airport location while at the same time not unduly affecting the national air transportation system.

(3) To develop comprehensive and implementable noise reduction techniques and land use controls which, to the maximum extent feasible, will confine severe aircraft YDNL values of L_{dn} 75 dB or greater to areas included within the airport boundary and will establish and maintain compatible land uses in the areas affected by noise between the L_{dn} 65 and 75 dB contours.

Sec. B150.3 Requirement for noise map.

(a) It is required that a current and complete noise exposure map and its supporting documentation as found in compliance with the applicable requirements by the FAA, per § 150.21(c) be included in each noise compatibility program:

(1) To identify existing and future noncompatible land uses, based on airport operation and off-airport land uses, which have generated the need to develop a program.

(2) To identify changes in noncompatible uses to be derived from proposed program measures.

(b) If the proposed noise compatibility program would yield maps differing from those previously submitted to FAA, the program shall be accompanied by appropriately revised maps. Such revisions must be prepared in accordance with the requirements of Sec. A 150.101(e) of Appendix A and will be accepted by FAA in accordance with § 150.25(a).

Sec. B150.5 Program standards.

Based upon the airport noise exposure and noncompatible land uses identified in the map, the airport operator shall evaluate the several alternative noise control actions and develop a noise compatibility program which—

(a) Reduces existing noncompatible uses and prevents or reduces the probability of the establishment of additional noncompatible uses;

(b) Does not impose undue burden on interstate and foreign commerce;

(c) Provides for revision in accordance with § 150.23 of this part.

(d) Is not unjustly discriminatory.

(e) Does not derogate safely or adversely affect the safe and efficient use of airspace.

(f) To the extent practicable, meets both local needs and needs of the national air transportation system, considering tradeoffs between economic benefits derived from the airport and the noise impact.

(g) Can be implemented in a manner consistent with all of the powers and duties of the Administrator of FAA.

Sec. B150.7 Analysis of program alternatives.

(a) Noise control alternatives must be considered and presented according to the following categories:

(1) Noise abatement alternatives for which the airport operator has adequate implementation authority.

(2) Noise abatement alternatives for which the requisite implementation authority is vested in a local agency or political subdivision governing body, or a state agency or political subdivision governing body.

(3) Noise abatement options for which requisite authority is vested in the FAA or other Federal agency.

(b) At a minimum, the operator shall analyze and report on the following alternatives, subject to the constraints that the strategies are appropriate to the specific airport (for example, an evaluation of night curfews is not appropriate if there are no night flights and none are forecast):

(1) Acquisition of land and interests therein, including, but not limited to air rights, easements, and development rights, to ensure the use of property for purposes which are compatible with airport operations.

(2) The construction of barriers and acoustical shielding, including the soundproofing of public buildings.

(3) The implementation of a preferential runway system.

(4) The use of flight procedures (including the modifications of flight tracks) to control the operation of aircraft to reduce exposure of individuals (or specific noise sensitive areas) to noise in the area around the airport.

(5) The implementation of any restriction on the use of airport by any type or class of aircraft based on the noise characteristics of those aircraft. Such restrictions may include, but are not limited to—

(i) Denial of use of the airport to aircraft types or classes which do not meet Federal noise standards;

(ii) Capacity limitations based on the relative noisiness of different types of aircraft;

(iii) Requirement that aircraft using the airport must use noise abatement takeoff or approach procedures previously approved as safe by the FAA;

(iv) Landing fees based on FAA certificated or estimated noise emission levels or on time of arrival; and

(v) Partial or complete curfews.

(6) Other actions or combinations of actions which would have a beneficial noise control or abatement impact on the public.

(7) Other actions recommended for analysis by the FAA for the specific airport.

(c) For those alternatives selected for implementation, the program must identify the agency or agencies responsible for such implementation, whether those agencies have agreed to the implementation, and the approximate schedule agreed upon.

Sec. 8150.9 Equivalent Programs.

(a) Notwithstanding any other provision of this Part, noise compatibility programs prepared in connection with studies which were either Federally funded or Federally approved and commenced before October 1, 1981, are not required to be modified to contain the following items:

(1) Flight tracks.

(2) A noise contour of L_{dn} 70 dB resulting from aircraft operations and data related to the L_{dn} 70 dB contour. When determinations on land use compatibility using Table 1 of Appendix A differ between L_{dn} 65-70 dB and L_{dn} 70-75 dB, the determinations should either use the more conservative L_{dn} 70-75 dB column or reflect determinations based on local needs and values.

(3) The categorization of alternatives pursuant to Sec. 8150.7(a), although the

persons responsible for implementation of each measure in the program must still be identified in accordance with § 150.23(a)(8).

(4) Use of ambient noise to determine land use compatibility.

(b) Previously prepared noise compatibility program documentation may be supplemented to include these and other program requirements which have not been excepted.

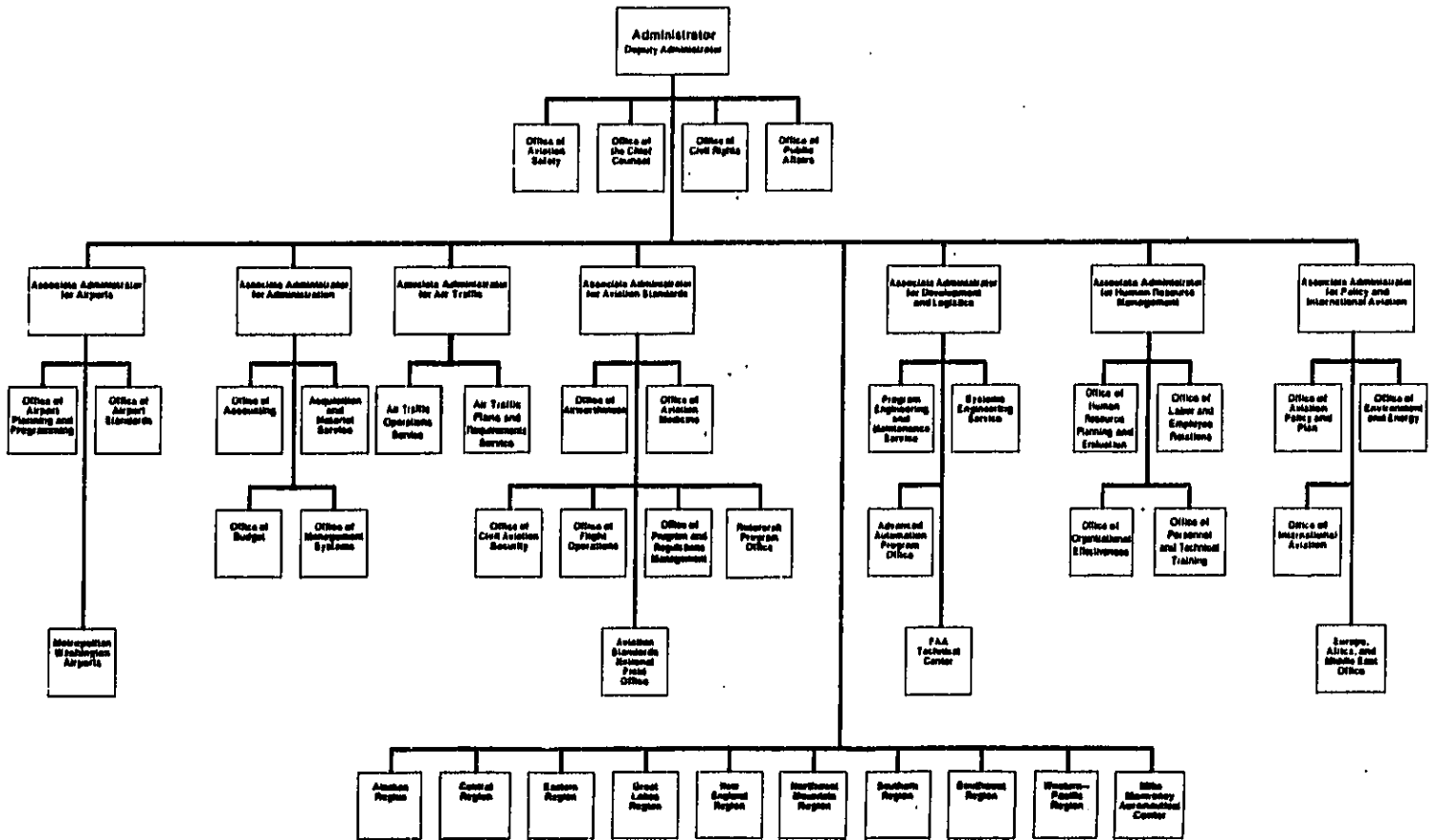
(Secs. 301(a), 307, 313(a), 601, and 611, Federal Aviation Act of 1958, as amended [49 U.S.C. 1341(a), 1348, 1354(a), 1421, and 1431]; 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983); Secs. 101, 102, 103(a), and 104 (a) and (b), Aviation Safety and Noise Abatement Act of 1979, as amended [49 U.S.C. 2101, 2102, 2103(a), and 2104 (a) and (b)]; 49 CFR 1.47(m); and Airport and Airway Improvement Act of 1982 [49 U.S.C. 2201 et seq.]

Issued in Washington, DC, on December 13, 1984.

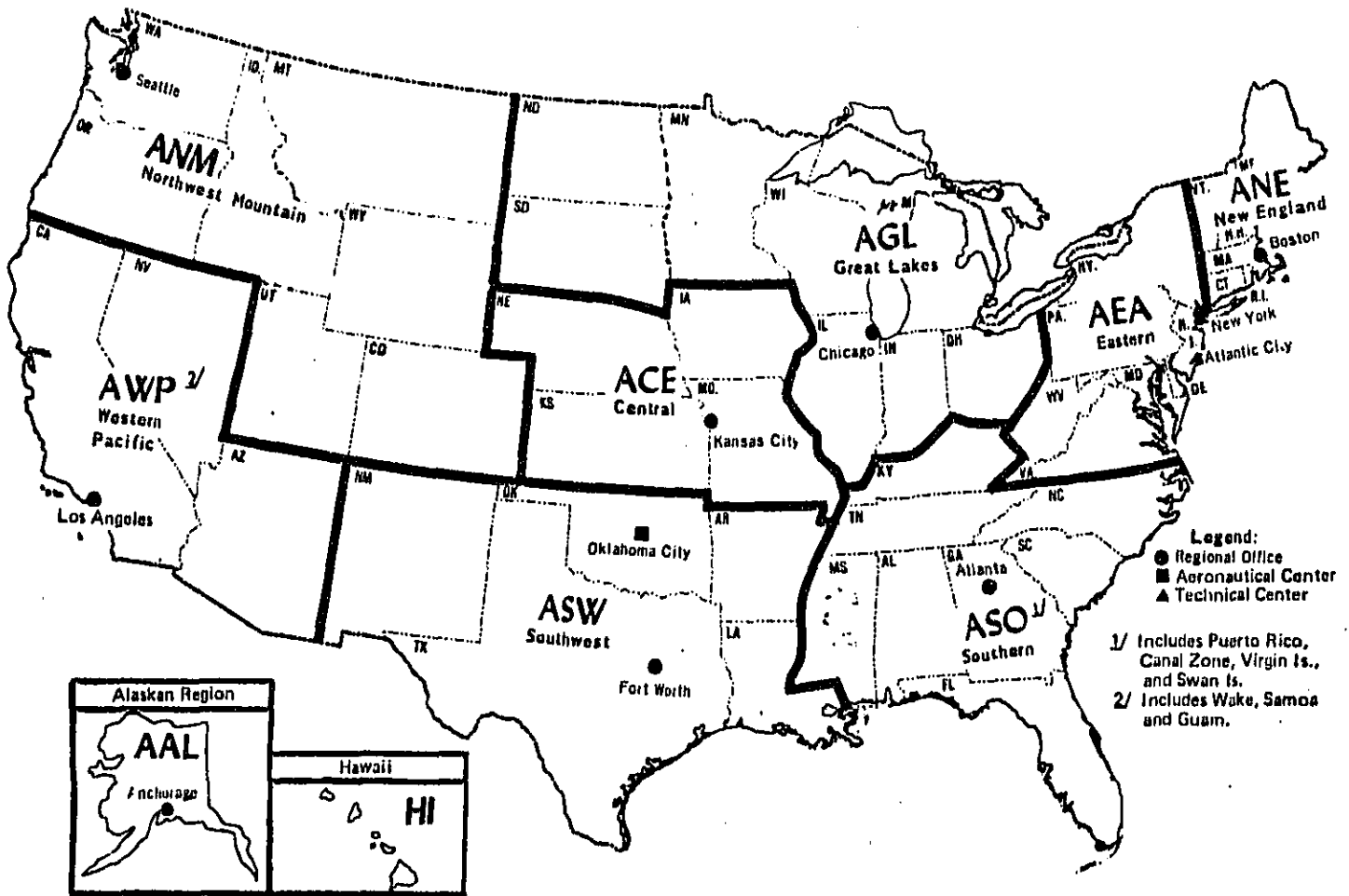
Donald D. Engen,
Administrator.

[FR Doc. 84-32814 Filed 12-17-84; 8:43 am]
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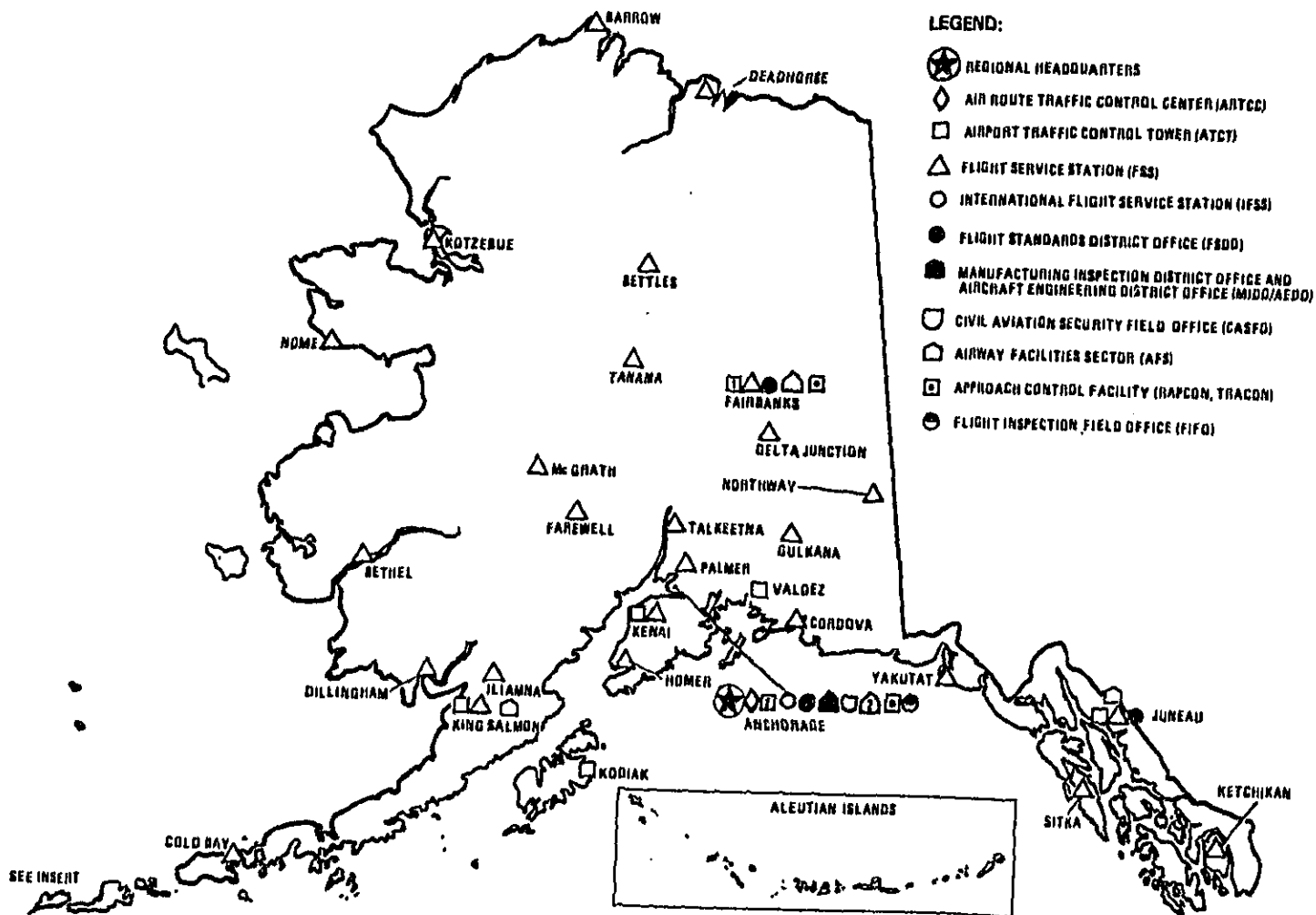
**U.S. Department of Transportation
Federal Aviation Administration**



FEDERAL AVIATION ADMINISTRATION REGIONS AND REGIONAL OFFICES



ALASKAN REGION



FAA
REGIONAL NOISE ABATEMENT OFFICERS
FEBRUARY 1, 1985

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EXHIBIT C - HUD

Department of Housing and Urban Development
Environmental Criteria and Standards - Title 24,
CFR Part 51

SAIC

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ENVIRONMENTAL CRITERIA AND STANDARDS

(Title 24, Code of Federal Regulations, Part 51, issued at 44 FR 40860, July 12, 1979; amended by 49 FR 880, January 6, 1984)

HOUSING AND URBAN
DEVELOPMENT

24 CFR Part 51

Subtitle A—Office of the Secretary

PART 51—ENVIRONMENTAL
CRITERIA AND STANDARDS

Subpart A—General Provisions

- Sec.
51.1 Purpose.
51.2 Authority.
51.3 Responsibilities.
51.4 Program coverage.
51.5 Coordination with environmental clearance requirements.

Subpart B—Noise Abatement and Control

- 51.100 Purpose and authority.
51.101 General policy.
51.102 Responsibilities.
51.103 Criteria and standards.
51.104 Special requirements.
51.105 Exceptions.
51.106 Implementation.

APPENDIX—DEFINITION OF ACOUSTICAL QUANTITIES

Subpart D—Siting of HUD Assisted Projects in Runway Clear Zones at Civil Airports and Clear Zones and Accident Potential Zones at Military Airfields

- Sec.
51.300 Purpose.
51.301 Definitions.
51.302 Coverage.
51.303 General policy.
51.304 Responsibilities.
51.305 Implementation.

Authority: Section 2 of the Housing Act of 1949 as amended, 42 U.S.C. 1441, affirmed by Section 2 of the Housing and Urban Development Act of 1968, Pub. L. No. 90-448; Section 7(d) of the Department of Housing and Urban Development Act of 1965, 42 U.S.C. 3535(d); Office of Management and Budget, Federal Management Circular 75-2; Compatible Land Uses At Federal Airfields.

Subpart A—General Provisions

§ 51.1 Purpose.

The Department of Housing and Urban Development is providing

program Assistant Secretaries and administrators and field offices with environmental standards, criteria and guidelines for determining project acceptability and necessary mitigating measures to insure that activities assisted by the Department achieve the goal of a suitable living environment.

§ 51.2 Authority.

This Part implements the Department's responsibilities under the following statutes:

(a) The National Housing Act of 1954 (Pub. L. 72-478) which was enacted "to encourage improvements in housing standards and conditions, to provide a system of mutual mortgage insurance, and for other purposes," thus providing the basis for HUD's Minimum Property Standards (MPS) which have evolved as required by legislation over the past 44 years.

(b) The Housing Act of 1949 (Pub. L. 81-171) which sets forth the national goal of "a decent home and a suitable living environment for every American family," affirmed by the Housing and Urban Development Act of 1968 (Pub. L. 90-448).

(c) The Department of Housing and Urban Development Act of 1968 (Pub. L. 90-174) which provides that the Secretary may make such rules and regulations as may be necessary to carry out functions, powers, and duties, and sets forth, as a matter of national purpose, the sound development of the Nation's communities and metropolitan areas.

(d) The National Environmental Policy Act of 1969 (Pub. L. 91-190) which directs Federal agencies to develop procedures to carry out the purposes of the Act.

(e) Intergovernmental Cooperation Act of 1968 (Pub. L. 90-577) which, under Title IV, directs that Federal programs and projects serve the objectives of

appropriate land use for housing, commercial, industrial, governmental, institutional, and other purposes to achieve sound and orderly development of all areas, both urban and rural.

§ 51.3 Responsibilities.

(a) Assistant Secretary for Community Planning and Development. The Assistant Secretary shall be responsible for administering environmental regulations, and shall provide oversight, interpretation and guidance, and shall update the regulations as required. The Assistant Secretary shall also maintain liaison with other Federal agencies on matters of environmental policy implementation.

(b) Assistant Secretary for Policy Development and Research. The Assistant Secretary for Policy Development and Research shall undertake research and demonstration studies necessary for the technical development of environmental standards, criteria, and implementing techniques as a basis for the development and implementation of environmental regulations. The Assistant Secretary shall also maintain liaison with Federal agencies on related technical matters.

(c) Other Assistant Secretaries, Administrators, and the General Counsel. Other Assistant Secretaries, Administrators, and the General Counsel shall:

(1) Incorporate adopted environmental regulations by reference into program regulations, guidance documents, and administrative forms and procedures;

(2) Evaluate the effects of, and compliance with Departmental environmental regulations policy and report significant issues and problems to the Assistant Secretary for Community Planning and Development; and

(3) Identify program areas under their jurisdiction in which additional

[24 CFR 51.3(e)(3)]

environmental regulations are needed, and refer them to the Assistant Secretary for Community Planning and Development.

(d) *Regional Administrators, Area Office Managers and Service Office Supervisors.* Regional Administrators, Area Office Managers and Service Office Supervisors shall assure that adopted environmental regulations are implemented in relation to program decisions and recommendations. They shall also monitor projects to assure that mitigation measures are implemented.

§ 51.4 Program coverage.

Environmental standards shall apply to all HUD actions except where special provisions and exemptions are contained in each Subpart.

§ 51.5 Coordination with environmental clearance requirements.

Environmental standards shall be implemented prior to commitment in the decision-making process and, where environmental clearances are required, the decision points shall be identical. Compliance with HUD environmental standards shall be addressed in the environmental clearance process.

§ 51.6 (Reserved)

Subpart B—Noise Abatement and Control

§ 51.100 Purpose and authority.

(a) *Purpose.* The Department of Housing and Urban Development finds that noise is a major source of environmental pollution which represents a threat to the serenity and quality of life in population centers and that noise exposure may be a cause of adverse physiological and psychological effects as well as economic losses.

It is the purpose of this Subpart to:

(1) Call attention to the threat of noise pollution;

(2) Encourage the control of noise at its source in cooperation with other Federal departments and agencies;

(3) Encourage land use patterns for housing and other noise sensitive urban needs that will provide a suitable separation between them and major noise sources;

(4) Generally prohibit HUD support for new construction of noise sensitive uses on sites having unacceptable noise exposure;

(5) Provide policy on the use of structural and other noise attenuation measures where needed; and

(6) Provide policy to guide implementation of various HUD programs.

(b) *Authority.* Specific authorities for noise abatement and control are contained in:

(1) The Noise Control Act of 1972 (Pub. L. 92-574) which directs Federal agencies to administer their programs in ways which reduce noise pollution.

(2) The Quiet Communities Act of 1978 (Pub. L. 95-609) which amended Pub. L. 92-574.

(3) The General Services Administration, Federal Management Circular 75-2: *Compatible Land Uses at Federal Airfields* prescribes the Executive Branch's general policy with respect to achieving compatible land uses on either public or privately owned property at or in the vicinity of Federal airfields.

(4) Section 1113 of the Housing and Urban Development Act of 1965 (Pub. L. 89-117) directs the Secretary " . . . to determine feasible methods of reducing the economic loss and hardships suffered by homeowners as a result of the depreciation in the value of their properties following the construction of airports in the vicinity of their homes, including a study of feasible methods of insulating such homes from the noise of aircraft."

§ 51.101 General policy.

(a) It is HUD's general policy to provide minimum national standards applicable to HUD programs to protect citizens against excessive noise in their communities and places of residence.

(1) *Comprehensive planning assistance.* HUD requires that grantees give adequate consideration to noise exposures and sources of noise as an integral part of the urban environment in HUD assisted comprehensive planning, as follows:

(i) Particular emphasis shall be placed on the importance of compatible land use planning in relation to airports, highways and other sources of high noise.

(ii) Applicants shall take into consideration HUD environmental standards impacting the use of land as required in 24 CFR Part 800.

(iii) Environmental studies, including noise assessments, are allowable costs.

(2) *Community Development Block Grants.* Recipients of community development block grants under the Housing and Community Development Act of 1974 (Pub. L. 93-383), as amended by the Housing and Community Development Act of 1977 (Pub. L. 95-128), must take into consideration the noise criteria and standards in the environmental review process and consider ameliorative actions when noise sensitive land development is

proposed in noise exposed areas. Grant recipients shall address deviations from the standards in their environmental reviews as required in 24 CFR Part 58.

Where CDBG activities are planned in a noisy area, and HUD assistance is contemplated later for housing and/or other noise sensitive activities, the CDBG grantee risks denial of the HUD assistance unless the HUD standards are met. Environmental studies, including noise assessments, are allowable costs.

(3) *HUD support for new construction.* HUD assistance for the construction of new noise sensitive uses is prohibited generally for projects with Unacceptable noise exposures and is discouraged for projects with Normally Unacceptable noise exposure. (Standards of acceptability are contained in § 51.103(c).) This policy applies to all HUD programs providing assistance, subsidy or insurance for housing, college housing, mobile home parks, nursing homes, hospitals, and all programs providing assistance or insurance for land development, new communities, redevelopment or any other provision of facilities and services which are directed to making land available for housing or noise sensitive development. The policy does not apply to research demonstration projects which do not result in new construction or reconstruction, flood insurance, interstate land sales registration, or any action or emergency assistance under disaster assistance programs which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance provided that has the effect of restoring facilities substantially as they existed prior to the disaster.

(4) *HUD support for existing construction.* Noise exposure by itself will not result in the denial of HUD support for the resale and purchase of otherwise acceptable existing buildings. However, environmental noise is a marketability factor which HUD will consider in determining the amount of insurance or other assistance that may be given.

(5) *HUD support of modernization and rehabilitation.* For modernization projects located in all noise exposed areas, HUD shall encourage noise attenuation features in alterations. For major or substantial rehabilitation projects in the Normally Unacceptable and Unacceptable noise zones, HUD actively shall seek to have project sponsors incorporate noise attenuation features, given the extent and nature of the rehabilitation being undertaken and the level or exterior noise exposure. In

Unacceptable noise zones, HUD shall strongly encourage conversion of noise-exposed sites to land uses compatible with the high noise levels.

(6) *Research, guidance and publications.* HUD shall maintain a continuing program designed to provide new knowledge of noise abatement and control to public and private bodies, to develop improved methods for anticipating noise encroachment, to develop noise abatement measures through land use and building construction practices, and to foster better understanding of the consequences of noise. It shall be HUD's policy to issue guidance documents periodically to assist HUD personnel in assigning an acceptability category to projects in accordance with noise exposure standards, in evaluating noise attenuation measures, and in advising local agencies about noise abatement strategies. The guidance documents shall be updated periodically in accordance with advances in the state-of-the-art.

(7) *Construction equipment, building equipment and appliances.* HUD shall encourage the use of quieter construction equipment and methods in population centers, the use of quieter equipment and appliances in buildings, and the use of appropriate noise abatement techniques in the design of residential structures with potential noise problems.

(8) *Exterior noise goals.* It is a HUD goal that exterior noise levels do not exceed a day-night average sound level of 55 decibels. This level is recommended by the Environmental Protection Agency as a goal for outdoors in residential areas. The levels recommended by EPA are not standards and do not take into account cost or feasibility. For the purposes of this regulation and to meet other program objectives, sites with a day-night average sound level of 65 and below are acceptable and are allowable (see Standards in § 51.103(c)).

(9) *Interior noise goals.* It is a HUD goal that the interior auditory environment shall not exceed a day-night average sound level of 45 decibels. Attenuation measures to meet these interior goals shall be employed where feasible. Emphasis shall be given to noise sensitive interior spaces such as bedrooms. Minimum attenuation requirements are prescribed in § 51.104(a).

(10) *Acoustical privacy in multifamily buildings.* HUD shall require the use of building design and acoustical treatment to afford acoustical privacy in multifamily buildings pursuant to

requirements of the Minimum Property Standards.

§ 51.102 Responsibilities.

(a) *Authority to approve projects.* (1) Decisions on proposed projects with acceptable noise exposures shall be delegated to the program personnel within field offices, including projects where increased noise levels are considered acceptable because of non-acoustic benefits under § 51.105(a). Field office program personnel may also approve projects in normally unacceptable noise exposed areas where adequate sound attenuation is provided and where the project does not require an Environmental Impact Statement under § 51.104(b).

(2) Other approvals in normally unacceptable noise exposed areas require the concurrence of the Regional Administrator.

(3) Requests for approvals of projects or portions of projects with unacceptable noise exposures shall be referred through the Regional Office to the Assistant Secretary for Community Planning and Development for approval pursuant to § 51.104(b).

(4) In cases where the Regional Administrator determines that an important precedent or issue is involved, such cases shall be referred with recommendations to the Assistant Secretary for Community Planning and Development.

(b) *Surveillance of noise problem areas.* Appropriate field staff shall maintain surveillance of potential noise problem areas and advise local officials, developers, and planning groups of the unacceptability of sites because of noise exposure at the earliest possible time in the decision process. Every attempt shall be made to insure that applicants' site choices are consistent with the policy and standards contained herein.

(c) *Notice to applicants.* At the earliest possible stage, HUD program administrators shall:

(1) Determine the suitability of the acoustical environment of proposed projects;

(2) Notify applicants of any adverse or questionable situations; and

(3) Assure that prospective applicants are apprised of the standards contained herein so that future site choices will be consistent with these standards.

(d) *Technical assistance.* Technical assistance in the measurement, estimation, interpretation, or prediction of noise exposure is available from the Office of Community Planning and Development and the Office of Policy Development and Research. Field office questions shall be forwarded through

the Regional Office to the Assistant Secretary for Community Planning and Development or his designee.

(e) *Interdepartmental coordination.* Regional Administrators shall foster appropriate coordination between field offices and other departments and agencies, particularly the Environmental Protection Agency, the Department of Transportation, Department of Defense representatives, and the Veterans Administration. HUD staff shall utilize the acceptability standards in commenting on the prospective impacts of transportation facilities and other noise generators in the Environmental Impact Statement review process.

§ 51.103 Criteria and standards.

These standards apply to all programs as indicated in § 51.101.

(a) *Measure of external noise environments.* The magnitude of the external noise environment at a site is determined by the value of the day-night average sound level produced as the result of the accumulation of noise from all sources contributing to the external noise environment at the site. Day-night average sound level, abbreviated as DNL, and symbolized as L_{dn} , is the 24-hour average sound level, in decibels, obtained after addition of 10 decibels to sound levels in the night from 10 p.m. to 7 a.m. Mathematical expressions for average sound level and day-night average sound level are stated in the Appendix.

(b) *Loud impulsive sounds.* On an interim basis, when loud impulsive sounds, such as explosions or sonic booms, are experienced at a site, the day-night average sound level produced by the loud impulsive sounds alone shall have 8 decibels added to it in assessing the acceptability of the site (see Appendix). Alternatively, the C-weighted day-night average sound level (L_{Cdn}) may be used without the 8 decibel addition, as indicated in Section 51.106(a)(3).

Methods for assessing the contribution of loud impulsive sounds to day-night average sound level at a site and mathematical expressions for determining whether a sound is classed as "loud impulsive" are provided in the Appendix.

(c) *Exterior standards.* The degree of acceptability of the noise environment at a site is determined by the sound levels external to buildings or other facilities containing noise sensitive uses. The standards shall usually apply at a location 2 meters (6.5 feet) from the building housing noise sensitive activities in the direction of the predominant noise source. Where the

building location is undetermined, the standards shall apply 2 meters (6.5 feet) from the building setback line nearest to the predominant noise source. The standards shall also apply at other locations where it is determined that quiet outdoor space is required in an area ancillary to the principal use on the site.

The noise environment inside a building is considered acceptable if (a) the noise environment external to the building complies with these standards, and (b) the building is constructed in a manner common to the area or, if of uncommon construction, has at least the equivalent noise attenuation characteristics.

projects with unacceptable noise exposure. Projects in or partially in an Unacceptable Noise Zone shall be submitted through the Regional Administrator to the Assistant Secretary for Community Planning and Development for approval. The Assistant Secretary may waive the EIS requirement in cases where noise is the only environmental issue and no outdoor sensitive activity will take place on the site. In such cases, a Special Environmental Clearance is required.

Site Acceptability Standards

	Day-night average sound level (in decibels)	Special approvals and requirements
Acceptable	Not exceeding 65 dB(1)	None
Normally Unacceptable	Above 65 dB but not exceeding 75 dB	Special Approvals (2) Environmental Review (2) Attenuation (4)
Unacceptable	Above 75 dB	Special Approvals (2) Environmental Review (2) Attenuation (5)

Notes: (1) Acceptable threshold may be shifted to 70 dB in special circumstances pursuant to Section 51.105(a).
 (2) See Section 51.104(b) for requirements.
 (3) See Section 51.104(b) for requirements.
 (4) 5 dB additional attenuation required for sites above 65 dB but not exceeding 70 dB and 10 dB additional attenuation required for sites above 70 dB but not exceeding 75 dB. (See Section 51.104(a).)
 (5) Attenuation measures to be submitted to the Assistant Secretary for CPO for approval on a case-by-case basis.

§ 51.105 Exceptions.

(a) *Flexibility for non-acoustic benefits.* Where it is determined that program objectives cannot be achieved on sites meeting the acceptability standard of 65 decibels, the Acceptable Zone may be shifted to $L_{eq} 70$ on a case-by-case basis if all the following conditions are satisfied:

(1) The project does not require an Environmental Impact Statement under provisions of section 104(b)(1) and noise is the only environmental issue.

(2) The project has received a Special Environmental Clearance and has received the concurrence of the Environmental Clearance Officer.

(3) The project meets other program goals to provide housing in proximity to employment, public facilities and transportation

(4) The project is in conformance with local goals and maintains the character of the neighborhood.

(5) The project sponsor has set forth reasons, acceptable to HUD, as to why the noise attenuation measures that would normally be required for new construction in the $L_{eq} 65$ to $L_{eq} 70$ zone cannot be met.

(6) Other sites which are not exposed to noise above $L_{eq} 65$ and which meet program objectives are generally not available.

The above factors shall be documented and made part of the project file.

§ 51.106 Implementation.

(a) *Use of available data.* HUD field staff shall make maximum use of noise data prepared by others when such data are determined to be current and adequately projected into the future and are in terms of the following:

(1) *Sites in the vicinity of airports.* The noise environment around airports is described sometimes in terms of Noise Exposure Forecasts, abbreviated as NEF or, in the State of California, as

§ 51.104 Special requirements.

(a) *Noise attenuation.* Noise attenuation measures are those required in addition to attenuation provided by buildings as commonly constructed in the area, and requiring open windows for ventilation. Measures that reduce external noise at a site shall be used wherever practicable in preference to the incorporation of additional noise attenuation in buildings. Building design and construction techniques that provide more noise attenuation than typical construction may be employed also to meet the noise attenuation requirements.

(1) *Normally Unacceptable noise zone.* Approvals in this zone require a minimum of 5 decibels additional sound attenuation for buildings having noise-sensitive uses if the day-night average sound level is greater than 65 decibels but does not exceed 70 decibels, or a minimum of 10 decibels of additional sound attenuation if the day-night average sound level is greater than 70 decibels but does not exceed 75 decibels.

(2) *Unacceptable noise zone.* Noise attenuation measures require the approval of the Assistant Secretary for Community Planning and Development. (See § 51.104(b)(2).)

(b) *Special Approvals and Environmental Review Requirements.* Environmental clearances shall be conducted pursuant to the requirements of HUD's Departmental Policies, Responsibilities and Procedures for Protection and Enhancement of

Environmental Quality (38 FR 19182 as amended) or other environmental regulations which may be issued by the Department. The Special Clearance and Environmental Impact Statement (EIS) threshold requirements are hereby modified for all projects proposed in the Normally Unacceptable and Unacceptable noise exposure zones as follows:

(1) *Normally Unacceptable noise zone.* (i) All projects located in the Normally Unacceptable Noise Zone require a Special Environmental Clearance except an EIS is required for a proposed project located in a largely undeveloped area, or where the HUD action is likely to encourage the establishment of incompatible land use in this noise zone.

(ii) When an EIS is required, the concurrence of the Regional Administrator is also required before a project can be approved. For the purposes of this paragraph, an area will be considered as largely undeveloped unless the area within a 2-mile radius of the project boundary is more than 50 percent developed for urban uses and infrastructure (particularly water and sewers) is available and has capacity to serve the project.

(iii) All other projects in the Normally Unacceptable zone require a Special Environmental Clearance, except where an EIS is required for other reasons pursuant to HUD environmental policies.

(2) *Unacceptable noise zone.* An EIS is required prior to the approval of

Community Noise Equivalent Level, abbreviated as CNEL. The noise environment for sites in the vicinity of airports for which day-night average sound level data are not available may be evaluated from NEF or CNEL analyses using the following conversions to DNL:

$$\text{DNL} = \text{NEF} + 3\text{d}$$

$$\text{DNL} = \text{CNEL}$$

(2) *Sites in the vicinity of highways.* Highway projects receiving Federal aid are subject to noise analyses under the procedures of the Federal Highway Administration.

Where such analyses are available they may be used to assess sites subject to the requirements of this standard. The Federal Highway Administration employs two alternate sound level descriptors: (a) The A-weighted sound level not exceeded more than 10 percent of the time for the highway design hour traffic flow, symbolized as L_{10} ; or (b) the equivalent sound level for the design hour, symbolized as L_{eq} . The day-night average sound level may be estimated from the design hour L_{10} or L_{eq} values by the following relationships, provided heavy trucks do not exceed 10 percent of the total traffic flow in vehicles per 24 hours and the traffic flow between 10 p.m. and 7 a.m. does not exceed 15 percent of the average daily traffic flow in vehicles per 24 hours:

$$\text{DNL} = L_{10}(\text{design hour}) - 3 \text{ decibels}$$

$$\text{DNL} = L_{eq}(\text{design hour}) \text{ decibels}$$

Where the auto/truck mix and time of day relationships as stated in this Section do not exist, the HUD Noise Assessment Guidelines or other noise analysis shall be used.

(3) *Sites in the vicinity of installations producing loud impulsive sounds.* Certain Department of Defense installations produce loud impulsive sounds from artillery firing and bombing practice ranges. Noise analyses for these facilities sometimes encompass sites that may be subject to the requirements of this standard. Where such analyses are available they may be used on an interim basis to establish the acceptability of sites under this standard.

The Department of Defense uses day-night average sound level based on C-weighted sound level, symbolized L_{Cdn} , for the analysis of loud impulsive sounds. Where such analyses are provided, the 8 decibel addition specified in 51.103(b), is not required, and the same numerical values of day-night average sound level used on an interim basis to determine site

suitability for non-impulsive sounds apply to the L_{Cdn} .

(4) *Use of areawide acoustical data.* HUD encourages the preparation and use of areawide acoustical information, such as noise contours for airports. Where such new or revised contours become available for airports (civil or military) and military installations they shall first be referred to the Regional Office (Environmental Clearance Officer) for review, evaluation and decision on appropriateness for use by HUD. The Regional Office shall submit revised contours to the Assistant Secretary of Community Planning and Development for review, evaluation and decision whenever the area affected is changed by 20 percent or more, or whenever it is determined that the new contours will have a significant effect on HUD programs, or whenever the contours are not provided in a methodology acceptable under § 51.106(a)(1) or in other cases where the Regional Office determines that Headquarters review is warranted. For other areawide acoustical data, review is required only where existing areawide data are being utilized and where such data have been changed to reflect changes in the measurement methodology or underlying noise source assumptions. Requests for determination on usage of new or revised areawide data shall include the following:

(i) Maps showing old, if applicable, and new noise contours, along with brief description of data source and methodology.

(ii) Impact on existing and prospective urbanized areas and on development activity.

(iii) Impact on HUD-assisted projects currently in processing.

(iv) Impact on future HUD program activity. Where a field office has determined that immediate approval of new areawide data is necessary and warranted in limited geographic areas, the request for approval should state the circumstances warranting such approval. Actions on proposed projects shall not be undertaken while new areawide noise data are being considered for HUD use except where the proposed location is affected in the same manner under both the old and new noise data.

(b) *Site assessments.* Compliance with the standards contained in § 51.103(c) shall, where necessary, be determined using noise assessment guidelines, handbooks, technical documents and procedures issued by the Department.

(c) *Variations in site noise levels.* In many instances the noise environment will vary across a site, with portions of

the site being in an Acceptable noise environment and other portions in a Normally Unacceptable noise environment. The standards in § 51.103(c) shall apply to the portions of a building or buildings used for residential purposes and for ancillary noise sensitive open spaces.

(d) *Noise measurements.* Where noise assessments result in a finding that the site is borderline or questionable, or is controversial, noise measurements may be performed. Where it is determined that noise measurements are required, such measurements will be conducted in accordance with methods and measurement criteria established by the Department. Locations for noise measurements will depend on the location of noise sensitive uses that are nearest to the predominant noise source (see § 51.103(c)).

(e) *Projections of noise exposure.* In addition to assessing existing exposure, future conditions should be projected. To the extent possible, noise exposure shall be projected to be representative of conditions that are expected to exist at a time at least 10 years beyond the date of the project or action under review.

(f) *Reduction of site noise by use of berms and/or barriers.* If it is determined by adequate analysis that a berm and/or barrier will reduce noise at a housing site, and if the barrier is existing or there are assurances that it will be in place prior to occupancy, the environmental noise analysis for the site may reflect the benefits afforded by the berm and/or barrier.

In the environmental review process under § 51.104(b), the location height and design of the berm and/or barrier shall be evaluated to determine its effectiveness, and impact on design and aesthetic quality, circulation and other environmental factors.

Appendix—definition of acoustical quantities

1. *Sound Level.* The quantity in decibels measured with an instrument satisfying requirements of American National Standard Specification for Type 1 Sound Level Meters S1.4-1971. Fast time-averaging and A-frequency weighting are to be used, unless others are specified. The sound level meter with the A-weighting is progressively less sensitive to sounds of frequency below 1,000 hertz (cycles per second), somewhat as is the ear. With fast time averaging the sound level meter responds particularly to recent sounds almost as quickly as does the ear in judging the loudness of a sound.

2. *Average Sound Level.* Average sound level, in decibels, is the level of the mean-square A-weighted sound pressure during the stated time period, with reference to the square of the standard reference sound pressure of 20 micropascals.

Day-night average sound level, abbreviated as DNL, and symbolized mathematically as L_{dn} is defined as:

$$L_{dn} = 10 \log_{10} \left[\frac{1}{86400} \left(\int_{0000}^{2400} 10^{[L_A(t)+10]/10} dt + \int_{2400}^{3600} 10^{L_A(t)/10} dt + \int_{3600}^{7200} 10^{[L_A(t)+10]/10} dt \right) \right]$$

Time is in seconds, so the limits shown in hours and minutes are actually interpreted in seconds. $L_A(t)$ is the time varying value of A-weighted sound level, the quantity in decibels measured by an instrument satisfying requirements of American National Standard Specification for Type 1 Sound Level Meters S1.4-1971.

3. Loud Impulsive Sounds. When loud impulsive sounds such as sonic booms or explosions are anticipated contributors to the noise environment at a site, the contribution to day-night average sound level produced by the loud impulsive sounds shall have 8 decibels added to it in assessing the acceptability of a site.

A loud impulsive sound is defined for the purpose of this regulation as one for which:

(i) The sound is definable as a discrete event wherein the sound level increases to a maximum and then decreases in a total time interval of approximately one second or less to the ambient background level that exists without the sound; and

(ii) The maximum sound level (obtained with slow averaging time and A-weighting of a Type 1 sound level meter whose characteristics comply with ANSI S1.4-1971) exceeds the sound level prior to the onset of the event by at least 6 decibels; and

(iii) The maximum sound level obtained with fast averaging time of a sound level meter exceeds the maximum value obtained with slow averaging time by at least 4 decibels.

Subpart C— (Reserved)

Subpart D—Siting of HUD Assisted Projects in Runway Clear Zones at Civil Airports and Clear Zones and Accident Potential Zones at Military Airfields

§ 51.300 Purpose.

(a) The Department of Housing and Urban Development finds that HUD assisted or insured projects and their occupants in Runway Clear Zones, Clear Zones and Accident Potential Zones are exposed to a significant risk of personal injury or property damage from aircraft accidents.

(b) It is the purpose of this Subpart to promote compatible land uses around

civil airports and military airfields by identifying suitable land uses for Runway Clear Zones at civil airports and Clear Zones and Accident Potential Zones at military airfields and by establishing them as standards for providing HUD assistance, subsidy or insurance.

§ 51.301 Definitions.

For the purposes of this regulation, the following definitions apply:

(a) **Accident Potential Zone.** An area at military airfields which is beyond the Clear Zone. The standards for the Accident Potential Zones are set out in Department of Defense Instruction 4165.57, "Air Installations Compatible Use Zones," November 8, 1977, 32 CFR Part 256. There are no Accident Potential Zones at civil airports.

(b) **Airport Operator.** The civilian or military agency, group or individual which exercises control over the operations of the civil airport or military airfield.

(c) **Civil Airport.** An existing commercial service airport as designated in the National Plan of Integrated Airport Systems prepared by the Federal Aviation Administration in accordance with Section 504 of the Airport and Airway Improvement Act of 1962.

(d) **Runway Clear Zones and Clear Zones.** Areas immediately beyond the ends of a runway. The standards for Runway Clear Zones for civil airports are established by FAA regulation 14 CFR Part 152. The standards for Clear Zones for military airfields are established by DOD Instruction 4165.57, 32 CFR Part 256.

§ 51.302 Coverage.

(a) These policies apply to HUD programs which provide assistance, subsidy or insurance for construction, land development, new communities, community development or redevelopment or any other provision of facilities and services which are designed to make land available for construction. When the HUD assistance, subsidy or insurance is used to make land available for construction rather than for the actual construction, the

provision of the HUD assistance, subsidy or insurance shall be dependent upon whether the facility to be built is itself acceptable in accordance with the standards in § 51.303.

(b) These policies apply not only to new construction but also to substantial or major modernization and rehabilitation and to any other program which significantly prolongs the physical or economic life of existing facilities or which, in the case of Accident Potential Zones:

(1) Changes the use of the facility so that it becomes one which is no longer acceptable in accordance with the standards contained in § 51.303(b);

(2) Significantly increases the density or number of people at the site; or

(3) Introduces explosive, flammable or toxic materials to the area.

(c) Except as noted in § 51.303(a)(3), these policies do not apply to HUD programs where the action only involves the purchase, sale or rental of an existing property without significantly prolonging the physical or economic life of the property.

(d) The policies do not apply to research or demonstration projects which do not result in new construction or reconstruction, to interstate land sales registration, or to any action or emergency assistance which is provided to save lives, protect property, protect public health and safety, or remove debris and wreckage.

§ 51.303 General policy.

It is HUD's general policy to apply standards to prevent incompatible development around civil airports and military airfields.

(a) HUD policy for actions in Runway Clear Zones and Clear Zones.

(1) HUD policy is not to provide any assistance, subsidy or insurance for projects and actions covered by this part except as stated in § 51.303(a)(2) below.

(2) If a project proposed for HUD assistance, subsidy or insurance is one which will not be frequently used or occupied by people, HUD policy is to provide assistance, subsidy or insurance only when written assurances are provided to HUD by the airport operator to the effect that there are no plans to purchase the land involved with such facilities as part of a Runway Clear Zone or Clear Zone acquisition program.

(3) Special notification requirements for Runway Clear Zones and Clear Zones. In all cases involving HUD assistance, subsidy, or insurance for the purchase or sale of an existing property in a Runway Clear Zone or Clear Zone, HUD (or the Grant Recipient under Title I of the Housing and Community

Development Act of 1974, as amended, 42 U.S.C. 5301 *et seq.*) shall advise the buyer that the property is in a Runway Clear Zone or Clear Zone, what the implications of such a location are, and that there is a possibility that the property may, at a later date, be acquired by the airport operator. The buyer must sign a statement acknowledging receipt of this information.

(b) HUD policy for actions in Accident Potential Zones at Military Airfields. HUD policy is to discourage the provision of any assistance, subsidy or insurance for projects and actions in the Accident Potential Zones. To be approved, projects must be generally consistent with the recommendations in the *Land Use Compatibility Guidelines For Accident Potential Zones* chart contained in DOD Instruction 4165.57, 32 CFR Part 256.

§ 51.304 Responsibilities.

(a) The following persons have the authority to approve actions in Accident Potential Zones:

(1) For Title I of the Housing and Community Development Act of 1974, as

amended, 42 U.S.C. 5301 *et seq.*: the certifying officer of the grant recipient as defined in Part 58 of this Title.

(2) For all other HUD programs: the program personnel having approval authority for the project.

(b) The following persons have the authority to approve actions in Runway Clear Zones and Clear Zones:

(1) For Title I of the Housing and Community Development Act of 1974, as amended, 42 U.S.C. 5301 *et seq.*: The certifying officer of the grant recipient as defined in Part 58 of this Title.

(2) For all other HUD programs: the Regional Administrator.

§ 51.305 Implementation.

(a) Projects already approved for assistance. This regulation does not apply to any project approved for assistance prior to the effective date of the regulation whether the project was actually under construction at that date or not.

(b) Acceptable data on Runway Clear Zones, Clear Zones and Accident

Potential Zones. The only Runway Clear Zones, Clear Zones and Accident Potential Zones which will be recognized in applying this part are those provided by the airport operators and which for civil airports are defined in accordance with FAA regulations 14 CFR Part 152 or for military airfields, DOD Instruction 4165.57, 32 CFR Part 256. All data, including changes, related to the dimensions of Runway Clear Zones for civil airports shall be verified with the nearest FAA Airports District Office before use by HUD.

(c) Changes in Runway Clear Zones, Clear Zones, and Accident Potential Zones. If changes in the Runway Clear Zones, Clear Zones or Accident Potential Zones are made, the field offices shall immediately adopt these revised zones for use in reviewing proposed projects.

(d) The decision to approve projects in the Runway Clear Zones, Clear Zones and Accident Potential Zones must be documented as part of the environmental assessment or, when no assessment is required, as part of the project file.

EXHIBIT D

Noise Regulation Reporter

Tab Section - 81 - State Laws

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SAIC



NOISE REGULATION REPORTER

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Table 2 (Cont.)

STATE NOISE REGULATIONS
MOTOR VEHICLES FOR STREET AND HIGHWAY USE

(All levels in dBA measured at 50 feet unless noted otherwise)

State	Criteria	Vehicle Wt. Class/Type	Operation at Posted Speeds			New Sales		
			Effective Date	Under 35 mph	Over 35 mph	Other	Date Mfg.	Max. Level
5. Indiana		GVWR of 7000 lbs or more	N/S	88	90		N/S	
		Motorcycles	N/S	82	86		N/S	
		All other vehicles	N/S	76	82		N/S	
6. Idaho		All Vehicles		92@20	92@20	92@20		
7. Minnesota		GVWR of 6000 lbs or more	B1-1-75	88	90		A1-1-72	88
			A1-1-75	86	90		A1-1-75	86
		Motorcycle	B1-1-75	88	90		B1-1-72	92
			A1-1-75	86	90		A1-1-72	88
							A1-1-73	86
Other Vehicles and Combination of Vehicles	N/S	82	86		A1-1-72	86		
					B1-1-75	86		
					A1-1-75	84		
8. Nebraska		GVWR of 10,000 lbs or more	B1-1-75	88	90		A1-1-72	88
			A1-1-75	86	90		A1-1-73	86
							A1-1-75	84
							A1-1-80	80
9. New York		All Motor Vehicles		88	88	ST 88		
10. Nevada		GVWR >6000 lbs. and/ or towed vehicle	B1-1-73	88	90		A1-1-72	88
			A1-1-73	86	90		A1-1-73	86
		Any Motorcycle		82	86		A1-1-72	88
		Any other vehicle and/ or towed vehicle		76	82		A1-1-73	86
					A1-1-72	86		
					A1-1-73	84		

B - Before
A - AfterLS - Level Street
N/S - Not SpecifiedN/A - Not Applicable
ST - Stationary Test

Table 2 (Cont.)

**STATE NOISE REGULATIONS
MOTOR VEHICLES FOR STREET AND HIGHWAY USE**

(All levels in dBA measured at 50 feet unless noted otherwise)

State	Criteria	Vehicle Wt. Class/Type	Operation at Posted Speeds			New Sales		
			Effective Date	Under 35 mph	Over 35 mph	Other	Date Mfg.	Max. Level
11. Oregon	Truck/Bus		B 1976	86	90	ST 94	1975	86
			B 1978	85	87	ST 91	A 1976	83
			A 1978	82	84	ST 88	A 1978	80
	Motorcycle		B 1975	84	88	ST 94	1975	86
			1975	81	85	ST 91	A 1976	83
			B 1978	78	82	ST 88	A 1978	80
			A 1978	73	77	ST 83		
	Automobiles, light trucks, all other vehicles		B 1976	81	85	ST 92	1975	83
			B 1978	78	82	ST 88	A 1976	80
		A 1978	73	77	ST 83	A 1978	75	
12. Pennsylvania	GVWR >7000 lbs. and/ or towed vehicle			90	92		A1-1-73	90
	Motorcycle			90	92		A1-1-73	90
	Any other vehicle and/ or towed vehicle			82	86		A1-1-73	84

B - Before LS - Level Street N/A - Not Applicable
A - After N/S - Not Specified ST - Stationary Test

RECREATIONAL VEHICLES

Table 3 summarizes those states that have acoustic requirements for the operation and sale of recreational vehicles, including snowmobiles. Table 4 lists detailed noise criteria with respect to operation and new sales.

Table 3

SUMMARY OF STATES WITH RECREATIONAL VEHICLE
NOISE REGULATIONS

State	Snowmobiles		Other Recreational Vehicles	
	Operation	Sale	Operation	Sale
California		X		X
Colorado		X		X
Connecticut	X		X	
Iowa	X	X		
Maine		X		
Massachusetts	X	X	X	X
Michigan	X	X		
New Hampshire	X		X	
Oregon	X		X	
Vermont	X			
Wisconsin		X		

Table 4

STATE RECREATIONAL AND OFF-ROAD
VEHICLE NOISE REGULATIONS

(All levels in dBA measured at 50 feet unless noted otherwise)

State	Criteria Vehicle Type	Operation		New Sales		Comments
		Effective Date	Maximum Level	Mfg. Date	Maximum Level	
1. Federal		None	None	None	None	
2. California	Snowmobile	A 1972	82	N/S	N/S	
	Off-Road Self Prop.	N/S	N/S	A 1-1-72	92	
				A 1-1-73	88	
				A 1-1-75	86	

N/S - Not Specified; B - Before
N/A - Not Applicable; A - After

Table 4 (Cont.)

STATE RECREATIONAL AND OFF-ROAD
VEHICLE NOISE REGULATIONS

(All levels in dBA measured at 50 feet unless noted otherwise)

State	Criteria Vehicle Type	Operation		New Sales		Comments
		Effective Date	Maximum Level	Mfg. Date	Maximum Level	
3. Colorado	Off-Road Self Prop.	N/S	86*	A 1-1-71	86	* Over 35 mph ** Under 35 mph
			82**	A 1-1-73	84	
				A 1-1-74	79	
				A 1-1-75	74	
4. Connecticut	Snowmobiles	B 1-1-75 A 1-1-75	82			Test procedures - SAE Recommended Prac- tice J192 "Exterior Sound Level for Snow- mobiles"
			73			
	Off-Road Self Prop.	B 1-1-75 A 1-1-75	80			
			73			
5. Iowa	Snowmobiles	N/S	86	A 7-1-73	82	Test procedure - Rules to be adopted by Com- mission
6. Maine	Snowmobile			A 10-1-73	82	Test procedure - SAE Recommended Prac- tice J192
				A 2-1-75	78	
7. Massachusetts	Snowmobile	N/S	73	N/S	73	Test procedure - ISLA (Jan 69) "Procedure for Sound Level Mea- surements of Snow- mobiles" or other standard for measure- ment as registrar of motor vehicles adopts
	Off-Road Self Prop.	N/S	73	N/S	73	
8. Michigan	Snowmobiles	N/S	82	A 2-1-72	82	Test procedure - SAE Practice J192
9. New Hampshire	Off-Road Self Prop.	A 7-1-73	82			Test procedure - ISLA (Jan 69) "Sound Level Measurements of Snow- mobiles" or other stan- dard of measurement as adopted by commi- sioner
		A 7-1-78	73			
		A 7-1-83	70			

N/S -- Not Specified; B -- Before
A -- After

Table 4 (Cont.)

STATE RECREATIONAL AND OFF-ROAD
VEHICLE NOISE REGULATIONS

(All levels in dBA measured at 50 feet unless noted otherwise)

State	Criteria	Vehicle Type	Operation		New Sales		Comments
			Effective Date	Maximum Level	Mfg. Date	Maximum Level	
10. Oregon		Snowmobile			1975 1976-1978 A 1978	82 78 75	* stationary at 25 feet **moving at 50 feet
		Off-Road Self Prop.	B 1975 1976 1976-1978 A 1978	94*/88** 91/85 88/82 83/77			
11. Vermont		Snowmobiles	9-1-72 9-1-73	82 to be estab.			No test procedure given
12. Wisconsin		Snowmobiles			A 7-1-72 A 7-1-75	82 78	Test procedure - SAE J192

N/S - Not Specified; B - Before
A - After

LAND USE REGULATIONS

At this writing there are only five states that have land use noise regulations in effect. However, 21 states have passed appropriate legislation to enable the development of regulations. Table 5 summarizes the ambient noise criteria of existing state regulations.

Table 5

STATE LAND USE NOISE REGULATIONS
(All levels in dBA unless noted otherwise)

State	Criteria	Land Usage	Effective Date	Maximum Continuous Noise		Max. Noise Level L max	Max. Impulse Noise	Comment
				L _d	L _n			
1. California	Large Airports		B 1-1-76			80	Existing Existing Existing Existing	
			A 1-1-76			75		
			A 1-1-81			70		
			A 1-1-86			65		
	Small Airports		B 1-1-76			70	Existing Existing	
			A 1-1-76			65		
New Airports					65 CNEL			

A/C - Aircraft; RR - Railroad; N/A - Not Applicable;
A/P - Airports; N/S - Not Specified; A - After; B - Before

*Estimated from Octave Band SPL (dB) data

Table 5 (Cont.)
 STATE LAND USE NOISE REGULATIONS
 (All levels in dBA unless noted otherwise)

Criteria State	Land Usage	Effective Date	Maximum Continuous Noise		Max. Noise Level L max	Max. Impulse Noise		Comment
			L _d	L _n		7am 10pm	10pm 7am	
2. Colorado	Residential	N/S	7am/7pm 55	7pm/7am 50				Exempts A/C Exempts A/C Exempts A/C Exempts A/C Includes rail- road right-of- ways.
	Commercial	N/S	L ₂₅ 65	N/A				
			L ₂₅ 70	N/A				
	Light Indust. Industrial	N/S	L ₂₅ 70	65				
3. Illinois	Class A (Resident)	8-9-73	7am/10pm *55	10pm/7am *45		7am 10pm 50	10pm 7am 45	From Class A From Class B From Class C
			*55	*45		50	57	
			*61	*51		57		
	Class B (Commercial)	8-9-73	*55	N/S		50	45	From Class A From Class B From Class C
			*61	N/S		57		
			*66	N/S		57		
	Class C (Industrial)	8-9-73	7am/10pm *61	10pm/7am N/S		7am 10pm 56	10pm 7am 46	From Class A From Class B From Class C
			*61	N/S		61		
			*70	N/S		65		
	4. New Jersey	Residential	1-18-74	7am/10pm 65	10pm/7am 55			
Commercial		1-1-76		50	65	80	80	
5. Oregon	All Private Property		7am/10pm 60	10pm/7am 55				Includes opera- tion of all motor vehicles.

A/C - Aircraft; RR - Railroad;
 A/P - Airports; N/S - Not Specified; A - After; B - Before
 *Estimated from Octave Band SPL (dB) data

GENERAL NOISE REGULATIONS

States with acoustical criteria for a variety of circumstances are listed below.

California – Regulation of Sirens

Sirens shall meet the following sound level output at 100 feet.

	<u>Class A Siren</u>	<u>Class B Siren</u>
On the Axis	100 dBA	90 dBA
45 degrees from the Axis	95 dBA	85 dBA

Class A sirens shall be mounted outside, behind the grille, or under the hood.

Class B sirens shall be mounted outside or between the grille and the radiator with the horn opening facing forward, parallel to the road and vehicle centerline.

Missouri

The use by the license of any public speaking system, transmitter, sound device, or any other type of device, mechanical or electric, to emit and direct music, spoken words, sounds, or noise of any kind, either from the inside or outside of the permitted premises to the sidewalks, streets, or areas joining the licensed premises in excess of 85 dBC measured at the point of emission from the instrument emanating the sound is prohibited; provided further, that all sound of whatever nature hereinabove mentioned shall not be in excess of 75 dBC measured at a distance of 40 feet from the instrument emanating such sound.

Oregon – Standard for Wilderness Areas

No person engaged in an activity other than emergency or recreational within a wilderness area shall cause, suffer, allow or permit the emission of noise from any source or sources which noise causes the maximum ambient sound pressure level to exceed 50 dBA at any point at least 50 feet from any source.

Subject to permit requirements, the Department may permit . . . from any source or sources causing the maximum ambient sound pressure level to exceed 50 dBA at any point 50 feet from any source, but not to exceed 75 dBA at such distance.

NOISE REGULATION AT THE LOCAL LEVEL

INTRODUCTION

The following data summarize existing noise control regulations of local jurisdictions. Tables 6 and 7 address noise regulations for self-propelled motor vehicles registered for operation on streets and highways. Table 8 lists those local jurisdictions having explicit regulations governing the operation of snowmobiles and other off-road recreational vehicles. Table 9 summarizes those communities having intrusive noise regulations and identifies major sources and the respective limits placed upon them.

There are currently in excess of 54 local jurisdictions with existing land-use noise regulations and approximately 100 more that have enabling legislation permitting the development of noise regulations. Because of the large number of communities, detailed listings of acoustic criteria regarding zoning are not provided here. However, Table 10 presents a summary of those communities with existing land-use noise regulations along with their principal noise descriptors. Specific regulations should be consulted for detailed information.

Table 11 lists those local communities with noise regulations governing construction equipment and on-site activities. Again, the reader is directed to specific regulations for detailed acoustic criteria.

Finally, there is a summary of miscellaneous noise regulations that cannot be readily classified in the preceding tables.

It should be noted that the following local jurisdictions' noise regulations may be subject to preemption by either Federal or state regulations, or by both.

Table 6

SUMMARY OF LOCAL JURISDICTIONS WITH MOTOR VEHICLE NOISE REGULATIONS

Community	Vehicle Operation	Sale of New Vehicles
Anchorage, Alaska	X	X
Birmingham, Michigan	X	
Boston, Massachusetts		X
Boulder, Colorado	X	
Broward Co., Florida	X	
Chicago, Illinois	X	X
Colorado Springs, Colorado	X	
Cook Co., Illinois	X	X
Honolulu, Hawaii	X	
Kalamazoo, Michigan	X	
Kansas City, Missouri		X
Grand Rapids, Michigan	X	X
Lakewood, Colorado	X	
Lincoln, Nebraska	X	
Marengo, Illinois	X	
Minneapolis, Minnesota	X	
New York, New York	X	
Rockford, Illinois	X	X
Salt Lake City, Utah	X	X

Table 7

LOCAL JURISDICTION NOISE REGULATIONS
FOR SELF PROPELLED MOTOR VEHICLES

(All levels in dBA measured at 50 ft. unless noted otherwise)

Jurisdiction	Vehicle Type/Wt.	Effective Date	Operation		Other	New Sales	
			<35 mph	>35 mph		Date Mfg.	Max. Level
1. Alaska, Anchorage	All				8 am/8 pm 85 8 pm/8 am 70	5-19-74	85
2. Colorado, Colorado Springs and Lakewood	GVWR <10,000 lbs. >10,000 lbs				80 @ <45 mph 88 @ <45 mph		
3. Florida, Broward County	GVWR >8000 lbs	A1-1-78	94 88	96 90			
	Motorcycle	A1-1-78	88 82	92 86			
	Other	A1-1-78	82 76	88 82			
4. Hawaii, Honolulu Island of Oahu	GVWR >6000 lbs	A1-1-74	D 84 E 84 N 73	84	Truck Routes 88		
		A1-1-77	D 75 E 67 N 65	75			
	GVWR <6000 lbs	B1-1-77	69 @ <25 71 @ 30 73 @ 35	75 @ 40 79 @ 50 83 @ >60	levels specified at 5 mph increments		
	GVWR <6000 lbs	A1-1-77	61 @ <25 63 @ 30 65 @ 35	67 @ 40 71 @ 50 75 @ >60			

D - Day; E - Evening; N - Night; A - After; B - Before

Table 7 (Cont.)

**LOCAL JURISDICTION NOISE REGULATIONS
FOR SELF PROPELLED MOTOR VEHICLES**

(All levels in dBA measured at 50 ft. unless noted otherwise)

Jurisdiction	Vehicle Type Wt.	Effective Date	Operation			New Sales		
			<35 mph	>35 mph	Other	Date Mfg.	Max. Level	
5. Illinois, a) Chicago	GVWR >8000 lbs	B1-1-73	88	90		A1-1-68	88	
		A1-1-73	86	90		A1-1-73	86	
	Motorcycles	B1-1-78	82	86		A1-1-75	84	
		A1-1-78	78	82		A1-1-80	75	
						A1-1-70	88	
						A1-1-73	86	
						A1-1-75	84	
	Other Vehicles & Combination	A1-1-70	76	82		A1-1-80	75	
		A1-1-78	70	79		A1-1-73	84	
						A1-1-75	80	
						A1-1-80	75	
	b) Cook County	GVWR >8000 lbs	B1-1-73	88	90		B1-1-73	88
A1-1-73			86	90		A1-1-73	86	
Motorcycles		B1-1-78	82	86		A1-1-75	84	
		A1-1-78	78	82		A1-1-80	75	
						B1-1-73	88	
						A1-1-73	86	
						A1-1-75	84	
Other Vehicles & Combination		A1-1-73	76	82		A1-1-80	75	
		A1-1-78	70	79		B1-1-73	86	
						A1-1-73	84	
						A1-1-75	80	
						A1-1-80	75	
c) Marengo	All			70 @ 200 ft.				
d) Rockford	GVWR >8000 lbs Motorcycles Other Vehicles		86	90				
			82	86				
			76	82				
6. Massachusetts, Boston	GVWR >10,000 lbs					1-1-70	88	
						1-1-73	86	
						1-1-75	84	
						1-1-80	75	
						1-1-70	86	
	<10,000 lbs					1-1-73	84	
						1-1-75	80	
						1-1-80	75	
		Motorcycles					1-1-70	88
							1-1-73	86
					1-1-75	84		
				1-1-80	75			

A - After; B - Before;

Table 7 (Cont.)

LOCAL JURISDICTION NOISE REGULATIONS
FOR SELF PROPELLED MOTOR VEHICLES

(All levels in dBA measured at 50 ft. unless noted otherwise)

Jurisdiction	Vehicle Type/Wt.	Effective Date	Operation		Other	New Sales		
			<35 mph	>35 mph		Date Mfg.	Max. Level	
7. Michigan, a) Birmingham	>10,000 lbs	B7-1-78	86	90				
		A7-1-78	82	86				
	Motorcycle	B7-1-78	82	86				
		A7-1-78	78	82				
	Other Vehicles	B7-1-78	76	82				
		A7-1-78	70	79				
	b) Grand Rapids	>10,000 lbs	B7-1-73	88	90		B7-1-73	88
			A7-1-73	86	90		A7-1-73	86
		Motorcycles	B7-1-78	82	86		A1-1-75	84
				A7-1-78	78	82		A1-1-80
			A7-1-73	82	86		B7-1-73	88
				86	82		A7-1-73	86
84				84		A1-1-75	84	
75				75		A1-1-80	75	
Other Vehicles		B7-1-78	78	82		B7-1-73	86	
		A7-1-78	73	79		A7-1-73	84	
c) Kalamazoo		>10,000 lbs				82		
						74		
	<10,000 lbs Passenger Cars Motorcycles				74			
					82			
8. Minnesota, Minneapolis	>12,000 lbs	A1-1-72	D 86	86				
		▼	E 84	↓				
		B1-31-72	N 73	84				
		A1-1-74	D 84	↓				
	<12,000 lbs	A1-1-77	N 73	D 75	75			
			E 67	N 65	↓			
		B1-1-77		73* @ 35	*levels specified			
			A1-1-77		65* @ 35	by speed		
9. Missouri, Kansas City	>8000 lbs Motorcycle					12-31-73	86	
						12-31-71	92	
	Passenger Car					12-31-73	86	
						12-31-71	86	
						12-31-73	82	

D - Day E - Evening N - Night A - After B - Before

Table 7 (Cont.)

**LOCAL JURISDICTION NOISE REGULATIONS
FOR SELF PROPELLED MOTOR VEHICLES**

(All levels in dBA measured at 50 ft. unless noted otherwise)

Jurisdiction	Vehicle Type/Wt.	Effective Date	Operation		Other	New Sales	
			<35 mph	>35 mph		Date Mfg.	Max. Level
10. Nebraska, Lincoln	>8000 lbs		88	90			
	Motorcycle		82	86			
	Other Vehicles		76	82			
11. New York, New York	>8000 lbs	A9-1-72	86	90			
	Motorcycles	A9-1-72	82	86			
		A1-1-78	78	82			
	Other Vehicles	A9-1-72	76	82			
		A1-1-78	70	79			
12. Utah, Salt Lake City	>10,000 lbs <10,000 lbs				88 < 40 mph 80 < 40 mph		

D - Day E - Evening N - Night A - After B - Before

Table 8

**SUMMARY OF LOCAL JURISDICTIONS
WITH RECREATIONAL VEHICLE NOISE REGULATIONS**

Community	Snowmobiles		Other Recreational Vehicles	
	Operation	Sales	Operation	Sales
Anchorage, Alaska	X	X	X	X
Boulder, Colorado	X		X	
Chicago, Illinois	X	X	X	X
Cook Co., Illinois	X	X	X	X
Kalamazoo, Michigan	X		X	
Grand Rapids, Michigan		X	X	X
Rockford, Illinois	X		X	
Salt Lake City, Utah		X		X
San Diego, California			X	
San Francisco, California	X		X	

Table 9

**SUMMARY OF LOCAL JURISDICTION
INTRUSIVE NOISE SOURCE REGULATIONS**
(All levels in dBA unless noted otherwise)

Criteria Jurisdiction	Noise Source Description	Operations		New Sales		Comments	
		Max. Level	Meas. Dist.	E/I/Mfg Date	Accept. Level		
1. Arizona, Tucson	H,W,C	70dBC	50 ft.				
2. California, a) Burbank b) Downey c) Inglewood d) San Diego e) San Francisco f) Torrance	M/E	50 60 70 75				Residential-10 pm-7 am Residential-7 am-10 pm Commercial-anytime All Other-anytime	
	Outdoor E/E	< 5	P/L			Above Ambient	
	H,W,C, M/E	< 90 < 5	300 ft. P/L			Above Ambient	
	Outdoor E/E H, W,C Refuse Vehicle Refuse Vehicle Power Model Vehicle	< 90 89 86 80 < 5	50 ft. 300 ft. 50 ft. 50 ft.			10 sec. duration/10 min. A 12-31-73 A 12-31-77 Above Zoning Ambient	
	Refuse Vehicle Power Model Vehicle H,W,C	80 75 85 80 < 75	50 ft. 50 ft. 50 ft. 50 ft. P/L			A 3-18-73 A 3-18-78 A 3-18-73 A 3-18-76	
	H,W,C E/E; M/E	< 90 < 5	300 ft. P/L			Above Ambient	
	3. Colorado, Lakewood	L/R/E	80	25 ft.			
	4. Florida, a) Broward Co. b) Coral Gables c) Hollywood	Outdoor E/E	80 75	25 ft. 25 ft.			Industrial Area Business/Commercial Prohibited Residential
		M/E	< 60	15 ft.			Or 15 ft. from P/L
		M/E	< 60	P/L or 15 ft.			Whichever is greater
5. Illinois, a) Chicago b) Cook County c) Marengo	L/R/E		50 ft. 50 ft. 50 ft.	A 1-1-72 A 1-1-75 A 1-1-78	74 70 65		
	L/R/E		50 ft. 50 ft. 50 ft.	B 1-1-75 A 1-1-75 A 1-1-78	74 70 65		
	M/E M/E H E/E	< 5 < 5dB < 89 < 15 < 50	300 ft. P/L			Above Ambient Any Octave Band re Amb. Above Ambient Radio/TV in Residential Z.	

H-Horn; W-Whistles; C-Claxons; M/E-Fans, Air Conditioners, Etc.; P/L-Property Line; E/E-Electronic Equipment;
L/R/E-Light Residential Equipment

Table 9 (Cont.)

**SUMMARY OF LOCAL JURISDICTION
INTRUSIVE NOISE SOURCE REGULATIONS**

(All levels in dBA unless noted otherwise)

Criteria Jurisdiction	Noise Source Description	Operations		New Sales		Comments
		Max. Level	Max. Dist.	E/E/Mfg Date	Accept. Level	
6. Indiana, Indianapolis	E/E	<100 dBC				
7. Massachusetts, Boston	L/R/E		50 ft.	A 1-1-72 A 1-1-75 A 1-1-78	74 70 65	
8. Michigan, Grand Rapids	L/R/E		50 ft. 50 ft. 50 ft.	A 7-1-73 A 1-1-75 A 1-1-80	68 86 80	
9. New York, New York City	H,W,C Emerg. Vehicles M/E Refuse Vehicle	75 90 45	25 ft. 50 ft. 3 ft. 10 ft.	1974 A 12-31-74	75 70	Inside nearest open window of dwelling affected
10. Utah, Salt Lake City	L/R/E H,W,C	<90	50 ft. 50 ft. 50 ft. 50 ft.	A 1-1-73 A 1-1-75 A 1-1-78	74 70 65	Unless danger signal
11. Wisconsin, a) Madison	L/R/E < 5hp L/R/E - 5-20hp L/R/E > 20hp	70 78 88	50 ft. 50 ft. 50 ft.			
b) Milwaukee	M/E (Air Cond. in Residential Area)	D 60.5 N 60.5				Specified in octave bands Violation if >5dB any band
c) Racine	Air Conditioning Residential Area E/E	< 5 < 5				Over ambient in sleep- ing room of adjacent dwelling. Above ambient in any adjacent dwelling

H—Horns; W—Whistles; C—Claxons; M/E—Fans, Air Conditioners, Etc.; E/E—Electronic Equipment; L/R/E—Light Residential Equipment; D—Day, N—Night

Table 10
SUMMARY OF LOCAL JURISDICTIONS WITH LAND USE REGULATIONS

Community	dBA	Octave Band	Other	Notes
Amarillo, Tex.		X		old octave band frequencies
Anaheim, Calif.	X			general regulation not by zones
Baltimore, Md.	X			corrections for time duration
Bellevue, Wash.	X			
Boston, Mass.		X		
Broward Co., Fla.	X			
Colorado Springs, Colo.	X			
Columbia, S.C.		X		old octave band frequencies
Cook Co., Ill.	X	X		
Coral Gables, Fla.		X		
Chicago, Ill.	X	X		
Dayton, Ohio		X		
Fremont, Calif.			X	maximum levels in (20-300Hz, 300-2400, > 2400)
Grand Rapids, Mich.	X	X		
Honolulu, Hawaii		X		old octave band frequencies
Inglewood, Calif.	X			
Kansas City, Mo.		X		old octave band frequencies
Kalamazoo, Mich.	X			includes railroad right-of-way
Lakewood, Colo.			X	maximum levels in dB
Los Angeles, Calif.	X			
Las Vegas, Nev.			X	maximum levels in dB
Madison, Wisc.			X	maximum levels in dB
Mason Co., Wash.			X	maximum levels in dB
Miami, Fla.		X		old octave band frequencies
Milwaukee, Wisc.	X			
Minneapolis, Minn.	X			
New Orleans, La.		X		old octave band frequencies
Niackayuna, N.Y.			X	maximum level in dB
Oakland, Calif.	X			
Pawtucket, R.I.	X			
Pasadena, Calif.			X	maximum levels in dB; time corrections
Pontiac, Mich.			X	maximum levels in dB
Orlando, Fla.		X		old octave band frequencies
Racine, Wisc.			X	maximum levels in dB
Richland, Wash.		X		old octave band frequencies
Salt Lake City, Utah	X			corrections for time duration

Table 10 (Cont.)

SUMMARY OF LOCAL JURISDICTIONS WITH LAND USE REGULATIONS

Community	dBA	Octave Band	Other	Notes
San Diego, Calif.	X			
San Francisco Calif.	X			
Silverton, Ore.		X		old octave band frequencies
Springfield, Mass.		X		old octave band frequencies
Tacoma, Wash.		X		old octave band frequencies
Torrance, Calif.			X	maximum levels in dB
Warwick, R.I.		X		old octave band frequencies
Westland, Mich.			X	maximum levels in dB
Winston Salem, N.C.		X		old octave band frequencies
Virginia Beach, Va.		X		old octave band frequencies

TABLE 11

SUMMARY OF LOCAL JURISDICTIONS WITH CONSTRUCTION NOISE REGULATIONS

Community	Construction Site Regulation	Construction Equipment		Notes
		Operation	Sale	
Broward Co., Fla.	X			
Boston, Mass.			X	includes agricultural and commercial equipment
Chicago, Ill.			X	includes agricultural and commercial equipment
Cook Co., Ill.			X	includes agricultural and commercial equipment
Grand Rapids, Mich.			X	includes agricultural and commercial equipment
Des Plaines, Ill.			X	includes agricultural and commercial equipment
Lakewood, Calif.	X			uses industrial zoning levels
Madison, Wisc.		X		includes farm tractors

TABLE 11 (Cont.)
SUMMARY OF LOCAL JURISDICTIONS WITH CONSTRUCTION
NOISE REGULATIONS

Community	Construction Site Regulation	Construction Equipment		Notes
		Operation	Sale	
Minneapolis, Minn.	X			
New York, N.Y.		X	X	air compressors and paving breakers
Pasadena, Calif.	X			
Salt Lake City, Utah			X	includes agricultural and commercial equipment
San Diego, Calif.	X			
San Francisco, Calif.	X			exempts impact tools and emergency construction

MISCELLANEOUS NOISE REGULATIONS

Aspen, Colorado } Boulder, Colorado }	Specifies a limit of 80 dBA at 25 ft. from noise source or 25 ft from the property line on which the noise source is located.
Clifton, New Jersey	Any source of sound is in violation if it is more than 10 dB above the ambient in daytime (7 am to 10 pm) and 5 dB above the nighttime (10 pm to 7 am) ambient.
Glenville, New York	A source cannot exceed 70 dB at the property line
Indianapolis, Indiana	General limit of 115 dBC
Marengo, Illinois	Less than 70 dBA or 70 dB in any octave band within 200 ft. of a school, hospital, or church
Pocatello, Idaho	General regulation - less than 92 dBA at 20 ft.

Enclosed Places of Entertainment

Lakewood, California	8 hrs. - 90 dBA	2 hrs. - 100 dBA
	6 hrs. - 92 dBA	1 hr. - 105 dBA
	4 hrs. - 95 dBA	30 min. - 110 dBA
	3 hrs. - 97 dBA	15 min. - 115 dBA
Salt Lake City, Utah	Less than 100 dBA or provide a warning sign.	

IOWA NOISE CONTROL LAWS

(Excerpts from the Iowa Code, Title XIII, Highways, Motor Vehicles, and Aeronautics, Chapter 321 — Motor Vehicles and Law of Road, Section 321.436; As amended by Acts 1937, ch. 134; and Chapter 321G — Snowmobiles, Sections 321G.1, 321G.11; As amended by Acts 1974, ch. 1196)

Chapter 321 — Motor Vehicles and Law of Road

321.436 Mufflers, prevention of noise. Every motor vehicle shall at all times be equipped with a muffler in good working order and in constant operation to prevent excessive or unusual noise and annoying smoke, and no person shall use a muffler cutout, by-pass or similar device upon a motor vehicle on a highway.

Chapter 321G — Snowmobiles

321G.1 Definitions

14. "A Scale" means the physical scale marked "A" graduated in decibels on a sound level meter which meets the requirements of the American national standards institute, incorporated, publication S1.4-1961, general purpose sound level meters.

321G.11 Mufflers

On or after July 1, 1972, a snowmobile shall not be operated without suitable and effective muffling devices which limit engine noise to not more than eighty-six decibels as measured on the "A" scale at a distance of fifty

feet; and a snowmobile, manufactured after July 1, 1973, which is sold, offered for sale or used in this state, except in an authorized special event, shall have a muffler system that limits engine noise to not more than eighty-two decibels as measured on the "A" scale at a distance of fifty feet.

The commission may adopt rules and regulations with respect to the inspection of snowmobiles and the testing of snowmobile mufflers.

On or after July 1, 1972, a separate placard shall be affixed, permanently and conspicuously, to any new snowmobile sold or offered for sale in this state that does not meet the muffler requirements as stated above. The placard shall designate each snowmobile which does not meet the muffler requirements.

A snowmobile manufactured after July 1, 1975, which is sold, offered for sale or used in this state, except in an authorized special event, shall have a muffler system that limits engine noise to not more than seventy-eight decibels as measured on the "A" scale at a distance of fifty feet.

KANSAS MOTOR VEHICLE NOISE LIMITS LAW

(Excerpts from Kansas Statutes Annotated, Chapter 8 — Automobiles and Other Vehicles, Sections 8-1738, 8-1739; As last amended by Laws of 1975, Chapter 427 and Chapter 82a — Water and Watercourses, Sections 82a-809, 82a-819; As last amended by Laws of 1970, Ch. 408)

Sec. 8-1738. Horns and warning devices. (a) Every motor vehicle when operated upon a highway shall be equipped with a horn in good working order and capable of emitting sound audible under normal conditions from a distance of not less than two hundred (200) feet, but no horn or other warning device shall emit an unreasonably loud or harsh sound or whistle. The driver of a motor vehicle when reasonably necessary to insure safe operation shall give audible warning with his horn but shall not otherwise use such horn when upon a highway.

(b) No vehicle shall be equipped with nor shall any person use upon a vehicle any siren, whistle or bell, except as otherwise permitted in this section.

(c) Any vehicle may be equipped with a theft alarm signal device which is so arranged that it cannot be used by the driver as an ordinary warning signal. Such a theft alarm signal device may use a whistle, bell, horn or other audible signal but shall not use a siren.

(d) Every authorized emergency vehicle shall be equipped with a siren, whistle, or bell, capable of emitting sound audible under normal conditions from a distance of not less than five hundred (500) feet and of a type approved by the secretary of transportation, but such siren shall not be used except when such vehicle is operated in response to an emergency call or in the immediate pursuit of an actual or suspected violator of the law, in which said latter events the driver of such vehicle shall sound said siren when reasonably necessary to warn pedestrians and other drivers of the approach thereof.

Sec. 8-1739. Mufflers and noise suppressing systems. (a) Every vehicle shall be equipped, maintained and operated so as to prevent excessive or unusual noise. Every motor vehicle at all times shall be equipped with a muffler or other effective noise suppressing system in

good working order and in constant operation, and no person shall use a muffler cut-out, bypass or similar device.

(b) The engine and power mechanism of every motor vehicle shall be so equipped and adjusted as to prevent the escape of excessive fumes or smoke.

82a-809. Muffling devices. The exhaust of every internal combustion engine used on any motorboat shall be effectively muffled by equipment so constructed and used as to muffle the noise of exhaust in a reasonable manner. The use of cut-outs is prohibited, except for motorboats competing in a regatta or boat race approved as provided in section 82a-814 of the General Statutes Supplement of 1959, or acts amendatory thereof or supplemental thereto, and for such motorboats while on trial runs, during a period of not to exceed forty-eight (48) hours immediately preceding such regatta or race and for such motorboats while competing in official trials for speed records during a period not to exceed forty-eight (48) hours immediately following such regatta or race.

82a-819. Penalties. (a) Any person who violates any provision of sections 2, 3, 4, 5, or 9 [82a-803, 82a-804, 82a-804a, 82a-806 or 82a-810a] of this act, or K.S.A. 82a-809, 82a-811 or 82a-814 or any rule or regulation of the commission shall be guilty of a misdemeanor and shall be subject to a fine of not to exceed fifty dollars (\$50) for each such violation.

(b) Any person who violates any provisions of K.S.A. 82a-808 and 82a-813 or section 7 [82a-810] of this act, shall be guilty of a misdemeanor and shall be subject to a fine of not to exceed one hundred dollars (\$100) or imprisonment for not to exceed ninety (90) days, or both.

MISSOURI NOISE REGULATION

(Missouri Code of State Regulations, Title 11, Department of Public Safety,
Division 70, Division of Liquor Control, Chapter 2 — Rules and Regulations,
Section 70-2.120(8); Effective April 11, 1981)

Regulation 11 CSR 70-2.120(8) — The use by the licensee of any public speaking system, transmitter, sound device, or any other type of device, mechanical or electric to emit and direct music, spoken words, sounds, or noise of

any kind, either from the inside or outside of the permitted premises to the sidewalks, streets, or areas joining the licensed premises is prohibited.

MISSOURI MOTOR VEHICLE NOISE STATUTE

(Missouri Statutes, Title VII, Cities, Towns and Villages, Chapter 307 — Vehicle Equipment Regulations; Enacted by Laws of 1939, Section 8387)

307.170 Other equipment of motor vehicles. — 1. Signaling devices: Every motor vehicle shall be equipped with a horn, directed forward, or whistle in good working order, capable of emitting a sound adequate in quantity and volume to give warning of the approach of such vehicle to other users of the highway and to pedestrians. Such signaling device shall be used for warning purposes only and shall not be used for making any unnecessary noise, and no other sound-producing signaling device shall be used at any time.

2. Muffler cutouts: Muffler cutouts shall not be used and no vehicle shall be driven in such manner or condi-

tion that excessive and unnecessary noises shall be made by its machinery, motor, signaling device, or other parts, or by any improperly loaded cargo. The motors of all motor vehicles shall be fitted with properly attached mufflers of such capacity of construction as to quiet the maximum possible exhaust noise as completely as is done in modern gas engine passenger motor vehicles. Any cutout or opening in the exhaust pipe between the motor and the muffler on any motor vehicle shall be completely closed and disconnected from its operating lever, and shall be so arranged that it cannot automatically open, or be opened or operated while such vehicle is in motion.

NEBRASKA MOTOR AND DIESEL-POWERED MOTOR VEHICLE ACT

(Revised Statutes of Nebraska, Chapter 60 — Motor Vehicles, Article 22, Control of Smoke Emissions and Noise; Enacted by Laws of 1972, Legislative Bill 1360; Amended by Laws of 1976, LB 823; Laws of 1977, LB 39; Laws of 1979, LB 140)

60-2201. Terms, defined. As used in sections 60-2201 to 60-2212, unless the context otherwise requires:

(1) Diesel-powered motor vehicle shall mean a self-propelled vehicle designed primarily for transporting persons or property on a public street or highway and which is powered by an internal combustion engine of the compression ignition type;

(2) Motor vehicle shall mean a self-propelled vehicle with a gross unloaded vehicle weight of ten thousand pounds or more, or any combination of vehicles of a type subject to registration, towed by such motor vehicle;

(3) Smoke shall mean the solid or liquid matter, except water, discharged from a motor vehicle engine which obscures the transmission of light;

(4) Smokemeter shall mean a full flow light-extinction smokemeter of a type approved by the Department of Environmental Control and operating on the principles described in the federal standards;

(5) Opacity shall mean the degree to which a smoke plume emitted from a diesel-powered motor vehicle engine will block the passage of a beam of light expressed as a percentage;

(6) Smoke control system shall mean a system consisting of one or more devices and adjustments designed to control the discharge of smoke from diesel-powered motor vehicles;

(7) Administrator shall mean the Director of Environmental Control of the State of Nebraska;

(8) State enforcement officials shall mean officials of the Department of Environmental Control; and

(9) This act shall mean sections 60-2201 to 60-2212.

60-2202. Act, applicable. Sections 60-2201 to 60-2212 shall apply to all diesel-powered motor vehicles operated within this state with the exception of the following:

(1) Emergency vehicles operated by federal, state, and local governmental authorities;

(2) Vehicles which are not required to be registered in accordance with applicable motor vehicle laws of this state;

(3) Vehicles used for research and development which have been approved by the administrator;

(4) Vehicles being operated while undergoing maintenance;

(5) Vehicles operated under emergency conditions;

(6) Vehicles being operated in the course of training programs which have been approved by the administrator; and

(7) Other vehicles expressly exempted by the administrator.

60-2203. Diesel-powered motor vehicle; smoke; shade, density, or opacity. No one shall operate a diesel-powered motor vehicle on any public street or highway in this state in such a manner that smoke discharged from the exhaust is of a shade or density equal to or darker than that designated as Number 1 of the Ringelmann Chart or equivalent opacity of twenty percent for ten consecutive seconds or longer.

60-2204. Smoke control system; removal or change; prohibited; exception. No one shall intentionally make a change or other alteration to any diesel-powered motor vehicle equipped by its manufacturer with a smoke control system, including the basic fuel system, that may limit the ability of the system to control smoke, and no one shall remove such a smoke control system except for repair or installation of a proper replacement.

60-2205. Enforcement of act; citations; use of smokemeter; results; admissible as evidence. (1) State and local enforcement officials shall have the authority to issue citations to suspected violators of the provisions of sections 60-2201 to 60-2212 on the basis of their visual evaluation of the smoke emitted from a diesel-powered motor vehicle, and such citations shall give the suspected violator a reasonable time to furnish evidence to the Department of Environmental Control that such alleged violation has been corrected or else such suspected violator shall be subject to the penalties set out in section 60-2211; *Provided*, that a suspected violator may demand that the suspected vehicle be tested by an approved smokemeter prior to a trial on the alleged violation.

(2) Smokemeter test shall be conducted (a) by or under the supervision of a person or testing facility authorized by the administrator to conduct such tests, and (b) by installing an approved smokemeter on the exhaust pipe and operating the suspected vehicle at engine revolutions per minute equivalent to the engine revolutions per minute at the time of the alleged violation.

(3) The results of smokemeter tests run in accordance with the provisions of sections 60-2201 to 60-2212 and

after the alleged violation shall be admissible as evidence in legal proceedings.

60-2206. Administrator; powers; rules and regulations; control of noise or emissions. (1) The administrator shall have the power, after public hearings on due notice, to promulgate, consistent with and in furtherance of the provisions of sections 60-2201 to 60-2212, rules and regulations in accordance with which he will carry out his responsibilities and obligations under the provisions of sections 60-2201 to 60-2212.

(2) Any rules or regulations promulgated by the administrator pursuant to sections 60-2201 to 60-2212 shall be consistent with the provisions of the federal standards, if any, relating to control of emissions from the diesel-powered motor vehicles affected by such rules and regulations. The administrator shall not require, as a condition for the sale of any diesel-powered motor vehicle covered by the provisions of sections 60-2201 to 60-2212, the inspection, certification, or other approval of any feature or equipment designed for the control of noise or emissions from such diesel-powered motor vehicles, if such feature or equipment has been certified, approved, or otherwise authorized pursuant to laws or regulations of any federal governmental body as sufficient to make lawful the sale of any diesel-powered motor vehicle covered by sections 60-2201 to 60-2212.

60-2207. Noise; restrictions. No person shall sell, or offer for sale, a new motor vehicle with a gross vehicle weight of ten thousand pounds or more that produces a maximum noise exceeding the following noise limit at a distance of fifty feet from the centerline of travel under test procedures established by section 60-2210: (1) After January 1, 1972, 88dB(A); (2) after January 1, 1973, 86dB(A); (3) after January 1, 1975, 84dB(A); (4) after January 1, 1978, 83dB(A); and (5) after January 1, 1982, 80dB(A).

60-2208. Operation; noise; limitation. No person shall operate within the speed limits specified in this section either a motor vehicle with a gross vehicle weight of ten thousand pounds or more or any combination of vehicles of a type subject to registration, towed by such motor vehicle, at any time or under any condition of grade, load, acceleration, or deceleration in such manner as to exceed the following noise limit based on a distance of not less than fifty feet from the centerline of travel under test procedures established by section 60-2210: When the posted speed limit is thirty-five miles per hour or less, the noise limit shall not exceed 86dB(A) and when the posted speed limit is more than thirty-five miles per hour the noise limit shall not exceed 90dB(A); *Provided*, that this section shall apply to the total noise from a vehicle or combination of vehicles and shall not be construed as limiting or precluding the enforcement of any other provisions of sections 60-2201 to 60-2212 relating to motor vehicle mufflers for noise control.

60-2209. Exhaust or intake muffler; change; increase of noise; prohibited. No person shall modify or change the exhaust muffler, intake muffler, or any other noise abatement device of a motor vehicle in a manner such that the

noise emitted by the motor vehicle is increased above that emitted by the vehicle as originally manufactured. Procedures used to establish compliance with this section shall be those used to establish compliance of a new motor vehicle with the requirements of sections 60-2201 to 60-2212.

60-2210. Noise measurement tests; manner conducted; conditions; enumerated. (1) Noise measurements shall be made at a test site which is adjacent to, and includes a portion of, a traveled lane of a public highway. A microphone target point shall be established on the centerline of the traveled portion of the highway, and a microphone location point shall be established on the ground surface at a distance of fifty feet from the microphone target point and on a line that is perpendicular to the centerline of the traveled portion of the highway and that passes through the microphone target point. The microphone shall be placed such that it is at a height of not less than two feet and not more than six feet above the plane of the roadway surface. The test area shall include an open site within a fifty-foot radius of both the microphone target point and the microphone location point. The test site shall be essentially free of large sound-reflecting objects.

(2) Noise measurement conditions shall be as follows:

(a) Noise measurements may only be made if the measured average wind velocity is twelve miles per hour or less. Gust wind measurements of up to twenty miles per hour shall be allowed;

(b) Measurements shall be prohibited under any condition of precipitation, but measurements may be made with snow on the ground. The ground surface within the measurement area shall be free of standing water; and

(c) Road conditions shall be such that they would not cause a motor vehicle to emit irregular tire, body, or chassis-impact noise.

(3) In accordance with this section, a measurement shall be made of the sound level generated by a motor vehicle operating through the measurement area on the traveled portion of the highway within the test site, regardless of the highway grade, load, acceleration, or deceleration. The sound level generated by the motor vehicle shall be the highest reading observed on the sound level measurement system as the vehicle passes through the measurement area.

60-2211. Standards; violations; penalty. Every person who operates a diesel-powered or other motor vehicle in this state in violation of the standards established by the provisions of sections 60-2201 to 60-2212 shall be guilty of a Class V misdemeanor, and every day that the diesel-powered or other motor vehicle is so operated shall be deemed to be a separate offense.

60-2212. Smoke from diesel-powered motor vehicles; act; provisions exclusive. The provisions of sections 60-2201 to 60-2212 shall be exclusive and prevail over other provisions of law in this state or any of its subdivisions applied to smoke from diesel-powered motor vehicles.